VOLUME 2 ABSTRACTS

FINAL PROGRAM AND ABSTRACTS

FRIDAY 22 JUNE 1990

SIXTH INTERNATIONAL CONFERENCE ON AIDS

AIDS IN THE NINETIES: FROM SCIENCE TO POLICY

SAN FRANCISCO CALIFORNIA, USA

SPONSOR
University of California San Francisco

CO-SPONSORS
World Health Organization
City and County of San Francisco
American Foundation for AIDS Research
International AIDS Society

361

RFC
W3
208
.I61
1990
v.2

ACKNOWLEDGEMENTS

The organizers of the Sixth International Conference on AIDS express their warm gratitude for the generous support they have received from many agencies, corporations, foundations, and individuals.

US Public Health Service

National Institutes of Health

US Agency for International Development (Developing Countries Fund)

Schering Corporation

California Department of Health

Burroughs Wellcome Co.

Esprit de Corp

Fifth International Conference on AIDS (Developing Countries Fund)

Ortho Diagnostics / Ortho Biotech

Susie Tompkins

Organon Teknika: A Division of AKZO (Developing Countries Fund)

Hoffmann-La Roche, Inc. (PWA Fund)

Syntex Corporation

Digital Equipment Corporation

E.I. du Pont de Nemours & Co. (Developing Countries Fund)

Kaiser Permanente

The San Francisco Foundation

Levi Strauss Foundation

Greyhound Exposition Services

Roerig: A Division of Pfizer

The Procter & Gamble Co.

Pacific Bell

Heitman Properties

Genentech (PWA Fund)

Bristol Myers–Squibb

Apple Computer, Inc.

Pacific Gas & Electric

Grantree Furniture Rental

Merck Sharpe & Dohme Research Labs/ Merck Sharpe & Dohme International

Metropolitan Life Foundation

Seton Medical Center

Glaxo, Inc.

KRON-TV 4

Eagle Telephonics

Cetus Corp.

The Upjohn Company

Union Bank

Sierra Foundation

Bank of America

California Health Care Systems

Pacific Telesis

Morrison & Foerster

These donors also contributed to the Conference:
National Library of Medicine; San Francisco Public Library; Lucky Stores; Foote Cone & Belding; Cala Stores.

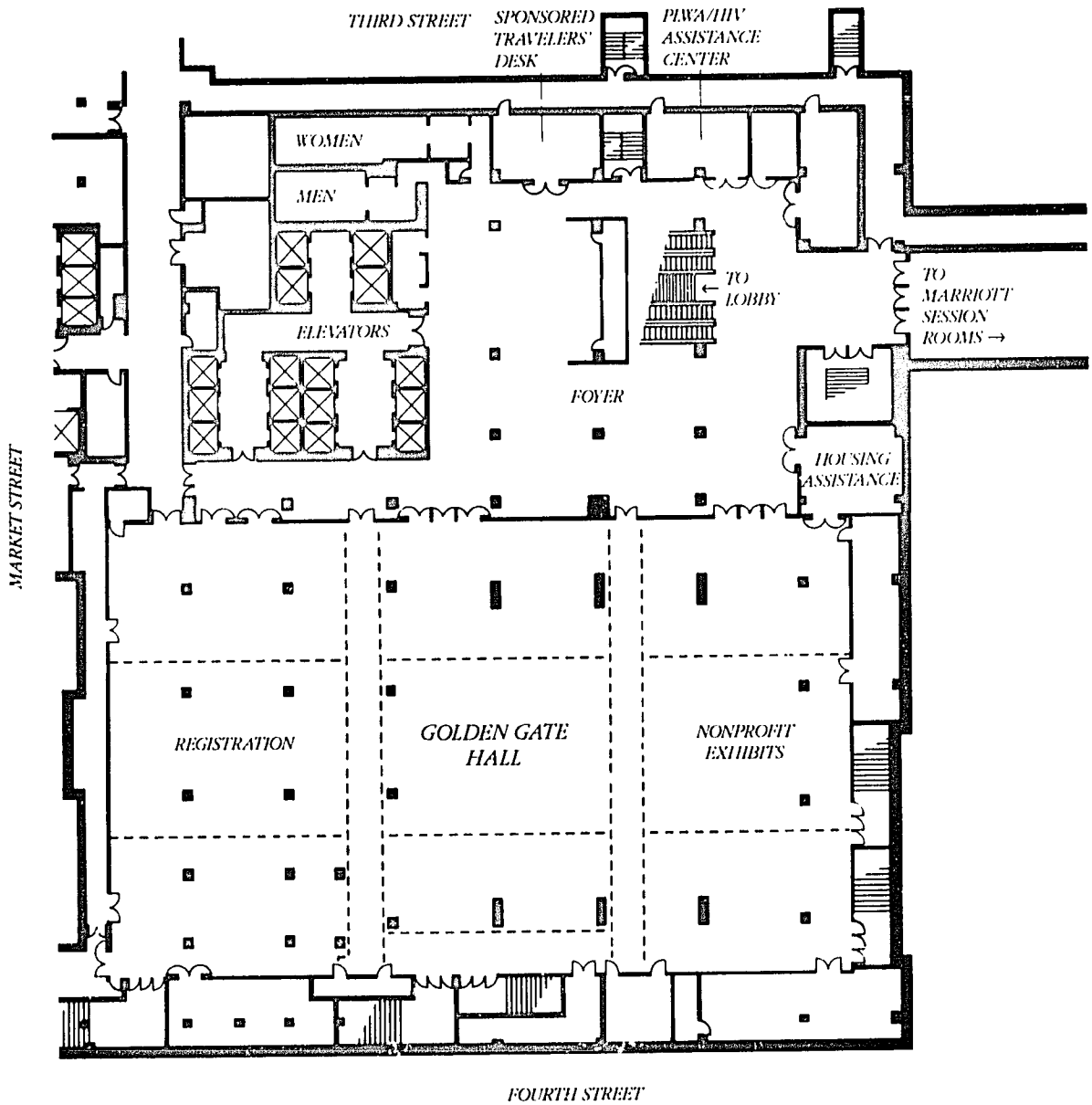
362

CONTENTS

	Acknowledgements	2
GENERAL INFORMATION	Location of Conference Services	7
	Conference Information	8
	Travel and Tourist Information	14
	Social Activities	15
	Local Tours	16
	Conference Housing	19
	Conference Exhibitors	20
PROGRAM	*Definition of Session Terms*	26
	Key to Numbering of Abstracts/Abstract Volumes	27
	General Instructions to Chairs, Speakers, and Poster Presenters	28
	Friday Program	
	Day at a Glance	33
	Plenary Sessions	34
	Afternoon Oral Sessions	35
	Posters	45
	Poster Presentations	47
	Poster Discussion Sessions	48
	Poster Sessions	50
ABSTRACTS	Oral Sessions	89
	Poster Discussion Sessions	124
	Posters, Track A	131
	Posters, Track B	167
	Posters, Track C	215
	Posters, Track D	273
	Publications, Track A (1000–1150)	313
	Publications, Track B (2000–2185)	353
	Publications, Track C (3000–3199)	401
	Publications, Track D (4000–4130)	453
INDICES	Opening and Closing Ceremonies/ Plenary and Rapporteur Sessions	488
	Afternoon Session Chairs and Moderators	489
	Presenting Authors–Friday	490
MAPS	SF Marriott Conference Registration and Nonprofit Exhibits, Golden Gate Hall	6
	Bay Area	13
	Conference Housing	18
	Nonprofit Exhibitors	22
	Moscone Convention Center (Street Level)	29
	Moscone Session Rooms (Lower Level)	30
	SF Marriott Session Rooms	31
	Poster Area, Moscone	46
	San Francisco	494
	Week at a Glance	inside back cover

362

SF MARRIOTT CONFERENCE REGISTRATION AND NONPROFIT EXHIBITS GOLDEN GATE HALL



LOCATION OF CONFERENCE SERVICES

Abstract Sales	Marriott Golden Gate Hall
Audio Cassette Sales	Marriott Grand Assembly
Broadcast Center	Moscone East Lower Lobby
Business/Photocopying Services	Moscone Lower Lobby
Continuing Medical Education Accreditation	Marriott Golden Gate Hall
Earphones for Simultaneous Interpretation	Moscone East Lower Lobby
Employment Opportunity Center	Marriott Grand Assembly
Exhibits	
Commerical, Large Agencies	Moscone Exhibit Hall
Nonprofit Organizations	Marriott Golden Gate Hall
First Aid	Marriott and Moscone
Foreign Exchange	Marriott Hotel
Housing Desk	Marriott Willow Room
Information Desks	Moscone Main Lobby Marriott Golden Gate Hall and Grand Assembly
Local Tours Desk	Marriott Grand Assembly
Lost and Found	Moscone Lower Lobby Marriott Front Desk
Message Centers	Moscone Main Lobby, Marriott Grand Assembly
Poster Area	Moscone Exhibit Hall
PLWA/HIV Assistance Centers	Moscone West Mezzanine Marriott Redwood Room
Press Center	Moscone East Mezzanine
Reflection and Meditation Center	Marriott Sierra Suite K, 5th floor
Registration Desk	Marriott Golden Gate Hall
Simultaneous Interpretation	Moscone East Lower Lobby
Speakers' Center/Slide Preview	Moscone West Mezzanine

CONFERENCE INFORMATION

ABSTRACTS

The abstract volumes of the Sixth International Conference on AIDS are organized by Conference day, and contain each day's final program and abstracts.

AUDIO CASSETTE SALES

Conference sessions taped in English on audio cassettes will be available for sale in the Marriott Grand Assembly.

BUSINESS AND PHOTOCOPYING SERVICE CENTER

A Business Service Center located in the lower lobby of the Moscone Center will be available to Conference delegates. Costs incurred are the responsibility of users.

CHILD CARE

Most Conference hotels will arrange child care upon request.

CONFERENCE NEWS SERVICES: NEWSPAPER

A daily newspaper, *The AIDS Conference Bulletin*, will provide delegates with a written review of presentations. It will cover a variety of sessions from each thematic track. All program changes will be listed in the daily newspaper, which will be available each morning free of charge.

TELEVISION

A nightly one-hour television program, the "Daily Conference Report," will review various presentations made each day during the Conference. The program will also update Conference activities and include expert analysis of presentations in each programmatic area. The program will air each evening of the Conference at 8 pm, 9 pm, 10 pm, and 11 pm. It can be seen in most Conference hotels on a designated channel for in-room television. It will also be broadcast via satellite to a worldwide audience.

In addition to the "Daily Conference Report," the opening and closing ceremonies as well as all plenary sessions will be broadcast to most Conference hotels. Please inquire upon check-in for availability and times.

CONTINUING MEDICAL EDUCATION UNITS ACCREDITATION

The Continuing Medical Education (C.M.E.) Unit of the University of California San Francisco is fully accredited by the Accreditation Council for Continuing Medical Education (A.C.C.M.E.) of the United States and is authorized by this body to offer programs in continuing medical education.

Extended Programs in Medical Education of the University of California School of Medicine at San Francisco designates the Conference as a continuing medical education activity for 29 credit hours in Category 1 of the Physicians' Recognition Award of the American Medical Association and the Certificate Program of the California Medical Association. Attendance verification forms will be available at the C.M.E. booth located in the Marriott Golden Gate Hall during registration hours. The California Board of Registered Nurses also accepts Category 1 C.M.E. credits.

An administrative fee of $25 (US) applies to all requests for C.M.E. units. Interested parties must report to the C.M.E. Desk in the Marriott Golden Gate Hall.

COPYRIGHTS AND TRADEMARKS

The Sixth International Conference on AIDS contains copyrighted material belonging to the Regents of the University of California and the various authors and presenters attending the Conference. Any duplication, recording, or other use of Conference material without the express written consent of the Regents of the University of California and/or any other owner of such material is prohibited. The Conference Program and Abstract Volumes may be freely duplicated for noncommercial purposes.

"The Sixth International Conference on AIDS," the Conference logo, and the "University of California" are trademarks of the Regents of the University of California. Any use of these marks without the written consent of the Regents of the University of California is prohibited.

EMPLOYMENT OPPORTUNITY CENTER

An Employment Opportunity Center Area is located in the Marriott Grand Assembly. Delegates may feel free to use this area for informal networking for job placement services. A bulletin board is available for notices and flyers relating to jobs, fellowships, and other positions.

EXHIBITS

There are two exhibit areas at the Conference. Exhibits by commercial concerns and large agencies and organizations are located in the Moscone Center Exhibit Hall. Community service and nonprofit organizations are sponsoring exhibit booths in the Marriott Golden Gate Hall. Delegates are encouraged to visit these exhibits and see the latest equipment, products, and publications relating to AIDS and HIV infection, and to learn more about the work of AIDS service organizations and advocacy groups. (See "Conference Exhibitors" List.)

Exhibits will be open during the following hours:

Moscone	Wednesday, 20 June	6:00 pm–8:00 pm
	Thursday, 21 June–Saturday, 23 June	8:00 am–5:00 pm
Marriott (nonprofit)	Wednesday, 20 June–Saturday, 23 June	8:00 am–5:00 pm

FIRST AID

Nursing stations are located in the Marriott Hotel and the Moscone Center. These emergency care facilities are available to all Conference delegates. Their emphasis is on the requirements of HIV-infected persons. In the event of an emergency, please inform a staff member or volunteer.

FOREIGN EXCHANGE AND BANKING FACILITIES

Exchange of foreign currency at prevailing rates is available at San Francisco International Airport, at several banks and money changers within walking distance of the Conference sites, and at the Marriott Hotel. Exchange of foreign currencies can be made at the following locations:

Deak International
100 Grant Avenue (downtown SF), 362-3452
Monday–Friday, 9:00 am–5:00 pm
International Terminal, departure level, San Francisco International Airport, 583-4029, 7:00 am–11:00 pm daily
Foreign Exchange Ltd.
415 Stockton Street (downtown SF), 397-4700
Monday–Friday, 8:30 am–5:00 pm, Saturday, 9:00 am–1:30 pm
Bank of America (near the Marriott Hotel)
One Powell St., 622-4097
Monday–Thursday, 9:00 am–4:00 pm,
Friday, 9:00 am–6:00 pm, Saturday, 10:00 am–2:00 pm

HOUSING DESK

The Conference Housing Desk is located in the Marriott Willow Room. Last-minute housing assistance is available during registration hours. Housing is managed by the San Francisco Convention and Visitors Bureau.

INFORMATION DESKS

Information about the city, restaurants, shopping, houses of worship, public transportation, theaters, and sporting activities are available in the Marriott Golden Gate Hall and Grand Assembly and the main lobby of the Moscone Center.

INSURANCE

The Sixth International Conference on AIDS cannot accept liability for injuries or losses arising from accidents or other situations during or arising from the Conference.

LOST AND FOUND

Available in the Moscone lower lobby and at the Marriott front desk.

MEALS

Meals are not included in the registration fee. Many eating facilities are to be found in and around the Conference sites. Brochures and restaurant listings are available at the Information Desk.

MESSAGE CENTERS

The Conference Message Centers are located in the Moscone Center main lobby and in the Marriott Grand Assembly area. The telephone number for messages for Conference delegates is (415) 978-3560. The Conference's message system is a fully integrated computerized unit that allows messages to be left and retrieved at both venues.

Simply call in or leave your written message at one of the counters and it will be entered into the system. The last name and first initial of the addressee will appear on video screens located in both facilities. For example, messages left at the Marriott can be retrieved at the Moscone Message Center. If a message is left for you, your name will be displayed on all screens in both venues. You will be able to collect printouts of your messages from the message counters in either venue.

NO-SMOKING POLICY

The Conference adheres to a strict no-smoking policy within Conference areas at the Moscone Center and the Marriott Hotel.

PLWA/HIV ASSISTANCE CENTERS

PLWA/HIV Assistance Centers are located in the Moscone Center West Mezzanine and near the Marriott Golden Gate Hall, adjacent to the non-profit exhibits. The centers will be open 8:00 am–6:00 pm. Space is provided to rest, relax, and receive medical care if needed. Videos of plenary sessions of the Conference may be viewed in the Moscone Assistance Center. Volunteers from *New Friends* are helping with information, referrals, and respite care.

POST-CONFERENCE INQUIRIES

Any post-Conference inquiries may be addressed to:

Sixth International Conference on AIDS
University of California San Francisco
Box 1505
San Francisco, CA 94143-1505
USA

POST OFFICE

The closest US post office is located at 150 Sutter St., between Kearny and Montgomery Sts. The hours are Monday–Friday, 8:30 am–5:00 pm.

REFLECTION AND MEDITATION CENTER

This center will be open to all delegates regardless of faith, 21 June to 23 June, 8:00 am–5:00 pm. Located in the Marriott Hotel, 5th Floor, Sierra Suite K, the center is staffed by volunteers from the San Francisco Interreligious Coalition on AIDS.

SECURITY

The Conference takes seriously its goal of ensuring the exchange of information so vital to the control of the AIDS epidemic. Just as the Conference has been outraged by the threat to this critical exchange of information posed by travel restrictions on HIV-infected persons, the organizers are committed to preventing any threat to the free exchange of information resulting from disruption of its sessions.

The organizers of the Sixth International Conference on AIDS have worked diligently to ensure access for all those involved in the global effort to control AIDS, and through its program to give expression to the spectrum of social and political concerns of *all* its delegates. Additionally, the Conference has worked closely with local law enforcement agencies to ensure that all groups wishing to demonstrate their political views will be able to do so freely on public property beyond the walls of the Conference.

Security is in place at the Conference to assure uninterrupted access to information for all delegates in all sessions. The Conference will not tolerate disruptions intended to impede or prevent the flow of information to Conference delegates. Conference security will exercise all available remedies to ensure the orderly conduct of the proceedings, including ejection of disruptive delegates from Conference sites and confiscation of Conference badges. Violation of local laws will subject offenders to arrest and prosecution.

SERVICES FOR PERSONS WITH DISABILITIES

Efforts will be made to accommodate the special needs of persons with disabilities. Conference sites are fully accessible, and access information is available on-site regarding transportation, public facilities, and restaurants in the area. Signed interpreters' services are provided for the opening, closing, and plenary sessions. Special seating near the stage has been made available for individuals with visual, auditory, and mobility impairments. Some Conference materials are available in Braille.

A Disabled/Special Needs booth will be open during registration hours to provide assistance to persons with disabilities. It has a listing of community resources, as well as site maps, Braille materials, and volunteer guide services.

SIMULTANEOUS INTERPRETATION

The official language of the Conference is English. Simultaneous interpretation of the opening and closing ceremonies and plenary sessions is provided from English to French and to Spanish, courtesy of the World Health Organization. Earphones for simultaneous interpretation are available at the Moscone Center east lower lobby.

TELEPHONES

Public telephones are located throughout the Moscone Center and the Marriott Hotel. To make a local call, deposit 20 cents and dial number. Approved telephone credit cards may also be used to charge calls. Some important phone numbers are:

Emergency: Dial 911 to get immediate help in any emergency situation
Operator: Dial 0
General Information: Dial 411

Area Code: Unless otherwise noted, all phone listings are within the 415 area

Telephone Resources:
Alcoholics Anonymous: 661-1828
Ambulance: 931-3900
The Better Business Bureau of San Francisco: 243-9999
California Road Conditions: 557-3755
California State Automobile Association (AAA): 565-2012
Fire Department: Dial 911
Narcotics Anonymous: 621-8600
Poison Control Center: 476-6600
Police: Dial 911 (emergencies only)
PWA Switchboard: 861-7309
San Francisco AIDS Foundation Hotline: 863-2437
San Francisco Bar Association Lawyer Referral: 764-1616
San Francisco Dental Society: 421-1435
San Francisco General Hospital: 842-8111 (emergencies only)
San Francisco Medical Society: 567-6230
Senior Citizens' Information: 626-1033
Shanti Project–PWA Services: 777-2273
Suicide Prevention: 221-1424
Travelers Aid Society: 255-2252

TRANSPORTATION

Local

From Hotels to Conference Site

Shuttle service is provided from key boarding points at or near all Conference hotels to the Marriott Hotel and Moscone Center. Service begins on Wednesday, 20 June, and continues through the afternoon on Sunday, 24 June. Check at the front desk of your hotel for service times and boarding points.

Return service is available until 6:00 pm each day.

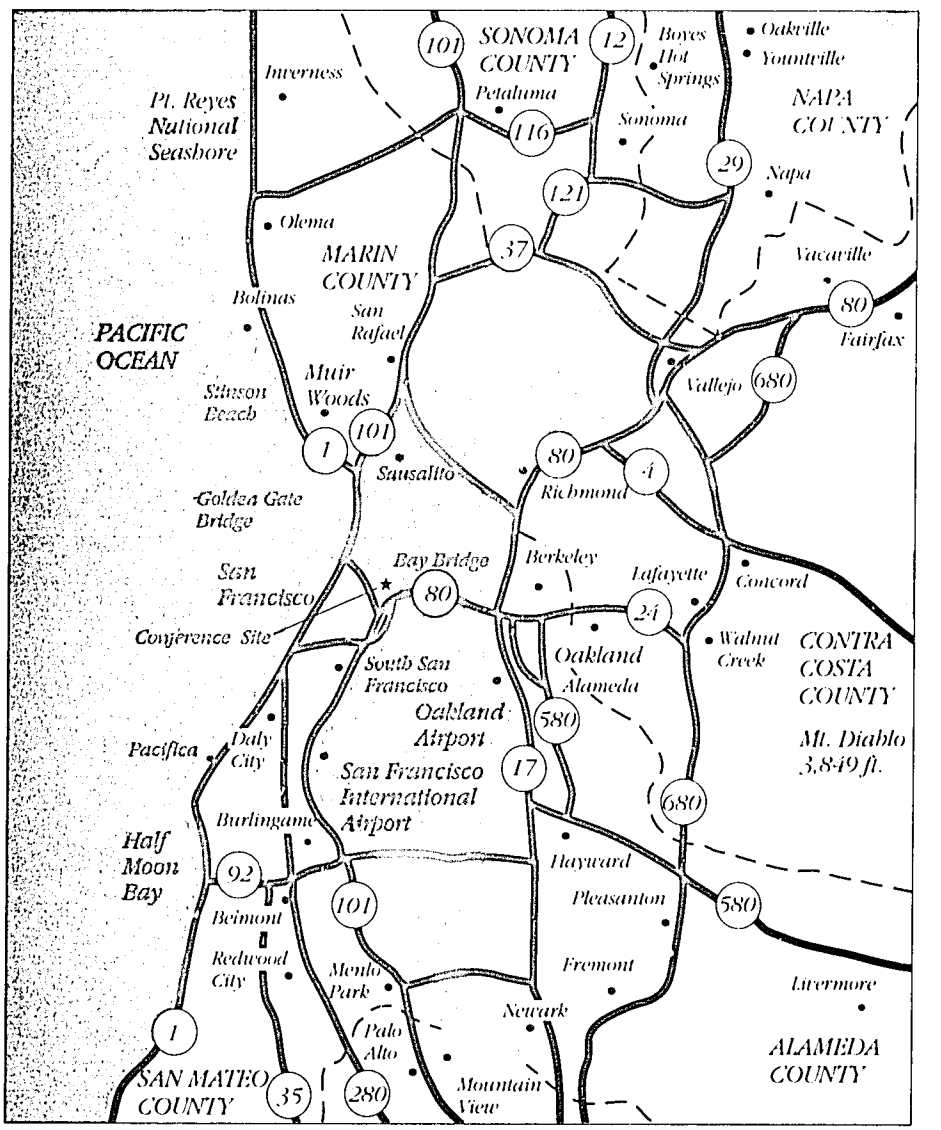
From UC Berkeley to Conference Site

Individuals staying in Berkeley may use the fast and inexpensive Bay Area Rapid Transit (BART) trains from the East Bay. The university residence hall is within walking distance of the downtown Berkeley BART station. Transportation time to the Conference is 25 minutes and costs $1.80 each way. It is a short walk from the Powell Station to the Conference sites. Tickets are available at the BART station using US currency only. No credit cards or travelers check are accepted at the stations. For detailed information about which lines to use, call BART at 788-2278.

Within San Francisco

In addition to the Conference's hotel shuttle service, the San Francisco Municipal Railway system (including cable cars) provides extensive

BAY AREA



access to all of San Francisco. Standard fare is 85 cents per trip with two transfers allowed.

For more information about public transportation in San Francisco, contact San Francisco Municipal Railway, 673-6864.

To Other Bay Area Destinations

Rail Service to the East Bay (e.g., Oakland, Berkeley):
Bay Area Rapid Transit (BART), 788-2278.

Bus Service to the East Bay:
AC Transit, Transbay Terminal, First and Mission Streets, 839-2882.

Service to Marin County (and access to points north):
Golden Gate Transit, Transbay Terminal, First and Mission Streets, 332-6600.
Service to San Mateo County (and access to points south):
Samtrans, Transbay Terminal, First and Mission Streets, 761-7000.

Ferry Service:
Golden Gate Ferries, Ferry Building, bottom of Market Street, 332-6600.

Red and White Fleet, Pier 41, Fisherman's Wharf, 546-2896 or 800-445-8880 within California.

TRAVEL AND TOURIST INFORMATION

CREDIT CARDS

Major credit cards (VISA, MasterCard, Diners' Club, American Express) are honored in all hotels as well as in most restaurants and stores. Additional identification may be required. Any official document bearing your name and photograph will usually suffice.

DRIVING AND TRAFFIC REGULATIONS

Curbing Wheels: It is the law in San Francisco that on hills you must park your car with wheels curbed. Turn the tires toward the street when facing uphill, and toward the curb when facing downhill, to use the curb as an effective block.

Curb Colors: Colored curbings indicate reserved parking zones. *Red*: no stopping or parking. *Yellow and Black*: (open to all on Sunday) half-hour loading limit for trucks with *commercial* plates only. *Blue*: reserved for vehicles marked with a California-issued *disabled* placard or plate. *Green*: ten-minute limit for all vehicles. *White*: five-minute limit, effective during the adjacent business' hours of operation.

Towaway Zones: The San Francisco Police Department is strict about parking regulations. Any improper parking spot can become a towaway zone. Do not park in bus stops or near fire hydrants. Obey street cleaning signs and signs that indicate parking lanes opened for traffic. A violation may cost up to $20, plus $100 for towing and storage fees each day. To reclaim your towed car, you must get a release from the nearest district police department, and pay cash in US dollars, then pick up the car at the towing company.

37

LOCAL TOURS DESK

You may wish to take advantage of special rates for tours available through the official Conference travel agent, *Ask Mr. Foster.*

The *Ask Mr. Foster* tour desk in the Marriott Hotel can provide information on the many sightseeing, sports, and recreational activities offered in and around the city, including museum and winery tours, golf, jogging, tennis, bicycling, hiking.

SHOPPING

San Francisco is known for its many shopping opportunities. You may inquire about shopping at your hotel or at the Information Desks at the Conference.

TIPPING

It is customary to add a 15% gratuity for services in restaurants and taxicabs, and to offer a small gratuity to bellmen and chambermaids in hotels.

VISITING SAN FRANCISCO AIDS AGENCIES

Many delegates will be interested in learning about San Francisco's many AIDS service agencies. Many of these agencies are represented in the nonprofit exhibit area in the Marriott Golden Gate Hall. Delegates and media representatives may sign up for a limited program of site visits to these agencies at the AIDS Agency Site Visit table in the nonprofit exhibit area.

VISITOR GUIDES

The *San Francisco Visitors' Guide* and *Key This Week San Francisco* is available at the Information Desks.

WEATHER

San Francisco has a temperate marine climate and enjoys mild weather year-round. Temperatures seldom rise above 70°F (21°C) or fall below 40°F (5°C). Morning and evening fog rolls in during the summer months, but rarely persists. Women are most comfortable with a light jacket or coat, or a suit. Men generally require only light- to medium-weight suits or sports clothes. An all-weather coat will take the chill off cool evenings. Lightweight summer clothes are seldom practical in San Francisco.

SOCIAL ACTIVITIES

MUSICARE EVENINGS: THURSDAY, 21 JUNE, 8:00–10:00 PM FRIDAY, 22 JUNE, 8:00–10:00 PM

The Church of St. Ignatius, 650 Parker Ave. at Fulton, San Francisco

MusiCare is an annual San Francisco fund-raising event that benefits AIDS/ARC service organizations. As a welcome from the community to Conference delegates and their guests, a special program featuring selections from concert and operatic repertoires will be presented. The concert evenings are scheduled at The Church of St. Ignatius, a prominent San Francisco landmark.

Donation: $20 per ticket.

ASK MR. FOSTER LOCAL TOURS

Ask Mr. Foster Travel Service Local Tours is located in the Marriott Hotel Grand Assembly. Reservations for tours and more information may be requested there.

SIGHTS OF SAN FRANCISCO

TIME: Wednesday, 20 June, 11:30am–3:30pm
Thursday & Friday, 21 & 22 June, 9:00am–1:00pm and 1:00pm–4:30pm
PRICE: $22.00 Tour will operate with a minimum of 30 participants

Come along as you explore this world famous cosmopolitan city. Learn what makes San Francisco unique. You travel through the many and varied ethnic communities—from the Spanish settlements in the Mission to Chinatown, one of the largest Asian communities outside of the Orient. View the luxury of Nob Hill, through the financial district before continuing to the serene beauty of Golden Gate Park, a 1000 acre man made wonderland of trees, flowers, lakes and beautiful meadows.

MAGNIFICENT MONTEREY

TIME: Thursday, 21 June, 8:00am–6:00pm (10 hours)
PRICE: $62.00 Tour will operate with a minimum of 30 participants

Enjoy a relaxing ride in your motorcoach through California's lush coastal mountains en-route to Santa Cruz and Monterey. Your drive takes you along the rugged Pacific with its white sandy beaches, pounding surf and on into Monterey. Enjoy a leisurely stroll through quaint seaside Monterey, with time for lunch on your own at one of the area's varied oceanfront restaurants.

The wonders of a hidden world will be yours at the internationally acclaimed Monterey Bay Aquarium. Nearly one hundred innovation habitat galleries and exhibits plunge you into Monterey Bay. You will be eye-to-eye with more than 6000 strange and colorful creatures that call Monterey Bay home, from playful sea otters to menacing sharks, elusive octopus and fierce wolf-eels.

Experiencing this magical mystery of the sea is the perfect ending to a glorious day before your scenic return to San Francisco.

SAUSALITO—'THE RIVIERA BY THE BAY"

TIME: Thursday & Friday, 21 & 22 June, 1:30pm–5:30pm
PRICE: $28.00 Tour will operate with a minimum of 30 participants

Drive over the Golden Gate Bridge to Sausalito, where the Mediterranean ambiance beckons you to this old fishing village and quaint artist's colony. Perched on the edge of San Francisco Bay, Sausalito is famous for its waterside shops and unique houses. Walking around this quaint town, you will encounter many small specialty shops and galleries housed in refurbished, colorfully painted buildings.

After exploring Sausalito, your return to San Francisco will be aboard a ferry which provides magnificent views of the City's skyline, the Golden Gate Bridge and Alcatraz.

FILOLI HOUSE AND GARDENS AND THE ALLIED ARTS GUILD

TIME: Friday, 22 June, 8:30am–3:00pm
PRICE: $54.00 Tour will operate with a minimum of 30 participants

Filoli, a 728 acre country estate was built in 1916. The house is an outstanding example of country house architecture in the U.S.A., and is one of the few in California that remains intact in its original setting.

The second portion of the day is spent at the Allied Arts Guild. The Guild stands on a small portion of land, that in the early 1800's was part of the vast Rancho de las Pulgas. Enjoy a leisurely stroll through the Guild's charming gardens. Handcrafted gifts, pottery and candle shops, gourmet cookware and custom jewelry design are just a few of the varied traditional crafts you will enjoy amidst a traditional colonial Spanish design. Lunch on your own.

WINES & VINES

TIME: Saturday, 23 June, 8:30am–4:30pm (8 hours)
PRICE: $56.00 Tour will operate with a minimum of 30 participants

Your deluxe motorcoach will travel over the brilliant waters of San Francisco, Bay, through the lush rolling hills to the world renowned California Wine Country. The lure of the land is its temptation to all the senses, particularly taste and smell. The plants strippling the picturesque fields are grapes, and the product is wine—fine vintage which rival even those of France.

Whether you are a connoisseur of the grape or an enthusiastic beginner, this wine tour offers you the opportunity to increase your knowledge and enjoyment of wine, and acquaint you with some of the finest wineries in the world.

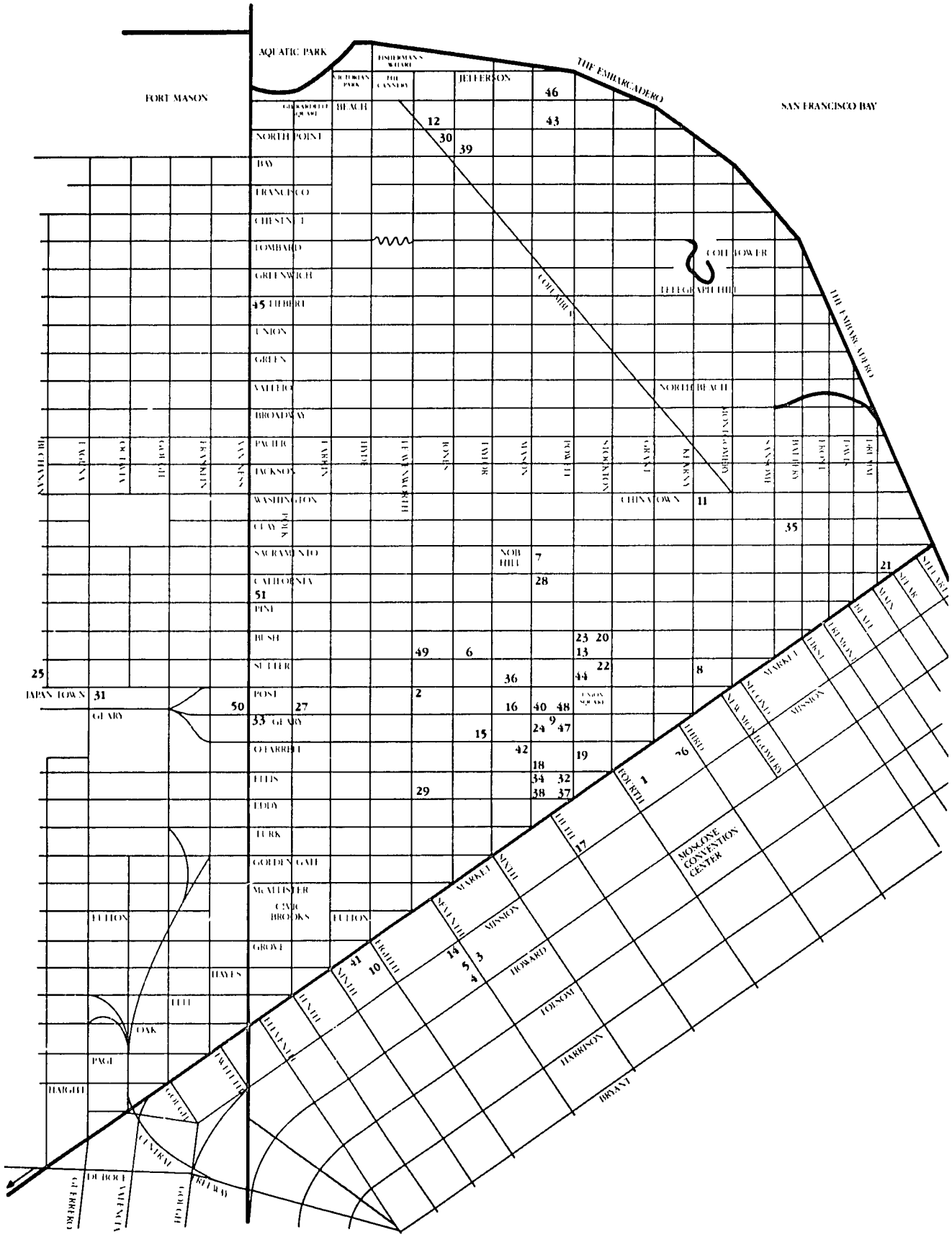
A midday stop at one of California's wine country villages will give you time to sample one of the interesting restaurants for lunch on your own.

TWILIGHT ON THE BAY

TIME: Saturday, 23 June, 7:00pm–10:00pm June 23
PRICE: $92.00 Tour will operate with a minimum of 75 participants. Price includes: Transportation to/from boat, open bar, buffet dinner, gratuities, taxes & deejay.

Depart your pick up point for the short drive to the pier, where you board a privately chartered vessel. An exciting evening awaits you as you set sail for a 3-hour party cruise. Enjoy sunset on the water and watch the evening skyline light up as you sail under the Bay Bridge. Relax in a casual atmosphere while you sip beverages of your choice and feast on a tasty buffet. Bring a jacket to stroll the deck or kick off your shoes and cut loose to the deejay's lively music. At the end of the evening you will have experienced the perfect way to see the "City by the Bay."

CONFERENCE HOUSING



CONFERENCE HOTELS IN SAN FRANCISCO

The San Francisco Marriott, located next to the Moscone Convention Center, is the official headquarters hotel of the Sixth International Conference on AIDS.

Listed below are hotels offering special rates to Conference delegates. Transportation to and from the Conference site will be available.

Map Key	*Hotel*	*Address*	*Phone*
1	San Francisco Marriott (Headquarters Hotel)	777 Market Street, San Francisco	896-1600
2	Bedford Hotel	761 Post Street, San Francisco	673-6040
3	Best Western Americania	121 Seventh Street, San Francisco	626-0200
4	Best Western Carriage Inn	140 Seventh Street, San Francisco	552-8600
5	Best Western Flamingo Motor Inn	114 Seventh Street, San Francisco	621-0701
6	Canterbury Hotel	750 Sutter Street, San Francisco	474-6464
7	Fairmont Hotel	Atop Nob Hill, San Francisco	772-5000
8	Galleria Park	191 Sutter Street, San Francisco	781-3060
9	Handlery Union Square	351 Geary Street, San Francisco	781-7800
10	Holiday Inn–Civic Center	50 Eighth Street, San Francisco	626-6103
11	Holiday Inn–Financial District	750 Kearny Street, San Francisco	433-6600
12	Holiday Inn–Fisherman's Wharf	1300 Columbus Ave., San Francisco	771-9000
13	Holiday Inn–Union Square	480 Sutter Street, San Francisco	398-8900
14	Hotel Britton	121 Seventh Street, San Francisco	621-7001
15	Hotel Californian	405 Taylor Street, San Francisco	885-2500
16	Hotel Diva	440 Geary Street, San Francisco	885-0200
17	Pickwick Hotel	85 Fifth Street, San Francisco	421-7500
18	Hotel Nikko	222 Mason Street, San Francisco	394-1111
19	Hotel Union Square	114 Powell Street, San Francisco	397-3000
20	Hotel Vintage Court	650 Bush Street, San Francisco	392-4666
21	Hyatt Regency–Embarcadero	5 Embarcadero Center, San Francisco	788-1234
22	Grand Hyatt	345 Stockton Street, San Francisco	398-1234
23	Juliana Hotel	590 Bush Street, San Francisco	392-2540
24	King George Hotel	334 Mason Street, San Francisco	781-5050
25	Kyoto Inn	1800 Sutter, San Francisco	921-4000
26	Le Meridien	50 Third Street, San Francisco	974-6400
27	Lombard Hotel	1015 Geary, San Francisco	673-5232
28	Mark Hopkins Inter-Continental	Number One Nob Hill, San Francisco	392-3434
29	Atherton	685 Ellis Street, San Francisco	474-5720
30	Marriott–Fisherman's Wharf	1250 Columbus Ave., San Francisco	775-7555
31	Miyako Hotel	1625 Post Street, San Francisco	922-3200
32	Monticello Hotel	80 Cyril Magnin Street, San Francisco	392-8800
33	Hotel Richelieu	1050 Van Ness Ave., San Francisco	673-4711
34	Parc Fifty-Five	55 Cyril Magnin Street, San Francisco	392-8000
35	Park Hyatt	333 Battery Street, San Francisco	392-1234
36	Portman	500 Post Street, San Francisco	771-8600
37	Powell Hotel	28 Cyril Magnin Street, San Francisco	398-3200
38	Powell West Hotel	111 Mason Street, San Francisco	771-7185
39	Ramada Fisherman's Wharf	590 Bay Street, San Francisco	885-4700
40	Raphael	386 Geary Street, San Francisco	986-2000
41	San Franciscan Hotel	1231 Market Street, San Francisco	626-8000
42	San Francisco Hilton and Towers	333 O'Farrell Street, San Francisco	771-1400
43	Sheraton at Fisherman's Wharf	2500 Mason Street, San Francisco	362-5500
44	Sir Francis Drake	450 Powell Street, San Francisco	392-7755
45	Vagabond Inn	2550 Van Ness Ave., San Francisco	776-7500
46	Travelodge at Fisherman's Wharf	250 Beach Street, San Francisco	392-6700
47	Villa Florence	225 Powell Street, San Francisco	397-7700
48	Westin St. Francis	335 Powell Street, San Francisco	397-7000
49	York Hotel	940 Sutter Street, San Francisco	885-6800
50	Cathedral Hill Hotel	1101 Van Ness Ave., San Francisco	776-8200
51	Holiday Inn Golden Gateway	1500 Van Ness Ave., San Francisco	441-4000
	University of California, Berkeley	2400 Durant Ave., Berkeley	642-5925

CONFERENCE EXHIBITORS

See Volume I for descriptions of all exhibits

COMMERCIAL EXHIBITORS MOSCONE CONVENTION HALL

Abbott Laboratories Booths 430, 432, 434, 436, 438
Alza Corporation Booth 532
American Bio-Technologies, Inc. Booth 725
American Foundation for AIDS Research (AmFAR) Booths 301, 303, 305
American Medical Association Booth 201
American Progressive Products Corporation Booth 127
American Red Cross Booth 632
Angewandte Computer Software GmbH Booth 311
Applied bioTechnology, Inc. Booth 839
Australian Department of Community Services & Health Booth 101
Becton Dickinson Immunocytometry Systems Booths 233, 235
Bio-Rad Laboratories Booth 212
Bioject Inc. Booth 135
Biotech Research Laboratories, Inc. Booth 631
Boston Biomedica, Inc. Booth 129
Calypte Biomedical Corporation Booth 113
Cambridge BioScience Corporation Booth 105
Caremark Inc. Booths 307, 309
CarePlus, Inc. Booth 732
Carter-Wallace Inc. Booths 638, 640
Channing L. Bete Company, Inc. Booth 240
Clinical Homecare/NMSA Booth 636
Clinical Laboratory International Booth 529
Clonatec—BioSoft Booth 231
Colortrieve Record Systems, Inc. Booth 738
Coulter Booths 119, 121, 123
Curaflex Infusion Services, Inc. Booth 635
Current Science Booth 629
Department of Veterans Affairs Booth 533
DeVilbiss Health Care, Inc. Booth 204
Disease Detection International, Inc. Booth 229
Du Pont Company Booths 226, 228, 325, 327
Elsevier Science Publishers-Excerpta Medica Booth 230
Federal Republic of Germany Booths 729, 731, 733
Federal Ministry of Research and Technology
Federal Ministry of Youth, Family Affairs, Women and Health
German Federal Ministry for Economic Cooperation
Fisons Pharmaceuticals Booth 329
Fujirebio America, Inc. Booths 116, 118, 215, 217
Gen-Probe Incorporated Booth 531
Genetic Systems Booths 540, 639
Health Care Financing Administration Booths 534, 536
HMSS, Inc. Booth 238
Hoffmann-La Roche Inc. Booths 526, 528, 625, 627
Homedco Infusion Booth 537
IAF BioChem International, Inc. Booth 740
IIT Research Institute Booth 114
Immunodiagnostic Laboratories Booth 237
IMRÉ Corporation Booth 232
Innogenetics N.V. Booths 331, 333
Intravenous Home Care Booth 633
J.H. Emerson Company Booth 339
Labsystems Oy Booth 730
London International Group plc Booths 214, 216, 218, 313, 315, 317
Lyphomed, Inc. Booths 426, 428, 525, 527
M.D. Personal Products, Inc. Booth 535
Marcel Dekker, Inc. Booth 835
Marquest Medical Products, Inc. Booth 837
Mary Ann Liebert Inc. Booth 335
Maryland Medical Laboratory Inc. Booth 109
Medical Interviews Booth 236
Medical Publishing Group (The) Booths 440, 539
Medicorp, Inc. Booth 530
MediGenics, Inc. Booth 133
Menlo Care, Inc. Booth 634
Merieux Institute, Inc. Booth 826
MicroGeneSys, Inc. Booth 103
Multiple Peptide Systems, Inc. Booth 727
Murex Corporation Booths 737, 739
Nature Publishing Booth 206
Neosystem Laboratoire Booth 735
New England Critical Care Integrated Care Systems Booths 108, 110
North American Biologicals, Inc. Booth 207
Norwich Eaton Pharmaceuticals, Inc. Booth 205

Okamoto U.S.A., Inc. Booths 831, 833
Olympus Corporation Booths 115, 117
Organon Teknika N.V. Booths 726, 728, 825, 827
Ortho Diagnostic Systems Inc. Booths 126, 128, 225, 227
Perkin-Elmer Cetus Booth 125
Pharmacia Diagnostics Inc. Booths 102, 104, 106
Preferred Rx, Inc. Booth 131
Proctor & Gamble Booth 337
Raven Press Booth 829
Repligen Corporation Booth 239
Roerig Booth 134, 136, 138, 140
Ross Laboratories Booth 203
Ryan Medical, Inc. Booth 734
Sandoz Pharmaceuticals Booths 208, 210
Schering Corporation Booths 628, 630
Scientific, Medical Publications of France (S.M.P.F. Inc) Booth 213
Serologicals, Inc. Booth 111
Syntex Laboratories, Inc. Booth 209
Synthetic Genetics Booth 202
Syva Company Booth 211
TSI Mason Research Institute Booth 112
U.S. Public Health Service Booths 308–318; 407–418; 511–518; 613–617
Agency for Health Care Policy and Research
AIDS Clinical Trials Information Service
Alcohol, Drug Abuse and Mental Health Administration
Centers for Disease Control
Health Resources and Services Administration
National AIDS Information and Education Program
National AIDS Program Office
National Institutes of Health
Office of Minority Health
U.S. Food and Drug Administration
V-Tech Booth 736
Wellcome Booths 326–340; 425–439
Wyeth-Ayerst Laboratories Booth 107

NONPROFIT EXHIBITORS GOLDEN GATE HALL MARRIOTT HOTEL

18th Street Services Table 2006
AAPHR—American Association of Physicians for Human Rights Booth 1054
Academy for Educational Development Booth 1059
ActionAIDS Table 2039
ACT UP: AIDS Coalition to Unleash Power Booth 1014
Agency for Health Care Policy and Research (AHCPR) Table 2057
AIDS Action Network Table 2058
AIDS Benefits Counselors Table 3002
AIDS Education for the Deaf Booth 1039
AIDS Education for Youth Booth 1045
AIDS Indigent Direct Services Booth 1048
AIDS Interfaith Council of Southern California Table 2053
AIDS National Interfaith Network Booth 1049
AIDS Policy Center of the Intergovernmental Health Policy Project Booth 1077
AIDS Project of the ACLU Booth 1063
AIDS Service Providers Association of the Bay Area Booth 1061
AIDS/ARC Interest Group Booth 1089
AIDS/ARC Vigil Booth 1083
Allcare, Inc. Table 3005
American Buddhist Congregation, Inc. Metta Vihara Monastary Booth 1048
American College Health Association Table 2037
American Indian AIDS Institute Booth 1046
American Preferred Plan Table 3012
American Psychiatric Association Booth 1053
American Red Cross Booth 1056
American Foundation for AIDS Research (AmFAR) Booth 1019
An Ark of Love, Inc. Table 2027
Articulations Table 1100
Asian AIDS Project Booth 1022
Asian Pacific AIDS Coalition Booth 1041
Associazione Nazionale Per La Lotta Contro L'AIDS Booth 1092
Association of Asian/Pacific Community Health Organizations Booth 1070
Association of Nurses in AIDS Care Booth 1052
Association of Regional Center Agencies Booth 1072
A.W.A.R.E.—Association for Women's AIDS Research and Education Table 1096
BAPHR—Bay Area Physicians for Human Rights Booth 1054
Bayview Hunter's Point Foundation/ City Clinic Booth 1024

NON PROFIT EXHIBITORS
MARRIOTT HOTEL/GOLDEN GATE HALL

1103 Integrity	1102 Hosp. Maine	1101 Hlth Inf Net	1100 Articulation	1099 ETR	1098 Yale Press	1097 San Mateo	1096 AWARE	1095 Open Hand	1094 PAWS	

MISSION STREET

1013 UCSF University-Wide	1035 National AIDS Cleanng	1036 Community Res. All & Proj. Inform	1058 Sacramento AIDS Foundation	1059 Academy for Educational Development	1081 Mid-Missoun	1082 Brooklyn AIDS Task Force
1014 ACT UP	1034 National AIDS Cleanng	1037 Davies Medical Center	1057 University of Miami	1060	1080 Mid-Missoun	1083 AIDS/ARC Vigil
	1033 National AIDS Clearing	1038 National Hemophilia Foundation	1056 American Red Cross	1061 Service Providers Association	1079 Mid-Missouri	1084 Columbus AIDS Task Force
1016 Oriental Healing Arts	1032 Quan Yin	1039 AIDS Educ. for the Deaf	1055 PWA Health Group	1062 UCSF Post-Grad Program	1078 NIH Clinical Nursing	1085
1017 Seattle King County	1031 San Fran AIDS Foundation	1040 Body Pos. & Community Hlth Proj.	1054 AAPHR & BAPHR	1063 AIDS Proj of the ACLU	1077 George Washington University	1086 Larkin St. Youth Center
1018 Exodus	1030 UCSF AIDS Health Project	1041 Japan AIDS Proj. & A/P AIDS Coal.	1053 American Psychiatric Association	1064 National Episc. AIDS Coalition	1076 Western Consortium	1087 Institute for Comp. Health
1019 AmFAR	1029 Medical Research Council	1042 Los Alamos	1052 Assoc. of Nurses in AIDS Care	1065 NYC Dept. of Health	1075 San Fran VA Hospital	1088 Visual AID
1020 Parents AIDS Ed Project	1028 Catholic Charities & St. Mary's	1043 Hearing Alt. & Carl Vogel	1051 Physician's Association	1066 Community Research Initiative	1074 Visiting Nurses Hospice	1089 AIDS/ARC Int Group & CA Nurses
1021 Perinatal HIV	1027 SFGH PERC	1044 Coalition for the Homeless	1050 Mid-Atlantic AIDS Center	1067 SALSA	1073 National Council of La Raza	1090 UCSF School of Nursing
1022 Asian AIDS Project	1026 Tucson AIDS Project	1045 AIDS Ed for Youth & Forensic Yth	1049 National Interfaith & Inter. Coal.	1068 PHREDA	1072 Assoc. of Reg. Center Agencies	1091 Inst. La Raza & Latino AIDS
1023 National Minority AIDS Council	1025 National AIDS Network	1046 American Indian AIDS	1048 AIDS Indigent & Metta Vihara	1069 Haitian Coalition	1071 Hebrew Union	1092 Assoc. Nat'l per la lotta
	1024 Bayview & City Clinic SFDH		1047 5th Conference Africa		1070 Assoc. of Asian/ Pacific	

MARKET STREET

2006 18th St.	2007 Serv Employ	2008 West Berkely	2009 Birmingham	2010 Child Quilt	2011 Mid-City	2019 RISE	2018 Walden			
2005 Com Outreach	2059 Nat Task Frc	2058 AIDS Act Net	2057 Agcy Hlth	2056 CALPEP	2055 Continuum	2054 Santa Clara	2053 AIDS Intrfth	2052 Nat Director	2051 Prevent Pt	
2004 Child Fcsp	2036 Oper Concern	2037 Am College	2038 Social Sec	2039 ActionAIDS	2040 Hemo Council	2041 Region V	2042 Center Subst	2043 Diablo Vlly	2044 Contra Costa	2021 Cure AIDS
						2030 Multicultural	2029 Kaiser	2028 Howard Brown	2027 Ark of Love	2022
										2023 MTO

CONCOURSE

3001 Swedish Phy.	3002 Bene. Counc.	3003 Kairos	3004 NIH Reagents	3005 Allcare	3006 PSI	3007 Matri	3008 Comp Hlth Ed	3009 Mass Med Soc	3010 YES	3011 The Center	3012 AAP	3013 Nat. Academy

Birmingham AIDS Outreach
Table 2009
Body Positive Booth 1040
Brooklyn AIDS Task Force Booth 1082
California Nurses Association
Booth 1089
California Prostitutes Education Project
(CAL-PEP) Table 2056
Carl Vogel Foundation, Inc.
Booth 1043
Catholic Charities/AIDS-ARC
Booth 1028
CDC Perinatal HIV Prevention
Projects Booth 1021
The Center Table 3011
The Center for AIDS and Substance
Abuse Training Table 2042
Children's Quilt Project Table 2010
City Clinic of San Francisco
Department of Health Booth 1024
Columbus AIDS Task Force
Booth 1084
Community Health Project Booth 1040
Community Outreach Sessions/
Community Task Force Table 2005
Community Research Alliance
Booth 1036
Community Research Initiative
Booth 1066
Comprehensive Health Education
Foundation Table 3008
Continuum HIV Day Services
Table 2055
Contra Costa AIDS Task Force
Table 2044
Cure AIDS Now Table 2021
Davies Medical Center Booth 1037
Department of Veterans Affairs Medical
Center Booth 1075
ETR Associates Table 1099
Exodus Trust Booth 1018
Fifth International Conference on AIDS
and Associated Cancers in
Africa Booth 1047
Forensic Youth Services Booth 1045
Haitian Coalition on AIDS Booth 1069
Healing Alternatives Foundation
Booth 1043
Health Information Network
Table 1101
The HIV Center of Children's
Hospital of San Francisco Table 2004
Hospice of Maine Booth 1060
Howard Brown Memorial Clinic
Table 2028
Institute of Comparative Health Policy
and Law Booth 1087
Instituto Familiar de la Raza, Inc.
Booth 1091
Integrity SFBA Table 1103
Interreligious Coalition on AIDS
Booth 1049
Japanese AIDS Project of JCYC
Booth 1041
Kairos House Table 3003
Kaiser Permanente Hospital Table 2029
Larkin Street Youth Center Booth 1086
Latino AIDS Project Booth 1091
Los Alamos National Laboratory
HIV Sequence Database and Analysis
Projec Booth 1042
M.T.O. Shahmaghsoudi Table 2023
MAITRI Table 3007
Massachusetts Medical Society
Table 3009
Medical Research Council, U.K.
Booth 1029
Mid-Atlantic AIDS Regional
Education and Training Center
Booth 1050
Mid-Missouri AIDS Project
Booths 1079, 1080, 1081
Multicultural Training Resource
Center Table 2030
National Academy of Sciences
Table 3013
National AIDS Information
Clearinghouse Booths 1033, 1034,
1035
National AIDS Network Booth 1025
National Coalition for the Homeless
Booth 1044

National Council of La Raza (NCLR) AIDS Center Booth 1073
National Directory of AIDS Care Table 2052
National Episcopal AIDS Coalition Booth 1064
National Hemophilia Foundation Booth 1038
National Institutes of Allergy and Infectious Diseases—Clinical Center Nursing Department Booth 1078
National Institutes of Health AIDS Reagents Program Table 3004
National Minority AIDS Council Booth 1023
National Task Force on AIDS Prevention Table 2059
Northern California Hemophilia Foundation and The Hemophilia Council of California Table 2040
NYC Department of Health Booth 1065
Operation Concern AIDS Prevention Program Table 2036
Oriental Healing Arts Institute Booth 1016
Parents AIDS Education Project Cornell University Booth 1020
Pets Are Wonderful Support, P.A.W.S. Table 1094
PHREDA Project Booth 1068
Physician's Association for AIDS Care Booth 1051
Population Services International Table 3006
Prevention Point Table 2051
Project Inform Booth 1036
Project Open Hand Table 1025
PWA Health Group Booth 1055
Quan Yin Healing Center Booth 1032
Region V Training, Indiana Family Health Council Table 2041
RISE Table 2019
Sacramento AIDS Foundation Booth 1058
San Francisco AIDS Foundation Booth 1031
San Francisco General Hospital Robert N. Ross Patient Education Resource Center Booth 1027
San Mateo County AIDS Project Table 1097
Santa Clara County Health Department AIDS Program Table 2054
Seattle-King County Department of Public Health Booth 1017
Service Employees International Union Table 2007
Site-Visit Registration Table 2018
Social Security Administration Table 2038
St. Mary's Hospital and Medical Center Booth 1028
State AIDS Legal Services Association (SALSA) Booth 1067
Swedish Physicians Against AIDS Table 3001
University of California, San FranciscoAIDS Health Project Booth 1030
University of California, San Francisco Postgraduate Programs—"Clinical Care of the AIDS Patient" Booth 1062
University of California, San Francisco School of Nursing Booth 1090
University of California, San Francisco Universitywide AIDS Research Program Booth 1013
Union of American Hebrew Congregations Committee on AIDS Booth 1071
University of Miami Booth 1057
AIDS Clinical Research Unit
Visiting Nurses and Hospice of San Francisco Booth 1074
Walden House AIDS Program Table 1102
West Berkeley Health Center Table 2008
Western Consortium for Public Health/International Health Booth 1076
Yale University Press Table 1098
Y.E.S./AIDS Intervention Training Center Table 3010
Y.E.S./Mid-City Consortium to Combat AIDS Table 2011

DEFINITION OF SESSION TERMS

MORNING SESSIONS

Plenary Sessions
Thursday–Saturday, 8:00 am–10:30 am
Video rebroadcast, 10:30 am–1:00 pm

"State of the Art"
Six lectures providing the latest understanding on a variety of scientific, clinical, and epidemiologic issues in AIDS. Each lecture approximately 20 minutes in length. Lecture only (no discussion).

"Science to Policy"
Seven brief (12-minute) lectures exploring a single issue each day (Prevention of HIV Infection, Clinical Trials and Drug Development, and Access to Health Care) from a multidisciplinary and international perspective. A moderated discussion among the invited participants follows the formal lectures.

"Rapporteur Session": Sunday, 24 June, 8 am–10:30 am
Presentations by experts in each of the four thematic tracks (Basic Sciences, Clinical Science and Trials, Epidemiology and Prevention, and Social Science and Policy), summarizing new findings presented during the Sixth International Conference of AIDS. Lecture only (no discussion).

MIDDAY

Poster Discussions with Individual Authors
Thursday–Saturday, 11:00 am–12:45 pm
More than 700 posters on a wide variety of subjects will be displayed each day at the Conference (8:30 am–5:00 pm). Authors will be stationed by their posters during the midday period, available to discuss their findings.

Poster Discussion Sessions
Thursday–Saturday, 11:30 am–12:30 pm
Moderated discussion centered on 10–12 posters dealing with a single specialized topic. The posters will be up for viewing all day. Please review the posters before the session begins to take maximum advantage of the discussion.

AFTERNOON SESSIONS

Thursday–Saturday, 1:00–3:00 pm; 3:30–5:30 pm

Symposium
A session in which six speakers deliver addresses on one topic or related topics. Each 15-minute lecture is followed by a 5-minute discussion period.

Abstract Session
Oral presentations of 10 minutes, each based on selected abstracts. Each lecture is followed by a 5-minute discussion period.

Panel Discussion
Six brief presentations examining a single topic from a multidisciplinary and international perspective; followed by a 45-minute moderated discussion among the invited participants.

KEY TO NUMBERING OF ABSTRACTS/ABSTRACT VOLUMES

The presentations (oral and poster) are grouped by day and by thematic track.

The three abstract volumes are organized as follows:

Volume 1: Introductory material, and daily program and abstracts for Wednesday, 20 June, and Thursday, 21 June.

Volume 2: Daily program and abstracts for Friday, 22 June, as well as all published, but not presented, abstracts.

Volume 3: Daily program and abstracts for Saturday, 23 June, and Sunday, 24 June, as well as complete author, chair, and keyword (subject) indices.

The system used to number the abstracts identifies the day, the track, and the type of presentation. An abstract with a number *below* 200 is an oral presentation. One with a number *above* 200 is a poster presentation.

EXAMPLES

Th. Thursday	B. Track B	227 Poster presentation: this number is the poster board number. (numbered above 200)	in Volume 1 (Thursday)
F. Friday	A. Track A	38 Oral presentation (numbered below 200)	in Volume 2 (Friday)

Note

Track A: Basic Science
Track B: Clinical Science and Trials
Track C: Epidemiology and Prevention
Track D: Social Science and Policy

GENERAL INSTRUCTIONS TO CHAIRS, SPEAKERS, AND POSTER PRESENTERS

SPEAKERS' CENTER

The Speakers' Center is located in the Moscone Center West Mezzanine. It will be open *Wednesday–Sunday, 20–24 June, 7:30 am– 7:00 pm.*

The following information for session chairs is available from the Speakers' Center: (1) whether a speaker has checked in; (2) messages for speakers and chairs; (3) speaker information (brief c.v.).

CHAIRS OF AFTERNOON SESSIONS

Briefing

An instructional meeting for all chairs and moderators of abstract sessions, symposia, and panel discussions will take place on *Wednesday, 20 June, at 6:00 pm* (following the Opening Ceremony) in Room E of the Moscone Center. A short meeting for the day's chairs and moderators will take place daily at 7:30 am, in the Speakers' Center Conference Room, Moscone Center West Mezzanine. Please be on time. Food and beverages will be provided.

Services for Chairpersons

Please contact the Chairpersons' Desk in the Speakers' Center for any service or assistance.

SPEAKERS IN AFTERNOON SESSIONS

Services Provided for Speakers

- Transfer of slides to conference-standard slide trays;
- projection equipment for viewing slides;
- sealing and identification of slide trays to be stored by conference staff, ready to be taken at the proper time and place to the speaker's presentation. (Projection during the presentation is provided by Conference staff.)

Slide trays will be returned to the Speakers' Center, where they can be collected at the conclusion of each session.

Procedures for Speakers

We kindly ask speakers to observe the following procedures:

- Report to the Speakers' Center at least 24 hours before the scheduled time of presentation and drop off your slides at that time.
- Make sure that each slide is marked at the bottom left hand corner to ensure proper loading in the slide trays.
- Sign consent forms to allow Conference staff to tape sessions.
- Meet with the session chairs in the session hall 15 minutes before the session begins.
- During the presentation, please conform to the instructions regarding the length of your oral presentation.

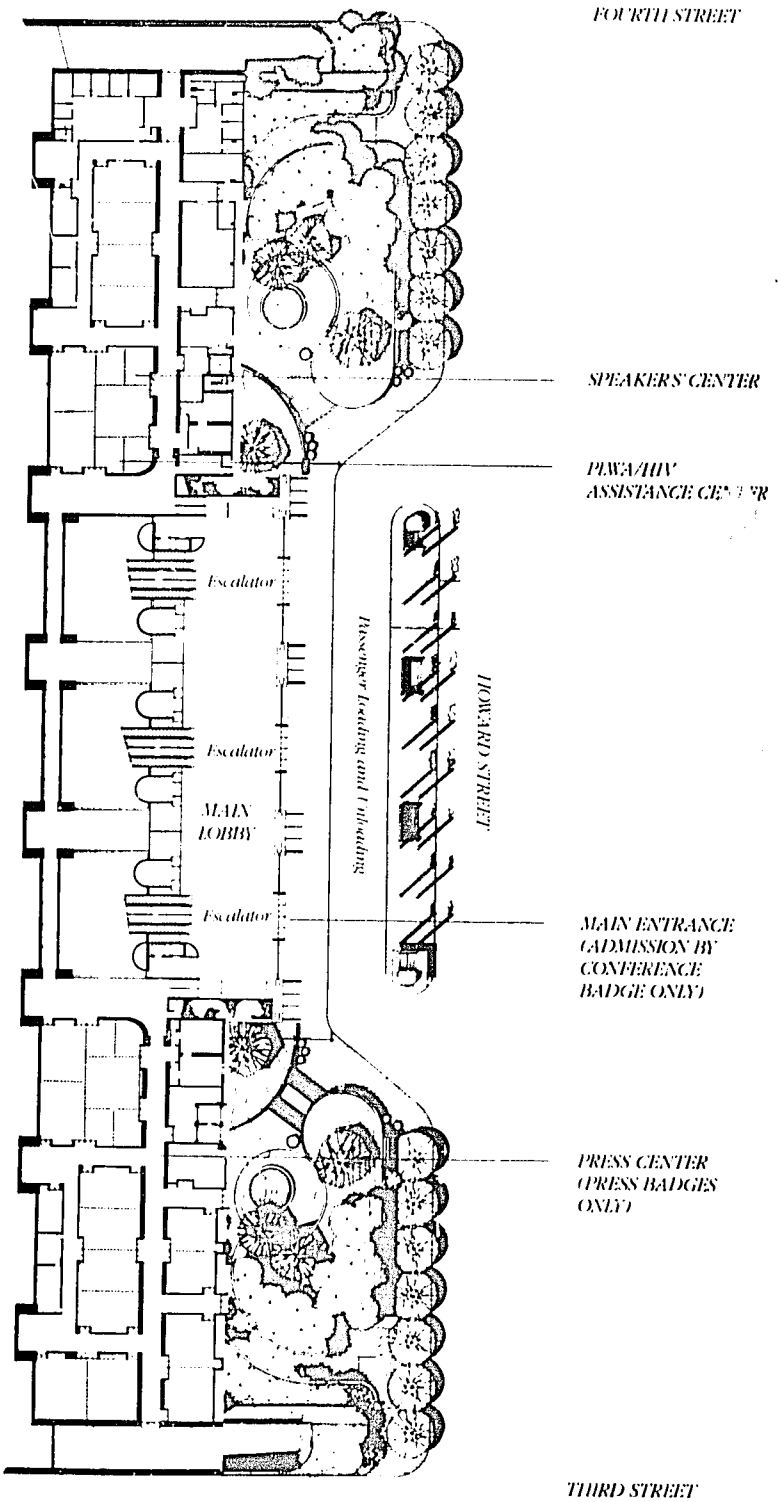
POSTER PRESENTERS

Authors are responsible for setting up and removing their posters themselves according to the following schedule:

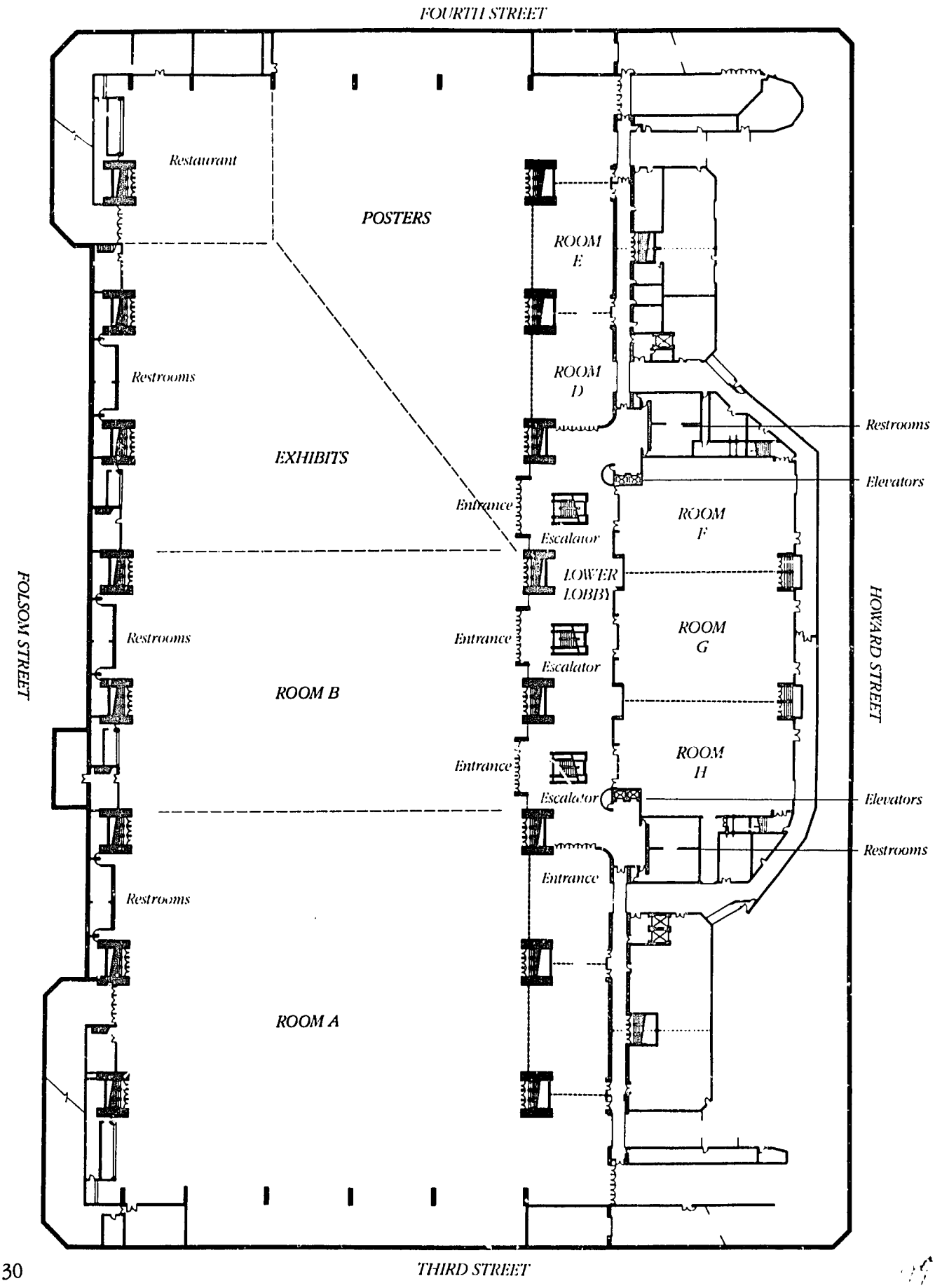
Day	*Mounting Time*	*Discussion Time*	*Removal Time*
Thursday, 21 June	7:30–8:30 am	11:00 am–12:45 pm	5:00–6:00 pm
Friday, 22 June	7:30–8:30 am	11:00 am–12:45 pm	5:00–6:00 pm
Saturday, 23 June	7:30–8:30 am	11:00 am–12:45 pm	5:00–6:00 pm

Posters not removed by 6:00 pm on the day of presentation will be discarded by Conference staff.

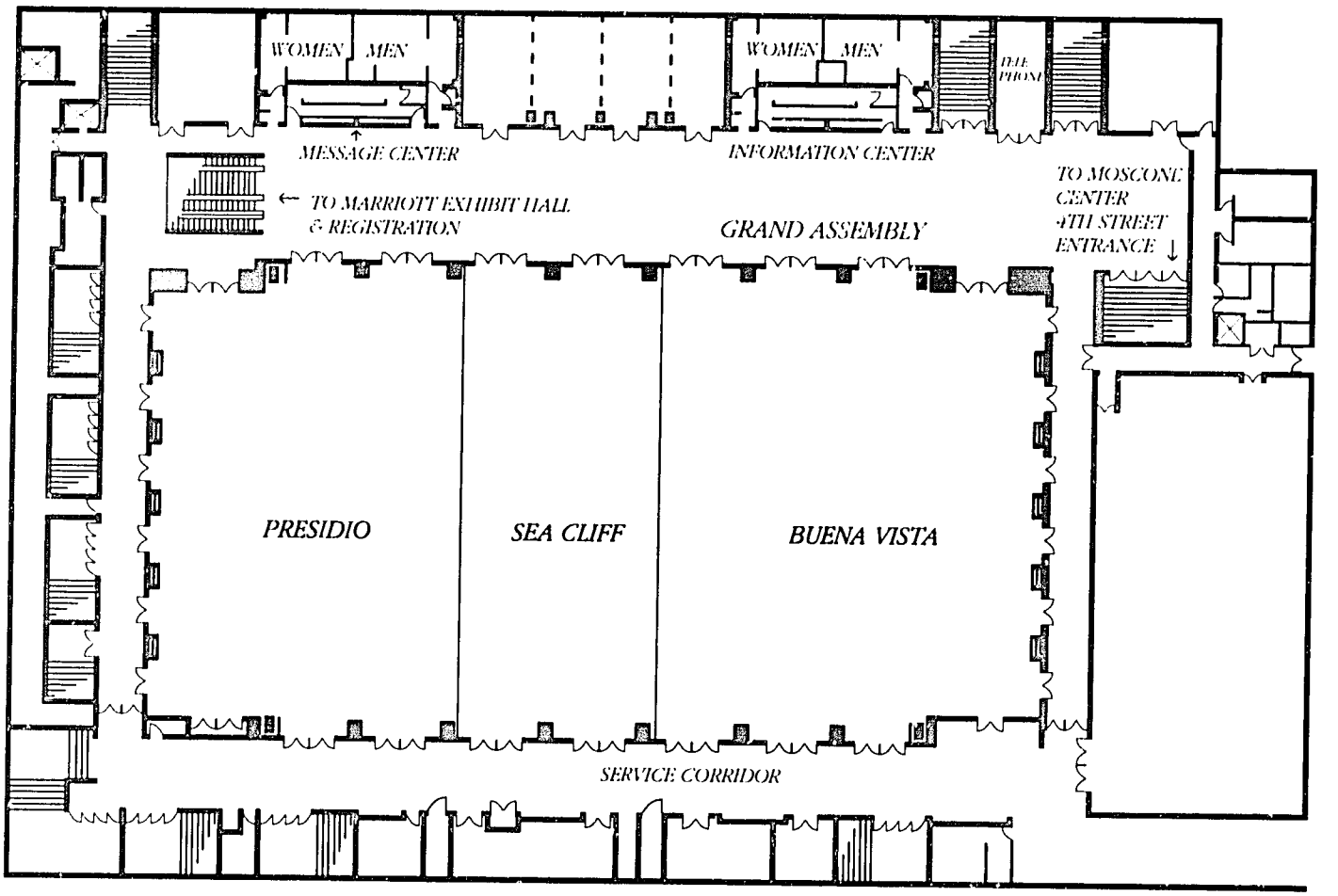
MOSCONE CONVENTION CENTER (STREET LEVEL)



MOSCONE SESSION ROOMS
(LOWER LEVEL)



SF MARRIOTT SESSION ROOMS



DAY AT A GLANCE / FRIDAY

8:00–10:30AM TWO CONCURRENT PLENARIES

"State of the Art" Session (Moscone A). Twenty-minute lectures covering: Prevention in Drug Users, Changing Demographics in Latin America, Prevention in Adolescents, Immune Response to HIV, Vaccine Approaches, and Animal Models.

"Science to Policy" Session (Moscone B). Brief lectures followed by a moderated discussion in the area of "Clinical Trials and Drug Development."

10:30AM–1PM THREE CONCURRENT EVENTS

Poster Viewing: More than 700 posters dealing with topics in Basic Science, Clinical Science, Epidemiology and Prevention, and Social Science and Policy.

Plenary Rebroadcasts: Videotapes of both concurrent plenaries may be viewed in the same rooms as their original presentations.

Poster Discussion Sessions: Two moderated discussions based on posters dealing with "Evolutionary Relationship of Immune-Deficiency Viruses" (Moscone D) and "Projections and Estimates of HIV/AIDS" (Moscone E).

1:00–3:00PM ORAL SESSIONS

A5	Advances in HIV Vaccine Development (S)	Marriott BV
A6	Related Retroviruses (AS)	Marriott SC
B5	Anti-Retroviral Therapy in Children & Pregnant Women (AS)	Moscone B
B6	Early Diagnosis and Treatment of Neurologic Disease (AS)	Marriott Pres
C5	Reducing Occupational Risks Among Health Care Workers (AS)	Moscone A
C6	Epidemiology of HIV and AIDS—Developed World (AS)	Moscone G
D5	AIDS and the Media—A Hypothetical Case Study (P)	Moscone F
D6	National and International Programs and Policies (AS)	Moscone H

3:30–5:30PM ORAL SESSIONS

A7	Anti-Viral Drug Development (AS)	Marriott BV
A8	Cellular Immunity in HIV Infection (AS)	Marriott SC
B7	The Impact of Therapy on the Course of HIV Infection (S)	Moscone B
B8	CMV and Other Viral Opportunistic Infections (AS)	Marriott Pres
C7	Epidemiology of HIV and AIDS—Developing World (AS)	Moscone A
C8	Issues in Parenterally Transmitted HIV Infection (AS)	Moscone G
D7	Community Organization and Activism (P)	Moscone F
D8	Cost, Financing, and Resource Allocation (AS)	Moscone H

Session Type Abbreviations
(AS): Abstract Session (P): Panel Discussion (S): Symposium

Marriott Hotel Session Room Abbreviations
BV: Buena Vista SC: Sea Cliff Pres: Presidio

PLENARY SESSIONS
FRIDAY, 22 JUNE, 8:00–10:30 AM

State of the Art / Moscone, Room A

Chairs: William Roper
Director, Centers for Disease Control, USA

Nicholas Bianco
University of Central Venezuela, Venezuela

The Prevention of HIV Infection in Injecting Drug Users: Recent Advances and Remaining Obstacles
Gerry V. Stimson
Director, The Centre for Research on Drugs and Health Behaviour, United Kingdom

Changing Demographics of HIV Infection in Latin America
Jaime Sepulveda
Director General of Epidemiology, Mexico

Epidemiology and Primary Prevention of HIV Infection in Adolescents
Mindy Fullilove
HIV Center for Clinical and Behavioral Studies
New York State Psychiatric Institute/Columbia University, USA

Immune Response to HIV
Andrew McMichael
John Radcliffe Hospital, Oxford University, United Kingdom

Vaccine Approaches Against HIV
Jay Berzofsky
National Cancer Institute, USA

Animal Models of Lentivirus Infection
Murray Gardner
Department of Pathology
University of California, Davis, USA

(Each lecture in this plenary will last approximately 20 minutes.)

Science to Policy / Moscone, Room B
"Clinical Trials and Drug Development"

Chair: Mathilde Krim
American Foundation for AIDS Research, USA

Moderator: Merle Sande
Chair, Dept. of Medicine
San Francisco General Hospital, USA

Approaches to Drug Development
George Gill
Director, Drug and Regulatory Affairs
Bristol Myers–Squibb, USA

Evolution of Clinical Trials Design
Peter Armitage
Oxford University, United Kingdom

Progress in AIDS Clinical Trials
Dan Hoth
Director, Division on AIDS
National Institute of Allergy and Infectious Diseases, USA

Alternatives to Traditional Trials: Community Contribution
Martin Delaney
Executive Director, Project Inform, USA

AIDS Clinical Trials: The Perspective of Communities of Color
Debra Fraser-Howse
Executive Director and CEO
Black Leadership Commission on AIDS, USA

Clinical Trials in the Developing World
Elly Katabira
Mulago Hospital, Uganda

Reporting of Clinical Trials
Arnold Relman
Editor, *New England Journal of Medicine*, USA

(Each lecture in this plenary will last approximately 12 minutes. The lectures will be followed by a moderated discussion.)

Videotapes of both sessions may be viewed from 10:30 am to 1:00 pm in the same rooms as the original presentations.

FRIDAY, 22 JUNE / 1:00–3:00 PM
TRACK A: BASIC SCIENCE

A5 *Marriott, Buena Vista*

Symposium: Advances in HIV Vaccine Development

Chairs: Ronald Kennedy (USA)
Dani Bolognesi (USA)

1:00 F.A.1
OVERVIEW OF HIV VACCINE TRIALS IN HUMANS. Koff, Wayne C.; Vaccine Research and Development Branch, National Institutes of Health, NIAID, Bethesda, MD, USA.

1:20 F.A.2
SUMMARY OF VACCINIA gp160 VACCINE TRIALS IN HUMANS. Corey, Lawrence; University of Washington, Seattle, WA, USA.

1:40 F.A.3
HIV IMMUNOTHERAPY: OBSERVATIONS TO DATE. Levine, Alexandra M.; School of Medicine, University of Southern California, Los Angeles, CA, USA.

2:00 F.A.4
OVERVIEW OF HIV VACCINE TRIALS IN CHIMPANZEES. Eichberg, Jorg W.; Southwest Foundation for Biomedical Research, San Antonio, TX, USA.

2:20 F.A.5
OVERVIEW OF SIV VACCINE TRIALS IN RHESUS MACAQUES. Murphy-Corb, Michael; Delta Regional Primate Center, Tulane University, New Orleans, LA, USA.

2:40 F.A.6
REVIEW OF METHODS FOR PRESENTING ANTIGENS TO ELICIT STRONG IMMUNE RESPONSES. Wolf, Han; University of Munich, Max von Pettenkoffer Institute, Munich, FRG.

A6 *Marriott, Sea Cliff*

Abstract Session: Related Retroviruses

Chairs: Max Essex (USA)
Luigi Chieco-Bianchi (Italy)

1:00 F.A.9
GENOMIC ORGANISATION OF CHIMPANZEE LENTIVIRUS RELATED TO HIV-1. Huet, Thierry*; Cheynier, R.*; Meyerhans, A.*; Macinnes, K.[1]; Lawrence, J.[1]; Myers, G.[2]; Wain-Hobson, S.*; *Inst. Pasteur, Paris, France, [1]Los Alamos Natl. Lab., NM, USA.

1:15 F.A.10
HIV-1 AND HIV-2 WESTERN BLOT PATTERN OF 344 WILD MONKEYS OF THE CENTRAL AFRICAN REPUBLIC. Herve, Vincent*; Brogan, T.[1]; Martin, P.*; Georges-Courbot, M.C.*; Barre-Sinoussi, F.[2]; Georges, A.J.*; *Inst. Pasteur, Bangui, Ctr. Afr. Rep., [1]UCD, CA, USA, [2]Inst. Pasteur, Paris, France.

1:30 F.A.11
SURVEY OF HIV AND HTLV-I INFECTION IN NIGERIANS. Williams, Chris*; Alexander, S.[1]; Bodner, A.[2]; Levine, A.[3]; Gallo, R.[4]; Blattner, W.[5]; *Dept. of Haematol., U. of Ibadan, Nigeria, [1]Biotech Labs, Inc., Rockville, MD, USA, [2]Viral Epid. Sec., [3]Lab. of Tumor Cell Biol., NCI, Bethesda, MD, USA.

1:45 F.A.12
IDENTIFICATION OF A COHORT OF HTLV-I INFECTED AND NONINFECTED TROPICAL SPASTIC PARAPARESIS PATIENTS. Canavaggio, Michel*; Valderrama, R.[1]; Madrid, R.[1]; Swanson, P.*; Montesinos, C.[2]; Lee, H.*; *Abbott Labs, N. Chicago, IL, [1]SUNY-HSC-Brooklyn, NY, [2]Inst. of Basic Res., Staten Isl., NY, [3]Beth Israel Med. Ctr., Mt. Sinai Med. Sch., NY, NY, USA.

2:00 F.A.13
SPONTANEOUS LYMPHOCYTE PROLIFERATION IN PCR PROVEN HTLV-II INFECTED DRUG ABUSERS. Blattner, W.; Wiktor, Stefan; Jacobson, S.; Shaw, G.; Shorty, V.; Hanchard, B.; et al.; NIH, Bethesda, MD, U. of AL, Birmingham, AL, Desire Narcotics Rehab. Ctr., New Orleans, LA, USA, U. of WI, Kingston, Jamaica, NJMS, Newark, NJ, USA.

2:15 F.A.14
C-TERMINAL DOMAIN OF HTLV-II ENVELOPE GLYCOPROTEIN IS REQUIRED FOR SYNCYTIUM FORMATION. Kuritzkes, Daniel R.*[1]; Zhang, X.Q.*; Chen, I.S.Y.[2]; Ho, D.D.[3]; Schooley, R.T.*; Young, R.A.[4]; *Mass. Gen. Hosp., Harvard Med. Sch., Boston, MA, [1]Whitehead Inst. for Biomed. Res., Cambridge, MA, [2]UCLA Sch. of Med., LA, CA, USA.

2:30 F.A.15
ANTIBODY-DEPENDENT CELLULAR CYTOTOXICITY MEDIATED BY HTLV-I AND HTLV-II POSITIVE HUMAN SERA, AS WELL AS SERA FROM RABBITS IMMUNIZED WITH HTLV-I AND HTLV-II PEPTIDES. Zhang, Xing-Quan*; Yang, L.*; Ho, D.[1]; Chen, I.[2]; Schooley, R.T.*; *Mass. Gen. Hosp., Harvard Med. Sch., Boston, MA, [1]Cedars-Sinai Med. Ctr., [2]UCLA, LA, CA, USA.

2:45 F.A.16
CHARACTERIZATION OF A HTLV-II CD4+ CELL LINE DERIVED FROM A PANAMANIAN GUAYMI INDIAN. Roberts, Beverly D.; Kaplan, J.E.; Reeves, W.C.; Frank, D.E.; Goldsmith, C.S.; Lairmore, M.D.; CDC, Atlanta, GA, USA.

FRIDAY, 22 JUNE / 1:00–3:00 PM
TRACK B: CLINICAL SCIENCE & TRIALS

B5 *Moscone, Room B*

Abstract Session: Anti-Retroviral Therapy in Children and Pregnant Women

Chairs: Bertrand Diquet (France)
Charles G. Prober (USA)

1:00 F.B.17
PHARMACOKINETICS OF ZIDOVUDINE DURING PREGNANCY. Schuman, Paula; Kauffman, R.; Crane, L.; Philpot, D.; Wayne State U. Sch. of Med., Detroit, MI, USA.

1:15 F.B.18
THE EFFICACY OF ORAL, INTERMITTENT ZIDOVUDINE IN A PHASE II PEDIATRIC TRIAL (ACTG STUDY 043). McKinney, R. E.; Wilfert, Catherine M.; Duke U. Med. Ctr., Durham, NC; ACTG, NIAID, Rockville, MD; Burroughs Wellcome Co., Research Triangle Park, NC, USA.

1:30 F.B.19
PHARMACOKINETICS OF ZIDOVUDINE IN CHILDREN. Rolinski, Boris*; Wintergerst, U.*; Debatin, K.†; Vocks, M.‡; Roscher, A.*; Belohradsky, B.*; *Children's Hospital, L.-Maximilian University of Munich; †University of Heidelberg; ‡University of Berlin, FRG.

1:45 F.B.20
RESULTS OF ZIDOVUDINE TREATMENT IN CHILDREN WITH AIDS. De Jose Gomez, Isabel*; Mellado, M.J.†; G-Miguel, M.J.*; Cilleruelo, M.J.†; G-Rodriguez, M.C.*; G-Hortelano, J.*; *Hosp. Infantil la Paz, †Inst. de Salud Carlos III, Madrid, Spain.

2:00 F.B.21
LYMPHOCYTE SUBSET CHANGES IN CHILDREN WITH ADVANCED SYMPTOMATIC HIV INFECTION TREATED WITH ORAL ZIDOVUDINE. Connor, Edward*; Zidovudine Study Group†; *UMD-NJ Med. Sch. and Children's Hosp. of NJ, Newark, NJ, †ACTG, NIAID, Rockville, MD, Burroughs Wellcome Co., Research Triangle Park, NC, USA.

2:15 F.B.22
THE ACTIVITY AND TOLERANCE OF DIDEOXYINOSINE ADMINISTERED FOR 24 WEEKS TO SYMPTOMATIC HIV INFECTED CHILDREN: A PHASE I II TRIAL. Butler, Karina; Husson, R.; Eddy, J.; Santacroce, S.; Jarosinski, P.; Moss, H.; Wolters, P.; El-Amin, D.; Brouwers, P.; Wiener, L.; Balis, F.; Poplack, D.; Pizzo, P.; NCI, Bethesda, MD, USA.

2:30 F.B.23
SAFETY AND PHARMACOKINETICS OF RECOMBINANT CD4 IN CHILDREN WITH HIV INFECTION. Weintrub, Peggy *; Yogev, R.†; Conner, E.‡; Wilfert, K. ; Mordenti, J.*; Ammann, A.*; *UCSF, CA, †Children's Mem. Hosp., Chicago, IL, ‡Children's Hosp. of NJ, Newark, NJ, Duke U., Durham, NC, *Genentech, Inc., So. SF, CA, USA.

2:45 F.B.24
CD4 COUNTS AS PREDICTORS OF PNEUMOCYSTIS CARINII PNEUMONIA IN INFANTS AND CHILDREN WITH HIV INFECTION. Kovacs, Andrea*; Church, J.†; Mascola, L.‡; Frederick, T.‡; Eller, A.‡; Evans, M.‡; The LA Pediatric AIDS Consortium; *LAC-USC Med. Ctr., LA, CA, †Children's Hosp. of LA, CA, ‡LA County Dept. Hlth. Svcs., CA, USA.

B6 *Marriott, Presidio*

Abstract Session: Early Diagnosis and Treatment of Adult Neurologic Disease

Chairs: Harry Hollander (USA)
Justin C. McArthur (USA)

1:00 F.B.25
NEUROPSYCHOLOGICAL STATUS OF MEN WITH HAEMOPHILIA AND HIV INFECTION: A CONTROLLED INVESTIGATION. Hodges, Sally*; Klimes, I.†; Catalan, J.‡; Day, A.*; Bond, A.*; Garrod, A.*; Rizza, C.*; *Oxford U., †Warneford Hosp., Oxford, ‡Charing Cross and Westminster Med. Sch., London, Oxford Haemophilia Centre, Oxford, UK.

1:15 F.B.26
NEUROPSYCHOLOGICAL EVALUATION OF SEROPOSITIVE PARENTERAL DRUG USERS WITHOUT AIDS. Stern, Yaakov; Sano, M.; Goldstein, S.; Richards, M.; Kloehn, J.; Mindry, D.; Chen, J.; Ehrhardt, A.; and Gorman, J.; HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute, Columbia University, New York, NY, USA.

1:30 F.B.27
MOTOR ABNORMALITIES IN 100 HIV-INFECTED PATIENTS IN CORRELATION TO CDC STAGES. Wendtland, Bernd; Hefter, H.; Elsing, C.; Arendt, G.; University of Dusseldorf, Dusseldorf, FRG.

1:45 F.B.28
COMPARISON OF EVOKED POTENTIAL RESPONSES AND NEUROPSYCHOLOGICAL MEASURES IN EARLY HIV DISEASE. Hollander, Harry; Gardi, J.; Vollberding, P.; Goodin, D.; Olney, R.; Walker, J.; University of California, San Francisco, CA, USA.

2:00 F.B.29
SEQUELAE OF HIV INFECTION: EVOKED POTENTIAL LATENCIES, NEUROPSYCHOLOGICAL PERFORMANCE, AND IMMUNE DYSFUNCTION IN HIV POSITIVE AND HIV NEGATIVE GAY MEN. Dilley, James W.; Boccellari, A.; Yingling, C.; Moss, A.; Wagner, B.; Kelly, T.; UCSF, SF General Hospital, San Francisco, CA, USA.

2:15 F.B.30
ZIDOVUDINE THERAPY FOR HIV ENCEPHALOPATHY. Tozzi, Valerio*; Galgani, S.†; Gerace, C.‡; Narciso, P.*; Giulianelli, M.*; Sette, P.*; Visco, G.*; et al.; *L. Spallanzani Hospital, †S. Camillo Hospital, Rome, Italy.

2:30 F.B.31
EFFECTS OF LONG-TERM ZIDOVUDINE USE ON NEUROPSYCHOLOGICAL PERFORMANCE IN THE MULTICENTER AIDS COHORT STUDY. McArthur, Justin*; Miller, E.†; Selnes, O.*; Becker, J.‡; Cohen, B. ; Starkey, D.*; Hoover, D.*; Saah, A.*; *Johns Hopkins Med. Inst., Baltimore, MD, †UCLA, CA, ‡U. of Pittsburgh, PA, Northwestern U., Chicago, IL, USA.

2:45 F.B.32
VITAMIN B12 AND COGNITIVE FUNCTION IN HIV INFECTION. Baum, Marianna; Beach, R.; Morgan, R.; Mantero-Atienza, E.; Wilke, F.; Eisdorfer, C.; Biopsychosocial Center for Studies of AIDS, U. of Miami Sch. of Med., Miami, FL, USA.

FRIDAY, 22 JUNE / 1:00–3:00 PM
TRACK C: EPIDEMIOLOGY & PREVENTION

C5 *Moscone, Room A*

Symposium: Reducing Occupational Risks Among Health Care Workers

Chairs: Patrick Francioli (Switzerland)
Jose Luis Valdespino Gomez (Mexico)

1:00 F.C.33
OCCUPATIONAL RISK OF HIV-INFECTION IN HEALTH CARE WORKERS IN THE UNITED STATES. Bell, David; Centers for Disease Control, Atlanta, GA, USA.

1:20 F.C.34
HIV INFECTION IN HEALTH CARE WORKERS—THE EUROPEAN EXPERIENCE. Ippolito, Giuseppe; Coordinating Center: L. Spallanzani Hospital, Rome, Italy.

1:40 F.C.35
CHEMOPROPHYLAXIS FOR OCCUPATIONAL EXPOSURE. Gerberding, Julie; Wugofski, L.; Chambers, H.; Dilley, J.; Rinaldi, J.; University of California, San Francisco, CA, USA.

2:00 F.C.36
PREVENTING OCCUPATIONAL EXPOSURES IN DEVELOPING COUNTRIES. Luo, Nkandu; Department of Pathology and Microbiology, University Teaching Hospital, Lusaka, Zambia.

2:20 F.C.37
SAFER MEDICAL DEVICES FOR REDUCING HEALTH-CARE WORKER RISKS. Jagger, Janine; University of Virginia, Charlottesville, VA, USA.

2:40 F.C.38
OBSTACLES TO COMPLIANCE WITH INFECTION CONTROL GUIDELINES. Campbell, Scott; St. Paul-Ramsey Medical Center, St. Paul, MN, USA.

C6 *Moscone, Room G*

Abstract Session: Epidemiology of HIV and AIDS—Developed World

Chairs: Marina Davoli (Italy)
Alistair A. Clayton (Canada)

1:00 F.C.41
STABILIZATION OF AIDS MORTALITY IN DIVERSE DEMOGRAPHIC GROUPS: EVIDENCE FOR LEVELING OF THE AIDS EPIDEMIC IN NEW YORK CITY. Stoneburner, Rand L.; Fordyce, E.J.; Busner, C.; Chiasson, M.; New York City Department of Health, New York, NY, USA.

1:15 F.C.42
FINDINGS FROM THE NATIONAL HOUSEHOLD SEROPREVALENCE SURVEY FEASIBILITY STUDY. Wright, Robert A. †; Horvitz, D.G.*; Folsom, R.E.*; Weeks, M.F.*; Hurley, P.F.†; *Research Triangle Institute, Research Triangle Park, NC, †National Center for Health Statistics, Hyattsville, MD, USA.

1:30 F.C.43
ESTIMATES OF HIV SEROPREVALENCE IN CHILDBEARING WOMEN AND INCIDENCE OF HIV INFECTION IN INFANTS, UNITED STATES. Gwinn, Marta*; George, J.R.*; Hannon, W.H.*; Hoff, R.†; Pappaioanou, M.*; Novello, A.‡; *Centers for Disease Control, Atlanta, GA, †Massachusetts Department of Health, Boston, MA, ‡National Institute of Child Health and Human Development, Bethesda, MD, USA.

1:45 F.C.44
HIV SEROPREVALENCE IN CLIENTS ATTENDING SEXUALLY TRANSMITTED DISEASE CLINICS IN THE UNITED STATES, 1988-1990. McCray, Eugene; Onorato, I.M.; and state and local hlth. depts.; CDC, Atlanta, GA, USA.

2:00 F.C.45
CHARACTERISTICS OF RECENT SEROCONVERTERS IN A COHORT OF HOMOSEXUAL MEN: WHO ARE THE PREVENTION FAILURES? Willoughby, Brian C.*; Schechter, M.T.*; Craib, K.J.P.*; McLeod, W.A.*; Douglas, B.*; Fay, S.*; Nitz, R.*; O'Shaughnessy, M.†; *The Vancouver Lymphadenopathy-AIDS Study, University of British Columbia and St. Paul's Hospital, Vancouver, †Federal Centre for AIDS, Ottawa, Canada.

2:15 F.C.46
HIGH PREVALENCE OF HIV HETEROSEXUAL TRANSMISSION IN ONE HUNDRED STABLE COUPLES. Papetti, Claudia; Mezzaroma, I; D'Offizi, G.; Valdarchi, C.; Pinter, E.; Aiuti, F.; Luzi, G.; Department of Allergy and Clinical Immunology, University of Rome, "La Sapienza," Rome, Italy.

2:30 F.C.47
HIV-1 SEROPREVALENCE IN FACILITIES FOR RUNAWAY AND HOMELESS ADOLESCENTS IN FOUR STATES (FL, TX, LA AND NY). Stricof, Rachel L.*; Novick, L.F.*; Kennedy, J.T.†; *New York State Department of Health, Albany, NY, †Covenant House, New York, NY, USA.

2:45 F.C.48
THE MELBOURNE PROSPECTIVE STUDY: CHANGES OVER SEVEN YEARS. Mulhall, Brian*; Fuller, A.†; Carter, L.†; Donovan, B.*; *University of Sydney, †Royal Melbourne Hospital, Melbourne, Australia.

FRIDAY, 22 JUNE / 1:00–3:00 PM
TRACK D: SOCIAL SCIENCE & POLICY

D5 *Moscone, Room F*

Panel Discussion: AIDS and the Media: A Hypothetical Case Study

Chair: Aileen Ballantine (UK)
Moderator: Jim Bunn (USA)

In this panel taking place from 1:00 to 3:00 pm, the participating journalists, public information specialists and health officials will be given a hypothetical scenario and asked to respond as they would in their professional roles. Following completion of the scenario, the moderator will direct a question and answer session involving the panelists and the audience.

PANELISTS:

F.D.49
Tom Netter, Public Information Officer, World Health Organization, Geneva, Switzerland.

F.D.50
Ruth Marshall, Journalist, *Newsweek Magazine*, Paris, France.

F.D.51
Laurie Garrett, Journalist, *Newsday*, Long Island, NY, USA.

F.D.52
James Curran, Director, Division of HIV/AIDS, Centers for Disease Control, Atlanta, GA, USA.

F.D.53
Allen White, Journalist, *Bay Area Reporter*, San Francisco, CA, USA.

F.D.54
To Be Announced.

D6 *Moscone, Room H*

Abstract Session: National and International Programs and Policies

Chairs: Peter Collins (Australia)
Subhash Hira (Zambia)

1:00 F.D.57
PUBLIC POLICY RAMIFICATIONS OF THE UNITED STATES IMMIGRATION AND NATURALIZATION SERVICE'S EXCLUSION OF SEROPOSITIVE ALIENS. Edwards, R. K.[†]; Whitaker, Rupert E. D.[*]; [*]Midwest AIDS Biobehavioral Research Center, University of Michigan, Ann Arbor, MI, [†]Pine Manor College/ Northeastern University, Boston, MA, USA.

1:15 F.D.58
AIDS AND THE SOCIAL SCIENCES: PROGRAMS OF THE FRENCH NATIONAL AGENCY ON AIDS RESEARCH (ANRS). Southeyrand, Yves; Agence Nationale de Recherches sur le SIDA-Paris, France.

1:30 F.D.59
APPROACHES TO REVIEW THE PERFORMANCES OF NATIONAL AIDS PROGRAMMES—METHODOLOGY, DEVELOPMENT AND APPLICATION. Tarantola, Daniel; Slutkin, G.; Widy-Wirski, R.; World Health Organization, Geneva, Switzerland.

1:45 F.D.60
CONSUMER RESEARCH AND CONDOM PROMOTION IN TANZANIA: SOCIAL MARKETING FOR AIDS PREVENTION. Levy, T.[*]; Strand, John W.[*]; Stone, D.[†]; [*]AIDSCOM/Academy for Educational Development, Washington, DC, [†]AIDSCOM/The Johns Hopkins University, Baltimore, MD, USA.

2:00 F.D.61
TRENDS IN NATURAL AND "FORCED" DEVELOPMENT OF AIDS PREVENTION PROGRAMS IN THE AMERICAS. Zacarias, Fernando R.K.; Calderon, M.R.; Narain, J.; Lagrava, M.; Kimball, A.M.; Zessler, L.; Pan American Health Organization, Washington, DC, USA.

2:15 F.D.62
PROJECT CONASIDA—NATIONAL UNIVERSITY: AIDS PREVENTION FOR THE YOUTH. Coudurier, Ana; Conde, G.; Chavez Peon, F.; Sepulveda, J.; Project CONASIDA, National University, Mexico City, Mexico.

2:30 F.D.63
STATE AIDS LEGISLATIVE AND POLICY TRENDS: 1983-1989. Merritt, Richard; Cauley, K.; Boleg, L.; AIDS Policy Center, Intergovernmental Health Policy Project, Washington, DC, USA.

2:45 F.D.64
AIDS POLICY AND HIV EPIDEMIC IN CUBA; FINLAY AIDS WORKING GROUP. Moas, Carlos, Paya Reinaldo, Gordon Antonio; Finlay AIDS Working Group, Miami, FL, USA.

FRIDAY, 22 JUNE / 3:30–5:30 PM
TRACK A: BASIC SCIENCE

A7 *Marriott, Buena Vista*

Abstract Session: Anti-Viral Drug Development

Chairs: Daniel King (USA)
Angus Dalgleish (UK)

3:30 F.A.65
A NEW APPROACH FOR TESTING THE EFFECTS OF AIDS DRUGS ON HIV-1 EXPRESSION AND REPLICATION IN VITRO. Volsky, David J.*; Hamblet, N.*; Volsky, B.*; Pellegrino, M.G.*; Decker, S.†; Li, G.*; *St. Luke's/Roosevelt Hospital Center, Columbia Univ. Coll. of Physicians and Surgeons, New York, NY, †Gene-Trak Systems, Framingham, MA, USA.

3:45 F.A.66
HIV-1 INHIBITORY INTERACTIONS BETWEEN 2',3'-DIDEOXYINOSINE (ddI) AND EITHER ZIDOVUDINE (AZT), RECOMBINANT SOLUBLE CD4 (rsCD4) OR RECOMBINANT INTERFERON-ALPHA-A (rIFN-alpha-A). Johnson, Victoria A.*; Merrill, D.P.*; Chou, T.-C.†; Hirsch, M.S.*; *Massachusetts General Hospital, Harvard Medical School, Boston, MA, †Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

4:00 F.A.67
EFFECTS OF GLQ-223TM ON HIV REPLICATION IN HUMAN MONOCYTE/MACROPHAGES CHRONICALLY INFECTED WITH HIV. McGrath, Michael*; Gaston, I.†; Lifson, J.†; *SF Gen. Hosp., UCSF, CA, †Genelabs Inc., Redwood City, CA, USA.

4:15 F.A.68
TIBO DERIVATIVES ARE A NEW FAMILY OF POTENT AND HIGHLY SELECTIVE ANTI-HIV-1 AGENTS IN VITRO. Pauwels, Rudi*; Andries, K.†; Desmyter, J.*; Kukla, M.J.†; De Clercq, E.*; Janssen, P.A.J.†; *Rega Inst. for Med. Res., Leuven, Belgium, †Janssen Res. Fdtn., Beerse, Belgium, ‡Janssen Res. Fdtn., Spring House, PA, USA.

4:30 F.A.69
RO 31-8959, A SPECIFIC INHIBITOR OF HIV PROTEASE. Roberts, Noel A.*; Craig, J.C.*; Duncan, I.B.*; Kay, J.†; Malcolm, S.L.*; Martin, J.A.*; Redshaw, S.*; Taylor, D.L.‡; *Roche Products Ltd., Welwyn Garden City, ‡Dept. Biochemistry, University of Wales, Cardiff, ‡MRC Collaborative Centre, London, UK.

4:45 F.A.70
CD4-PSEUDOMONAS EXOTOXIN CONJUGATES DELAY BUT DO NOT FULLY INHIBIT HIV REPLICATION IN LYMPHOCYTES IN VITRO. Tsubota, Hiroshi*; Winkler, G.†; Meade, H.M.‡; Letvin, N.L.*; *Harvard Med. Sch., NE Reg. Primate Res. Ctr., Southborough, MA, †Biogen, Inc., Cambridge, MA, USA.

5:00 F.A.71
EXPRESSION OF ANTI-HIV COMPOUNDS DIRECTED FROM THE HIV-LTR: A POTENTIAL GENE THERAPY FOR HIV INFECTED INDIVIDUALS. Mosca, Joseph D.*; Ritchey, D.W.*; d'Arcy, L.A.*; Burke, D.S.†; *Henry M. Jackson Fdtn., Rockville, MD, †Walter Reed Army Inst. of Res., Wash., DC, USA.

5:15 F.A.72
THE EVALUATION OF ANTIVIRAL COMPOUNDS IN THE SCID-hu MOUSE. McCune, Joseph M.; Shih, C.-C.; Namikawa, R.; Rabin, L.; Kaneshima, H.; SyStemix, Inc., Palo Alto, CA, USA.

A8 *Marriott, Sea Cliff*

Abstract Session: Cellular Immunity in HIV Infection

Chairs: Joyce Zarling (USA)
Jeffrey Laurence (USA)

3:30 F.A.73
HIGH LEVEL OF HIV-SPECIFIC CYTOTOXICITY IN INFANTS FROM HIV-INFECTED MOTHERS. Langlade-Demoyen, P.*; Cheynier, Remi*; Marescot, M.R.†; Blanche, S.‡; Blondin, G.‖; Griscelli, C.‡; Vilmer, E.‖; Plata, F.*; *Institut Pasteur, Paris, †Hopital Pitie-Salpetriere, Paris, ‡Hopital Necker Enfants Malades, Paris, ‖Hopital Robert Delore, Paris, France.

3:45 F.A.74
GAG-SPECIFIC CYTOTOXIC T LYMPHOCYTES IN SIVmac-INFECTED RHESUS MONKEYS EXHIBIT RESTRICTED EPITOPE SPECIFICITY. Miller, Michael D.*; Yamamoto, H.*; Stallard, V.†; Mazzara, G.P.†; Panicali, D.†; Letvin, N.L.*; *Harvard Medical School, New England Regional Primate Research Center, Southborough, MA, †Applied bioTechnology Inc., Cambridge, MA, USA.

4:00 F.A.75
GENERATION OF CD8+ T CELL CLONES THAT INHIBIT HIV REPLICATION IN VITRO. Walker, Christopher*; Hsueh, F.†; Erickson, A.*; Levy, J.†; *Chiron Corporation, Emeryville, CA, †University of California, San Francisco, CA, USA.

4:15 F.A.76
STRUCTURAL AND FUNCTIONAL CHARACTERISTICS OF HIV-SPECIFIC CTL. Koenig, Scott*; Fuerst, T.†; Wood, L.V.*; Woods, R.†; Jones, G.*; Fauci, A.S.*; *LIR, NIAID, NIH, Bethesda, MD, †MVI, Inc., Gaithersburg, MD, USA.

4:30 F.A.77
ZIDOVUDINE THERAPY CAN REVERSE THE ANTIGEN RECEPTOR SIGNALING DEFECT IN CD4+ T CELLS FROM HIV-INFECTED PATIENTS. Linette, Gerald*; Pierce, P.F.*; Hartzman, R.J.†; June, C.H.†; *Georgetown University, Washington, DC, †Naval Medical Research Institute, Bethesda, MD, USA.

4:45 F.A.78
HIV-1 GLYCOPROTEINS gp120 AND gp160 SPECIFICALLY INHIBIT THE CD3/T CELL-ANTIGEN RECEPTOR PHOSPHOINOSITIDE TRANSDUCTION PATHWAY. Cefai, Daniel*; Debre, P.*; Kaczorek, M.†; Idziorek, T.†; Autran, B.*; Bismuth, G.*; *Lab. Immunol. Cell. & Tiss., CH Pitie-Salpetriere, Paris, †Pasteur Vaccins, BP101, Val de Reuil, ‡Lab. Biol. & Genet. Infect. Retrovir., CH Pitie-Salpetriere, Paris, France.

5:00 F.A.79
SELECTIVE LOSS OF T-CELL FUNCTIONS IN DIFFERENT STAGES OF HIV INFECTION. Miedema, Frank; Gruters, R.A.; Van Noesel, C.J.M.; Terpstra, F.G.; Schellekens, P.; Van Lier, R.; Central Lab. Netherlands Red Cross Blood Transfusion Service, Lab. for Exp. and Clin. Immunol., University of Amsterdam, Amsterdam, The Netherlands.

5:15 F.A.80
ANTI-CD2 RECEPTOR ANTIBODIES ACTIVATE THE HIV LONG TERMINAL REPEAT IN NORMAL PERIPHERAL BLOOD T LYMPHOCYTES. Bressler, Peter B.; Pantaleo, G.; Fauci, A.S.; LIR, NIAID, National Institutes of Health, Bethesda, MD, USA.

FRIDAY, 22 JUNE / 3:30–5:30 PM
TRACK B: CLINICAL SCIENCE & TRIALS

B7 *Moscone, Room B*

Symposium: The Impact of Therapy on the Course of HIV Infection

Chairs: Luiz Antonio Mateus Loures (Brazil)
Martin Schechter (Canada)

3:30 F.B.81
THE EFFECT OF ANTIRETROVIRAL THERAPY ON CLINICAL PROGRESSION AND MARKERS OF HIV DISEASE. Lange, Joep M.A.; Academy Medical Center, University of Amsterdam, The Netherlands.

3:50 F.B.82
SERUM MARKERS AS CANDIDATE SURROGATE MARKERS FOR ANTIRETROVIRAL EFFICACY. Jacobson, Mark A.; San Francisco General Hospital, University of California, San Francisco, CA, USA.

4:10 F.B.83
CD4 AND CD8 LYMPHOCYTES AS SURROGATE ENDPOINTS FOR ANTI-RETROVIRAL EFFICACY. Schoenfeld, David; Massachusetts General Hospital, Boston, MA, USA.

4:30 F.B.84
PLASMA VIREMIA AS A MARKER OF ANTI-RETROVIRAL EFFICACY. Coombs, Robert W.; Departments of Laboratory Medicine and Medicine, University of Washington, Seattle, WA, USA.

4:50 F.B.85
EFFECT OF THERAPY ON AIDS PATIENT SURVIVAL. Lemp, George F.; Department of Public Health, San Francisco, CA, USA.

5:10 F.B.86
EFFECT OF THERAPY ON THE EPIDEMIC. Gail, Mitchell H.; National Cancer Institute, Rockville, Maryland USA.

B8 *Marriott, Presidio*

Abstract Session: CMV and Other Viral Opportunistic Infections

Chairs: Judith Feinberg (USA)
Christine Katlama (France)

3:30 F.B.89
RAPID IDENTIFICATION OF ACYCLOVIR RESISTANT HSV IN PATIENTS WITH HIV INFECTION. Glick, Ellen; Pottage, J.; Benson, C.; Kapell, K.; Kessler, H.; Rush-Presbyterian-St. Luke's Med. Ctr., Chicago, IL, USA.

3:45 F.B.90
DIAGNOSIS OF PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY IN VIVO BY POLYMERASE CHAIN REACTION. Weber, Thomas*; Turner, R.*; Ruf, B.†; Luer, W.*; Luke, W.‡; Haas, J.‖; et al.; *U. Gottingen, †Free U. Berlin, ‡German Primate Res. Ctr., Gottingen, ‖Medizin. Hochschule Hannover, FRG.

4:00 F.B.91
PHASE I STUDY OF THE SAFETY AND PHARMACOKINETICS OF ORAL GANCICLOVIR. Follansbee, Stephen*; Busch, D.*; Connor, J.†; Jung, D.†; Mastre, B.‡; Buhles, W.‡; *Davies Med. Ctr., SF, CA, †UCSD, CA, ‡Syntex Research, Palo Alto, CA, USA.

4:15 F.B.92
SAFETY AND EFFICACY OF COMBINED GANCICLOVIR AND GRANULOCYTE-MACROPHAGE STIMULATING FACTOR VS. GANCICLOVIR ALONE FOR CMV RETINITIS IN AIDS (ACTG 073): A PRELIM. REPORT. Hardy, David*; Spector, S.†; Polsky, B.‡; Heath-Chiozzi, M.‖; Holland, G.*; Freeman, W.†; et al.; *UCLA, CA, †UCSD, CA, ‡Mem. Sloan-Kettering Cancer Ctr., NY, ‖Harvard U., Boston, MA, *NIAID, Bethesda, MD, USA.

4:30 F.B.93
PREVALENCE OF RESISTANCE IN PATIENTS RECEIVING GANCICLOVIR FOR SERIOUS CMV INFECTION. Drew, W. Lawrence*; Miner, R.*; Busch, D.†; Follansbee, S.‡; Gullett, J.‖; Mehalko, S.‡; et al.; *Mt. Zion Med. Ctr., †Children's Hosp., ‡Davies Med. Ctr., ‖UCSF, CA.

4:45 F.B.94
RANDOMIZED, PLACEBO-CONTROLLED STUDY OF GANCICLOVIR TREATMENT OF CMV COLITIS IN AIDS PATIENTS. Dieterich, Douglas*; Kotler, D.†; Busch, D.‡; Crumpacker, C.‖; Mastre, B.*; Du Mond, C.*; et al.; *NYU Med. Ctr., †St. Luke's Hosp., NY, NY, ‡Children's Hosp., SF, CA, ‖Beth Israel Hosp., Boston, MA, *Syntex Corp., Palo Alto, CA, USA.

5:00 F.B.95
AN OPEN RANDOMIZED COMPARATIVE STUDY OF FOSCARNET AND GANCICLOVIR IN THE TREATMENT OF CMV RETINITIS. Moyle, Graeme; Mathalone, B.; Gazzard, B.; Westminster Hospital, London, UK.

5:15 F.B.96
DOSE-RANGING STUDY OF DAILY IV MAINTENANCE FOSCARNET THERAPY FOR CMV RETINITIS IN AIDS PATIENTS (ACTG PROTOCOL 015/915). Jacobson, Mark A.*; Causey, D.†; Polsky, B.‡; Hardy, D.‖; Feinberg, J.*; O'Donnell, J.*; et al.; *UCSF, SF Gen. Hosp., CA, †LAC-USC Med. Ctr., LA, CA, ‡Mem. Sloan-Kettering Cancer Ctr., NY, NY, ‖UCLA Ctr. for Hlth. Sci., LA, CA, *ACTG, NIAID, Bethesda, MD, USA.

399

FRIDAY, 22 JUNE / 3:30–5:30 PM
TRACK C: EPIDEMIOLOGY & PREVENTION

C7 *Moscone, Room A*

Abstract Session: Epidemiology of HIV and AIDS—Developing World

Chairs: Euclides Ayres de Castilho (Brazil)
Jeffrey R. Harris (USA)

3:30 F.C.97
IMPORTANCE OF SENTINEL SURVEILLANCE OF HIV INFECTION IN LATIN AMERICA AND THE CARIBBEAN. Zessler, Laurent; Zacarias, F.; Gonzalez, R.; Kimball, A.M.; Pan American Health Organization, Washington, DC, USA.

3:45 F.C.98
THE AIDS EPIDEMIC IN BRAZIL, 1980-1989. Rodrigues, Lair G. de M.*; Chequer, P.*; Castilho, E.†; *Division of DST/AIDS, Ministry of Health, Brasilia, †Oswaldo Cruz Foundation, Ministry of Health, Rio de Janeiro, Brazil.

4:00 F.C.99
FIRST NATIONAL SENTINEL SEROPREVALENCE SURVEY FOR HIV-1 INFECTION IN THAILAND, JUNE 1989. Ungchusak, K.*; Thanprasertsuk, Sombat*; Sriprapandh, S.*; Pinichpongse, S.†; Kunasol, P.‡; *Div. of Epidemiol., †Ofc. of Permanent Secretary, ‡Dept. of Communicable Dis. Control, Min. of Pub. Hlth. (MOPH), Bangkok, Thailand.

4:15 F.C.100
HIV 1 RISK FACTORS IN A RANDOMLY SELECTED POPULATION IN RURAL RAKAI DISTRICT, UGANDA. Serwadda, David*; Musgrave, S.†; Wawer, M.J.†; Musagara, M.‡; Konde-Lule, J.‖; Sewankambo, N.‖; *Mulago Hospital, Kampala, Uganda, †Columbia Univ., New York, NY, USA, ‡AIDS Control Prog., Entebbe, Uganda, ‖Makerere Univ., Kampala, Uganda.

4:30 F.C.101
INFANT AND CHILDHOOD MORTALITY IN CHILDREN OF HIV-INFECTED MOTHERS IN MALAWI. Miotti, Paolo*; Dallabetta, G.*; Chiphangwi, J.†; Liomba, G.†; Saah, A.*; *The Johns Hopkins University, Baltimore, MD, USA, †Ministry of Health, Malawi.

4:45 F.C.102
EMERGENCE OF HIV-1 IN A HIGH RISK GROUP FROM AN HIV-2 ENDEMIC AREA (SENEGAL). M'Boup, Souleymane*; Kanki, P.†; N'Doye, I.*; Siby, T.*; Sankale, J.-L.*; Gueye, A.*; Gaye, A.*; Boye, C.S.*; Marlink, R.†; Essex, M.†; *University of Dakar, Dakar, Senegal, †Harvard School of Public Health, Boston, MA, USA.

5:00 F.C.103
AIDS—THE LEADING CAUSE OF ADULT DEATH IN A WEST AFRICAN CITY (ABIDJAN). De Cock, Kevin M.*/†; Gnaore, E.*; Diaby, L.*; Barrere, B.‡; Lafontaine, M.-F.*; Odehouri, K.‡; Dago, A.A.‡; Porter, A.*; Heyward, W.L.†; *Projet RETRO-CI, Abidjan, Ivory Coast, †Centers for Disease Control, Atlanta, GA, USA, ‡University of Abidjan, Ivory Coast.

5:15 F.C.104
ARE HIV SEROPREVALENCE TRENDS USEFUL TO NATIONAL PROGRAMMES? A GLOBAL OVERVIEW OF TRENDS, USES AND LIMITATIONS. Slutkin, Gary; Tarantola, D.; Heymann, D.L.; Chin, J.; Sato, P.; Mann, J.; World Health Organization, Global Programme on AIDS, Geneva, Switzerland.

C8 *Moscone, Room G*

Abstract Session: Issues in Parenterally Transmitted HIV Infection

Chairs: Praphan Phanuphak (Thailand)
Pier M. Mannucci (Italy)

3:30 F.C.105
RESULTS OF THREE SEROPREVALENCE SURVEYS FOR HIV OF IVDU IN BANGKOK. Vanichseni, Suphak; Sakuntanaga, P.; et al.; Bangkok Metropolitan Administration, Bangkok, Thailand.

3:45 F.C.106
EPIDEMIOLOGY AND PREVENTION OF HIV IN INTRAVENOUS DRUG USERS IN SAN FRANCISCO, 1986-1989. Watters, John K.*; Cheng, Y.†; Segal, M.*; Lorvick, J.*; Case, P.†; Carlson, J.‡; University of California, *San Francisco, CA, †Berkeley, CA, ‡Davis, CA, USA.

4:00 F.C.107
USE OF NEEDLE EXCHANGE PROGRAMS BY SAN FRANCISCO DRUG USERS IN METHADONE TREATMENT. Keffelew, Atnaf; Clark, G.; Bacchetti, P.; Gorter, R.; Osmond, D.; Moss, A.R.; University of California, San Francisco, CA, USA.

4:15 F.C.108
DIFFERENCES IN HIV RATES AND RISK BEHAVIOUR OF DRUG INJECTORS ATTENDING, AND NOT ATTENDING, SYRINGE EXCHANGES IN ENGLAND. Dolan, Katie; Stimson, G.V.; Donoghoe, M.C.; Centre for Research on Drugs and Health Behaviour, Charing Cross and Westminster Medical School, London, UK.

4:30 F.C.109
DIABETES IS PROTECTIVE AGAINST HIV INFECTIONS IN IV DRUG USERS. Nelson, Kenrad E.; Vlahov, D.; Cohn, S.; Lindsay, A.; Solomon, L.; Anthony, J.C.; The ALIVE Study, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, MD, USA.

4:45 F.C.110
CHANGE IN RISKY PRACTICES OF PATIENTS WITH COCAINE AND/OR OPIATE DEPENDENCE AFTER KNOWING THEIR HIV INFECTION STATUS, A NATIONAL STUDY (SPAIN). Fuente, Luis de la*; Barrio, G.*; Izquierdo, M.*; Roig, A.†; Forteza, J.‡; Tor, J.‖; *State Office for the National Plan on Drugs, Madrid, †Servicio de Salud Mental, Valencia, ‡H. Son Dureta, P. Mallorca, ‖H. Trias y Pujol, Barcelona, Spain.

5:00 F.C.111
RATES AND PREDICTORS OF PROGRESSION TO HIV DISEASE AND AIDS IN A COHORT OF INTRAVENOUS DRUG USERS, 1985-1990. Selwyn, Peter A.; Hartel D.; Schoenbaum, E.E.; Davenny, K.; Budner, N.; Klein, R.S.; Friedland, G.H.; Montefiore Med. Ctr./Albert Einstein Col. Med., Bronx, NY, USA.

5:15 F.C.112
CAUSE SPECIFIC RISK OF DEATH IN A COHORT OF INTRAVENOUS DRUG USERS RECRUITED IN MILAN. Galli, Massimo; Musicco, M.; Codini, G.; Zampini, L.; Ciaci, D.; Cruccu, V.; et al.; Clinic of Infectious Diseases and COMCAT Study Group, Milan, Italy.

4C7

FRIDAY, 22 JUNE / 3:30–5:30 PM
TRACK D: SOCIAL SCIENCE & POLICY

D7 *Moscone, Room F*

Panel Discussion: Community Organization and Activism

Chair: Pat Christen (USA)
Moderator: To Be Announced

3:35 F.D.113
THE NEED FOR A SPECIAL COMMUNICATIONS PROGRAM FOR THE ANTIBODY POSITIVE. Edelmann, Frederic*; Cohen, B.*; Mettetal, J. F.†; *ARCAT-SIDA, CIVIS, Paris, France, †Hopital Necker, ARCAT-SIDA, CIVIS.

3:45 F.D.114
AIDS PREVENTION AND COMMUNITY ORGANIZING FOR DEVELOPMENT. Apisuk, Chantawipa*; Teerarojjanapongs, N.†; Mann, J.‡; Grose, R.‡; O'Malley, J.‡; *EMPOWER, Bangkok, Thailand; †FACT, Thailand; ‡World Health Organization, Geneva, Switzerland.

3:55 F.D.115
INTRAVENOUS DRUG USER SELF ORGANIZATION AS AN HIV TRANSMISSION PREVENTION STRATEGY IN AUSTRALIA. Dixon, Jill*; Buzolic, A.†; *Queensland Intravenous AIDS Ass., †Department of Health, Brisbane, Australia.

4:05 F.D.116
ACTIVISM AND ORGANIZING IN MINORITY COMMUNITIES. Jones, Billy; National AIDS Network, Washington, DC, USA.

4:15 F.D.117
ADVOCATING FOR CHILDREN WITH HIV AND THEIR FAMILIES. Monforti, Jeff; Federation for the Care of Children's Health, Atlanta, GA, USA.

4:25 F.D.118
PAST, PRESENT, AND FUTURE OF ACTIVISM IN THE US. Kramer, Larry; AIDS Coalition to Unleash Power, New York, NY, USA.

4:35
DISCUSSION.

D8 *Moscone, Room H*

Abstract Session: Cost, Financing, and Resource Allocation

Chairs: Gabriel Bez (France)
Mervyn Silverman (USA)

3:30 F.D.121
SHORT TERM SCENARIOS ON THE SOCIOECONOMIC IMPACT OF AIDS ON SOCIETY. Jager, Johannes C.*; Poos, M.J.J.C.*; Postma, M.J.*; Houweling, H.*; Postema, C.A.†; Coutinho, R.A.‡; *National Institute of Public Health and Environmental Protection, Bilthoven, †Ministry of Welfare, Health and Cultural Affairs, Rijswijk, ‡Municipal Health Service, Amsterdam, The Netherlands.

3:45 F.D.122
UPDATED FORECASTS OF THE MEDICAL CARE COSTS OF TREATING PERSONS WITH AIDS, 1990-94. Hellinger, Fred J.; National Center for Health Services Research, US Department of Health and Human Services, Rockville, MD, USA.

4:00 F.D.123
THE ECONOMIC IMPACT OF AIDS IN MEXICO. Tapia-Conyer, Roberto*; Martin, A.†; de la Rosa, B.*; Garcia, A.*; Piedrahita, C.†; *CONASIDA, Mexico City, Mexico, †FHI/AIDSTECH, Durham, NC, USA.

4:15 F.D.124
AIDS/HIV COSTS IN ENGLAND: THE COST EXTRACTION METHOD. Rees, Malcolm S.; AIDS Costing Project, Economic Advisers Office, Department of Health, London, UK.

4:30 F.D.125
COSTS OF AIDS IN A DEVELOPING AREA: INDIRECT AND DIRECT COSTS OF AIDS IN PUERTO RICO. Shepard, Donald*; Kouri, Y.*; Rizek, J.†; Garib, J.†; *Harvard Institute for International Development, Cambridge, MA, USA, †San Juan AIDS Institute, Puerto Rico.

4:45 F.D.126
ECONOMIC ANALYSIS OF HEALTH-CARE COST OF HIV ANTIBODY POSITIVE INDIVIDUALS IN BULGARIA. Vlaev, Russi M.; Clinic of Infection Diseases, Sofia, Bulgaria.

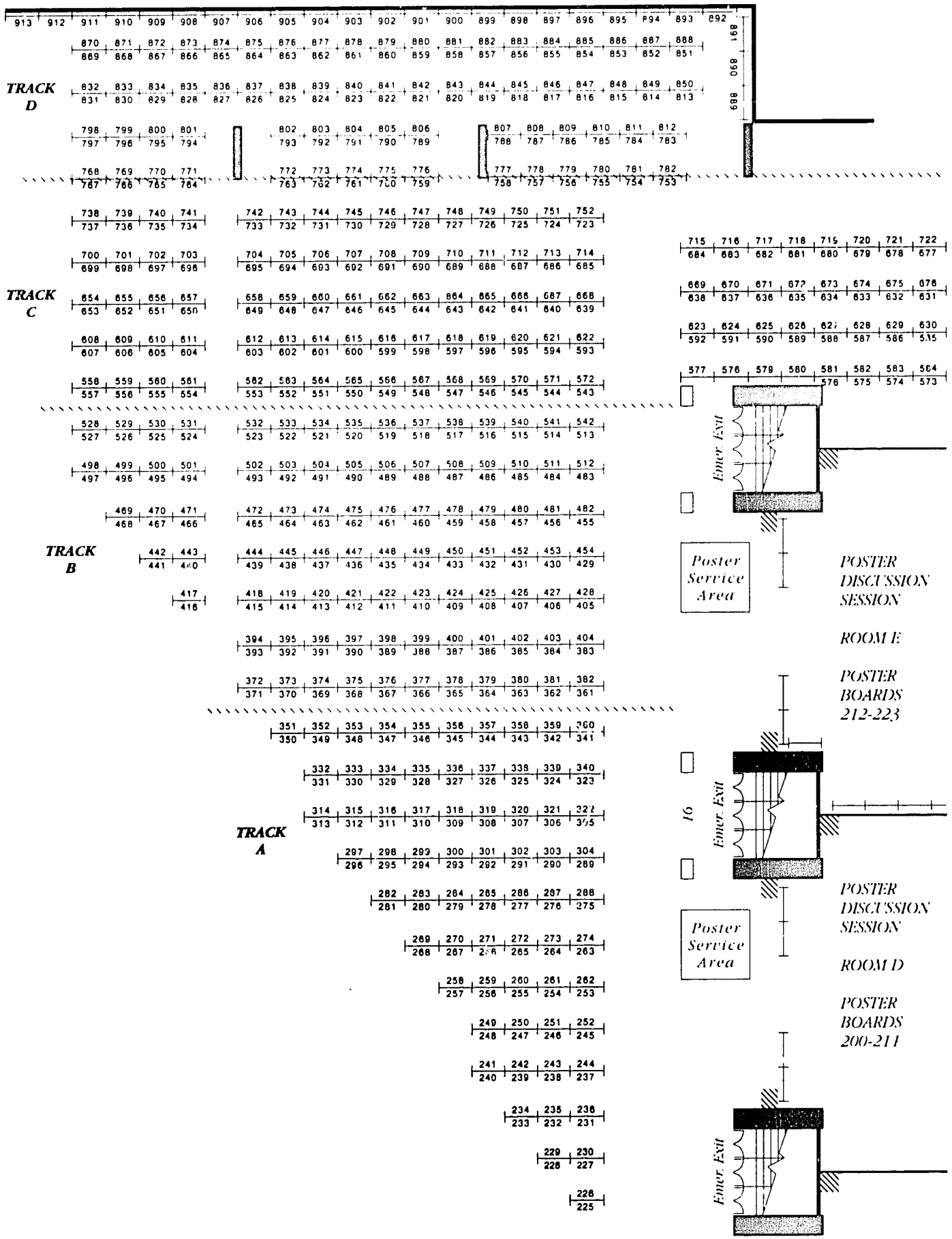
5:00 F.D.127
RAPID ASSESSMENT OF NATIONAL AIDS PROGRAMME COSTS. Shepard, Julia*; Cameron, C.*; Gizaw, G.†; Khodakevitch, L.*; Tarantola, D.*; *Global Programme on AIDS, World Health Organization, Geneva, Switzerland, †National AIDS Programme, Addis Ababa, Ethiopia.

5:15
DISCUSSION.

401

POSTER AREA

MOSCONE/LOWER AREA



POSTER PRESENTATIONS
FRIDAY, JUNE 22

Track A	*Poster Board Numbers*
HIV Replication	225–255
HIV Receptors and Tropism	256–290
Viral Pathogenesis	291–317
HIV Isolation and Detection	318–360

Track B

Neurology: Neuropsychiatric Findings	361–389
Neurology: Other Diagnostic Tests	390–413
Neurology: Treatment and Miscellaneous Issues	414–422
Clinical Heterogeneity of AIDS	423–441
Pediatric and Obstetric AIDS: AIDS in Infants	442–456
Pediatric and Obstetric AIDS: Maternal Issues	457–461
Pediatric and Obstetric AIDS: Epidemiology	462–471
Pediatric and Obstetric AIDS: Infections and Other Complications	472–486
Pediatric and Obstetric AIDS: Therapy	487–493
Nursing Research	494–498
Hematology/Immunology/Allergy	499–521
Miscellaneous Organ Systems	522–542

Track C

HIV Seroprevalence in North America (cont. from Thurs.)	543–577
HIV Seroprevalence in Latin America and the Caribbean	578–594
HIV Seroprevalence in Africa	595–609
HIV Seroprevalence in Asia	610–616
HIV Seroprevalence in Europe	617–653
HIV Seroprevalence in Oceania	654
HIV-2 Seroprevalence	655–663
HTLV-I and HTLV-2 Seroprevalence	664–674
Modelling and Research Methods: Projections and Forecasts	675–677
Modelling and Research Methods: Model Sensitivity	678
Modelling and Research Methods: Data Analysis Issues	679–682
Modelling and Research Methods: Data Collection Issues	683–691
Modelling and Research Methods: Progressional Models	692–695
Modelling and Research Methods: Estimates of Prevalence	696–704
Modelling and Research Methods: Infectivity	705
Determinants of Risk Behavior: Homosexual and Bisexual Men	706–726
Determinants of Risk Behavior: Heterosexuals	727–754
Determinants of Risk Behavior: Drug Users	755–767

Track D

Community Organization and Advocacy	768–798
Cost and Financing: Models	799–801
Cost and Financing: Hospital Inpatient and Ambulatory	802–813
Cost and Financing: Non-hospital Service	814–818
Cost and Financing: By Age, Sex, Risk Group, Payer, and Severity of Illness	819–823
Cost and Financing: Financing	824–828
Financing and Resource Allocation: Cost Effectiveness of Early Drug Treatment	829–833
Financing and Resource Allocation: Cost Effective Means of Prevention	834–837
Financing and Resource Allocation: Other	838–839
Media and Dissemination of Information	840–872
National and International Programs	873–913

Poster Discussion Sessions

Evolutionary Relationship of the Immune-Deficiency Viruses	200–211
Projections and Estimates of HIV and AIDS	212–223

404

FRIDAY, 22 JUNE / 11:30 AM–12:30 PM
TRACK A: BASIC SCIENCE
MOSCONE, ROOM D

Poster Discussion: The Evolution and Diversity of the Immune-Deficiency Viruses
Chairs: M. Hayami (Japan), Scott Putney (USA)

F.A.200
THE ORIGIN OF HUMAN AND SIMIAN IMMUNODEFICIENCY VIRUSES. Moriyama, Etsuko N.*, Ina Y.*, Ikeo K.*, Miura T.†, Tsujimoto H.‡, Yokoyama S. , Hayami M.‡, and Gojobori T.*; *National Institute of Genetics, Mishima, Japan ‡Institute for Virus Research, Kyoto University, Kyoto, Japan ‡Institute of Medical Sciences, University of Tokyo, Japan University of Illinois at Urbana-Champaign, Illinois, USA.

F.A.201
PROSPECTIVE CLINICAL STUDY OF INFANTS WITH PERINATALLY ACQUIRED HIV1 INFECTION IN BRAZZAVILLE, CONGO. Lallemant-Le Coeur, Sophie*, Lallemant, M. **; Cheymier, D.***; Nzingoula, S.***; Larouze, B. et al. *IMEA INSERM U13, Paris, France; **ORSTOM, S URB Paris Brazzaville, Congo; ***Dir. Sante Maternelle et Infantile, Brazzaville, Congo.

F.A.202
COMPARATIVE STUDY ON HIV SIV STRAINS ORIGINATING FROM CENTRAL AFRICAN REPUBLIC. Lang, M.-C.*; Nerrienet, E.*; Georges-Courbot, M.-C.‡; Deslandres, A.*; Sonigo, P.*; Barre-Sinoussi, F.*; Georges, A.J.‡; *Institut Pasteur, Paris, France, ‡Institut Pasteur, Bangui, CAR.

F.A.203
CHARACTERIZATION OF AN INFECTIOUS HIV-2 CLONE FROM A GERMAN AIDS PATIENT WITH NEUROLOGICAL DISEASE. Kirchhoff, Frank; Jentsch, K.D.; Bachmann, B.; Stuke, A.; Lucke, W.; Stahl-Hennig, C.; and Hunsmann, G.; Deutsches Primatenzentrum, Gottingen, FRG.

F.A.204
COMPLETE NUCLEOTIDE SEQUENCE OF A GUINEA-BISSAU HIV2 ISOLATE (HIV2 CAM2). Tristem, Michael; Karpas, A.; Hill, F.; Department of Haematology, University of Cambridge, Cambridge, UK.

F.A.205
ISOLATION OF A HIGHLY DIVERGENT HIV-2 DISTINCT FROM KNOWN ISOLATES OF HIV-2 AND SIV. Kawamura, Meiko*; Sakuragi, j.*; Fukasawa, M.*; Miura, T.*; Gojobori, T.‡; Moriyama, E.N.‡; Mingle, J.A.A.‖; Nettey, V.B.A.‖; Hayami, M.*; *Univ. of Kyoto, Kyoto, Japan; ‡Natl. Institute of Genetics, Shizuoka, Japan; ‖Univ. of Ghana, Accra, Ghana; ‖St. Joseph Hospital, Koforidua, Ghana.

F.A.206
A HIGHLY DIVERGENT HIV-2 RELATED STRAIN, HIV-2 ALT, DEFINES AN ALTERNATIVE TYPE RELATED TO THE HIV-2 SIV MAC SIV SM FAMILY OF VIRUSES. Dietrich, Ursula, Adamski, M., Kuhnel, H., Seipp, A., Kreutz, R., Rubsamen-Waigmann, H.; Georg-Speyer-Haus, Frankfurt, FRG.

F.A.207
PATTERNS OF SEROLOGICAL CROSS REACTIVITY OF HIV-2 ANTIBODY-POSITIVE SPECIMENS ON HIV-1 WESTERN BLOT. Adams, Colleen Westphal*; Beatrice, S.‡; Cabrian, K.‡; Krieger, M.‡; Majewski, S.*; Shriver, M.K.‡; *Epitope, Inc., Beaverton, OR, USA; ‡Div. of Retrovirology and Immunobiology, Bureau of Labs., NYC Dept of Health, NY, NY, USA; ‡Genetic Systems Corp., Seattle, WA, USA.

F.A.208
IMMUNOGENIC NATURE OF THE GP120 C-TERMINAL EXTREMITY OF HIV1, HIV2 AND SIVMAC. 1Baillou A., 1Barin F., 2Mayer R., 3Kanki P., 4M'Boup S., 5Leonard G., 1Goudeau A.; 1Lab. Virologie, Ura Cnrs 1334, Tours, France; 2Centre Marcel Delepine, Cnrs Orleans, F; 3Harvard School of Public Health, Boston MA, USA; 4Universite De Dakar, Senegal; 5Lab; Microbiologie, Chr Dupuytren, Limoges, France.

F.A.209
A NEW ENZYME IMMUNOASSAY FOR TITRATION OF ANTIBODIES TO A CROSS-REACTIVE EPITOPE OF THE MAJOR CORE PROTEIN OF HIV1 AND HIV2: DIAGNOSIS AND PROGNOSIS USEFULNESS. B. Janvier*, F. Barin*, B. Mandrand‡; *URA-CNRS 1334, 37044 Tours, France ; ‡UM103 CNRS-Biomerieux, 69364 Lyon, France.

F.A.210
RELATIONSHIP BETWEEN ONE HIV STRAIN FROM A DOUBLE SEROPOSITIVE PATIENT IN THE IVORY COAST AND SIV AGM ISOLATES FROM AFRICA. Nerrienet Eric*; Pouliquen, J.-F.*; Lang, M.-C.*, Brechot, C.‡; Barre-Sinoussi, F.*; Georges, A.J.‡; Ouattara, S.A.‡; *Institut Pasteur, Paris, France, ‡U75 CHU-Necker, Paris, France, ‡Institut Pasteur, Bangui, CAR, ‖Institut Pasteur, Abidjan, Ivory Coast.

F.A.211
THE HIV-1 PRINCIPAL NEUTRALIZING DETERMINANT CONTAINS CONSERVED SEQUENCES AND STRUCTURES. Putney, Scott*; LaRosa, G.*; Lewis, J.‡; Profy, A.*; Weinhold, K.‡; Matthews, T.‡; Boswell, N.; Dreesman, G.; Karplus, M.‖; Holley, L.‖; Emini, E.‡; Bolognesi, D.‡; *Repligen Corp., Cambridge, MA; ‡Duke U., Durham, NC; ‡MSD Research Labs., West Point, PA; ‖Harvard Univ., Cambridge, MA.

The posters listed above will be up for viewing all day. Please review the posters before the session begins to take maximum advantage of the discussion.

FRIDAY, 22 JUNE / 11:30 AM–12:30 PM
TRACK C: EPIDEMIOLOGY & PREVENTION
MOSCONE, ROOM E

Poster Discussion: Projections and Estimates of HIV and AIDS
Chairs: Andrew Moss (USA), Joel Kaswarra (Uganda)

F.C.212
ESTIMATION OF THE STAGE-SPECIFIC INCIDENCE AND PREVALENCE OF HIV INFECTION USING A MARKOV MODEL AND BACK-CALCULATION. Longini, Ira M., Jr*, Byers, R.H.†, Horsburgh, C.R.‡, Hessol, N.A.‡; *Emory University, Atlanta, GA; ‡Division of HIV/AIDS, Centers for Disease Control, Atlanta, GA; ‡Dept. of Public Health, San Francisco, CA, USA.

F.C.213
AIDS CASE PREDICTIONS FOR THE UNITED STATES. Karon, John M.; Green, T; Centers for Disease Control, Atlanta, GA, USA.

F.C.214
BACKCALCULATION OF THE NUMBER WITH HIV-1 INFECTION IN THE UNITED STATES. Rosenberg P.S.; Biggar R.J.; Goedert J.J.; Gail M.H.; National Cancer Institute, Rockville Maryland USA.

F.C.215
IMPACT OF INTRAVENEOUS DRUG USERS ON THE HETEROSEXUAL AND PAEDIATRIC AIDS EPIDEMIC. EVALUATION AND PREDICTION (BY 1995) WITH A MATHEMATICAL MODEL APPLIED TO PARIS, FRANCE. Flahault, Antoine, Nguyen Phong, C., Guiguet, M., LePont, F., Valleron, A.; INSERM U263, University of Paris, Paris, France.

F.C.216
FORECASTING AIDS CASES AS AN INSTRUMENT TO MONITOR AIDS CASE SURVEILLANCE. Khodakevich Lev*, Mengistu M.†, Bekele S.‡; *WHO Team Leader, AIDS Control Programme, Ethiopia, ‡Department of AIDS Control, MOH, Ethiopia.

F.C.217
SHORT-TERM PROJECTION OF AIDS CASES USING HIV SEROLOGIC DATA. Chin, James; Sato, P.; Global Progamme on AIDS, World Health Organization, Geneva, Switzerland.

F.C.218
RATIO HIV PREVALENCE/AIDS INCIDENCE IN A COHORT OF HOMOSEXUAL MEN AND THE ESTIMATION OF THE HIV PREVALENCE IN URBAN AREAS. Hendriks, Jan+; Medley, G++; Van Druten, J+++; Van Griensven, GJP+; Bindels, PJE+ Coutinho, RA+.; +Municipal Health Service, Amsterdam, the Netherlands; ++Imperial College, London, UK; +++University of Nijmegen, the Netherlands.

F.C.219
SIZE OF THE EPIDEMIC OF TRANSFUSION-ASSOCIATED AIDSIN FRANCE. Le Pont, Francoise; Costagliola, D; Massari, V; Valleron, A-J; Inserm U 263, Universite Paris 7, Paris, France.

F.C.220
MONITORING AND SHORT-TERM FORECASTING OF AIDS IN EUROPE. Downs, Angela M.*+; Ancelle-Park, R.A.*; Costagliola, D.C.+; Rigaut, J.P.+; Brunet, J.-B.*; Natl. Correspondants; *WHO Collaborating Centre on AIDS; +INSERM U263, Univ. Paris 7, Paris, France.

F.C.221
HIV-INFECTED CHILDREN AND AIDS-RELATED ORPHANS IN SUB-SAHARAN AFRICA. Cheek, James*; Chin, J.*; *Global Programme on AIDS, World Health Organization, Geneva, Switzerland.

F.C.222
SCOTLAND'S HIV EPIDEMIC BACK PROJECTION APPLIED TO "C200 CASES". Bird, Graham A.*, Brettle, R.P.*, Galloway, E.†, Gore, S.M.‡, Gruer, L.*, McGee, M.A.‡, Reid, D.‡, Wilkinson, P.‡; *University of Edinburgh, Edinburgh, Scotland; ‡University of Glasgow, Glasgow, Scotland; ‡MRC Biostatistics Unit, Cambridge, England.

F.C.223
A MULTI-POPULATION MODEL OF HIV EPIDEMIC IN LATIUM, ITALY. Arca M.*; Perucci C.A.*; Spadea T.*; Rossi C.†; *Regional Epidemiology Unit, Rome, Italy. † Dept. of Mathematics. II Universita, Rome, Italy.

The posters listed above will be up for viewing all day. Please review the posters before the session begins to take maximum advantage of the discussion.

HIV Replication

F.A.225
EVIDENCE THAT TAT PROTEIN FROM HUMAN IMMUNODEFICIENCY VIRUS LINKS VIRAL RNAS TO NUCLEAR MATRIX. Muller, Werner E.G., Okamoto, T.*, Ugarkovic, D., Schroder, H.C.; Institut fur Physiologische Chemie, Universitaet, Mainz, FRG; *National Cancer Center Institute, Tokyo, Japan.

F.A.226
IN MURINE CELLS, HIGH LEVEL HIV-1 AND HIV-2 TAT MEDIATED TRANS-ACTIVATION MAY REQUIRE DIFFERENT HUMAN CELLULAR COFACTORS. Shank, Peter R., Newstein, M., Lee, M.; Division of Biology and Medicine, Brown University, Providence, RI, USA.

F.A.227
THE NEF GENE DOWN-REGULATES HIV-1 PRODUCTION. Gama Sosa, M.A.*,†, DeGasperi, R.*, Berna J, L.D.†, Hall, J.†, Fazely, F.*,†, Ruprecht, R.M.*,†; Dana-Farber Cancer Institute, Boston, MA, USA.

F.A.228
PLEIOTROPIC EFFECTS UPON HIV REPLICATION INDUCED BY THE NEF GENE. Terwilliger, Ernest, Langhoff, E., Obaru, K., Haseltine, W.; Dana-Faber Cancer Institute, Boston, MA, USA.

F.A.229
HIV-1 VIRUS REPLICATING EFFICIENTLY IN A T4 CELL LINE PRODUCES A NON FUNCTIONAL NEF PROTEIN. Anne G. Laurent1, Ara G. Hovanessian1, Yves Riviere1, Bernard Krust1, Armelle Regnault1, Luc Montagnier1, Annie Findeli2, Marie Paule Kieny2, Bruno Guy2.; 1Unite d'Oncologie Virale (URA CNRS 1157) Institut Pasteur 25, rue Dr. Roux 75724 Paris. 2Transgene S.A. 11, rue Molsheim 67000 Strabourg France.

F.A.230
CHARACTERIZATION OF DIRECT INHIBITION OF HIV-1 REVERSE TRANSCRIPTASE ACTIVITY BY ANTI-P66 MONOSPECIFIC ANTIBODY. DeVico, A.L.*; Sarngadharan, M.G.*.; *Advanced BioScience Laboratories, Inc., Kensington, Maryland, USA.

F.A.231
CHARACTERIZATION OF LONG TERMINAL REPEAT (LTR) MUTATIONS ON HIV REPLICATION AND CYTOPATHICITY. Vicenzi, Elisa; Ross, E.K.; Buckler-White, A.J.*; Leonard, J.; Rabson, A.B.; Martin, M.A.; LMM, NIAID, NIH, Bethesda, MD, USA; *Georgetown University, Rockville, MD, USA.

F.A.232
AMINO ACID SUBSTITUTIONS WITHIN CONSERVED DOMAINS OF THE HIV-1 ENVELOPE IMPAIR INTRACELLULAR TRANSPORT AND PROCESSING OF GP160. Willey, Ronald L.; Martin, M.A.; Natl. Institute of Allergy & Infectious Diseases, Natl. Institutes of Health, Bethesda, MD, USA.

F.A.233
REGULATED TRANSPORT AND PROCESSING OF THE HIV-1 GP160 IN TRANSFECTED. Nakamura Gerald R.†, Berman P.W.†.; *Oncogen Corp., Seattle, WA, USA, †Genentech Inc., South San Francisco, CA, USA.

F.A.234
EARLY MATURATION STEPS OF THE HIV-1 ENVELOPE ANALYZED IN VITRO. Heinz Ellerbrok, Norberto Serpente, Luc d'Auriol*, Marc Sitbon and Catherine Vaquero; Inserm U152, Hopital Cochin,Puris,France Genset, Paris, France.

F.A.235
DOMAINS IN THE HIV/SIV ENV TRANSMEMBRANE PROTEIN CRITICAL FOR CLEAVAGE, FUSION, AND INFECTIVITY. Klimkait, Thomas; Willey, R.; Turner, W.; Martin,M.A.; Laboratory of Molecular Microbiology, NIAID, NIH, Bethesda, MD, USA.

F.A.236
ANALYSIS OF THE DIFFERENT DOMAINS OF THE HIV-1 ENVELOPE SIGNAL PEPTIDE. Heinz Ellerbrok, Luc d'Auriol*, Catherine Vaquero and Marc Sitbon; Inserm U152, Hopital Cochin, Paris, France * Genset, Paris, France.

F.A.237
MUTATIONAL ANALYSIS OF GP41 CARBOXY TERMINAL SEQUENCES INVOLVED IN HIV-1 REPLICATION. Gabuzda, Dana H.; Lever, A.; Helseth, E.; Olshevsky, U.; Haseltine, W.; Sodroski, J.; Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA.

F.A.238
N-ASPARAGINE LINKED OLIGOSACCHARIDE SIDE CHAINS OF THE HIV-1 GP120 ENVELOPE GLYCOPROTEIN ARE POSTTRANSLATIONALLY MODIFIED BY SULFATE MOIETIES. Stein, Barry S.; Engleman, E.G.; Stanford University School of Medicine, Stanford, CA, USA.

F.A.239
THE NONCYTOPATHIC PHENOTYPE OF A NATURALLY OCCURRING HIV-1 IS THE RESULT OF A VIF GENE MUTATION. Sakai, Koji*; Ma, X.*; Gordienko, I.†; Volsky, D.J.*; *St. Luke's/Roosevelt Hosp. Ctr., & Coll. of Physicians & Surgeons, Columbia Univ., NYC, NY; †Medical Sch. of Yale Univ., New Haven, CT, USA.

F.A.240
DEFECTIVE HIV STRAINS PREDICTED TO ARISE THROUGH REVERSE TRANSCRIPTION. Hill, Andrew*, Nee, S†, Anderson RM*; *Imperial College, London UK †Oxford University, Oxford, UK.

F.A.241
FUNCTIONAL ANALYSIS OF THE HIV-1 CAPSID PROTEINS BY SITE-DIRECTED MUTAGENESIS. Goettlinger, H.G., Sodroski, J., Haseltine, W.A.; Dana-Farber Cancer Institute, 44 Binney Street, Boston, MA: 02115 USA.

F.A.242
PARENTAL GAG PROTEINS OF HIV-1 PENETRATE INTO THE NUCLEI OF INFECTED CELLS. Bukrinskaya, Alice; Sharova, N.; Ouryvayev, L.; USSR Academy of Medical Sciences, Institute of Virology, Moscow, Russia.

F.A.243
HIV-1 SUPERINFECTION OF CEM-SS CLONES INFECTED WITH AN INTERFERING RECOMBINANT RETROVIRAL PARTICLE. Federico, Maurizio; Taddeo, B.; Saggio, I.; Orecchia, A.; Verani, P.; Rossi, G.B.; Dept. Virology, Istituto Superiore di Sanita, Rome, Italy.

F.A.244
HUMAN IMMUNODEFICIENCY VIRUS INFECTION OF CD4+ T CELLS BLOCKED IN DNA SYNTHESIS. Tang Shen-Bei, Poulin, L., Levy, J.A.; Cancer Research Institute, University of California, School of Medicine, San Francisco, CA, USA.

F.A.245
ANALYSIS OF THE EARLY PHASE OF HIV-1 REPLICATIVE CYCLE USING SCD4, DDC AND AZT. Pellegrino, Michael; Ma, X-P.; Li, G.; Ma, X-Y; Potash, M.J.; Volsky, D.J.; St. Lukes/ Roosevelt Hosp. Center and Columbia Univ. Coll. of Physicians and Surgeons, NY.

F.A.246
THE INFLUENCE OF DNA METHYLATION AND HISTONE BINDING ON HIV-1 VIRAL GENE EXPRESSION. Laughlin, Mark A., Harouse, J., Kim, J., Gonzalez-Scarano, F.; University of Pennsylvania Medical Center, Philadelpia, PA, USA.

F.A.247
EFFECT OF HIV-1 INFECTION OF NEONATAL MACROPHAGES. Andrea R. Sperduto, Yvonne J. Bryson and Irvin S.Y. Chen; UCLA School of Medicine Los Angeles, CA.

F.A.248
INFECTION OF NORMAL HUMAN BLOOD MACROPHAGES WITH HIV-1, HIV-2 AND SIV. Valentin, A*, Albert, J*,†,Naucler, A‡,Putkonen, P.O‡, Fenyo, E.M* and Asjo, Birgitta*; * Dept.Virology, Karolinska Institute, ‡Dept.Virology and ‡ Dept. Immunology, National Bacteriological Laboratory, Stockholm, Sweden.

F.A.249
STRUCTURAL CHARACTERIZATION OF THE EXTRACHROMOSOMAL HIV-1 REPLICONS IN PERSISTENTLY INFECTED MONOCYTIC CELLS. Pauza, C. David, Singh, M. and Galindo, J.; The Salk Institute for Biological Studies, San Diego, California, USA.

F.A.250
BIOSYNTHESIS, PROCESSING, AND ASSEMBLY OF HIV IN INFECTED MONOCYTES AND T CELLS. Hansen, Brian D., Meltzer, M.S., Gendelman, H.E.; Dept. of Cellular Immunology, Walter Reed Army Inst. of Res., Washington, D.C. 20307-5100.

F.A.251
DIFFERENT INDUCTIVE PATHWAYS OF MONOCYTE ACTIVATION AFFECT IN VITRO HIV REPLICATION. R. Olivier, L. Montagnier; Unite d'Oncologie Virale, Institut Pasteur, Paris, France.

F.A.252
HIV INFECTION OF MONOCYTIC CELLS INDUCES TRANSCRIPTION FACTORS ABLE TO BIND THE HIV ENCHANCER. Alcami, Jose; Bachelerie, F.; Arenzana-Seisdedos, F.; Virelizier, J.L.; Unite'd Immunologie Virale, Institut Pasteur, Paris, France.

F.A.253
REGULATION OF HIV REPLICATION IN INFECTED MONOCYTES AND T-CELLS BY INTERFERON (IFN): MECHANISMS FOR VIRAL RESTRICTION. Gendelman, Howard, Baca, L.M., Turpin, J.A., Kalter, D.C., Hansen, B.D., Meltzer, M.S.;: HM Jackson Fnd, Rockville, MD; USA.

F.A.254
HIGH HIV-1 REPLICATION IN HUMAN LEUKOCYTE SUBSETS ENRICHED IN DENDRITIC CELLS. Langhoff, Erik; Terwilliger, E; Poznansky, M; Lu, Y; Haseltine, W.A.; Dana Farber Cancer Institute, Boston, Massachusetts, USA.

F.A.255
THE REPLICATION OF HIV IN NATURALLY INFECTED CD4+ T CELLS IS INHIBITED BY RIFN-ALPHA2 AND A SOLUBLE FACTOR SECRETED BY CD8+ T CELLS, BUT NOT BY RIFN-BETA, RIFN-GAMMA OR RTNF-ALPHA. Brinchmann, Jan E.; Gaudernack, G.; Vartdal, F.; Institute of Transplantation Immunology, The National Hospital, Oslo, Norway.

HIV Receptors and Tropism

F.A.256
SUPERINFECTION OF HIV-2 INFECTED CELLS BY HIV-1 AND HIV-2 STRAINS. Le Guern, Muriel, Evans, L.A., Canivet, M., Levy, J.A.; University of California, School of Medicine, San Francisco, CA, USA.

F.A.257
EXPANDED HOST RANGE OF HIV-1 ACQUIRED THROUGH MODIFICATION OF GP120. Seto, Deborah, Levy, J.A., Cheng-Mayer, C.; Cancer Research Institute, University of California, San Francisco, CA, USA.

F.A.258
IN-VITRO INFECTION OF NATURAL KILLER CELLS (NK) WITH DIFFERENT HIV ISOLATES. Chehimi, Jihed*, Bandyopadhyay, S.*, Prakash, H.*, Kawashima, H.*, Perussia, B.†, Starr, S.F.*; *Children's Hospital of Philadelphia, Philadelphia, PA; *The Wistar Institute of Anatomy and Biology, Philadelphia, PA; USA.

F.A.259
HUMAN IMMUNODEFICIENCY VIRUS (HIV) INFECTION OF GASTROINTESTINAL (GI) CELL CULTURES. Moyer, Mary Pat*, Ramierz, A., Jr.*, McKee-Suarez, M.S.*, Gendelman, H.E.†; *The Center for Human Cell Biotechnology, Dept. of Surgery, The University of Texas Health Science Center, San Antonio, CA, †Walter Reed Army Institute of Research, Washington, DC, USA.

F.A.260
INFECTION OF COLON EPITHELIAL CELLS BY HIV-1. Evans, Louise; Corbell, J.; Edwards, P.; Vasak, E.; Cooper, D.; Penny, R.; Centre for Immunology, sydney, Australia.

F.A.261
HUMAN IMMATURE EOSINOPHILS ARE HIGHLY SUSCEPTIBLE TO HIV INFECTION. Cornuet, P.*; Georgoulias, V.*; Breard, Jacqueline†; Inserum U268 and †CNRS URA 192, Hopital Paul-Brousse, 94800 Villejuif, France.

F.A.262
THE RAPID CHANGES IN THE LIPID STRUCTURE OF NEUROBLASTOMA CELLS AFTER INFECTION WITH HIV. Klein, Ami*; Malkin, A.*; Bruser, B.*; Li, G.†; Volsky, D.J.†; Mizrachi, Y.†.; Dept. of Biochemistry*, Sunnybrook Med. Ctr., University of Toronto, Toronto, Canada, and St. Luke's Roosvelt Hosp.†, Columbia University, New York, N.Y.U.S.A.

F.A.263
A SMALL SUBPOPULATION AMONG THYMIC CELLS IS SENSITIVE TO HIV INFECTION. Pereira Rosemarie A.*; Nugeyre, M.-T.†; Grangette, C.‡; Vuillier, F.†; Barre-Sinoussi, F.†; *Institute of Medical and Veterinary Science, Adelaide, Australia, †Institut Pasteur, Paris, France, ‡Institut Pasteur, Lille, France.

F.A.264
MONOCYTOTROPISM OF HIV-1 VARIANTS CORRELATES WITH A LOW-VIRULENT BIOLOGICAL PHENOTYPE. Schuitemaker, Johanna; Koostra, N.; Miedema, F.; Tersmette, M.; Central Lab. Neth. Red Cross Blood Transf, Serv. and Lab. of Exp. and Clin. Immunology of the Univ. of Amsterdam, Amsterdam, The Netherlands.

F.A.265
EFFICIENT AND SPECIFIC HIV-1 ENTRY INTO NEURAL CELLS. Mizrachi, Yaffa, Shahabuddin, M.; Gregory, T.*; Volsky, D.J.; St. Luke's/Roosevelt Hosp., Columbia Univ., NY, NY, Genetech, CA.

F.A.266
EFFICIENT HIV-1 ENTRY INTO GLIAL CELLS IS NOT MEDIATED BY CD4. Harouse, Janet M.; Laughlin, M.A.; Godfrey, B.; Friedman, H.; Gonzalez-Scarano, F.; Univ. of PA Sch. of Medicine, Philadelphia, PA, USA.

F.A.267
T CELL AND MACROPHAGE TROPISM OF HIV-1 IS LINKED TO THE ENVELOPE GP120. Shioda, T., Levy, J.A., Cheng-Mayer, C.; University of California, School of Medicine, San Francisco, CA, USA.

F.A.268
HIV-1 INFECTION OF HUMAN MONOCYTE CULTURES: EFFECTS OF CYTOKINES ON HIV REPLICATION. Jendis, Jorg; Bron, C.; Schuepbach, J.; Swiss National Center for Retroviruses, Institute for Immunology and Virology, University of Zuerich, Zuerich, Switzerland.

F.A.269
HIV INFECTION OF HUMAN MEGAKARYOCYTIC CELLS. Sakaguchi, Mamoru; Groopman, J.; Div. of Hematology/ Oncology, New England Deaconess Hospital, Harvard Medical School, Boston, MA, USA.

F.A.270
CHARACTERIZATION OF THE INTERACTION OF ENVELOPE GLYCOPROTEINS OF HIV-1 AND HIV-2 WITH CD4 RECEPTOR: ROLE OF N-GLYCANS IN THESE INTERACTIONS. Bahraoui* Elmostafa, Benjouad† A., Fenouillet† E., Kolbe‡ H., Gluckman† J.C., Montagnier‖ L.; *CNRS UA 1179. †CERVI Pitie-Salpetriere Medical School, Paris. ‡Transgene Strasbourg. ‖Unite d'oncologie virale. Institut Pasteur Paris France.

F.A.271
THE N-TERMINAL REGION OF HIV GP120 CONTAINS POTENTIAL CD4-RECEPTOR BINDING SITES. Syu, W.J., Huang, J.H.*, Essex, M., Lee, Tun-Hou; Department of Cancer Biology, Harvard University School of Public Health, Boston, MA, USA, *Case Western Reserve University School of Medicine, Cleveland, OH, USA.

F.A.272
SEVERAL CD4 DOMAINS PLAY A ROLE IN HIV ENTRY INTO CELLS. Poulin, L., Evans, L.A., Barboza, A., Legg, H., Littman, D.R., Levy, J.A.; University of California, School of Medicine, San Francisco, CA, USA.

F.A.273
CD4 IS THE MACROPHAGE RECEPTOR FOR HIV-1. Collman, Ronald; Godfrey, B.; Douglas, S.; Friedman, H.; Nathanson, N.; Gonzalez-Scarano, F.; Univ. of PA Med. Center, Philadelphia, PA.

F.A.274
ROLE OF CD4 IN FCR-MEDIATED INFECTION OF MONOCYTIC CELLS. Jouault, Thierry; Chapuis, F.; Gluckman, J.C.; CERVI. Pitie-Salpetriere Medical School, Paris, France.

F.A.275
INHIBITORS OF GP120-CD4 BINDING BLOCK HIV INFECTION OF MONOCYTE/MACROPHAGES, EVEN IN THE PRESENCE OF ENHANCING ANTIBODIES. Perno, Carlo-Federico*!; Baseler, M.W.†; Broder, S.*; Yarchoan, R.*; *National Cancer Institute, Bethesda, MD USA; †PRI, Frederick, MD, !II University of Rome, Italy.

F.A.276
FC RECEPTOR AND CD4 MOLECULE ARE REQUIRED FOR ANTIBODY-DEPENDENT ENHANCEMENT OF HIV-1 INFECTION. Takeda, Akira*; Sweet, R.W.†; Ennis, F.A.*; *Univ. of Mass., Worcester, MA, USA; †Smith Kline and Beecham Labs., Philadelphia, PA, USA.

F.A.277
INHIBITION AND ENHANCEMENT OF HIV-1 INFECTIVITY BY LIPOSOMES. Konopka, K., Davis, B.R., Larsen, C.E., Alford, D.R., Debs, R.J., Duzgunes, N.; Cancer Res. Inst. and Dept. Pharm. Chem., University of California, San Francisco; and Medical Res. Inst., Pacific Presbyterian Medical Center, San Francisco; California.

F.A.278
THE MECHANISM OF COMPLEMENT ENHANCED HIV-1 INFECTION. June, Robert A.*; Schade, S.*; Bankowski, M.*; Kuhns, M.†; McNamara, A.†; Lint, T.*; Landay, A.*; Spear, G.*; Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois, USA, †Abbott Laboratories, North Chicago, Illinois, USA.

F.A.279
THE ROLE OF COMPLEMENT IN HIV-1-INFECTION OF THE MYELOBLASTOID CELL LINE U937. Vogetseder, Werner, Reisinger, E., Solder, B., Kofler, D., Bitterlich, G., Dierich, M.;: Institute for Hygiene, Innsbruck, Austria.

F.A.280
ANTIBODY TO LFA-1 BLOCKS INFECTION OF HIV IN T CELLS AND MONOCYTES. Kalter, D. Chester, Gendelman, H.E., and Meltzer, M.S.; H. M. Jackson Foundation, Rockville, MD and Dept. of Cellular Immunology, Walter Reed Army Institute of Research, Washington, D.C. 20307-5100 USA.

F.A.281
ROLE OF LYMPHOCYTE ADHESION MOLECULES IN THE SPREADING OF HIV INFECTION. Butini, Luca, Poli, G., Dayton, A., DeMaria, A., Pantaleo, G., Fauci, A.S.; NIAID, National Institutes of Health, Bethesda, MD, USA.

F.A.282
A RAPID QUANTITATIVE ASSAY FOR INHIBITORS OF THE HIV-1 MEMBRANE FUSION REACTION. Bergmann, John E.; Lederman, S.; Chess, L.; Columbia University College of Physicians and Surgeons, New York, New York, USA.

F.A.283
THE V3 HYPERVARIABLE REGION OF HIV-1 GP120 IS REQUIRED FOR THE FORMATION OF SYNCYTIA IN CD4+ CELLS. Travis, B.M.; Dykers,T.; Wain, R.M.; Critchett, K; Lewis, J.B.; Hu, S.-L.; Oncogen, Seattle, WA. USA.

F.A.284
INTERACTION OF HIV GP41 SYNTHETIC N-TERMINAL FRAGMENTS WITH NATURAL AND ARTIFICIAL MEMBRANES. Andreev, S.M.; Slepushkin, V.A.; Sidorova, M.V.; Melikjan, G.B.; Kornilaeva, G.V.; Tshumakov, V.M.; Azmuko, A.A.; Kalmanson, A.E.; Karamov, E.V.; Institute of Immunology, USSR Ministry of Public Health, Moscow. Institute of Virology, Acad. Med. Sci. USSR, Moscow.

F.A.285
DELINEATING REGIONS OF THE CD4 MOLECULE FUNCTIONALLY IMPORTANT FOR HIV INFECTION AND HIV-INDUCED CELL FUSION WITH SYNTHETIC PEPTIDES AND NEUTRALIZING ANTIBODIES. Rausch, D.*; Celada, F.†; Padgett, M.*; Eiden, L.*; Chandrasekhar, B.*; Kalyanaraman, V.‡; Hwang#K.; Lifson# J.; Nat'l Institute of Mental Health, Bethesda, Md., USA ‡Bionetics Research, Inst., Rockville, Md., USA #Genelabs Incorporated, Redwood City, Ca., USA.

F.A.286
ROLES OF CDR2- AND CDR3-LIKE DOMAINS OF CD4 IN FUNCTIONAL INTERACTIONS WITH HIV ENVELOPE GLYCOPROTEINS AND IMMUNE FUNCTION AS DEFINED BY MONOCLONAL ANTIBODIES AND SYNTHETIC PEPTIDES. Jeffrey D. Lifson*, K.M. Hwang*, D.M. Rausch†, F. Wu*, A. Rivas‡, E.G. Engleman‡, P.E. Estess‖, D. Buck‖, and L.E. Eiden†; *Genelabs Inc, Redwood City CA, †NIH, Bethesda, MD; ‡Stanford Med. Sch., CA; ‖BDMC, Mt. View, CA, USA.

F.A.287
FUSION OF HIV-1 WITH LIPOSOMES. Larsen, Charles*, Alford, D.R.*, Jennings, M.†, Debs, R.*, Duzgunes, N.*; *University of California, San Francisco, CA; †University of California, Davis, CA, USA.

F.A.288
MONOCLONAL ANTIBODIES TO CD4 CAN DIFFERENTIATE BETWEEN THE PROCESSES OF CD4/VIRUS BINDING AND SUBSEQUENT INFECTION. Healey, Donald*, Buck, D†, Moore, J†, Dianda, L*, Beverley, P*, Sattentau, Q*.; *University College, London UK. †Becton Dickenson, La Jolla, California, USA. †Institute for Cancer, London UK.

F.A.289
EFFECT OF AFFINITY ON FUNCTION OF ANTI-CD4 MONOCLOAL ANTIBODIES (MABS). Habeshaw J A. Wilks D Walker L Burchnell-Smith C Dalgleish A G; Retrovirus Research Group Mrc Clinical Research Centre Harrow Middlesex HA1 3UJ England.

F.A.290
INHIBITION OF CHYMOTRYPSIN ACTIVITY BY A MAJOR NEUTRALIZING EPITOPE OF HIV-1. Hattori, Toshio; Murakami, T.; Takatsuki, K.; Second Department of Internal Medicine, Kumamoto University Medical School, Kumamoto, Japan 860.

Viral Pathogenesis

F.A.291
ROLE OF N-LINKED GLYCANS OF THE ENVELOPE GLYCOPROTEINS IN THE INFECTIVITY OF HIV-1. Fenouillet, Emmanuel*; Gluckman, J.C.*; Bahraoui, E.†; *CERVI, Pitie-Salpetriere Medical School, Paris. †Unite d'oncologie virale, Institut Pasteur, Paris, France.

F.A.292
DOWNREGULATION OF HIV-1 REPLICATION, PROVIRUS EXPRESSION AND LTR TRANSCRIPTION BY NEF EXPRESSING CELL LINES. Maitra, Ratna K.*, McCoy, S.†, Ahmad, N.*, Holland, S.M.*, Lane, C.H.†, Venkatesan, S.*; *Laboratory of Molecular Microbiology and †Laboratory of Immunoregulation, National Institute of Allergy and Infectioius Diseases, NIH, Bethesda, MD, USA.

F.A.293
SIGNIFICANCE OF ANTIBODY RESPONSE TO THE VIRAL NEGATIVE FACTOR (NEF) FOR DIAGNOSTOCS OF HIV-1 INFECTION. Kolomeetz, N.D., Bobkov, A.F., Erjomin, Garaev, M.M.; The D.I. Ivanovsky Institute of Virology, Moscow, USSR.

F.A.294
CYTOPATHIC EFFECTS LINKED TO EARLY INTERACTIONS OF HIV WITH THE CELL SURFACE. Fermin, Cesar D., Garry, Robert F.; Tulane School of Medicine, New Orleans, Louisiana, USA.

F.A.295
MOLECULAR DETERMINANTS OF HIV-2 PATHOGENICITY. Kumar, P.1, Kappes, J.C.1, Jin, Shaw, G.M.1, and Hahn, Beatrice H.1.; 1University of Alabama at Birmingham, Birmingham, Alabama, 2University of Pennsylvania, Philadelphia, Pennsylvania.

F.A.296
BIOLOGICAL HETEROGENEITY OF HIV-2 STRAINS. Castro, Blesila A.; Barnett, S.W.; Evans, S.A.; Moreau, J.*; Odehouri, K.*; Levy, J.A.;: Univ. of CA, Sch. of Med., SF, CA, USA; *Treichville Hospital, Dept. of Infectious Diseases, Abidjan, Ivory Coast.

F.A.297
PRODUCTIVE AND PERSISTENT INFECTION OF MT-4 CELLS WITH HIV-1 VIF MUTANT. Ikuta, Kazuyoshi*; Watanabe, M.†; Ogawa, K.‡; Kishi, M.*; Adachi, A.‡; Kato, S.†; Ueda, S.‡; *Inst. Immunol. Sci., Hokkaido Univ., Sapporo, †Res. Inst. Microb. Dis., Osaka Univ., Suita, ‡Inst. Virus Res., Kyoto Univ., Kyoto, Japan.

F.A.298
GENES IN THE 3' END OF THE HIV-1 GENOME CONTROL HIV REPLICATION AND CYTOPATHOLOGY. York-Higgins, Debbie†, Quirogo, M.†, Cheng-Mayer, C.*, Levy, J.A.*, Dina, D.†; *Cancer Research Institute, University of California, San Francisco, CA;†Chiron Corporation, Emeryville, CA; USA.

F.A.299
INFECTION OF HEMOPOETIC PROGENITOR CELLS WITH HIV-1. Kojouharoff, Georgi; Ottmann, O.G.; van Briesen, H.; Ganser, A.; Hoelzer, D.; Dept. of Hematology, University Clinic, Georg-Speyer-Haus, Frankfurt, F.R. Germany.

F.A.300
CD34+ BONE MARROW PROGENITOR CELLS NOT A MAJOR RESERVOIR OF HIV. von Laer, Dorothee*; Hufert, F.+; Kern, P.*; Schwander, S.*; Dietrich, M.*; Schmitz, H.*; Bernhard- Nocht-Institute of Tropical Medicine, Clinical and Virological+ Department, FRG.

F.A.301
INVESTIGATION OF HIV INFECTION IN BONE MARROW HEMOPOIETIC STEM PROGENITOR CELLS. Davis, Brian R.*; Marx, J.*; Johnson, C.*; Berry, M.†; Schwartz, D.*,‡; *Medical Research Institute, San Francisco, CA, USA; †Pacific Presbyterian Medical Center, San Francisco, CA, USA; ‡Stanford University Medical School, Palo Alto, CA, USA.

F.A.302
EXPRESSION OF HIV-1 IN CLIAL CELLS. Herrmann, Reiner*, Ludvigsen, A.†, Chuah, M.†, Brack-Werner, R., Kohleisen, B.† Kleinschmidt, A.†, and Erfle, V.; *GSF-Abt. Mol. Zellpath. Neuherberg, FRG, †Universitat Munchen, FRG, ‡Universitat Libre de Bruxelles, Belgium.

F.A.303
HIV-INFECTED MACROPHAGE SOLUBLE FACTORS ALTER HUMAN BRAIN TISSUE. Pulliam, Lynn; Tang, H.; Herndier, B.; McGrath, M.; Univ. of California, SF, CA, USA.

F.A.304
HIV-1 BR DIRECTLY INFECTS AND IS CYTOPATHIC TO RAT CEREBELLAR CELLS IN PRIMARY CULTURES. Anand, Rita*; Hough, C.†; Gao, X.M.† and Chuang, D.M.†; *Food and Drug Administration, Bethesda, Maryland, USA, †Saint Elizabeths Hospital, Washington, DC, USA.

F.A.305
ANALYSIS OF HIV-1 GENOMIC EXPRESSION DURING INFECTION OF THE DEVELOPING HUMAN NERVOUS SYSTEM IN VITRO. Kunsch, Charles, Wigdahl, B.; Department of Microbiology and Immunology, The Pennsylvania State University College of Medicine, Hershey, PA, USA.

F.A.306
DETECTION OF HIV-1 DNA IN THE LIVER OF AIDS PATIENTS. Cao, Yunzhen; Huang, Y.X.; Moudgil, T.*; Friedman-Kien, A.E.; Mirabile, M.; Dietrich, D.; Thomas, P.A.; Ho, D.D.*; New York University Medical Center, New York, NY; *UCLA School of Medicine and Cedars-Sinai Medical Center, Los Angeles, CA, USA.

F.A.307
GASTROINTESTINAL TISSUE CULTURES FOR HUMAN IMMUNODEFICIENCY VIRUS IN HIV INFECTED AIDS PATIENTS. Church, Deirdre L.; Wright, J.; den Hollander, C.; Lefevbre, K.; Sutherland, L.; Gill, M.J.; GI/HIV Study Group at the Univ. of Calgary, Calgary, Alberta, Canada.

F.A.308
CHARACTERISTICS OF HUMAN IMMUNODEFICIENCY VIRUS TYPE-1 INSIDE THE INFECTED MONOCYTOID CELLS. Matsuda Shunji, Gidlund M., Fenyo E.M., Wigzell H.; Dept. of Immunology and Virology, Karolinska Inst. Stockholm, Sweden.

F.A.309
MACROPHAGES PRODUCTIVELY INFECTED WITH HIV RESIST SUPERINFECTION BY VESICULAR STOMATITIS VIRUS (VSV). Kornbluth, Richard S., Richman, D.; University of California at San Diego, San Diego, CA and the VA Medical Center, San Diego, CA, USA.

F.A.310
RECOMBINANT GP120 OF HIV-1 DIFFERS FROM NATURALLY DERIVED GP120 IN ITS ABILITY TO STIMULATE HUMAN MACROPHAGES. Clouse, Kathleen A.*, Farrar, W.L.‡, Consentino, L.M.‡, Pyle, S.W.‡, Robbins, P.B.‡, Weih, K.A.*, Fauci, A.S.‖; *CBER, FDA, Bethesda, MD; ‡BRMP, NCI, NIH, Frederick, MD; ‡Georgetown University, Washington, DC; ‖NIAID, NIH, Bethesda, MD.

F.A.311
UPTAKE OF FLUORESCEIN-LABELED HIV-1 BY HUMAN MONOCYTES IS ENHANCED BY ANTIBODIES AND COMPLEMENT. Bakker, Leendert J.; Nottet, H.S.; de Vos, N.M.; Van Strijp, JAG; Visser, M.R.; Verhoef, J.; Eijkman-Winkler Laboratory for Medical Microbiology, University Hospital, Utrecht, the Netherlands.

F.A.312
IDENTIFICATION OF HIV-PROVIRUS IN DIFFERENT MONONUCLEAR CELL POPULATIONS USING THE PCR-TECHNIQUE FOR DNA AMPLIFICATION. Hufert, Frank T.*; v. Laer, D.†; Fenner, T.E.*; Schwander, S.†; Kern, P.†; Schmitz, H.*; Bernhard-Nocht-Institute for Tropical Medicine, Dep. of Virology* and Dep. of Clinical Medicine†, Hamburg FRG.

F.A.313
HEMATOPOIETIC GROWTH FACTOR AND CYTOKINE PRODUCTION BY MONOCYTES ISOLATED FROM HIV-INFECTED PATIENTS. Emanuel, Peter D.; Robinson, S.; Saag, M.; Zuckerman, K.S.; Divisions of Hematology Oncology and Infectious Disease, Comprehensive Cancer Center, and Center for AIDS Research, University of Alabama at Birmingham, Birmingham, AL, USA.

F.A.314
HEAT SHOCK INDUCES PRODUCTION OF HIV FROM CHRONICALLY INFECTED PROMONOCYTIC AND T CELL LINES. Stanley, Sharilyn, Bressler, P., Poli, G., Fauci, A.S.; NIAID, NIH, Bethesda, MD, USA.

F.A.315
HIV-1 IN MALE REPRODUCTIVE TISSUES. Pudney, Jeffrey and Anderson D.; *Harvard Medical School, Boston, Massachusetts, U.S.A.

F.A.316
IMMUNOHISTOCHEMICAL MARKER PROFILES OF PLACENTAE OF HIV-EXPOSED PREGNANCIES. Jimenez, Etha*, Backe, E.*, Unger, M.*, Vogel, M.*, Schafer, A.‡, Grosch-Worner‡; Freie Universitat. *Institute of Pathology, †Obst. Clin. ‡Ped. Clin. West Germany.

F.A.317
GP120 COOPERATIVITY: A NEW FINDING THAT PERTAINS TO VACCINE DEVELOPMENT AND RECEPTOR/ANTI-RECEPTOR THERAPIES. Layne, Scott*, Merges, M.†; Dembo, M.*; Spouge, J.‡; Nara, P.‡; *Los Alamos National Laboratory, Los Alamos, NM, USA, †National Cancer Institute, Federal, MD, USA; ‡National Library of Medicine, Bethesda, MD, USA.

HIV Isolation and Detection

F.A.318
EFFECT OF PRIMER-TEMPLATE MISMATCHES ON THE POLYMERASE CHAIN REACTION: HIV-1 MODEL STUDIES. Kwok, Shirley; Kellogg, D.; McKinney, N.; Sninsky, J.; Dept. of Infectious Diseases, Cetus Corp., Emeryville, CA, USA.

F.A.319
DEVELOPMENT OF A PRACTICAL CLINICAL ASSAY FOR HIV INFECTION EMPLOYING TARGET AMPLIFICATION AND HOMOGENEOUS DETECTION OF QUANTITATIVE NUCLEIC ACID HYBRIDIZATION. Ryder, Thomas B.*, Fletcher, H.R., Cabanas, D.K.,McDonough, S.H., Billyard, E.R., Fultz, T.J., Chandler, S., Nunomura, K., Harper, M.E. and Kacian, D.L. Gen-Probe Inc. San Diego, CA USA.

411

F.A.320
QUANTIFICATION AND CLINICAL CORRELATION OF THE HIV PROVIRAL DNA OBTAINED AFTER PCR AMPLIFICATION. Wang, Richard*; Shih, J.†; Alter, H.†; Genesca, J.†; *American Registry of Pathology, Armed Forces Institute of Pathology, Washington, DC, †Department of Transfusion Medicine, NIH, Bethesda, Maryland, USA.

F.A.321
RAPID AND QUANTITATIVE DETECTION BY THE POLYMERASE CHAIN REACTION OF HIV-1 SPECIFIC DNA AND RNA IN SERUM AND IN CULTURE SUPERNATANTS OF INFECTED CELLS. Pollock, Laurie, A.; Hewlett, I.K.; Mayner, R.; Epstein, J.S.; DBBP, FDA, Bethesda, MD.

F.A.322
THE USE OF PCR AND A COLORIMETRIC MICROTITRE PLATE ASSAY FORMAT FOR THE DETECTION AND DIFFERENTIATION OF HTLV 1 AND 2 DNA. Longiaru, Mathew; Silver, S.; Barone, A.D.; Pawlyk, D.; Sulzinski, M.; Roche Diagnostic Systems, Inc., Nutley, NJ, USA.

F.A.323
A SIMPLE REVERSE TRANSCRIPTASE (RT) INHIBITING TEST TO DIFFERENTIATE HIV-1 AND HIV-2. Sano, Kouichi*; Morita, C.*; Ishikawa, K.†; Kawamura, M.†; Takasaki, T.*; Lee, M.‖; Iuagawa, D.‖; Nakai, M.*; *Osaka Medical College, Takatsuki-Shi, Osaka, Japan. †Yamanashi Institute for Public Health, Yamanashi, Japan. ‡Kyoto University, Kyoto, Japan, Harbor-UCLA Medical Center, California, USA.

F.A.324
USE OF THE POLYMERASE CHAIN REACTION (PCR) TO DETECT HIV-2 DNA AND MRNA IN BRAIN TISSUE. Dwyer, Dominic E., Vazeux, R., Bechet, J.M., Montagnier, L.; Unite d'Oncologie Virale, Institut Pasteur, Paris, France.

F.A.325
NOVEL RECOMBINANT ANTIGENS OF HUMAN IMMUNODEFICIENCY VIRUS (HIV). Chang, S.Y., Casipit, C., Hurt, C.M., McGary, E.C., Shih, Yihshing; Cetus Corporation, Emeryville, CA, USA.

F.A.326
QUANTITATION OF HIV-1 PROVIRAL LOAD USING LIMITING DILUTION METHODS AND COAMPLIFICATION OF HIV-1 GAG AND HLA-DQ GENES. Lee, Tzong-Hae*, Sunzeri, F.*, Reis, M.*, Eble, B.†, Vyas, G.†, Busch, M.*,†; *Irwin Memorial Blood Centers, †University of California, San Francisco, CA, USA.

F.A.327
DETECTION OF HIV I PROVIRAL DNA BY PCR AND HIBRIDIZATION WITH DIGOXIGENIN LABELLED PROBES. Costa Taveira, Nuno*; Santos Ferreira, Maria Odette*; Moniz Pereira, Jose*; *Faculdade de Farmacia da Universidade de Lisbon. Portugal.

F.A.328
ANTI-PEPTIDE ANTIBODIES SHOW COMIGRATION OF MATRIX PROTEIN AND A POTENTIAL P17 PRECURSOR OF P7 NUCLEOCAPSID PROTEIN IN HIV-1 WESTERN BLOTS. Henry, Sally; Epstein, J.S.; Liang, C.M.; Center for Biologics Evaluation and Research, FDA, Bethesda, MD, USA.

F.A.329
AN ELISA ASSAY FOR THE MEASUREMENT OF HIV1 RT ANTIGEN. Clive Loveday, Williams, H., and R.S. Tedder; University College and Middlesex School of Medicine, London, England.

F.A.330
PREVALENCE OF HIV REVERSE TRANSCRIPTASE BLOCKING ANTIBODIES DETECTED BY A NEW TECHNIQUE, AND THEIR RELATION TO P24 AND GP41 ANTIBODIES. Neumueller, M., Karlsson, A.*, Lennerstrand, J., Kallander, C.F.R., Holmberg, V.*, Langstroem-Persson, U., Sandstroem, E.*, and Gronowitz, J.S.; Res. Unit Replic. Enzymol. Univ. of Uppsala and Dept.* of Dermato-Venereolgy Sodersjukhuset, Stockholm, Sweden.

F.A.331
CHARACTERIZATION OF A MACROPHAGE DERIVED INHIBITOR OF THE REVERSE TRANSCRIPTASE (RT) ASSAY. Recker, D.*, Kulaga, H.†, Folks, T.‡ and Kindt, T.J.*; *Lab. of Immunogenetics, NIH, Bethesda, MD; †Neuropyschiatry Branch, NIMH, Washington, D.C.; ‡Retrovirus Disease Branch, Center for Disease Control, Atlanta, GA.

F.A.332
DETECTION OF REVERSE TRANSCRIPTASE ACTIVITY IN LYMPHOCYTES FROM HIV INFECTED INDIVIDUALS AND OTHER BIOLOGICAL SAMPLES BY USE OF SOLID PHASE COUPLED TEMPLATES. Gronowitz, J.S., Neumueller, M., Lennerstrand, J., Bhikhabhai, R.*, Unge, T.*, Weltman, H. and Kallander, C.F.R.; Research Unit of Replication Enzymology and Dept.* of Molecular Biology, University of Uppsala, Sweden.

F.A.333
USE OF CHEMILUMINESCENT PROBES AND A RAPID HOMOGENEOUS HYBRIDIZATION METHOD FOR DETECTION OF ENZYMATICALLY AMPLIFIED HIV DNA IN PATIENT SAMPLES. Dondero, Dale*; Sheppard, H.*; McDonough, S.†; *California Department of Health Services (VRDL), Berkeley, CA, USA, †Gen-Probe Inc., San Diego, CA, USA.

F.A.334
COMPARISON OF MICROTITER PLATE AND SPOT BLOT METHODS FOR THE DETECTION OF HIV-1 PCR PRODUCTS. Conway, Brian*; Bechtel, L.J.*; Adler, K.A.†; Kaplan, J.C.*; Hirsch, M.S.*; *Mass. General Hospital, Boston, MA; †DuPont Medical Products, Boston, MA.

F.A.335
EVALUATION OF CAPILLARY CHROMATOGRAPHY FOR DETECTION OF POLYMERASE CHAIN REACTION AMPLIFIED RETROVIRAL DNA. Sunzeri, Franklin*, Brownlee, R.†, Lee, T.-H.*, Busch, M.*; *Irwin Memorial Blood Centers, San Francisco, CA, USA, †Microphoretic Systems, Sunnyvale, CA, USA.

F.A.336
AZT-RESISTANT HIV DETECTION BY RNA-RNA HYBRIDIZATION. Japour, Anthony; Eigenrauch, H.; Chatis, P.; Crumpacker, C.; Beth Israel Hospital, Harvard Medical School, Boston, MA, USA.

F.A.337
QUANTITATION OF HIV-1 RNA IN THE SERUM OF ARC AND AIDS PATIENTS USING THE POLYMERASE CHAIN REACTION (PCR). Holodniy, Mark*; Katzenstein, D.A.*; Sengupta, S.*; Wang, A.†; Casipit, C.†; Schwartz, D.H.*; Konrad, M.†; Groves, E.†; Merigan, T.C.*; *Division of Infectious Diseases, Stanford University School of Medicine, Stanford, CA, 94305, †CetusCorporation, Emeryville, GA, 94608.

F.A.338
SENSITIVE DETECTION OF HIV DNA IN T4 LYMPHOCYTES OF INFECTED INDIVIDUALS BY POLYMERASE CHAIN REACTION. Hsia, Karen; Spector, S.A.; Univ. of California, San Diego, CA, USA.

F.A.339
COMPARISON OF MARKERS FOR EARLY DETECTION OF HIV-1 REPLICATION IN T-CELL CULTURES. Geyer, Sharon J.; Hewlett, I.; Simms, T.; Lee, S.; Epstein, J.; Food and Drug Admin., Bethesda, MD, USA.

F.A.340
ISOLATION OF HIV-1 FROM MICROLITER QUANTITIES OF WHOLE BLOOD. Dilworth, Sonya*; Fowler, Arnold, K.*; Watkins, M.E.*; Redfield, R.R.†; Oster, C.†; Burke, D.S.†; *SRA Technologies, Inc., Rockville, MD, USA; †Walter Reed Retrovirus Research Group, Walter Reed Army Institute of Research, Washington, DC, USA.

F.A.341
T CELL ACTIVATION PATHWAYS THAT RESULT IN RAPID INDUCTION OF HIV-1 IN PBL FROM SEROPOSITIVE HUMANS. Moran, Patricia; Sias, J.; Zarling, J.; Ledbetter, J.; Oncogen Corp., Seattle, WA, USA.

F.A.342
QUANTITATION OF HIV DNA IN BLOOD MONONUCLEAR CELLS FROM PERSONS WITH AIDS USING THE POLYMERASE CHAIN REACTION. Dickover, Ruth E.; Donovan, R.M.; Goldstein, E.; Carlson, J.R.*; Bush, C.E.†; University of California, Medical Microbiology, Davis, CA, USA.

F.A.343
ISOLATION OF HIV-1 FROM JAPANESE SEROPOSITIVE HEMOPHILIACS. Tateno, Yoshiko*; Togashi, T.*; Yoshiki, T.†; Tateno, M.†; *Dept. of Pediatrics and †Dept. of Pathology, Hokkaido University, Sapporo, Japan, ‡Dept. of Pathology, Sapporo City General Hospital, Sapporo, Japan.

F.A.344
EFFECT OF RECOMBINANT GROWTH FACTORS ON MULTINUCLEATED GIANT CELLS & HIV ANTIGEN EXPRESSION BY CULTURED MONOCYTES FROM HIV SEROPOSITIVE PATIENTS. Izaguirre, Carlos*; Shen, Y-N†; Nowak, M.†; Cameron, W.†; Ross, W.M.†; Filion, L.‡, Aye, M.T.*; *Federal Centre for AIDS, †University of Ottawa, ‡Defense Research Establishment, Ottawa, Ontario, Canada.

F.A.345
INFECTIOUS FOCUS ASSAY FOR QUANTITATION OF HIV INFECTION IN MONOCYTE-MACROPHAGES. Sonza, Secondo; Burgess, S; Crowe, S.; Macfarlane Burnet Centre for Medical Research, Fairfield Hospital, Melbourne, Victoria, Australia.

F.A.346
QUANTIFICATION OF PLASMA VIREMIA IN HIV INFECTED CHILDREN AND ADULTS. Saag, Michael; Decker, D.; Campbell, S.; Crain, M.; Leuther, M.*; Shaw, G.; Univ. of Alabama at Birmingham, Birmingham, AL, *Abbott Laboratories, Chicago, IL, USA.

F.A.347
SYNCITIA INDUCTION BY FRESH HIV ISOLATES: QUANTITATIVE ANALYSIS USING A TRANSACTIVATION ASSAY. Emile, Dominique, Maillot, M., Nicolas, J., Devergne, O., Delfraissy, J., Galanaud, P.;: Institut Pasteur, Paris, France.

F.A.348
AMPLIFICATION OF HIV-1 PROVIRUS FROM CSF AND ITS CORRELATION WITH NEUROLOGICAL DISEASE. Shaunak Sunil, Albright RE, Klotman ME, Henry SC, Bartlett JA, Hamilton JD.; Dept of Medicine,Duke Univ, Med, NC, USA, and RPMS, Hammersmith Hospital, London UK.

F.A.349
POSITIVE POLYMERASE CHAIN REACTION (PCR) IS ASSOCIATED WITH DISEASE PROGRESSION IN A COHORT OF SEROPOSITIVE HOMOSEXUAL MEN. Neumann, P.*; Weaver, M.†; O'Shaughnessy, M.*; CCassol, S.*; Craib, K.†; Le, T.†; Schechter, M.†; *Federal Centre for AIDS, Ottawa, Canada; †Vancouver Lymphadenopathy-AIDS Study, University of B.C. & St. Paul's Hospital, Vancouver.

F.A.350
BRONCHOALVEOLAR LAVAGE SPECIMENS CONTAIN HIV-1 PROVIRUS PREDOMINANTLY IN LYMPHOCYTES. Schade, Sylvia*; Spear, G.*; Bankowski, M.*; Takefman, D.*; Kuhns, M.†; McNamara, A.†; Rosen, R.*; Kessler, H.*; Landay, A.*; Rush Medical Center, Chicago, IL, †Abbott Labs, N. Chicago, IL, USA.

F.A.351
PRODUCTIVE HIV INFECTION LEVELS CORRELATE WITH AIDS RELATED MANISFESTATIONS IN THE PATIENTS. Dominique, Mathez*; Sultan, Y.†; De Belilovsky, C.*; Paul, D.*; Decker, R.*; Leibowitch, J.*; *Hopital Raymond Poincare, Garches, France, †Hopital Cochin, Paris France, ‡Abbott Laboratories, North Chicago, Illinois, USA.

F.A.352
EPISODIC HIV REPLICATION IN CIRCULATING LYMPHOCYTES. Ohlsson-Wilhelm, Betsy M.*; Cory, J.M.*; Cimoch, P.J.†; Eyster, M.E.*; Rapp, F.*; Reiter, W.M.†; *The Pennsylvania State Univ. College of Med., Hershey, PA; †Center for Special Immunology, Fort Lauderdale, FL.

F.A.353
STUDY OF HIV INFECTION BY PCR IN SERONEGATIVE MULTITRANSFUSED B-THALASSEMIACS PATIENTS. Markoulatos, Panayotis*; Ferris, Stephane†; Karagiorga-Lagana, Markissia‡; Kordossi, Aphroditi*; Montagnier, Luc†; and Moncany, Maurice L.J.†; *Institut Pasteur Hellenique, Athens, Greece; †Unite d'Oncologie Virale, Institut Pasteur, Paris, France; ‡Thalassemia Unit, Aghia Sofia Children's Hospital, Athens, Greece.

F.A.354
PCR IN HIV-1 SEROPOSITIVE AND IN SERONEGATIVE AT-RISK INDIVIDUALS. Mariotti, Martine*; Rouger, P.*; Vitttecoq, D.†; Ferrer-le-Coeur, F.*; Noel, B.‡; Wattel, E.*; Lefrere, J.J.*; *FNTS, Paris, †Hopital Necker, Paris,‡CTS, Chambery, France.

F.A.355
DETECTION OF HIV-1 PROVIRAL DNA AND VIRAL RNA IN URINE PELLETS FROM HIV-1 SEROPOSITIVE INDIVIDUALS. Li Jian Jun, Cao YZ, Mirabile M, Tao P, Huang YQ,Huang YX, and Friedman-Kien, AE.; New York University Medical Center, New York, NY 10016.

F.A.356
HIV-ANTIGEN DETECTION IN IMMUNE COMPLEXES AND ITS RELATION TO THE CLINICAL AND IMMUNOLOGICAL STATUS. Kestens, Luc; Hoofd, G.; Gigase, P.; Goilav, C.; Deleys, R.; van der Groen, G.; Institute of Tropical Medicine; Innogenetics, Antwerpen, Belgium.

F.A.357
IMPROVED PROGNOSIS OF HIV INFECTION IN NEWBORNS AND CHILDREN BY PCR AMPLIFICATION OF VIRAL RNA. Escaich Sonia*, Wallon M+, Ritter J+, Philippe N!, Sepetjan M+, Trepo C*, et al.; *Inserm u 271 Lyon ; +Laboratoire D'Hygiene, Faculte Lyon Nord ; !Immunohematologie Pediatrique, Hopital Debrousse Lyon,France.

41

F.A.358

HIV ANTIGEN EXPRESSION AND VIRAL DNA DETECTION BY PCR IN MONOMUCLEAR CELLS OF SERONEGATIVE AT RISK CHILDREN. Gabiano, Clara, Riva, C., Palomba, E., Lombardi, V.*, Valpreda, A., Moschese, V.*, Rossi, P.*, Tovo, P-A.; Department of Pediatrics, University of Turin, Turin, Italy; *Division of Immunology, Karolinska Institute, Stockholm, Sweden.

F.A.359

THE PRESENCE OF HIV-1 GENOME IN HUMAN COLOSTRUM FROM ASYMPTOMATIC SEROPOSITIVE MOTHERS. Pezzella, Mario+; Caprilli, F.++; Cordiali Fei, P.++; Crescimbeni, E.++; La Rosa, F.+; Castiglione Humani, A.+++.; +Institute Infectious Diseases, Policlinico Umberto I, University La Sapienza, ++Dermosyphylopatic Institute S. Gallicano, +++R. Margherita Rome Italy.

F.A.360

VIROLOGIC AND SEROLOGIC CHARACTERISTICS OF HIV-1 INFECTION IN CHILDREN. Kawashima, Hisashi, Bandyopadhyay, S., Rutstein, R., Plotkin, S.; Children's Hospital of Philadelphia, Philadelphia, PA, USA.

FRIDAY, 22 JUNE / POSTER SESSION
TRACK B: CLINICAL SCIENCE & TRIALS

Neurology: Neuropsychiatric Findings

F.B.361
SUBTLE COGNITIVE CHANGES IN HIV INFECTION. Levin, Bonnie E.*; Berger, J.R.*+; Didona, T.M.*; Black, R.*; Duncan, R.#; From the University of Miami School of Medicine, *Departments of Neurology, +Internal Medicine and #Oncology, Miami, Florida, USA.

F.B.362
NEUROPSYCHOLOGICAL CHANGE AT ONE-YEAR FOLLOW-UP OF HIV-INFECTED MALES. Velin, Robert, Heaton, R., Atkinson, J., Grant, I., McCutchan, J.; University of California, San Diego and VA Medical Center, San Diego, CA, USA.

F.B.363
THE NEUROPSYCHOLOGY AND PSYCHIATRY OF HIV INFECTION IN ASYMPTOMATIC GAY MEN—ST. STEPHEN'S COHORT STUDY. Riccio Massimo*/†; Jadresic D*/†; Hawkins D*; Wilson B‡; Thompson C‖; *St. Stephen's Hospital, †Charing Cross Hospital, London; ‡Southampton General Hospital, Southampton; ‖Royal South Hants Hospital, Southampton; U.K.

F.B.364
RECENT AND REMOTE SYPHILIS AND ITS RELATIONSHIP TO NEUROPSYCHOLOGICAL TEST PERFORMANCE DURING ASYMPTOMATIC HIV-1 INFECTION. Selnes, Ola A.*; McArthur JC*; Miller EN†; Cohen B‡; Wesch J‡; Becker J‖; McArthur JH*; Saah A*; Jacobson, LP*; *Johns Hopkins Medical Institutions, Baltimore, MD, †Univ of California, Los Angeles, CA, ‡Northwestern Univ, Chicago, IL, ‖Univ of Pittsburgh, PA, USA.

F.B.365
NEUROPSYCHOLOGICAL DEFICIT IN HIV INFECTED GAY MALES. Bornstein, R., Nasrallah, H., Rosenberger, P., Para, M., Fass, R.; The Ohio State University, Columbus, Ohio.

F.B.366
THE LONGITUDINAL ASSESSMENT OF PERCEIVED AND OBJECTIVE COGNITIVE IMPAIRMENT IN HIV SEROPOSITIVE MEN. Canick, Jonathan D.* and Temoshok, L.†; *University of California School of Medicine, San Francisco, CA, USA; †Henry Jackson Foundation, Walter Reed Army Medical Center, MD, USA.

F.B.367
NEUROLOGIC FINDINGS IN EARLY HIV INFECTION: A PROSPECTIVE STUDY. Coats, Michael*; Salazar, A.M.†; Martin, A.†; Williams, J.†; Brown, D.*; Jabbari, B.*; Brown, H.†; Graves, M.‡; *Walter Reed Army Medical Center, Washington, DC; †Uniformed Services University of the Health Sciences, ‡H.M. Jackson Foundation, Bethesda, Maryland, USA.

F.B.368
NEUROPSYCHOLOGICAL AND PSYCHOLOGICAL MEASURES PROVIDING SENSITIVE DISCRIMINATION OF DIAGNOSTIC CATEGORY IN HIV-SPECTRUM PATIENTS. Stroad, Margaret, Boccellari, A., Biggart, E., and Pope, D.; San Francisco General Hospital, Neuropsychology Service, San Francisco, California, U.S.A.

F.B.369
RELATIONSHIP BETWEEN COGNITIVE DYSFUNCTION AND MOOD STATE AT DIFFERENT STAGES OF HIV DISEASE. Krell, Pamela*; Wisniewski, A.†; Jensen, P.‡; *Veterans Administration Medical Center, San Francisco, Calif. USA.

F.B.370
REPORT ON 2-YEAR NEUROPSYCHOLOGICAL STUDY OF HIV SEROPOSITIVES. Kocsis, A.; St. Mary's Hospital—London, UK.

F.B.371
NEUROLOGIC FINDINGS IN 95 GAY MEN. Villasana, David; Thal, L.; Grant, I.; Atkinson, H.; Weinrich, J.; University of California, San Diego, California, USA.

F.B.372
PSYCHIATRIC SYMPTOMS AND NEUROPSYCHOLOGICAL FUNCTIONING IN HIV-INFECTED PATIENTS. ETIOLOGY?. Naber, Dieter; Perro, C.; Schick, U.; Einhaupl. K.*; Pyschiatric Hospital of the University of Munich,: *Neurological Hospital of the University of Munich.

F.B.373
RATE OF NEUROPSYCHOLOGICAL (NP) ABNORMALITIES IN PATIENTS WITH HIV INFECTION. Perdices, Michael, Cooper, D.; National Centre in HIV Epidemiology and Clinical Research, Sydney, Australia.

F.B.374
RELATIONSHIP OR NEUROPSYCHOLOGIC AND IMMUNOLOGIC PARAMETERS IN ASYMPTOMATIC HIV SEROPOSITIVE INDIVIDUALS. Francine F-A. Sarazin, DW Cameron, GE Garber, MT; Aye and the University of Ottawa AIDS Study Group, Ottawa, Ontario, Canada.

F.B.375
A SCREENING TEST BATTERY FOR COGNITIVE DEFICITS IN HIV INFECTION. Woo, Stephen*; Hunter, J.*; Wang, P.*; Wortzman, G.*; Fernandez, B.*; Chemerynsky, I.*;: *Mount Sinai Hospital, University of Toronto, Toronto, Ontario, Canada.

F.B.376
THE NEUROPSYCHIATRIC AIDS CHECKLIST: ITS RELATIONSHIP TO HIV STATUS, IMMUNE FUNCTIONING, AND NEUROPSYCHIATRIC PERFORMANCE. Boccellari, Alicia; Dilley, J.W.; Davis, A.; Moss, A.; Bacchetti, P.; Kelly, T.; University of California San Francisco School of Medicine and San Francisco General Hospital, San Francisco, California, USA.

F.B.377
IMPLICATIONS OF SELF-REPORTED COGNITIVE AND MOTOR DYSFUNCTION IN AN HIV+ PATIENT POPULATION. Wilkins, J. W.; Robertson, K.; Snyder, C.; Robertson, Wendy T.; van der Horst, C.; Hall, C.; University of North Carolina, Chapel Hill, NC USA.

F.B.378
IMPAIRED LEARNING AND MEMORY IN ASYMPTOMATIC HIV POSITIVE INDIVIDUALS DEMONSTRATED BY THE SELECTIVE REMINDING TEST. Maruff, Paul T., Currie, J., Ramsden, B., Benson, E., Mulhall, B.; Mental Health Research Institute of Victoria, Alfred Hospital, Melbourne, Australia.

F.B.379
SPATIAL ATTENTION IN EARLY HIV INFECTION. Martin, Eileen, Edelstein, H.E., Robertson, L.C., Sorensen, D.J.; University of California Medical School, Davis, CA and Veterans Affairs Medical Center, Martinez, CA, USA.

F.B.380
EARLY INTELLECTUAL IMPAIRMENT IN HIV-INFECTED PATIENTS. A LONGITUDINAL STUDY. Gastaut, Jean Albert‡, Bolgert, F.*, Brunet, P.*, Cances, A.M.*, Chave, B.†, Chieze, F.*, Dhiver, C.‡, Gastaut, J.L.†, Gentilini, M.*, Katlama, C.*, Pierrot de Seilligny, H.*, Signoret, J.L.*; *Hospital Pitie-Salpetriere, Paris, France; †Hospital Sainte Marguerite, ‡Hospital de jour (CISIH), Hospital Salvator, Marseille, France.

F.B.381
A BRIEF NEUROPSYCHOLOGIC SCREENING BATTERY FOR PATIENTS WITH HIV-DISEASE. Wisniewski, Amy; Vanderburg, D.; San Francisco Veterans Affairs Medical Center and University of California, San Francisco, California, USA.

F.B.382
PROSPECTIVE STUDY OF NEUROLOGICAL INVOLVEMENT IN EARLY HIV INFECTION: ONE YEAR FOLLOW-UP. Marra, Christina, Collier, A.C., Longstreth, W.T., Claypoole, K.H., Cohen, W.A., Handsfield, H.H.; Division of Infectious Diseases, Harborview Medical Center, University of Washington, Seattle, WA, USA.

F.B.383
SIMPLE AND CHOICE REACTION TIME IN HIV-, HIV+, AND AIDS PATIENTS. Nance, Matthew* †, Pirozzolo, F.†, Levy, J.†, Fernandez, F.†; *University of Houston, Houston, Texas; †Baylor College of Medicine, Houston, Texas, USA.

F.B.384
NEUROLOGIC FOLLOW UP STUDY IN A GROUP OF ASYMPTOMATIC HIV-1 POSITIVE SUBJECTS. Spadaro, Maria; Tilia, G.; Pinter, E.(*); Bianco, F.; Bernabei, A.; Mezzaroma, I. (*); D'Offizi, GP. (*); Morocutti, C.; Nervous and Mental Diseases Inst.; (*) Dpt. of Allergy and Clin. Immunology University La Sapienza Rome, Italy.

F.B.385
NEUROPSYCHOLOGICAL STATUS AND STAGE OF HIV INFECTION IN A COHORT OF INTRAVENOUS DRUG ABUSERS. Jacas, Carlos, Muga R, Tor J, Barranco L, Pascual J, Navio M, Rey-Joly C, Foz M.; Hospital Germans Trias I Pujol. Badalona, Barcelona, Spain.

F.B.386
NEUROLOGICAL SIGNS AND SYMPTOMS IN PARENTERAL DRUG USERS. Marder, Karen, Malouf, R., Dooneief, G., Bell, K., Chen, G., Gorman, J., Ehrhardt, A., Mayeux, R.; HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, New York, NY, USA.

F.B.387
ASSESSMENT OF A GROUP OF ASYMPTOMATIC INTRAVENOUS DRUG USERS FOR HIV-RELATED NEUROLOGICAL IMPAIRMENT. Royal, W.,III; Updike, M.; McArthur, J.C.; Selnes, O.A.; Proctor, T.V.; Solomon, L.; The Johns Hopkins Medical Institutions, Baltimore, MD, USA.

F.B.388
HIV POSITIVE (+VE) DRUG USERS ARE COGNITIVELY IMPAIRED, BUT DO NOT HAVE EARLY AIDS DEMENTIA COMPLEX (ADC). Egan, Vincent*; Crawford, J.R.†; Goodwin, G.M.‡; Brettle, R.P.‖; Dept. Psychiatry, Royal Edinburgh Hospital*, Dept. Psychology, King's College, Aberdeen†, MRC Brain Metabolism Unit, Royal Edinburgh Hospital‡, Infectious Diseases Unit, City Hospital, Edinburgh‖, all Scotland.

F.B.389
MILD COGNITIVE IMPAIRMENT IN HIV INFECTED ASYMPTOMATIC OR OLIGOSYMPTOMATIC HEMOPHILIACS. Kokkevi, Anna, Hatzakis, A., Arvanitis, Y., Maillis, A., Zalonis, J., Samartzis, D., Pittadaki, J., Mandalaki, T., Stefanis, C.; Department of Psychiatry, University Medical School, Athens, Greece.

Neurology: Other Diagnostic Tests

F.B.390
CEREBROSPINAL FLUID BETA-2-MICROGLOBULIN AND AB HIV P24 IN PATIENTS WITH AIDS. Perrella, Oreste; Izzo,E.; Liberti, A; Gnarini, R; Morisco, E; Arciello, G; Piccolo,F; Soscia, M.; Ospedale D. Cotugno, Naples, Italy.

F.B.391
ISOLATION OF HIV FROM CEREBROSPINAL FLUID (CSF) AND THE DEVELOPMENT OF CENTRAL NERVOUS SYSTEM DISEASE. Spector, Stephen A.; McCutchan, J.A.; Atkinson, J.H.; Villasana, D.; Weinrich, J.; Grant, I.; University of California, San Diego, California, USA.

F.B.392
CEREBROSPINAL FLUID EVALUATION IN HIV+ SUBJECTS. Colin D. Hall, Snyder C, Robertson K, Messenheimer J, Wilkins J, Whaley R, Silverman L, Robertson W, van der Horst C.; University of N. Carolina, Chapel Hill, NC USA.

F.B.393
ACTIVATED TERMINAL COMPLEMENT (SC5B-9) IN CEREBROSPINAL FLUID OF PATIENTS WITH AIDS DEMENTIA COMPLEX (ADC). Sonderowicz, Adrian; Noletti, C.; Lange, M.; Inada, Y.; Watanabe, K.; St. Luke's/Roosevelt Hospital Center, Columbia University, New York, N.Y. 10025.

F.B.394
LEVELS OF TUMOR NECROSIS FACTOR (TNF) IN THE CEREBROSPINAL FLUID (CSF) FROM HIV-INFECTED PATIENTS. Mastroianni, Claudio M.*; Paoletti F.*; Ferri F.*; Valenti C.*; Di Seri M.†; Vullo V.*; *Institute of Infectious Diseases, †Dep. Med. Sperim., University La Sapienza, Rome, Italy.

F.B.395
DETECTION OF HIV-PROTEINS SPECIFICITY OF IgG INTRATHECAL SYNTHESIS IN HIV INFECTION. Carbonara, Sergio; Angarano, G.; Quarto, M.*; Fiore, JR; Monno, L; Barbuti, S.*; Pastore, G.; Institute of Infectious Diseases and *of Hygiene, University of Bari, Bari, Italy.

F.B.396
VIROLOGICAL AND IMMUNOLOGICAL PARAMETERS IN CSF FROM HIV INFECTED SUBJECTS WITH OR WITHOUT CNS INVOLVEMENT. Castagna, Antonella*; Cavalli, G.†; Grimaldi, L.M.E.‡; Amprimo, M.C.‡; Martino, G.‡; Bini, T.*; Lazzarin, A.*; *Infectious Diseases Clinic, ‡IV Neurology Department, University of Milan, Milan, ‡Laboratory Department, G. Bosco Hospital, Turin, Italy.

F.B.397
PROGRESSIVE SLOWING OF REACTION TIME AND INCREASING LEVELS OF CEREBROSPINAL FLUID QUINOLINIC ACID IN HIV+ SUBJECTS. Martin, Alex*; Heyes, M.P.*; Salazar, A.M.‡; Williams, J.‡; Law, W.‖; Roller, T.‖; Kampen, D.‡; Coats, M.†; Markey, S.P.*; *National Institute of Mental Health, Bethesda, MD; †Walter Reed AMC, Washington, DC; ‡USUHS, Bethesda, MD; ‖H.M. Jackson Foundation, Rockville, MD, USA.

F.B.398
NEUROPHYSIOLOGICAL DATA IN HIV+ INFECTION. Grippo, Antonello*; Ghidini, P.*; Di Pietro, M.!; Mazzotta, F.!!; Bartolozzi, D.!; Pinto, F.*; *University of Florence and !Careggi Policlinic, Florence, Italy.

F.B.399
PROGRESSIVE ELECTROPHYSIOLOGIC ABNORMALITIES IN ASYMPTOMATIC HIV-INFECTED HOMOSEXUALS: A PROSPECTIVE CONTROLLED STUDY. Koralnik, Igor; Beaumanoir, A.; Hausler, R.; Mayer, E.; Safran, A.B.; Hirschel, B. et al; Geneva University Hospital, Geneva, Switzerland.

F.B.400
USING COMPUTED TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING TO DISTINGUISH INTRACRANIAL LESIONS AND THE NEED FOR BIOPSY IN PATIENTS WITH AIDS. Ciricillo, Samuel F.; Rosenblum, M.L.; University of California, San Francisco, California, USA.

F.B.401
HIV ENCEPHALOPATHY: CLINICAL STAGING, MRI AND SPECT-FINDINGS. Galgani Simonetta*, Balestra P.*, Narciso P.+, Pau F.!, Tozzi V.+, Volpini V.*, Visco G.+.; USL RM10: *S. Camillo Hosp., +L. Spallanzani Hosp., !C. Forlanini Hosp., Rome; Italy.

F.B.402
ALTERATIONS IN BRAIN PHOSPHATE METABOLITE CONCENTRATIONS IN PATIENTS WITH HIV INFECTION AS MEASURED BY MAGNETIC RESONANCE SPECTROSCOPY. Deicken, Raymond F.; Hubesch, B.; Jensen, P.; Sappey-Marinier, D.; Fein, G.; Weiner, M.W.; San Francisco VA Medical Center and the Univ. of Calif., S.F., California, U.S.A.

F.B.403
ABNORMAL BRAINSTEM AUDITORY EVOKED POTENTIALS (BAEPS) IN HIV-INFECTED INDIVIDUALS. Pagano, Miguel*; Perez, H.*; Garau, L.*; Casiro, A.*; Mangone, C.*; Cahn, P.; *Htal Fernandez, Buenos Aires, Argentina.

F.B.404
NATURAL HISTORY OF BRAIN INVOLVEMENT BY HIV AS PROSPECTIVELY STUDIED WITH MRI IN A COHORT OF 50 PATIENTS: RESULTS AFTER A FOLLOW UP OF 3 YEARS. Trotot Pierre M.+; Sandoz-Tronca C.+, Prady C.+, Pialoux G.+, Kirstetter M.+, Yamashita H.++.; +Institut Pasteur Hopital, Paris, France, ++Escola de Paulista Sao Paulo, Brazil.

F.B.405
DIAGNOSTIC AND PROGNOSTIC VALUE OF MAGNETIC STIMULATION IN HIV INFECTED PATIENTS. Moglia, Arrigo*; Zandrini, C.*; Bono, G.†; Alfonsi, E.*; Parisi, A.‡; Malfitano, A.‡; *Dept. of Neurophysiology and †3rd Dept. of Neurology, IRCCS C. Mondino; ‡Dept. of Infectious Diseases, IRCCS Policlinico S. Matteo, University of Pavia, Italy.

F.B.406
HMPAO SPECT IN EARLY STAGES OF HIV INFECTION. Schielke, Eva; Tatsch, K.; Einhaupl, K.M.; Kirsch, C.M.; Trenkwalder, C.; Pfister, H.W.; Departments of Neurology and Radiology, University of Munich, Munich, FRG.

F.B.407
A LONGITUDINAL STUDY OF MAGNETIC RESONANCE IMAGING (MRI) FINDINGS IN HIV-1 INFECTED HOMOSEXUAL MEN: THE MULTICENTER AIDS COHORT STUDY (MACS). McArthur, Julie H.; Aylward, E.; McArthur, J.C.; Kumar, A.J.; Selnes, O.A.; Margolick, J.; Saah, A.; The Johns Hopkins Med. Institutions, Baltimore, MD, USA.

F.B.408
THE EFFICACY OF IMAGE GUIDED STEREOTAXIC BRAIN BIOPSY IN NEUROLOGICALLY SYMPTOMATIC AIDS PATIENTS. Levy, Robert; Russell, E.; Brody, B.; Yungbluth, M.; DalCantro, M.; Northwestern University Medical School, Chicago, Illinois, USA.

F.B.409
LOWER LIMB SOMATOSENSORY EVOKED POTENTIALS IN HIV INFECTION: FOLLOW UP. McAllister RH, Connolly Sean, Griffin GB, Newman SP, Manji H, Fowler CJ, Weller IVD, Harrison MJG.; University College & Middlesex School of Medicine, London UK.

F.B.410
EEG-TOPOGRAPHY BY EEG-MAPPING: HINTS FOR AN EARLY CEREBRAL MANIFESTATION?. Riedel R.-R (1), Bulau P. (2); 1University Clinic Munich, Dept. of Psychiatry, 8000 Munich, FRG 2University Clinic Bonn, Dept. of Epileptology. 5300 Bonn, FRG.

F.B.411
BEHAVIORAL CORRELATES OF MAGNETIC RESONANCE IMAGING IN HIV. Dooneief, George; Bello, J; Mun, I; Gorman, J; Todak, G; Marder, K; Bell, K; Stern, Y; and Mayeux, R.; HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, New York, New York, USA.

F.B.412
POSTURAL IMBALANCE AS AN EARLY SIGN OF HIV INFECTION. Straube, A.; Trenkwalder, Claudia; Einhaupl, K.; Botzel, K.; Krafczyk, S.; Paulus, W.; Pfister, W.; Schielke, E.; Department of Neurology, University of Munich, Munich, FRG.

F.B.413
MEDICATION EFFECTS ON AFFECT AND COGNITION IN HIV DISEASE. Ollo, Christine*, Bridge TP*, Kenagy G*, Govoni L†; Lane HC‡; *LCS NIMH, Bldg 10 Rm 4C-418, †CC NIMH, ‡LIR NIAID, 9000 Rockville Pike, Bethesda, MD., USA: 20892.

Neurology: Treatment and Miscellaneous Issues

F.B.414
CORRELATION BETWEEN CSF ZIDOVUDINE (ZDV) CONCENTRATION (CONC.) AND NEUROLOGIC AND CSF FINDINGS IN AIDS PATIENTS RECEIVING ORAL ZIDOVUDINE THERAPY (RX). Tartaglione, Teresa; Collier, A.C.; Coombs, R.W.; Opheim, K.E.; Cummings, D.K.; MacKay, S.R.; Benedetti, J.; Corey, L.; University of Washington, Seattle, WA, USA.

F.B.415
EFFECTS OF PEPTIDE T ON COMPUTERIZED ELECTROENCEPHALOGRAM (CEEG) AND BRAIN MAPPING (BM) IN PATIENTS WITH AIDS. Roffman, Mark*; Mayer, K.†; Bridge, P.‡; Moon, M.‡; Itil, T.‖; *International Drug Development Corp., Parsippany, NJ; †Fenway Community Health Center, Boston, MA; ‡National Institute of Mental Health, NIH, Bethesda, MD; ‖HZI Research Center, Tarrytown, NY, USA.

F.B.416
EFFECT OF ZIDOVUDINE (AZT) ON HISTOLOGICAL MARKERS OF HIV INFECTION IN THE CENTRAL NERVOUS SYSTEM (CNS) OF AIDS PATIENTS. Antonacci, CM*; Berta, L*; Boldorini, R*; Castagna, A*; Cinque, P*; Costanzi, Giulio*; Cristina, S*; Lazzarin, A*; Lechi, A†; Moroni, M*; Trabattoni, R†; Vago, L*.; University of Milan, University of Parma, Italy.

F.B.417
PSYCHOLOGICAL INFLUENCES ON HERPES SIMPLEX VIRUS (HSV) TITERS IN HIV+ SUBJECTS. Kevin, R. Robertson; Wilkins, J.; Bowdre, J.; van der Horst, C.; Robertson, W.; Snyder, C.; Hall, C.; University of N. Carolina, Chapel Hill NC USA.

F.B.418
HIV ENCEPHALITIS: EVOLUTION OF THE MORPHOLOGICAL CHANGES AND CORRELATION WITH CLINICAL FEATURES. Artigas, Juan*; Grosse, G.*; Niedobitek, F.*; Heise, W.†; Risch, W.‡; *Institute of Pathology; †Institute of Medicine, and ‡Department of Radiology, Auguste-Viktoria-Hospital, Berlin, Federal Republic of Germany.

F.B.419
NEUROPATHOLOGICAL FINDINGS IN 108 AIDS CASES FROM THE STATE OF RIO DE JANEIRO. Chimelli, Leila; Hahn, M.D.; Guedes Vilar, E.; Torres, W.; Carvalho, A.C.G.; Barretto Netto, M.; Fluminense Federal University, Niteroi, RJ, Brazil.

F.B.420
PERIPHERAL NERVE INVOLEMENT IN PATIENTS WITH AIDS AND AIDS RELATED COMPLEX (ARC). Medaglini S., Nemni R., Quattrini A., Comi G., Comola M., Galardi G., Corbo M., Canal N., Lazzarin A.*.; Dept. of Neurology, University of Milan, Scient. Ist. H San Raffaele *Infectious Diseases, University of Milan, H Sacco, Italy.

F.B.421
CEREBROSPINAL FLUID ANTIBODIES TO TWO DIFFERENT FORMS OF MYELIN BASIC PROTEIN AS A MARKER OF MYELIN DAMAGE IN AIDS DEMENTIA COMPLEX. Liuzzi, Grazia M.*; Mastroianni, C.M.†; Jirillo, E.*; Vullo, V.†; Delia, S.†; Riccio, P.*; *University of Bari, Bari, Italy, †University of Rome, Rome, Italy.

F.B.422
SUBCLINICAL WERNICKE'S ENCEPHALOPATHY IN AIDS. Verano, Andre S., Cassanova, J., Grunauer, D., Reyes, M.G.; Cook County Hospital, Chicago, IL, USA.

Clinical Heterogeneity of AIDS

F.B.423
CLINICAL VS NECROPSY FINDINGS IN AN AIDS POPULATION. Pando, Jose A.; Klimas, N.G.; VA Medical Center, University of Miami School of Medicine, Miami, FL, USA.

F.B.424
PRESUMPTIVELY DIAGNOSED AIDS CASES; CHARACTERISTICS AND IMPACT ON SURVIVAL. Ciesielski, Carol A.; Fleming, P.L.; Mays, M.A.; Stehr-Green, J.K.; Centers for Disease Control, Atlanta, Georgia, USA.

F.B.425
RACIAL HETEROGENEITY OF HIV P24 ANTIGENEMIA IN PERSONS WITH HIV INFECTION. Chaisson, Richard E.; Fuchs, E.; Stanton, D.; Quinn, T.C.; Bartlett, J.G.; Farzadegan, H.; The Johns Hopkins University, Baltimore, MD, USA.

F.B.426
RISK OF CEREBRAL TOXOPLASMOSIS (C.T.) ACCORDING TO TOXOPLASMOSIS SEROPREVALENCE IN AFRICAN AND EUROPEAN HIV SEROPOSITIVE PATIENTS AND RECOMMENDATIONS FOR C.T. PRIMARY PREVENTION. Liesnard, Corinne, Van Vooren, J.P., Farber, C.-M.; Erasme Hospital, University of Brussels, Brussels, Belgium.

F.B.427
HISTOPATHOLOGY: ITS ROLE IN THE MANAGEMENT OF HIV DISEASE IN AFRICA. Lucas, Sebastian*; Ponnighaus, J†; De Wind, C‡; Serwadda, D‖; Odida, M‖; Allen, S*.; *University College & Middlesex School of Medicine, London, UK, †LEPRA, Chilumba, Malawi, ‡Boga Hospital, Zaire, ‖Makerere University, Kampala, Ugada, *Projet San Francisco, Kigali, Rwanda.

F.B.428
TRANSMISSION GROUP AND FIRST CLINICAL MANIFESTATIONS OF AIDS. LaPorte, Anne; Lot, F.; Patris, C.; Cluzan, S.; Brunet, Jean; Ministry of Health—AIDS Division, Paris, France.

F.B.429
AIDS AMONG THE HOMELESS OF BOSTON: A COHORT STUDY. Lebow, Joanne*; O'Connell, JJ*; Avery, RK†; Freedberg, KA*; *Boston Health Care for the Homeless Program and Section of General Medicine, Boston City Hospital; †Infectious Disease Unit, Massachusetts General Hospital, Boston, MA, USA.

F.B.430
BASELINE HEALTH STATUS OF INTRAVENOUS DRUG USERS WITH AND WITHOUT HIV INFECTION. Davenny, Katherine; Buono, D.; Schoenbaum, E.; Friedland, G.; Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, N.Y.

F.B.431
ACUTE PRESENTATIONS OF PATIENTS WITH HIV INFECTION TO AN EMERGENCY DEPARTMENT. Fleetwood D, Johnson G, Kelen GD; Division of Emergency Medicine, The Johns Hopkins University School of Medicine, Baltimore, MD.

F.B.432
NATURAL HISTORY OF HIV DISEASE IN AN URBAN COHORT OF WOMEN. Young, Mary A.; Pierce, P.; Georgetown Univ. Hospital, Washington, D.C.

F.B.433
IMPROVED SURVIVAL, FROM TIME OF AIDS DIAGNOSIS, FOR INTRAVENOUS DRUG ABUSERS DIAGNOSED IN 1987-1988. Rubinstien, Eytan; Madden, G; Smith, C; Lyons, R.; Saint Francis Hospital & Medical Center, University of Connecticut, Hartford, Connecticut, USA.

F.B.434
THE CLINICAL AND AUTOPSY SPECTRUM OF HIV INFECTION IN A CONSECUTIVE SERIES OF AUTOPSY AIDS PATIENTS SEEN IN MEXICO CITY. Mohar, Alejandro*, Romo, J.†, Salido F, †, Jessurrum, J. †, Ponce de Leon, S.†, Reyes, E. ‡, Volkow, P. ‖, Larraza,O. ‖, Cano C. *, Peredo, M.*, Gomez, G. *, Sepulveda, J.§, Mueller, N.*; *Harvard School of Public Health, †General Hospital, ‡Hospital of Nutrition, ‖Hospital PEMEX, *Hospital la Raza, §Direction de Epidemiologia, Mexico; Harvard University, Boston, MA,USA.

F.B.435
SEROPREVALENCE OF VIRAL MARKERS AND TOXOPLASMOSIS IN HIV-POSITIVE PERSONS: COMPARING TRANSMISSION RISK GROUPS. Stein, Michael; Wachtel, T.; Durand, L.; Fisher, A.; Sepe, S.; O'Sullivan, P.; Rhode Island Hospital, Providence, RI, USA; Brown University.

F.B.436
CLINICAL MANIFESTATIONS OF AIDS IN SALVADOR, BRAZIL. Moreira, Edson, Jr.*; Badaro, F.S.*; Ho, J.†; Carvalho, E.M.*; Badaro, R.*; Johnson, W.D., Jr.†; Federal University of Bahia, Salvador, Brazil; † Cornell Univ. Med. College, NY, USA.

F.B.437
CLINICAL AND EPIDEMIOLOGICAL ASPECTS OF HIV2 INFECTION IN SENEGAL. Dansokho, E.*; Badiane, S.*; Diop, B.M.*; Faye/Ndao, M.A.*; Coll, A.M.*; *Faculty of Medicine—University of Dakar—Senegal.

F.B.438
HIV-1 AND ACUTE ENCEPHALITIS IN A KAMPALA HOSPITAL. Muller, Olaf+, Balabyeki, M. ++, Duggan, M.+; +Inter Aid, Kampala, Uganda; ++Nsambya Hospital, Kampala, Uganda.

F.B.439
CPCRA/CBCTN OBSERVATIONAL DATA BASE PROJECT: A MAJOR COMMUNITY-BASED RESEARCH PROJECT ON HIV INFECTION. Carlyn, Marcia*, Cohen, C.†; *Division of AIDS, National Institute of Allergy and Infectious Diseases, Bethesda, MD, USA; †Harvard Medical School, Boston, MA, USA.

F.B.440
PATTERNS AND CLINICAL-EPIDEMIOLOGIC EVOLUTION OF AIDS CASES MEXICO. Valdespino, J.L., Garcia, M.L., Salcedo, A., Mora, J.L., Bravo, E., Sepulveda, J.; General Directorate of Epidemiology. Ministry of Health, Mexico City, Mexico.

F.B.441
ANALYSIS OF 115 CASES OF AIDS IN COSTA RICA. Herrera Gisela and Visona, Kirsten A.† AIDS Department, Ministry of Health, Costa Rice and Louisiana State University-International Center for Medical Research and Training, LSU-ICMRT, San Jose, Costa Rica; Ministry of Health, Costa Rica.

Pediatric and Obstetric AIDS: AIDS in Infants

F.B.442
CLINICAL OUTCOME OF HIV INFECTED MOTHERS AND THEIR CHILDREN IN SWEDEN. A-B Bohlin*, B Anzen†, S Lindgren†, K Lidman‖; Depts of *Pediatrics and †Obstetrics & Gynecology, Huddinge Hospital and Depts of ‡Obstetrics & Gynecology and ‖Infectious Dis. Danderyds Hospital, Sweden.

F.B.443
THE UTILITY OF A NUMBER OF AIDS EVOLUTION MARKERS IN THE FOLLOW-UP OF THE VERTICAL TRANSMISSION OF HIV INFECTION. Tuset, Concha; Elorza, J.F.J.; Tuset, L.; Leon, P.; Tacons, J.; Service of Hematology, Immunology Unit. Valencia General and University H. Spain.

F.B.444
BIOLOGICAL PARAMETERS OF PREDICTIVE VALUE IN THE FOLLOW UP OF HIV INFECTED INFANTS FROM HIV POSITIVE MOTHERS. Courpotin, C.*; Leverger, G.*; Dormont, D.†; Nicolas, J.C.*; Parnet-Mathieu, F.‡; Lasfargues, G.*; *Hopital Trousseau, Paris, France; †C.E.S. Fontenay-aux-Roses, France; ‡C.H.P. St. Antoine, Paris, France.

F.B.445
HIV-1 IN FETAL ORGANS AND IN EMBRYONIC PLACENTA OF HIV-1 POSITIVE MOTHERS. Siegel, Gunter*, Schafer, A.†, Unger, M.‡, Jiminez, E.‡, Backe, E.‡, Simon, D.‖, Pauli, G.*.; *AIDS-Zentrum and ‖Robert-Koch Institut des BGA, Institut fur Pathologie and †Universitats-frauenklinik der Frein Universitat Berlin, Berlin, FRG.

F.B.446
NEW APPROACHES TO THE DIFFERENTIATION OF INTRAUTERINE FROM OTHER POSSIBLE ROUTES OF HIV TRANSMISSION FROM MOTHER TO CHILD. Nahmias, A.J.*; Lee, F.K.*; Ou, C.Y.; Stoll, B.* Nesheim, S.R.*; Schochetman, G.†.; *Emory University School of Medicine and †Centers for Disease Control, Atlanta, GA, USA.

F.B.447
EFFECT OF LYMPHOCYTE DEPLETION DURING PREGNANCY ON CLINICAL COMPLICATIONS, BIRTH WEIGHT AND HIV-INFECTION OF THE NEWBORN. Lutz, Renate*; Hiller, K.*; Stauber, M.*; Wintergerst, U.†; Notheis, G.†; Belohradsky, B.H.†; *University of Munich, I.Women's Hospital, Munich, Fed. Rep. of Germany: : : : †Univ. of Munich, Immundefektambulanz Kinder, Munich, F.R. of Germany.

F.B.448
BETA-2 MICROGLOBULIN (B2-M) AND NEOPTERIN SERUM LEVELS IN INFANTS BORN TO SEROPOSITIVE MOTHERS. Lazzarin, Adriano; d'Arminio Monforte, A.; Novati, R.; Castagna, A.; Cavalli, G.†; Amprimo, M.C.†; Marchisio, P.*; Principi, N.*; Infectious Diseases Clinic, *Pediatric Department IV, University of Milan; †G.Bosco Hospital, Turin.

F.B.449
ANTIBODIES TO THE CP120 PRINCIPAL NEUTRALIZING DOMAING OF THE HIV-MN STRAIN (GP120-MN-PND) AS PREDICTOS OF MATERNO-FETAL TRANSMISSION. Rubinstein, Arye*; Calvelli, T.*; Reagan, K.J.†; Devash, Y.†; *Albert Einstein College of Medicine, Bronx, New York: : : : †E.I. du Pont de Nemours, Newark, Delaware, USA.

F.B.450
PREDICTIVE SIGNIFICANCE OF IMMUNOLOGICAL PARAMETERS: RESULTS IN 335 CHILDREN BORN TO HIV-INFECTED MOTHERS. De Martino, M.*; Tovo, P.-A.† for the Italian Multicentre Study; *University of Florence (Italy), †University of Turin (Italy).

F.B.451
CORRELATION OF INFANT OUTCOME WITH STUDIES OF HIV-INFECTED PLACENTAS: IN SITU HYBRIDIZATION (HIV-RNA), P24AG CONTENT, EXPRESSION OF CD4, DR, AND CELL SURFACE ADHESION MOLECULES. Lewis, Dorothy; Langston, C.; Hammill, H.; Hanson, C.G.; Hawkins, E.; and Shearer, W.T.; Baylor College of Medicine, Houston, Texas, USA.

F.B.452
ALLANTOIS VASCULOPATHY OF THE PLACENTA IN HIV-EXPOSED PREGNANCIES: CORRELATION TO CLINICAL FINDINGS. Unger, Matthias*, Jimenez, E.*, Backe, E.* Vogel, M.*, Schafer, A.†, Friedmann, W.†; Institute of Pathology, Freie Universitaet, Berlin, FRG.

F.B.453
FUNISITIS (UMBILICAL CORD VASCULITIS) AND HIV INFECTION. Nyongo A*, Temmerman M*+, K'Oduol T+, Wamola I*, Plummer F*, Piot P+, *University of Nairobi, Kenya; + Pumwani Maternity Hospital; University of Manitoba, Winnipeg, Canada; +Institute of Tropical Medicine, Antwerp, Belgium.

F.B.454
VIROLOGICAL AND HISTOLOGICAL STUDIES OF THE PLACENTAS OF HIV SEROPOSITIVE PREGNANCIES. Mattern, CFT; Farzadegan, H; Murray, K; Modlin, John F.; The Johns Hopkins Medical Institutions, Baltimore, MD, USA.

F.B.455
CORRELATION OF PLACENTAL HISTOPATHOLOGICAL AND IMMUNOHISTOCHEMICAL ANALYSIS WITH INFANT OUTCOME IN CONGENITAL HIV INFECTION. D.A. Schwartz*, F. Lee†, M. Lindsay‡, R. Khan*, K. Winn*, A.; NAHMIAS‡, Department of *Pathology, †Pediatrics, and ‡Obstetrics Emory University School of Medicine, Atlanta, GA, USA.

F.B.456
EXPRESSION OF CELL SURFACE ACTIVATION MARKERS BY CONGENITALLY HIV-INFECTED CHILDREN. Calvelli, T.A., Golodner, M., Shliozberg, J., Keswani, A. and Rubinstein, A.; Albert Einstein College of Medicine, Bronx, NY, USA.

Pediatric and Obstetric AIDS: Maternal Issues

F.B.457
HIV INFECTION IN PREGNANT WOMEN UNDER CARE AT CLINICAL TRIAL CENTERS IN THE UNITED STATES. Stratton, Pamela; Mofenson, L; Willoughby, A; NIH, Bethesda, MD USA.

F.B.458
THE RELATIONSHIP OF HIV INFECTION TO MATERNAL MORBIDITY IN MASAKA, UGANDA. Kalibala, S.*; O'Kane, D.†; McCombie, S.‡; *The AIDS Support Organization, Masaka, Uganda †Kitovu Hospital, Masaka, Uganda ‡University of Pennsylvania, Philadelphia, PA, USA.

F.B.459
FERTILITY RATES IN HIV+ WOMEN IN ZAIRE. Batter, Veronique*; Badi, N.*; Matadi, N.*; Tshala, B.*; Ryder, R.*/†; *Projet SIDA, Kinshasa, Zaire; †CDC, Atlanta, GA, USA.

F.B.460
SERUM BETA-2-MICROGLOBULIN AND INTERLEUKIN-2 RECEPTOR LEVELS IN HIV (+) PREGNANT WOMEN. Landers, Daniel V, Coyne BA, Crombleholme WR, Smith J, Koller T, Sweet RL.; Department of Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, and San Francisco General Hospital, San Francisco, California, U.S.A.

F.B.461
INTERFERON ALPHA AS A PREDICTIVE PARAMETER IN THE DEVELOPMENT OF GYNECOLOGICAL DISEASES IN HIV-INFECTED WOMEN. Friese, Klaus*, Voth, R.†, Rossol, S.‡, and Mueller, W.E.G.‡; *University of Mannheim/Heidelberg, FRG, †Boehringer, Mannheim, FRG, ‡University of Mainz, FRG.

Pediatric and Obstetric AIDS: Epidemiology

F.B.462
THE CLINICAL MANIFESTATION OF HIV-INFECTION IN CHILDREN FROM THE NOSOCOMIAL OUTBREAK IN ELISTA. Irova, Tatjana L.; Yirin, O.G.; Eramova, I.; Mazankova, L.N.; Pokrovsky, V.V.; Central Scientific Research Institute of Epidemiology, Moscow, USSR.

F.B.463
EPIDEMIOLOGICAL ASPECTS AND CLINICAL MANAGEMENT PROBLEMS IN CHILDREN OF MOTHERS INFECTED BY HIV. Elorza, Javier F.J.; Tuset, C.; Leon, P.; Tacons, J.; Pediatrics Services, Valencia General and University Hospital. Valencia, Spain.

F.B.464
EXTENT OF RECOGNITION OF PERINATAL HIV INFECTION. Hsu, Ho-Wen*/†; Kunches, L*; Ng, P*; Moye, J*; Makarewicz, L*; Shea, B*; Grady, G*; Hoff, R*; McIntosh, K‡; Meissner, C‡; Pelton, S‖; Sullivan, J*; Stechenberg, B§; and the MA Working Group on Surveillance of HIV in Children; *MA Dept. of Public Health, Boston. †Childrens Hosp., Boston. ‡New England Med. Ctr., Boston. ‖Boston City Hospital. *Univ. MA Med. Ctr., Worcester. §Bay State Med. Ctr., Springfield, MA, USA.

F.B.465
MEDICAL PROBLEMS IN ADOLESCENTS WITH ASYMPTOMATIC HIV INFECTION. Ahlstrom, Promise; D'Angelo, L.; Woodward, K.; Richmond, D.; Children's National Medical Center, Washington, D.C. USA.

F.B.466
NATURAL HISTORY OF PERINATAL HIV TRANSMISSION. Giaquinto, C., DeRossi, A.*, Mazza, A.†, Ruga, E, Cogo, P, Cozzani, Giacomelli, A., Pagliaro, A., Chieco-Bianchi, L.*, D'Ella, R., Zacchello, F.; University of Padova, Institute of Oncology, Dept. of Pediatrics; †Department of Pediatrics, Trento, Italy.

F.B.467
T CELL SUBSETS AND DISEASE STATUS IN HIV INFECTED CHILDREN. Bash, Margaret C.; Robb, M.; Ascher, D.*; Goldberg, D.†; Moriarty, R.†; Vincent, J.; Morgan, C.; Dow, N.; Pettett, G.*; Fischer, G.*; *USUHS, †National Naval Medical Center, Bethesda, MD; ‡Eisenhower Army Medical Center, Ft. Gordon, GA, USA.

F.B.468
COMPARISON OF USED LATEX GLOVES AS AN EFFECTIVE BARRIER ON TWO HIGH RISK UNITS: SICU AND AIDS. Korniewicz, Denise, Kirwin, M., Larson, E.; Johns Hopkins University, School of Nursing, Baltimore, MD, USA.

F.B.469
CLINICAL AND IMMUNOLOGICAL FOLLOW-UP STUDIES ON HIV-AB (+) NEWBORNS. Gonzalez-Molina A., Otero, C., Perez Tamarit, A., Granda, D., Carbonell, F., Canosa, C.A.; University Hospital, Valencia, Spain.

F.B.470
SEROREACTIVITY OF HIV POSITIVE PEDIATRIC PATIENTS TO RECOMBINANT AND SYNTHETIC ENVELOPE AND CORE ANTIGS OF HIV. Reuben, James*; Liang, L.*; Rosenblatt, H.†; Hanson, C.†; Shearer, W.†; University of Texas, M.D. Anderson Cancer Center, and †Texas Children's Hospital, Baylor College of Medicine, Houston, Texas, U.S.A.

F.B.471
CHANGING FACE OF PERINATAL HIV INFECTION: INITIAL PRESENTATION AT OR AFTER 5 YEARS OF AGE. K. Shah, J. Chow, A. Gupta, M. Bamji, A. Kaul, and D.S. Gromisch.; Lincoln Hospital, New York Medical College, Valhalla, New York.

Pediatric and Obstetric AIDS: Infections and Other Complications

F.B.472
THE MYELINATION PROCESS AND ITS RELATIONSHIP TO THE SPINAL CORTICOSPINAL TRACT (CST) DEGENERATION OF PEDIATRIC AIDS. Weidenheim, Karen M.*; Belman, A.L.†; Dickson, D.W.*; *Albert Einstein College of Medicine, Bronx, NY, †SUNY at Stony Brook, Stony Brook, NY, USA.

F.B.473
SIGNS OF HIV ENCEPHALOMYELOPATHY IN INFANCY: VIROLOGIC AND IMMUNOLOGIC CORRELATES. Belman Anita*, Calvelli T†, Nozyce M†, Rubinstein A†, Goedert J‡, Willoughby A‡;: * SUNY at Stony Brook, NY, †Albert Einstein College of Medicine, Bronx, NY, USA ‡National Institute of Health, Bethesda, MD.

F.B.474
SOLUBLE INTERLEUKIN 2 RECEPTOR (SIL-2R) CONCENTRATIONS IN PEDIATRIC HIV INFECTION. Ellaurie, Maadhava; Rubinstein, A.; Albert Einstein College of Medicine, Bronx, NY, USA.

F.B.475
CLINICAL SPECTRUM OF PERINATALLY-ACQUIRED PEDIATRIC HIV INFECTION. Maldonado, Yvonne A., Sullivan, B.A., Wang, N.E., Margolis, H., Wilson, M.J., Oxtoby, M.; Department of Pediatrics, Stanford University School of Medicine, Stanford, CA, USA.

F.B.476
CONGENITAL TOXOPLASMOSIS IN INFANTS PERINATALLY INFECTED WITH HIV-1. Mastrucci, Mary*; Mitchell, C.*; Hutto, S.C.*; Erlich, S.*; Scott, G.*; Parks, W.†; *University of Miami, Miami, Florida, †New York University, New York, New York, USA.

F.B.477
ABSENCE OF COMPLICATIONS FROM RESPIRATORY SYNCYTIAL VIRUS IN CHILDREN WITH HIV INFECTION. Cooper, Ellen R., Fine, S., Regan, A., Pelton, S., Meyers, A., Schwartz, T., Meservey, M.; Boston School of Medicine, Boston City Hospital and the Children's AIDS Respite and Day Care Program (CAP), Boston, MA, USA.

F.B.478
CMV SEROPREVALENCE IN HIV INFECTED CHILDREN. Duliege, Anne-Marie*, Rouzioux, C.†, Blanche, S.*, Tardieu, M.†, Griscelli, C.*; *Hospital Bicetre: U292; †U56; Hornecker: Pediatrics, Virology, Paris, France.

F.B.479
THE IMPACT OF HIV INFECTION ON MALNUTRITION IN A ZAMBIAN RURAL COMMUNITY. Chela, Clement*; Nseluke, M.; Rader, A.; Campbell, I.; Siankanga, Z.; *The Salvation Army Chikankata Hospital, Zambia.

F.B.480
NUTRITIONAL STATUS IN CHILDREN WITH AIDS. M-Fontelos P*, De Jose MI†, Mellado MJ*, G. Miguel MJ†, Villota J*, Codoceo R.†; *Instituto de Salud Carlos III. †Hospital Infantil la Paz. Madrid. Spain.

F.B.481
INTESTINAL FUNCTION (I.F.) IN CHILDREN WITH AIDS. Zuin, G.; Loguercio, L.; Tornaghi, R.; Marchisio, P.; D'Arminio Monforte, A.*; Principi, Nicola; Pediatric Dept 4, *Infect Dis Clinic, University of Milan, Milan, Italy.

F.B.482
THE NATURAL EVOLUTION OF RADIOGRAPHIC LYMPHOID INTERSTITIAL PNEUMONITIS (R-LIP) IN HIV-INFECTED PEDIATRIC PATIENTS. Perin, Patrick, Connor, E.M., Marquis, J., Berman, C., Oleske, J.; Children's Hospital of New Jersey and UMD-New Jersey Medical School, Newark, NJ, USA.

F.B.483
CARDIAC ABNORMALITIES IN PEDIATRIC HIV INFECTION. Kavanaugh-McHugh, Ann*; Ruff, A.*; Rowe, S.*; Holt, E.*; Modlin, J.*; Maha, M.†, Wilfert, C.† & the ACTG 043 Study Group.; *Johns Hopkins University, Baltimore, MD; †Burroughs Wellcome Co., Research Triangle Park, NC; ‡Duke University, Durham, NC, USA.

F.B.484
HEART INVOLVEMENT IN CHILDREN WITH AIDS. Cilleruelo MJ, Mellado MJ, Villota J, Garcia M, M-Fontelos P, Guinea J.; Instituto de Salud Carlos III. Madrid. Spain.

F.B.485
DEVELOPMENTAL TESTING OF INFANTS BORN TO HIV-1 SEROPOSITIVE AND HIV-1 SERONEGATIVE MOTHERS. Hitimana, D.*, LePage,* P., Van Goethen,* C., Msellati, P.† Dabis, F.‡ Bazubagira A.*; Dept. of Pediatric, Centre Hospitalier de Kigali, Rwanda †Insern U330, University of Bordeaux II, France; ‡AIDS Reference Laboratory, Kigali, Rwanda.

F.B.486
NEUROCOGNITIVE FUNCTIONING AMONG INFANTS EXPOSED PRENATALLY TO HIV. Swales, Thomas; University of Miami. Division of Behavioral Sciences PO Box 016820.

Pediatric and Obstetric AIDS: Therapy

F.B.487
IMPAIRED RESPONSE TO VACCINATION IN HIV POSITIVE CHILDREN TREATED WITH AZT, VEINOGOLBULINS. Kaplanski, S.*; Farnarier, C.*; DeBoisse, P.†; Pallix, C.‖; Simonin, G.†; Michel, G.†; Martin-Laval, A.*; Unal, D.†; Perrimond, M.†; Laboratoire d'Immunologie* Hopital Sainte Marguerite, Service de Pediatrie Pr Unal† et Service d'hematopediatrie‡ Pr Perrimond Chu Timone, Service de Pediatrie‖ Pr Bernard Hopital Nord, Service de Pediatrie* Hopital Saint Joseph, Marseille, Fran.

F.B.488
SAFETY AND TOLERANCE OF ZIDOVUDINE IN PEDIATRIC AIDS. Mitchell, Charles*; Scott, G.*; Hutto, S.C.*; Mastrucci, M.T.*; Gourley, J.*; Owens, C.*; Sajous, M.*; and the Zidovudine Pediatric Study Group; *University of Miami School of Medicine, Miami, FL, USA.

F.B.489
MARKERS OF ZIDOVUDINE (AZT) EFFICACY IN CHILDREN. Marchisio, Paola; Massironi, E.; Novati, R.*; D'Arminio Monforte, A.*; Cavalli, G.†; Amprimo, M.C.†; Principi, N.; Pediatric Dept (IV) and *Infect Dis Clinic, University of Milan, Milan and †G.Bosco Hospital, Torino, Italy.

F.B.490
T-CELL SUBSET CHANGES IN HIV-INFECTED CHILDREN TREATED WITH ZIDOVUDINE (AZT). Frenkel, Lisa M.*, Gillespie, S.M.*, O'Rourke, S.*, Plaeger-Marshall, S.*, Cohen, H.*, Perry-Marx, D.*, Deveikis, A.†, Wong, V.‡, Stiehm, E.R.*, Bryson, Y.*; *University of California, Los Angeles, CA; †Memorial Medical Center, Long Beach, CA; ‡Kaiser Permanente Medical Group, Downey, CA; USA.

F.B.491
CLINICAL PHARMACOKINETCS AND BIOLOGICAL DATA OF ORAL ZIDOVUDINE THERAPY IN CHILDREN WITH AIDS OR ARC SYNDROME. Garraffo, R.; Deville A.; Chanalet, L.; Colin J.N.; Mariani R.; & Lapalus P.; Department of Clinical Pharmacology and Pediatrics, Wellcome Laboratories, Nice, France.

F.B.492
SERIOUS INFECTIONS IN SYMPTOMATIC HIV-INFECTED CHILDREN TREATED WITH ORAL ZIDOVUDINE (ZDV). McIntosh, Kenneth*; NIAID/Burroughs Wellcome Pediatric ZDV Study Group.; *Children's Hospital, Boston, MA USA.

F.B.493
HIV AND ADVERSE REACTIONS FOLLOWING ROUTINE CHILDHOOD IMMUNIZATION IN AFRICA: A COHORT STUDY IN KIGALI, RWANDA. Dabis, Francois*, Msellati, P.*, Lepage, P.†, Bazubagira, A.†, Hitimana, D.G.†, Van De Perre, P.‡; *INSERM, Universite Bordeaux, Bordeaux, France, †Centre Hospitalier, Kigali, Rwanda, ‡Laboratoire de Programme SIDA, Kigali, Rwanda.

Nursing Research

F.B.494
THEORY OF INFORMATION: A METHODOLOGICAL ALTERNATIVE TO STUDY THE VERBAL INTERACTION NURSE-AIDS PATIENT. Gir, Elucir*; Moriya, Tokico Murakawa*; Dela Coleta, Jose Augusto†; *University of Sao Paulo—Nursing School of Ribeirao Preto—Brazil. †Federal University of Uberlandia—Brazil.

F.B.495
A DETERMINATION OF THE KNOWLEDGE BASE OF CAREGIVERS OF HIV INFECTED PRESCHOOL CHILDREN. Cleven, Karen*; deJesus, R.†; Sharp, S.‡; *Department of Veterans Affairs Medical Center, Miami, FL; †Mercy Hospital, Miami, FL; ‡Barry University, Miami, FL, USA.

F.B.496
FACTORS AFFECTING PARTICIPATION IN A COOPERATIVE TRIAL OF ZIDOVUDINE (AZT) VS PLACEBO IN HIV INFECTED PATIENTS. Haren, N, Bailey, E, Diamond, G.; New York VA Medical Center, New York, NY, USA.

F.B.497
PREDICTORS OF DELAY IN SEEKING MEDICAL TREATMENT FOR AIDS. Adinolfi, Anthony; Suarez, E.; Dideriksen, P.; Bartlett, JA.; Duke University Medical Center, Durham, North Carolina, USA.

F.B.498
NURSES ATTITUDES IN THE CARE OF HIV/AIDS PATIENTS. Nyambaka, Monica; Nyanza Provincial Hospital, Kisumu, Kenya.

Hematology/Immunology/Allergy

F.B.499
HTLV-I/II AND HIV-1 INFECTION IN INTRAVENOUS DRUG USERS (IVDUS): HEMATOLOGICAL AND SERUM CHEMICAL INDICES. Sawyer, Robert C.*, Brown, L.*, Hickson, M.†, Philipps, R.*, Lee, H.‡, Allain, J.P.‡; *Addiction Research & Treatment Corporation, Brooklyn, NY; †Harlem Hospital Center, Columbia University, New York, NY; ‡Abbott Laboratories, Chicago, IL; USA.

F.B.500
BLOOD TRANSFUSION REQUIREMENTS BETWEEN HIV POSITIVE HAEMOPHILIACS AND OTHER RISK GROUPS. Lim, Seng Gee; Lee, C.A.; Squire, B.*; JOhonson, M.A.*; Swaden, L.†; Kernoff, P.B.A.; Haemophilia Centre, Academic Dept. of Haematology; *AIDS Unit; †Pharmacy, Royal free Hospital, London, UK.

F.B.501
THERAPEUTIC APHERESIS AND INTRAVENOUS GAMMAGLOBULIN THERAPY IN HIV-RELATED IMMUNE SYNDROMES. Kiprov, Dobri, Kwiatkowska, B., Stricker, R., Miller, R.; Children's Hospital of San Francisco, Immunotherapy and Neurology Division, San Francisco, CA, USA.

F.B.502
ANERGY IN INTRAVENOUS DRUG USERS (IVDUS): PREVALENCE, INFLUENCE OF HIV STATUS, SEX. Cohen, James*, Nardell, E.†; *Spectrum House, Inc., Westboro, Massachusetts USA; †Massachusetts Department of Public Health, Boston, Massachusetts USA.

F.B.503
CLINICAL UTILITY OF BONE MARROW EXAMINATIONS IN HIV-INFECTED PATIENTS. Mazzulli, Tony and Salit, I.E.; Division of Infectious Diseases, Toronto General Hospital, Toronto, Canada.

F.B.504
SERUM ERYTHROPOIETIN LEVELS IN PATIENTS INFECTED WITH THE HUMAN IMMUNODEFICIENCY VIRUS. Gutfreund, Klaus; Hess, G.; Voth, R.; Rossol, S. and Meyer zum Buschenfelde, K.-H.; Johannes Gutenberg University, Mainz, FRG.

F.B.505
PROTEIN CONJUGATION ENHANCES IMMUNOGENICITY OF H. INFLUENZA TYPE B (HIB) POLYSACCHARIDE (PS) VACCINE IN HIV-INFECTED ADULTS. Auerbach, Barry Seth; Steinhoff, M.; Nelson, K.; Chaisson, R.; Becker, R.; Vlahov, D.; Saah, A.; Johns Hopkins Medical Institutions, Baltimore, Maryland, USA.

F.B.506
VENOUS THROMBOEMBOLIC DISEASE IN AIDS. Lewis, Bradley*+; Brosgart, Carol*+; Bresnik, Mark*; Jacobson, Susan*; *East Bay AIDS Center al Alta Bates-Herrick Hospital, Berkeley, CA, USA; +University of California, San Francisco.

F.B.507
UTILITY OF BONE MARROW EXAMINATION FOR EVALUATION OF OPPORTUNISTIC INFECTIONS IN PATIENTS WITH HIV INFECTION. Northfelt, Donald W.; Mayer, A.J.; Kaplan, L.D.; Abrams, D.I.; Hadley, W.K.; Herndier, B.G.; San Francisco General Hospital, University of California, San Francisco, California, U.S.A.

F.B.508
SPONTANEOUS SECRETION OF ERYTHROPOIETIN IN HIV-1 INFECTED PATIENTS. Bieniek, Bernhard; Hoffken, G.; Brockmuller, J.; Petri, M.; Lode, H.; Medical Clinic and Institute for Clinical Pharmacology, Klinikum Steglitz, Freie Universitat Berlin, FRG.

F.B.509
NEUTROPHIL-BOUND IMMUNOGLOBULIN IN HIV-INFECTION HAS AN AUTOANTIBODY NATURE. Klaassen, R.J.L.; Vlekke, A.; Kr. Von Dem Borne, A.E.G.; Central Laboratory of The Netherlands Red Cross Blood Transfusion Service, P.O. Box 9190, 1006 CX Amsterdam, The Netherlands.

F.B.510
HIV-ASSOCIATED CARDIOMYOPATHY: EVIDENCE FOR AUTOIMMUNITY. Herskowitz, Ahvie; Willoughby, S.; Oliveira, M.; Bartlett, J.; Vlahov, D.; Chaisson, R.; Baughman, K., Newmann, D.; Weiss, J.; Rose, N.; Beschorner, W.; Ansari, A.*; Johns Hopkins Medical Institutions, Baltimore, MD; * Emory University, Atlanta, GA, USA.

F.B.511
PREDNISONE (PR) AND ZIDOVUDINE (Z) VERSUS PR AND PLACEBO (PL) FOR SEVERE HIV-ASSOCIATED THROMBOCYTOPENIA (HIV-TCP). De Stoutz, Noemi; Hirschel, B.; Winkelmann, J.J.; Poncelet, H.; Cajot, A.; The Swiss Group for Clinical Studies on AIDS, HCUG, Geneva and CHUV, Lausanne, Switzerland. Hopital Salvator, Marseille, France.

F.B.512
ALPHA-INTERFERON IN TREATMENT OF SEVERE HIV-RELATED THROMBOCYTOPENIA (TP). Luzzati, Roberto; Di Perri, G.; Malena, M.; Mazzi, R.; Concia, E.; Bassetti, D.; Institute of Infectious Diseases, University of Verona, Italy.

F.B.513
IS HIV-ASSOCIATED THROMBOCYTOPENIA A PROGNOSIS FACTOR FOR AIDS?: HOSPITAL-BASES SURVEILLANCE. BORDEAUX, FRANCE, 1985-1989. Lacoste, Denis*, Parneix, P.†, Dabis, F.†, Commenges, D.†, Pellegrin, J.L.*, brossard, G.*, and the Groupe de'Epidemiologie Clinique du SIDA en Aquitaine (GESCA)*; *Centre Hospitalier Regional Universitaire (CHRU), Bordeaux, France; †INSERM U. 330, Universite de Bordeaux, Bordeaux, France.

F.B.514
HIV-ASSOCIATED THROMBOCYTOPENIA (HATP) IN CHILDREN. Church, Joseph A.; Gomperts, Edward D.; Children's Hospital of Los Angeles and the University of California School of Medicine, Los Angeles, California, USA.

F.B.515
HIV-RELATED THROMBOCYTOPENIA INCLUDES VARIOUS FORMS OF THROMBOCYTOPENIA. Landonio, Giuseppe; Nosari, A.M.; Vigorelli, R.*; Spinelli, F.*; Schlacht, L.†; Caggese, L.†; Department of Haematology, *Nuclear Medicine; †Infectious Disease Niguarda Ca'Granda Hospital, Milan, Italy.

F.B.516
RESPONSE TO THERAPHY IN 31 PATIENTS WITH HIV-RELATED THROMOCYTOPENIA. Dominguez, A.; Pena, J.M.; Valencia, E.; Mostaza, J.M.; Martinez, M.A.; Barbado, J.S.; Medicina Interna., Hospital La Paz, Madrid, Spain.

F.B.517
EFFICACY OF ZIDOVUDINE IN THE TREATMENT OF HIV INFECTION ASSOCIATED THROMBOCYTOPE NIA. Carton, Jose Antonio; Carcaba, V.; Vicente, P.; Maradona, J.A.; Llorente, R.; Arribas, J.M.; Dpto. de Medicina; Hospital Universitario NS Covadonga; Oviedo, Espana.

F.B.518
ANTIPLATELET ANTIBODIES IN HIV INFECTION. Drenaggi, D; Piani, M.*; Petroni, S.; Bencivenga, R.*; Petrelli, E.; Ancarani, F.; Cantelli, G.*; Scalise, G.; Institute of Infectious Diseases, University of Ancona, *Transfusion Center General Regional Hospital, Ancona, Italy.

F.B.519
HIV-RELATED IMMUNE THROMBOCYTOPOENIA: FOLLOW-UP AND TREATMENT OF 157 PATIENTS. Oksenhendler, Eric, Bierling, P., Archambeaud, M-P., Delfraissy, J.F., Schevret, S., Clauvel, J.P.; Hopital Saint Louis, Paris, France.

F.B.520
MEDIUM-LONG TERM EFFICACY OF ZIDOVUDINE IN HIV-RELATED THROMBOCYTOPENIA. Cinque, Paola*; Lazzarin, A.*; Landonio, G.†; Gringeri, A.‡; Nosari, A.M.†; Moroni, M.*; *Clinic of Infectious Diseases, University of Milan; †Haematology Department, Ca Granda Hospital, Milan; ‡Haemophilia and Thrombosis Center, University of Milan.

F.B.521
ANTI-D IMMUNOGLOBULIN FOR TREATMENT OF IMMUNE THROMBOCYTOPENIC PURPURA (ITP): COMPARISON BETWEEN HIV-RELATED ITP AND IDOPATHIC ITP. Santagostino, Elena; Cattaneo, M.; Capitanio, A.; Gringeri, A.; Tradati, F.; Mannucci, P.M.; Hemophilia & Thrombosis Ctr. A. Bianchi Bonomi, University of Milan, Italy.

Miscellaneous Organ Systems

F.B.522
A PROSPECTIVE STUDY OF THE OPHTHALMOLOGIC FINDINGS IN THE ACQUIRED IMMUNODEFICIENCY SYNDROME IN SAO PAULO CITY, BRAZIL. *Sampaio, Paulo R.S.; Kobinger, Edmund; Woller, Jacques; Reference and Training Center of AIDS, Sao Paulo, Brazil.*

F.B.523
HIV-ASSOCIATED-NEPHROPATHY: ABSENCE OF HIV-ANTIGENS. Genderini, A.; Vago, L.; Bertoli, S.; Scorza, D.; Barone, M.T.; Landriani, N.; Milani, S.; Barbiano di Belgiojoso, G.; Renal Unit, Institute of Pathology, Sacco Hospital, Milan, Italy.

F.B.524
SUBCAPSULAR ALTERED-APPEARING LANGERHANS CELLS (SALC): A DIAGNOSTIC FEATURE OF HIV-ASSOCIATED PERSISTENT GENERALIZED LYMPHADENOPATHY. Ree, H.J.; Khan, A.; Bauer, S.; Teplitz, C.; Beth Israel Medical Center & Mount Sinai School of Medicine, New York, New York, USA.

F.B.525
HYPOGONADISM IN MALE PATIENTS WITH AIDS. Klauke, Stephan; Falkenbach,A.; Schmidt,K.; Staszewski,Sch.; Helm,E.B.; Althoff,P.H.; Center of Internal Medicine, University Hospital Frankfurt, 6000 Frankfurt/Main, Germany (FRG).

F.B.526
STEROID VARIATION IN DIFFERENT STAGES OF HIV-DISEASE. Christeff N*, Kadivar M†, Gharakhanian S†, Dias Tavares M†, Rozenbaum W†, Nunez E*; *U 224 Inserm, Rothschild University Hospital† Paris France.

F.B.527
POSSIBLE HIGH FREQUENCY OF BACTERIA AMONG BRAZILIAN AIDS PATIENTS. Felix de Pinho, A.M.; Marangoni, D.V.; Moreira, M.B.; Ramos-Filho, C.; Rodrigues, K.M.P.; Schechter, M.; Paz, N.A.; AIDS Programme, Federal University of Rio de Janeiro, Rio de Janeiro—Brazil.

F.B.528
BACTERIAL SINUSITIS IN HIV INFECTED PATIENTS. Lacassin, Flore, Leport, C., Gehanno, P., Salmon, D., Raguin, G., Bricaire, F.; Bichat-Claude-Bernard Hospital, Paris, France.

F.B.529
LONGITUDINAL ECHOCARDIOGRAPHIC AIDS PROJECT: EFFECT OF RECREATIONAL DRUGS ON VENTRICULAR FUNCTION. Cheitlin M.D.; Schiller N.B.; Kee L.; Kuecherer H.F.; Hollander H; Chernoff D.N.; French D.; Tremblay T.; Modin G.; Univ. of California, San Francisco and San Francisco General Hospital, San Francisco, California, USA.

F.B.530
ENDOCARDITIS IN INTRAVENOUS DRUG USERS WITH KNOWN HIV STATUS. Biczak, Laureen, Smith, C., Rubentstein, E., Lyons, R.; St. Francis Hospital-University of Connecticut, Hartford, CT, USA.

F.B.531
INSULIN SENSITIVITY IN HIV-INFECTED MEN. Hommes, Mirjam; Romijn, J.A.; Endert, E.; Eeftinck Schattenkerk, J.K.M.; Sauerwein, H.P.; Depts. of Endocrinology, Intensive Care and Internal Medicine, Academic Medical Center, Amsterdam, The Netherlands.

F.B.532
PAP TEST AND STD FINDING IN HIV+ WOMEN AT AMBULATORY CARE SITES. Marte, Carola*; Cohen, M.†; Fruchter, R.‡; Kelly, P.‡; Bellevue; Hosp/Community Health Project*, Cook County Hosp.†, Suny-Brooklyn‡ USA.

F.B.533
LYMPHATIC SCANNING AND HIV. O'Doherty, M.J.; †Tang, Alan L.; *Gaunt, J.I.; Bradbeer, C.S.; *Nunan, T.O.; *Department of Nuclear Medicine, †Department of Genito-Urinary Medicine, St. Thomas' Hospital London England.

F.B.534
FREQUENCY OF CHRONIC ACTIVE HEPATITIS (CAH) OR CIRRHOSIS IN PATIENTS WITH AIDS: AN AUTOPTICAL EVALUATION. Caredda, Francesco*; Vago, L.†; Coppin, P.*; Gaiera, G.†; Pavani, D.*; Parravicini, C.†; *Infectious Diseases Clinic and †V Chair of Pathology, University of Milan, Milan, Italy.

F.B.535
URINARY TRACT INFECTION IN MEN WITH HIV INFECTION: RESULTS OF A PILOT UNCONTROLLED STUDY. Santos, Omar da Rosa; Lopez, G.S.; Costa, J.C.F.; Lacerda, M.R. Haringer, J.; Faria, R.B.; Universidade do Rio de Janeiro, rio de Janeiro, Brazil.

F.B.536
CLINICOPATHOLOGIC STUDY OF EYE DISEASES IN HIV INFECTED PATIENTS. Giannini, Valerio*; Carlotti, G.*; Guariglia, P.*; Bonini, S†; Giannini, R†; Manni, G†; Grillo, L.‡; Galgani, S.‡; *L. Spaallanzani Hospital for Infectious Diseases, Rome, Italy; †Chair of Ophtalmomogy, Tor Vergata University, Rome; ‡S. Camillo Hospital, Rome, Italy.

F.B.537
THE PREVALENCE OF HIV POSITIVITY IN KIDNEYS OF AIDS PATIENTS. Cronin, William, Shevchuk, M., daSilva, M., Bagchi, S.; Department of Pathology, Lenox Hill Hospital, New York, NY, USA.

F.B.538
SURGICAL PATHOLOGY OF HIV-INFECTED PATIENTS IN ZAMBIA. Bayley, Anne C*; Luo, N†; Suzgo, Kapanda†.; Departments of Surgery* and Immunology†, University of Zambia, Lusaka, Zambia.

F.B.539
NATURAL HISTORY OF HIV INFECTION IN LIVER TRANSPLANT PATIENTS. Saimot, Adrien G.*; Bouscarat, F.*; Samuel, D.†; Debat, P.†; Detruchis, P.*; Bismuth, H.†; *Hopital Bichat, †Paul Brousse, Paris, France.

F.B.540
RAPID DECLINE OF NATURALLY ACQUIRED ANTIBODY TO HEPATITIS B SURFACE ANTIGEN (ANTIHBS) AND HBV REACTIVATION IN ABHIV+ I.V. DRUG USERS (IVDUS). Sinicco Alessandro; Sciandra, M.; Valle, M.; Raiteri, R.; Gagliano, P.; Gioannini, P.; Inst. of Infect. Dis., Univ. of Turin, Italy.

F.B.541
THYROID FUNCTION IN ACQUIRED IMMUNODEFICIENCY SYNDROM (AIDS). Michels, Berthold; Hunold, P.; Falkenbach, A.; Klauke, St.; Gottstein, A.; Althoff, P.H.; Center of Internal Medicine, University Hospital Frankfurt, 6000 Frankfurt/Main, Germany (FRG).

F.B.542
PERITONEAL DIALYSIS IN HIV INFECTED PATIENTS WITH RENAL FAILURE. Marton, Randy, Spinelli, L., Slim, J., Johnson, E.; Saint Micheal's Medical Center, Newark, New Jersey, U.S.A.

HIV Seroprevalence in North America (cont. from Thurs.)

F.C.543
RELATIVE RISK ESTIMATES FOR HIV SEROPOSITIVITY IN BLACK MEN: THE WORSENING TREND AMONG U.S. SOLDIERS. Kelley, Patrick W.*, Pomerantz, R.†, Wann, F.‡, Brundage, J.*, Burke, D., Miller, R., and the U.S. Army Retrovirus Research Group.; *Walter Reed Army Institute of Research, Washington, DC, ‡SRA Technologies, Inc. Alexandria, VA.

F.C.544
SEROPREVALENCE OF HIV INFECTION AMONG HISPANICS IN THE UNITED STATES. Guerena, Fernando B.,Onorato, I.M., McCray, E., Allen, D.M., Sweeney, P.A.; Centers for Disease Control, Division of HIV/AIDS, Atlanta, GA, USA.

F.C.545
HIV SEROPREVALENCE IN AMERICAN INDIANS AND ALASKA NATIVES. Conway, George A.*, Hooper, E.Y.‡, Helgerson, S.D.‡, Peersen, L.R.*, Ambrose, T.J.†; *Centers for Disease Control, Atlanta, GA; †Indian Health Service, Phoenix, AZ; ‡Indian Health Service, Seattle, WA, USA.

F.C.546
HIV INFECTION AMONG MINORITIES AT U.S. SENTINEL HOSPITALS: A HETEROGENEOUS PATTERN. Olivo, Noemi; St. Louis, M.; Crichley, S.; Dondero, T.; the Sentinel Hospital Serveillance Group.; Centers for Disease Control, Atlanta, Georgia, USA.

F.C.547
HIV INFECTION AMONG IMMIGRANTS TO THE UNITED STATES. Studemeister, Alex*; Westling, R.†; Kent, G‡; *San Jose Medical Group, San Jose, California, USA,†San Jose Medical Center, San Jose, California, USA, ‡Department of Medicine, Division of Family Medicine, Stanford University, Stanford, California, USA. San Jose Medical Group; San Jose; CA; USA.

F.C.548
HIV PREVALENCE AMONG HOMOSEXUAL/BISEXUAL MEN IN THE SAN FRANCISCO BAY AREA: EVIDENCE OF INFECTION AMONG YOUNG GAY MEN. Kellogg, Timothy A.*; Marelich, W.D.†; Wilson, M.J.†; Lemp, G.F.*; Bolan, G.*; Rutherford, G.W.*; *San Francisco Department of Public Health, San Francisco, †California Department of Health Services, Sacramento, CA, USA.

F.C.549
HIV-1 AND STD INFECTION AMONG MALE TRANSVESTITE PROSTITUTES. Kirk W. Elifson*; Boles, J.*; Sweat, M.*; Posey, E.*; Darrow, W.†; *Georgia State University, Atlanta, GA: †Centers for Disease Control, Atlanta, GA.

F.C.550
TEMPORAL TRENDS IN HIV SEROCONVERSION. A REPORT FROM THE MULTICENTER AIDS COHORT STUDY (MACS). Kingsley, Lawrence A.*; Bacellar, H.+; Zhou, S.*; Rinaldo, C.*; Chmiel, J.+; Detels, R.+; Saah, A.+; VanRaden, M.+; Ho, M.*; Armstrong, J.*; Munoz, A.+; *University of Pittsburgh, Pittsburgh, PA,; +Multicenter AIDS Cohort Study Group.

F.C.551
SEROPREVALENCE OF HIV INFECTION IN INTRAVENOUS DRUG USERS (IVDUS) IN THE UNITED STATES (U.S.). Allen, David M., Onorato, I.M., Sweeney, P.A.; Centers for Disease Control, Division of HIV/AIDS, Atlanta, GA, USA.

F.C.552
TRENDS IN HIV INFECTION AND AIDS RISK BEHAVIORS AMONG INTRAVENOUS DRUG ABUSERS IN SELECTED US CITIES. Batjes, Robert J.; Pickens, R.; and Amsel, Z.; National Institute on Drug Abuse, Rockville, Maryland, USA.

F.C.553
SEROCONVERSION FOR HIV IN INTRAVENOUS DRUG USERS IN TREATMENT, SAN FRANCISCO 1985-1990. Moss, Andrew; Vranizan, K.; Bacchetti, P.; Gorter, R.; Osmond, D.; Brodie, B.; Univ. of California, SF, CA, USA.

F.C.554
LABORATORY MARKERS FOR HIV IN INTRAVENOUS DRUG USERS IN SAN FRANCISCO: RACE AND SEX DIFFERENCES. Vranizan, Karen; Gorter, R.; Osmond, D.; Keffelew, A.; Williams, A.; Moss, A.R.; Univ. of California, SF and SF General Hospital, CA, USA.

F.C.555
EPIDEMIOLOGY OF HIGH-RISK BEHAVIOR PATTERNS AMONG AFRICAN-AMERICAN INJECTION DRUG USERS IN SAN FRANCISCO. Evans, Patricia*; Hembry, K.*; Bowser, B.†; Gross, S.†; Dasher, T.†; *San Francisco Department of Public Health, San Francisco, CA. USA †Bayview-Hunter's Point Foundation, San Francisco, CA. USA.

F.C.556
HIV-1 SEROCONVERSION IN A COHORT OF STREET INTRAVENOUS DRUG USERS IN CHICAGO. Wiebel, Wayne; Lampinen, T.; Chene, D.; Stevko, B.; University of Illinois at Chicago, Chicago, Illinois, USA.

F.C.557
SEROCONVERSION FOR HIV-1 IN INTRAVENOUS DRUG USERS IN BALTIMORE. Vlahov David, Munoz A, Cohn S, Solomon L, Chaisson RE, Nelson KE; ALIVE Study, Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland, USA.

F.C.558
ANTIBODY TO HIV-1 IN INTRAVENOUS DRUG USERS (IVDU) ENTERING METHADONE TREATMENT PROGRAMS (MTP) IN BOSTON. Steger Kathleen A*, Zawacki A*; Allen D†; Werner BG‡; Coppola D*; Craven DE*; *Boston Department of Health and Hospitals, †Centers for Disease Control, ‡MA State Laboratory Institute, Boston, MA.

F.C.559
A COMPARISON OF HIV-1 INFECTION RATES AND BEHAVIORS IN MINNESOTA IV DRUG USERS OVER A THREE YEAR PERIOD: 1987-1989. MacDonald, Kristine*; Thomas, J.*; Jones, D.*; Danila, R.*; Godes, J.†; Osterholm, M.*; *Minnesota Dept. of Health; †Hennepin County Community Health Dept, Minneapolis, MN, USA.

F.C.560
HIV-1 INFECTION AMONG NON-IVDA'S ADMITTED TO DRUG TREATMENT PROGRAMS. Patel, Raj; Brandon, D.; Altman, R.; Robeson, L.; Pizzuti, W.; New Jersey State Department of Health, Trenton, NJ, USA.

F.C.561
AN INDEX OF RISK FACTORS PREDICTING HIV SEROPOSITIVITY IN NEWARK AND JERSEY CITY INTRAVENOUS DRUG ABUSERS (IVDAS) NOT CURRENTLY ENROLLED IN TREATMENT. Iguchi, Martin Y.*; Rosen, M.†; Musikoff, H.†; Platt, J.J.*; Baxter, B.†; French, J.†; Lidz, V.*; Liu, S.*; Grant, C.†; *University of Medicine & Dentistry of New Jersey, School of Osteopathic Medicine, Camden, New Jersey, USA, †New Jersey Department of Health, Trenton, New Jersey, USA.

F.C.562
ESTIMATING THE PREVALENCE OF IV DRUG AND HIV INFECTION AMONG SUBSCRIBERS OF A LARGE PRIVATE HEALTH INSURANCE PLAN IN THE NEW YORK AREA. Eisenhandler, Jon*; Drucker, E.†; *Empire Blue Cross and Blue Shield, New York, U.S.A. †Albert Einstein College of Medicine, New York, U.S.A.

F.C.563
HIV STATUS AND THE USE OF COCAINE/CRACK IN WOMEN DELIVERING WITH LITTLE OR NO PRENATAL CARE. Mitchell, Janet L.*; Briggs, N.†; Faison, C.†; Brown, G.M.*; Loftman, P.*; Williams, S.B.*; Departments of *OB/GYN and †Pediatrics, Harlem Hospital Center, New York, NY, USA.

F.C.564
HIV SPREAD AMONG INTRAVENOUS (IV) DRUG USERS (DUS) IN KING COUNTY, WA. Harris, Noreen*; Sohlberg, E.*; Livingston, G.†; *Seattle-King Co. Dept. of Public Health, Seattle, WA, USA; †Centers for Disease Control (CDC), Atlanta, GA, USA.

F.C.565
U.S. HIV SEROCONVERSION SURVEILLANCE PROJECT; REGIONAL SEROPOSITIVITY RATES FOR HIV INFECTION IN PATIENTS WITH HEMOPHILIA. Augustyniak, Linda*, Kramer, A.S.*, Fricke, W.†, Brownstein, A.*, Evatt, B.‡; *National Hemophilia Foundation, New York, NY., U.S.A., †Food and Drug Administration, Bethesda, MD, U.S.A., ‡Centers for Disease Control, Atlanta, GA, U.S.A.

F.C.566
HIV SEROPREVALENCE SURVEYS IN SEXUALLY TRANSMITTED DISEASE CLINICS IN CALIFORNIA. Wilson, Mary J.*, Marelich, W.D.*, Lemp, G.F.†, Perkins, C.I.*, Kizer, K. W.*, Rutherford, G.W.†; *California Department of Health Services, Sacramento, CA; †San Francisco Department of Public Health, San Francisco, CA; USA.

F.C.567
HIV-1 SEROPREVALENCE IN STD CLINIC PATIENTS IN A COUNTY IN THE SAN FRANCISCO BAY AREA. Livermore, Tim*; Gaudino, J.*; Cahoon-Young, B.*; Tempelis, C.*; Chandler, A.*; Benjamin, R.*.; *Alameda County Health Care Services Agency, Oakland, CA, USA.

F.C.568
HIV SEROPREVALENCE AMONG WOMEN OF REPRODUCTIVE AGE SEEKING CLINICS SERVICES, UNITED STATES, 1988-1990. Sweeney, Patricia A.*; Allen, D.M.*; Onorato, I.M.*; and State and Local Health Departments.; *Centers for Disease Control, Atlanta, GA, USA.

F.C.569
A COMPARISON OF STATEWIDE MINNESOTA HIV/AIDS SURVEILLANCE DATA WITH A POPULATION-BASED HIV SEROPREVALENCE STUDY OF CHILDBEARING WOMEN IN MINNESOTA (MN). Danila, Richard; Jones, D.; Reier, D.; Thomas, J.; Osterholm, M.; MacDonald, K.; Minnesota Department of Health, Minneapolis, MN, USA.

F.C.570
DECLINE IN HIV SEROPREVALENCE AMONG INNER-CITY PRENATAL PATIENTS: 1988-1990. Dattel, Bonnie J.; Hauer, L.B.; Crombleholme, W.R.; Landers, D.V.; Padian, N.; Sweet, R.L.; Uiv. of CA at SF, SF General Hospital, USA.

F.C.571
HEPATITIS B AND OTHER PREDICTORS OF HIV INFECTION AMONG FEMALES IN THE MIDWEST UNITED STATES. Campbell, Robert J., Halpin T., Lanese R.*, Para M.*; Ohio Department of Health, The Ohio State University*, Columbus, Ohio U.S.A.

F.C.572
HIV INFECTION IN UNDERPRIVILEGED TEENAGERS: UPDATE FROM THE JOB CORPS. Hayman, Charles*; St. Louis, M.†; Petersen, L.†; Miller, C.*; *Job Corps, U.S. Dept. of Labor, Washington, DC, †CDC, Atlanta, Georgia, USA.

F.C.573
SURVEILLANCE OF HIV INFECTION USING A NETWORK OF SENTINEL PHYSICIANS IN THE PROVINCE OF QUEBEC: A SECOND REPORT. Alary, Michel*, Parent, R.; *Departement de Sante Communautaire, Hopital du St-Sacrement, Quebec, Canada.

F.C.574
HIV-1 SEROPREVALENCE SURVEYS IN NEW YORK CITY. Weisfuse, Isaac B.; Greenberg, B.; Back, S.; Araneta, M.; Makki, H.; Thomas, P.; et. al.; HIV Serosurvey Unit, Office of AIDS and HIV Surveillance, New York City Department of Health.

F.C.575
PREVALENCE AND DETERMINANTS OF HIV INFECTION AMONG WOMEN UNDERGOING AN ABORTION IN MONTREAL, QUEBEC, CANADA. Remis, Robert S.*; Eason, E.L.†; Najjar, M.*; Palmer, R.*; Lebel, F.‡; Fauvel, M.‖; Departments of community health*, obstetrics and gynecology† and microbiology‡, Montreal General Hospital, Montreal; and ‖Lab. de sante publique, Ste-Anne-de-Bellevue, Quebec, Canada.

F.C.576
HIV INFECTION IN THE ELDERLY. Ferro, Santiago; Salit, I.E.; Toronto General Hospital, Toronto, Canada.

F.C.577
HIV PREVALENCE AND RISK AMONG STREET-INVOLVED PERSONS. Rekart,M.L.; Chan, S.L.; James, E.; Loftus, P.; Whelan Banks, J.; B.C. Centre for Disease Control, Vancouver, B.C., Canada.

HIV Seroprevalence in Latin America and the Caribbean

F.C.578
HIV PREVALENCE AMONG DIFFERENT RISK COMMUNITIES IN THE NORTH-EASTERN AREA OF ARGENTINA. Rubio, Liliana; Fay,Oscar; Taborda,Miguel; Fernandez,Eduardo; Rodenas,Liliana; Fernandez, Alicia; Centro De Tecnologia en Salud Publica—Fac. de Cs. Bioquimicas y Farmaceuticas Universidad Nacional de Rosario—Rosario—Argentina.

F.C.579
PREVALENCE OF HIV-1 ANTIBODIES IN SELECTED GROUPS OF A BRAZILIAN CITY WITH AFRICAN SOCIO-DEMOGRAPHIC CHARACTERISTICS (PRELIMINARY RESULTS). Bernardo Galvao-Castro; dos Santos, J.; Santana, I.; Valadao, E.; Pinto, T.; Advance Laboratory of Public Health, WHO Collaborating Centre on AIDS, Fundacao Oswaldo Cruz, Salvador, Bahia, Brazil.

F.C.580
A CHANGING FACE: HIV SEROPOSITIVITY AND RISK FACTORS IN A BRAZILIAN HIGH RISK AIDS OUTPATIENT CLINIC 1986-1989. Adams, Irene Kay Bruinsma; Oliveira, M.R.; Rosa de Castro, M.J.; Vidigal, P.G.; Paulino, U.H.; Moreira, D.N.; Greeco, D.B.; Tupinambas, U.; Castro Neto, M.; Vilela, G.; Immunodeficiency Clinic, Infecious and Parasitic Diseases Service, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

F.C.581
RETROVIRUS INFECTION IN PROSTITUTES IN BRAZIL. Granato, C.; Johnson, W.; Brites, C.; Biacno, C.; Gerbi, L.; Zamariol, L.; Inst. Adolfo Lutz-Sao Paulo; Cornell Univ. Med. Center; N.Y. Blood Center.

F.C.582
HIV SEROPREVALENCE AND RISK ACTIVITIES IN BLOOD DONORS IN BAHIA, BRAZIL. Alves, Carlos B.*; Ribeiro, T.T.*; Santana, I.†; Lisboa, W.*; Badaro, R.*; Johnson, W.D., Jr.‡; *Federal University of Bahia, Salvador, Brazil; †HEMOBA, Salvador, Brazil; ‡Cornell University Medical College, NY, USA.

F.C.583
HIGH INCIDENCE OF PARTNERS OF BISEXUAL MEN: RISK FACTORS AND SEXUAL BEHAVIOUR OF WOMEN SEEN IN A HIGH RISK HIV CLINIC IN BELO HORIZONTE, BRAZIL. Oliveira, Edson Ildefonso; Adams, I.K.B.; Cardoso, M.F.P.; Paulino, U.H.; Vitoria, M.A.A.; Greco, D.B.; et. al.; Immunodeficiency Clinic, Infectious and Parasitic Diseases Service, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil.

F.C.584
FOLLOW UP OF GROUPS AT RISK FOR HIV INFECTION. Souza Dias, Maria Beatriz; Lima, J.N.; Abreu, W.B.; Pedro, R.J.; Silva, L.A.M; Aoki, F.H.; Unicamp Medical School, Campinas, Sao Paulo, Brazil.

F.C.585
HIV-1 AND HIV-2 SEROLOGICAL STUDIES INDIVIDUALS WITH RISK BEHAVIOR. Lauria, Catharina‖; Vanderborght, B.O.M.*; Sa Ferreira, J.A.*; Ferreira, A.G.P.*; Bonfim, D.‡; Marzochi, K.F.† & Peralta, J.M.‖.; ‖Instituto de Microbiologia/ UFRJ, Rio de Janeiro, Brazil; *Innogenetics Gent, Beulgium. de Michobiologia/UFRJ, Rio de Janeiro, Brazil; ‖.

F.C.586
A COMPARATIVE STUDY BETWEEN SUGAR CANE WORKERS IN THE DOMINICAN REPUBLIC: A SEARCH FOR HIV AND ITS CO-FACTORS. Capellan, Mirtha R.*, Reyes, L.*, DeMoya, A.†, Koenig, E.L.‡; *Universidad Tecnolica de Santiago, †Programa Control Enfermedades de Transmission Sexual, ‡National Laboratory of Public Health, Santo Domingo, Dominican Republic.

F.C.587
SEROPREVALENCE OF HIV-1 AND HTLV-I IN STD CLINICS IN THE DOMINICAN REPUBLIC. Guerrero, E.*; Rodriguez, Evelyn M.†; de Moya, EA.*; Quinn, T.C.†; Monterosso, E.R.‡; Zacarias, .‡; Glasner, P.D.†; Vermund, S.H.†; *PROCETS, Santo Dominto, Dominican Republic; †NIAID, Bethesda, MD, USA; ‡Pan American Health Organization, Washington, DC, USA.

F.C.588
A SURVEY FOR ANTIBODIES TO HUMAN RETROVIRUS (HIV-1, HIV-2, HTLV-1) IN ECUADOR. Cevallos, R, Denis Francois, Verdier M, Leonard G, Evans L, Barriga J, Barberis L.; Department of Bacteriology-Virology and Department of Internal Medicine, CHU Dupuytren, Limoges. France; Hospital del Sur. Quito. Equador.

F.C.589
HIV AND HTLV-I INFECTION IN A SELECTED POPULATION OF HOSPITAL OUTPATIENTS IN RURAL HAITI. Allain, Jean-Pierre; Illinois, USA.

F.C.590
HIV-INFECTION IN CENTRAL AMERICA. Beach, Richard, S.; Baum, M.; Schultz, J.; Mantero-Atienza, E.; Prineas, R.; Thiebaud-Alvarenga, M.; Alvarenga, J.C.;: Gutierrez, R.; Tercero, D.; Zelaya, E.; Univ. of Miami School of Medicine, Miami, FL.

F.C.591
WOMEN'S HEALTH STUDY, JAMAICA. White, Elizabeth*; Weller, P.*; Figueroa, J.P.*; Brathwaite, A.*; DuCasse, M.*; Cohen, J.B.†; *Natl. AIDS Control Program, Jamaica; †Univ. of CA, SF, CA, USA.

F.C.592
SEXUALITY IN WOMEN AND AIDS IN A LATIN AMERICAN COUNTRY. Magis, Carlos R., Garcia, M., Sepulveda, J., Loo, E., Izazola, J., Valdespino, J.; Mexico Ministry of Health, Mexico City, Mexico.

F.C.593
PREVALENCE OF ANTIBODY TO HIV-1 IN MEXICAN BLOOD DONORS. Herrera-Ortiz, Flor* Juarez-Figueroa, Luis*; *Centro Nacional de la Transfusion Sanguinea, Mexico City.

F.C.594
NATURAL HISTORY OF HIV INFECTION IN A COHORT OF FEMALE PROSTITUTES IN GUADALAJARA, MEXICO. Torres-Mendoza B.*; Campos-Lopez P.*; Jauregui-Rios M.L.*; Tlacuilo-Parra J.*; and Vazquez-Valls E.*,†; *Grupo de Diagnostico, Tratamiento e Investigacion Biomedica, de Guadalajara, A.C. †Unidad de Investigacion Biomedica de Occidente, IMSS, Guadalajara, Mexico.

47

HIV Seroprevalence in Africa

F.C.595
HIV-BASELINE STUDY IN THE GENERAL POPULATION OF COROM-COROM/BURKINA FASO. Ouedraogo, Hamade*, Lorenz, N.†, Bakouan, D.*, Zina, Y.*, Barth, P.†, Rehle, T.‡; *Ministere de la Sante et de l'Action Sociale, Ouagadougou; †Gesellschaft fur Technische Zusammenarbeit (CTZ), Ouagadougou, Burkina Faso; ‡Gesellschaft fur Technische Zusammenarbeit (CTZ), Eschborn, FRG.

F.C.596
SEVERE MALNUTRITION AND HIV INFECTION IN WEST AFRICA (BURKINA FASO). Prazuck T.*, Tall F.†, Malkin J.E.*, Nacro B.†, Traore A.†, Sanou T.†, Dublanchet A.*, Patey O.*, Lafaix Ch.*; *GEEP: Vill.-St-Georges, †Pediatric Ward, National Hospital Bobo Dioulasso, ‡University of Medicine of Ouagadougou, Burkina Faso.

F.C.597
SETTING UP A SENTINEL SURVEILLANCE SYSTEM FOR HIV INFECTION IN CAMEROON. Kaptue, L.*; Zekeng, Leopold*; Salla, R.*; Trebucq, A.†; Lamptey, P.‡; *Service National de Lutte contre le SIDA, Yaounde;†OCEAC, Yaounde; ‡Family Health International, North Carolina, USA.

F.C.598
A SEROEPIDEMIOLOGICAL STUDY OF SEXUALLY TRANSMITTED AGENTS (HIV, HEPATITIS B VIRUS, T. PALLIDUM) AMONG SENTINEL POPULATIONS IN THE NORTH WEST AND SOUTH WEST PROVINCES, CAMEROON. Zekeng, L.*; Barth, P.†; Salla, Roger*; Kaptue, L.*; Schmidt-Ehry, B†; Rehle, T.†; *Ministry of Health of Cameroon, Yaounde, Cameroon *Gesellschaft f. Technische Zusammenarbeit (GTZ) G mbH, Eschborn, FRG.

F.C.599
HIV INFECTION AND AIDS IN EGYPT: A CUMULATIVE SURVEILLANCE OVER 3 1/2 YEARS,. Constantine, Niel T.*; Sheba, M.F.†; Watts, D.M.*; Amer, H.†; Ghanem, M.†; Khashaba, S.†; Moteleb, F.A.†; Sattar, A.A.†; *U.S. Naval Medical Research Unit No. 3, (A WHO Collaborating Center for AIDS), †Ministry of Health, Cairo, Egypt.

F.C.600
SEROPREVALENCE OF HIV AND SYPHILIS INFECTIONS AMONG CHILDBEARING AGE WOMEN OF CENTRAL ETHIOPIA. Debrework Zewdie*, Tafari N.†, Kebede T.* and Gebrehiwot B.*; *National Research Institute of Health; †Department of Pediatrics and Child Health, Addis Ababa University, Addis Ababa, Ethiopia.

F.C.601
DISTRIBUTION OF HIV-1 AND HIV-2 INFECTIONS IN COTE D'IVOIRE. Adjorlolo Georgette*, Soro B†, Gnaore E*, Gershy-Damat G†, Odehouri K†, Bretton R†, Ouattara D†, Porter A*, Gayle H‡, De Cock KM* ‡, Heyward WL‡.; *Projet RETRO-CI, Abidjan; †Comite National de Lutte Contre le SIDA, Cote d'Ivoire; ‡Centers for Diease Control, Atlanta, USA.

F.C.602
HIV SEROPREVALENCE AMONG HOSPITALISED PATIENTS IN DAKAR, SENEGAL. AWA NDAO*, Coll AM*, Hane A*, Seye I*, Colebunders R†, Sow S*.; *Fann Hospital, Dakar, Senegal; †Institute of Tropical Medicine, Antwerp, Belgium.

F.C.603
PENETRATION OF HIV-1 IN A RURAL AREA OF SENEGAL. Kane, Fadel*, Joly, J.R.*, Coll, E.M.†, Alary, M.*, MBoup, S.†, Kanki, P.‡; *Faculte de Medicine, Universite Laval, Ste-Foy, Quebec, Canada; †Centre Hospitalier Universitaire, Dakar, Senegal; ‡Harvard School of Public Health, Boston, MA, USA.

F.C.604
RISK FACTORS FOR HIV-I AMONGST STD CLINIC ATTENDERS IN DURBAN, SOUTH AFRICA. O'Farrell, N.*, Windsor, I.†, Becker, P.‡; *City Health Department, Durban; † University of Natal, Durban; ‡University of the Witswatersrand, Johannesburg, South Africa.

F.C.605
HIV-1 INFECTION IN JUBA, SOUTHERN SUDAN. McCarthy, Michael C.*; and El Hag, A. El T.†; *U.S. Naval Medical Research Unit No. 3, Cairo, Egypt; †Ministry of Health, Khartoum, Sudan.

F.C.606
GEOGRAPHIC AND COMMUNITY DISTRIBUTION OF HIV-1 INFECTION IN A RURAL POPULATION IN RAKAI DISTRICT, UGANDA. Wawer, Maria J.*; Serwadda, D.†; Musgrave, S.*; Musagara, M.‡; Sewankambo, N.‡; Konde-Lule, J.‖; *Columbia University, New York, USA; †Mulago Hospital, Kampala, Uganda; ‡AIDS Control Programme-Rakai Project, Uganda. ‖Makerere University, Kampala.

F.C.607
HIGH RISK BEHAVIOR AMONG INDIVIDUALS WHO KNOW ABOUT AIDS IN RURAL RAKAI DISTRICT, UGANDA. Musgrave, S.*; Konde-Lule, J.†; Serwadda, D.‡; Wawer, M.J.*; Sewankambo, N.† Musagara, M.‖; *Columbia University, NY, USA; †Makerere University, Kampala, Uganda; ‡Mulago Hospital, Kampala, Uganda. ‖AIDS Control Programme/Rakai Proj. Entebbe.

F.C.608
HIV SEROPREVALENCE AMONG NEW CASES OF PULMONARY TUBERCULOSIS STABLE BETWEEN 1987 AND 1989 IN KINSHASA, ZAIRE. Mukadi Yadiul*, Perrie,s J*, Willame JC†, Kaboto M‡ Roscigno G‖, Prignot J*, Portaels F§, Piot P§, Ryder R*.; *Projet SIDA; † BNT; ‡ CDT, Kinshasa, Zaire; ‖ Merrel Dow Research Institute Strassbourg, France; * UCL, Mont Godinne; § IMT, Antwerp, Belgium.

F.C.609
TRENDS IN HIV INFECTION IN BLOOD DONORS IN ZAMBIA. Siyambango, Joseph, Luo, N.P., Tembo, G., Kapanda, S.; University Teaching Hospital, Department of Pathology and Microbiology, School of Medicine, Lusaka, Zambia.

HIV Seroprevalence in Asia

F.C.610
EPIDEMIOLOGY OF HIV INFECTION IN HONG KONG. E.K. Yeoh, P.C.K. Li, W.L. Lim, Y.Y. Chan, S.H. Lee; Department of Health, Hong Kong.

F.C.611
PREVALENCE OF ANTI-HIV ANTIBODIES AMONG BLOOD DONORS IN BOMBAY. Apte, S.V.* Joshi, S.H.*, Dumasia, A.N.* and Pati, R.S.*; Institute of Immunohaematology, Bombay, India.

F.C.612
HIV SERO SURVEILLANCE IN PROMISCUOUS FEMALES OF BOMBAY INDIA. Bhave Geeta G.*; Wagle U.D.*; Tripathi S.P.†; *Seth G. S. Medical College & K.E.M. Hospital, Bombay, India; †India Council of Medical Research, New Delhi, India.

F.C.613
SERO-EPIDEMIOLOGICAL STUDY OF HIV INFECTION IN AND AROUND MADRAS. Jayapaul, K.; Meeran, M.*, Nathan, R.†; Manivannan, G.*; Sathyakumari, R.*; *Institute of Sexually Transmitted Diseases, Madras Medical College, Madras; †Stanley Medical College, Madras, India.

F.C.614
HIV SEROSURVEILLANCE IN AN AIDS REFERRAL CENTRE IN INDIA. Malaviya Anand Narayan, Sigh YN, Tripathy S, Kumar A, ChaudhuryK,Vergese T, Adya CM; Department of Medicine, All-India Institute of Medical Sciences, New Delhi-110029, India.

F.C.615
EPIDEMIOLOGIC STATUS AND FUTURE PREDICTION OF AIDS/HIV IN JAPAN. Soda, Kenji*; Fukutomi, K.†; Morio, S.‡; Shiokawa, Y.‖; Adachi, K.*; *Yokohama City Univ. School of Medicine; †The Institute of Public Health; ‡Tottori Univ. School of Med.; ‖National Aids Surveillance Committee; *Ministry of Health and Welfare Yokohame-shi, Japan.

F.C.616
EPIDEMIOLOGY OF HIV INFECTION IN SINGAPORE. Chan, Roy*; Chew, S.K.†; Monteiro, E.H.†; Ong, Y.W.‡; *National Skin Centre, Singapore, †Communicable Disease Centre, Singapore, ‡Singapore General Hospital, Singapore.

HIV Seroprevalence in Europe

F.C.617
FOLLOW-UP OF INFANTS BORN TO HIV-1 SEROPOSITIVE MOTHER, TESTED BY PCR METHODS AFTER BIRTH. Denamur, E.*; Rahimy, C.*; Brun-Vezinet, F.†; Blot, P.*; Matheron, s.†; Barre, F.†; De Crepy, A.†; Elion, J.*, Vilmer, Etienne*; *Hopital Robert Debre; †Hopital Claude Bernard Bichat; ‡Institut Pasteur, Paris.

F.C.618
HIV SEROPREVALENCE AND RISK BEHAVIOUR IN IV DRUG USERS IN A LOW HIV PREVALENCE CITY IN BELGIUM. Todts S.*,†, Avonts D†, Vercauteren G‡, Piot P‡; *Free Clinic; †IPAC and ‡Institute of Tropical Medicine, Antwerp, Belgium.

F.C.619
SEXUAL BEHAVIOR CHANGES AND HIV-SEROPREVALENCE IN THE FRENCH MALE HOMOSEXUAL POPULATION, 1985-1989. Pollak, Michael; Schiltz, Marie-Ange; CNRS-GSPM, Paris, France.

F.C.620
TRENDS OF THE EPIDEMIC IN THE POPULATION OF TWO ANONYMOUS AND FREE HIV TESTING CENTERS, PARIS, FRANCE. Cavalier, Annick*, Ancelle-Park, R.†, Birkui, P.*, Helal, H.*, Poinsard, H.*, Pretet, S.*; *D.A.S.E.S., Paris, France, †WHO Centre, Paris, France.

F.C.621
PROFILE OF H.I.V. INFECTED PATIENTS IN WESTERN PART OF FRANCE: SURVEILLANCE OF EPIDEMIOLOGIC TRENDS. Marchand, Sophie*; Choutet, P.; et les membres du Gericco†; *CHRU Bretonneau 37044 Tours Cedex, France; †Groupe d'etude et de recherche en infectiologie clinique du Centre-Ouest.

F.C.622
HOSPITAL-BASED SURVEILLANCE OF HIV INFECTION IN THE BORDEAUX AREA (AQUITAINE, FRANCE): EPIDEMIOLOGICAL TRENDS, 1985-1989. Morlat, Philippe*, Chene, G.†, Dabis, F.†, Ragnaud, J.M.*, Salamon, R.†, and the GECSA; *Centre Hospitalier Regional Universitaire, Bordeaux, France, †INSERM, Universite de Bordeaux, Bordeaux, France.

F.C.623
HIV-INFECTIONS IN THE FEDERAL REPUBLIC OF GERMANY. Estermann, Josef C.2, Maxeiner, H.G.3, Bunikowski2, R., Harbermehl, K.O.3, Koch, M.A.2;: 2 AIDS-Center, Federal Health Office, Epidemiology, Berlin, FRG 3 Inst. f. Clin. a Exp. Virology, Free University Berlin, FRG.

F.C.624
HIV-ANTIBODY PREVALENCE IN BLOOD DONORS IN THE FRG. Gluck, Dorothee; Kubanek, B.; Vornwald, A.; Holzberger, G.; Hesse, R.; Graessmann, W.; Dept. Transfusion Medicine, University of Ulm, FRG.

F.C.625
HIV INFECTION IN INTRAVENOUS DRUG USERS IN BERLIN (WEST); RISK FACTORS AND TIME TRENDS. Stark, K.,*; Muller, R.†; Guggenmoos-Holzmann, I.† Deininger, S.*; Bienzle, U.*; Landesinstitut fur Tropenmedizin, Berlin, FRG. †Institut fur Medizinische Statiskik und Informationsverarbeitung, FU Berlin, FRG.

F.C.626
PREVALENCE OF HIV INFECTION IN PROSTITUTES FROM FRANKFURT/W. GERMANY. H.W. Doerr*, R. Enzensberger*, C. Bolender*, S. van Laere-Fischer', M. Peters; *Dept. of Virology, University of Frankfurt, and 'Dept. of Public Health, Frankfurt a. M., W. Germany.

F.C.627
PREVALENCE OF INFECTION IN IMPRISONED INJECTING DRU DRUG USERS: AN EIGHT YEAR STUDY. Papaevangelou, G.J.; Roumeliotou, A.; Kotsianopouulou, M.; Trichopoulou, V.; Univ. of Athens, Sch. of Medicine Athens, Greece.

F.C.628
EPIDEMIOLOGIC TRENDS IN HIV INFECTION IN THE GREATER TEL AVIV AREA. Burke, Michael; Vardinon, N; Grunfeld R, Shaposhnikov M and Yust, I.; Henry Goldmann Clinical Immunology Unit, Tel Aviv Medical Center and Tel Aviv University Sackler Medical School, Israel.

F.C.629
USING DIFFERENT INDICATORS IN ASSESSING HIV TRENDS IN INJECTING DRUG USERS. Zaccarelli, Mauro Z.*, Rezza, G.‡, Girardi, E.*, Puro, V.*, Gattari, P.†, Pezzotti, P.‡, Schito, S.*, Lelli, V.†, Valenzi, C.†, Narciso, P.*; *AIDS Unit USL, Rome; †Drug Dependency Unit USL, Rome; ‡Istituto Superiore de Sanita, Rome; Italy.

F.C.630
HIV 1 SEROPREVALENCE AMONG PREGNANT WOMEN IN GENOA ITALY FROM 1986 TO 1989. Crovari, Pietro*; Melica, F.†; Gabutti, G.*; Bruzzone, B.*; De Luigi, C.*; Ermiglia, M.L.*; *Inst. of Hygiene and Prev. Med. †Obst. Clinics University of Genoa, Italy.

F.C.631
THE ACTUAL PREVALENCE OF HIV I INFECTION IN COOLEY PATIENTS. Scara, Maria Teresa*; Miceli, M*; Di Nuccio, A.*; Rosci, M.A.†; Pezzella, M‡; Mannella, E.*.; *CNTS, CRI, Rome, Italy; †L. Spallanzani Hosp., Rome Italy; ‡Univ. of Rome, Italy.

F.C.632
HETEROSEXUAL TRANSMISSION OF HIV: FOLLOW-UP (1986-1989) OF 142 COUPLES. Tacconi, Federica; Edo, S.; Gola, T.; Lopez, S.; Comolli, G.; Barbarini, G.; Institute of Infectious Diseases, IRCCS Policlinico S. Matteo, Univ. of Pavia, Pavia, Italy.

427

F.C.633
DECREASE OF PREVALENCE OF ANTI-HIV AND ANTI-HBV AND SATISFACTORY COMPLIANCE TO HBV VACCINATION PROGRAM AMONG INTRAVENOUS DRUG ABUSERS (IVDA). PROSPECTS FOR A FUTURE HIV VACCINATION. Lugoboni, Fabio*; Mezzelani, P.; Venturini, L.; Menegazzi, L.; Bricolo, R.*; Institute of Patologia Medica, University of Verona, Italy. *Center for Drug Addicts, Local Health District 26 of Veneto Region, Bussolengo, Verona, Italy.

F.C.634
HIV INFECTION AMONG INTRAVENOUS DRUG USERS (IVDUS) IN TURIN, ITALY: COMPARISON WITH 1986. Sciandra, Mauro; Raiteri, R.; Fora, R.; Sinicco, A.; Inst. of Infect. Dis., Univ. of Turin, Turin, Italy.

F.C.635
SEROPREVALENCE OF HIV-1 AMONG SOUTH AMERICAN (S.AM.) AND ITALIAN (IT.) TRANSVESITIES ACTIVE IN PROSTITUTION IN MILAN. Galli M.; Antinori S.; Esposito R.; Giannelli F.; Cargnel A.; Quirino T.; Innocenti M.; Marozzi F.; Cernuschi M.; Moroni M.; University of Milan and L. Sacco and Niguarda Hospital, Milan, Italy.

F.C.636
HIV INFECTION IN THE STD CENTRE OF MILAN-ITALY. Zerboni Roberto, D'Orso M., Cusini M., Muratori S., Mansi M., Alessi E.; 1st Clinic of Dermatology, University of Milan, Milan, Italy.

F.C.637
A DEMOGRAPHIC BASIS FOR ESTIMATION OF HIV PREVALENCE IN THE GENERAL POPULATION BY INTERPRETATION OF HIV PREVALENCE AMONG BLOOD DONORS. Los, Anton P.M.*; Lumey, L.H.†; Tymstra, T.*; Smit Sibinga C. Th.‡; *Dept. of Health Sciences, Univ. of Groningen, †Dept. of Epidemiology, RIVM, Bilthoven, ‡R.C. Blood Bank Groningen-Drenthe, Groningen, NL.

F.C.638
RISK FACTORS AND HEROIN AND COCAINE USE TRENDS AMONG INJECTING DRUG USERS (IDU) IN LOW THRESHOLD METHADONE PROGRAMS, AMSTERDAM 1985-1989. Hartgers, Christina; van den Hoek, JAR; Krijnen, P; Coutinho, RA.; Municipal Health Service Amsterdam, The Netherlands.

F.C.639
HIV-AB-TESTING AT AN HIV COUNSELLING CLINIC IN OSLO, NORWAY. AB STATUS CORRELATED WITH DATA FROM 8000 RISK BEHAVIOUR QUESTIONNAIRES. Kittelsen, Peter; Jensen, F; Lid, R; Lokke, J.; Sectin for AIDS Prevention, Oslo City Department of Health and Environment, Oslo, Norway.

F.C.640
HIV INFECTION IN INTRAVENOUS DRUG USERS IN POLAND. Stapinski, Andrzej; Mazurkiewicz, W.; Ochelska, B.; *Institute of Venereology of Medical Academy, Warsaw, Poland.

F.C.641
PREVALENCE OF HIV-1 AND HIV-2 ANTIBODIES IN PREGNANT WOMEN AT RISK, IVDU AND STD PATIENTS: A THREE-YEAR STUDY. Pista, Angela*; Furtado, C.*; Benito-Garcia, A.*; Padua, E.*; CArdoso, J.†; Antunes, M.‡; Ayres, L.*; Avillez, F.*; *Instituto Nacional de Saude, †Administracao Regional de Saude, ‡Maternidade Magalhaes Coutinho, Lisbon, Portugal.

F.C.642
SEROLOGICAL MARKERS OF HIV-1, VHB AND SYPHILIS IN: INMATES FROM PENITENTIARY POPULATION. Folgueira, Dolores; Lopez, Mar; Garcia, J.; Pena, P.; Martinez-Zapico, R.; Servicio de Microbiologia. Hospital La Paz. Madrid. Spain.

F.C.643
RISK FACTORS FOR HIV-1 INFECTION IN PARENTERAL DRUG ABUSERS. Muga, Roberto; Tor, J; Jacas, C; Llibre, JM; Rey-Joly, C; Foz, M.; Service of Internal Medicine. Hospital Germans Trias i Pujol. Badalona, Barcelona. Spain.

F.C.644
HIV-1 INFECTION IN A DRUG CONTROL CENTER IN THE BASQUE COUNTRY, NORTHERN SPAIN, 1984-1989. Merino, Fernando*; Aizpiri, J.†; Esparza, B.*; San Cristobal, E.†; Perez, B.†; *Universidad del Pais Vasco, Spain. †Unidad de Drogodependencias, Servicio Vasco de Salud, Bilbao, Spain.

F.C.645
HIV AND HEPATITIS C VIRUS IN GROUPS AT RISK FOR AIDS. Tor Jordi, Llibre JM, Carbonell M, Muga R, Ribera A, Soriano V, Clotet B.; Hospital Germans Trias i Pujol. Badalona. Barcelona. Spain.

F.C.646
EVALUATION OF TRUE NUMBER OF HIV-INFECTED PERSONS IN SWEDEN. Bottiger, Margareta, Blaxhult, A.; National Bacteria Laboratory, Department of Epidemiology, Stockholm, Sweden.

F.C.647
NO CORRELATION BETWEEN HEPATITIS C VIRUS (HCV) AND HIV-1 INFECTIONS IN I.V. DRUG USERS (IVDUS). Chamot E., Wintsch J., Robert CF., Gabriel V., Hirschel B., Deglon JJ., Yerli S., Perrin L.; Internatl Medicine Department, Geneva University Hospital, Geneva, Switzerland and Ermitage Therapeutic Center, Geneva, Switzerland.

F.C.648
EPIDEMIOLOGICAL SURVEILLANCE FOR HIV-INFECTION IN THE USSR IN 1987-1989. Pokrovsky Vadim V.; Eramova I.; Arzamastsev V.; Nikonova V.; Mozharova G.; Central Research Institute of Epidemiology, 3-a, Novogyreyevskaya, Moscow, USSR.

F.C.649
FIRST CASES OF HIV-1 INFECTION IN LENINGRAD, USSR. A. Kozlov, A. Malykh, A. Emeljanov, T. Kurbatova, M. Traugott, A. Glebov, L. Gavrilenkova, P. Kolotvina, G. Volkova; AIDS Reference and Research Laboratory, Research Institute of Pure Biochemicals, Leningrad, USSR.

F.C.650
INDIRECT ESTIMATES OF HIV PREVALENCE IN HOMO/BI MEN AND IDUS. Ellam, G.A., Gill, O.N.; PHLS AIDS Centre, Communicable Disease Surveillance Center, London, England.

F.C.651
ADOLESCENTS AND YOUNG ADULTS: THE PATTERN OF HIV INFECTION IN ENGLAND, WALES AND NORTHERN IRELAND. Clarke, Sian E., Evans, G.B., Karunaratne, M., Kennedy, A. R.; PHLS AIDS Centre, Communicable Disease Surveillance Centre, London, England.

F.C.652
SEXUAL BEHAVIOUR CHANGE IN A PROSPECTIVE STUDY OF HETEROSEXUAL PARTNERS OF HIV INFECTED MEN. Johnson, A.M.*; McLean, Kenneth†; Davidson, S.J.†; Petherick, A.*; Shergold, C.*; Brettel, R.‡ et. al.; *UC & Middlesex School of Medicine, †West London Hospital, London, UK, ‡ Drug Addiction Study & City Clinic, Edinburgh.

F.C.653
PREVALENCE OF HIV INFECTION IN YUGOSLAVIA AND TRENDS FROM 1985-1989. Vitomir, Burek.; Maretic, T.; Zrinscak, J.; Borcic D.; University Hospital for Infectious Diseases, Zagreb, Yugoslavia.

HIV Seroprevalence in Oceania

F.C.654
EPIDEMIOLOGY AND EVOLUTION OF HIV INFECTION IN BLOOD TRANSFUSION RECIPIENTS. Swanton, Katherine N, Cook LA, Learmont, JC.; TRAIDS (Transfusion Related Aids Support Unit).

HIV-2 Seroprevalence

F.C.655
SENTINEL SURVEILLANCE FOR HIV-2 INFECTION IN CLINICAL SETTINGS, UNITED STATES, 1988-90. Onorato, Ida*; Schable, C.*; McCray, G.*; Allen, D.*; Pappaioanou, M.*; George, R.*; State & Local Health Depts.; *Div. of HIV/AIDS, Centers for Disease Control (CDCO), Atlanta, GA, USA.

F.C.656
HIV-2 INFECTIONS IN THE UNITED STATES. O'Brien, Thomas R.*, Schable CA*, Polon C†, Stewart A†, VanDevanter N†, Schochetman G*, Cleary P†, Holmberg SD*.; *CDC, Atlanta, GA, USA, and †Columbia School of Public Health, New York, NY, USA.

F.C.657
HIV-2 INFECTION IN CAMEROON. Zekeng, L.*; Pinay, P.*; Barth, P.†; Tapko, J.B*; Kaptue, L.*; *Service National de Lutte contre le SIDA; †Projet de sante germano-camerounais, Ministere de la sante publique.

F.C.658
EPIDEMIOLOGY AND TRANSMISSION OF HIV-2 IN SENEGAL. Kanki, Phyllis*; M'Boup, S.†; Marlink, R.*; Siby, T.†; Travers, K.*; Essex, M.*; *Harvard School of Public Health, Boston, MA, USA: †University of Dakar, Dakar Senegal.

F.C.659
SEROPREVALENCE OF RETROVIRUS INFECTION IN A POPULATION OF TANZANIA BORDERING HIV-1 ENDEMIC AREAS. Brubaker, Glenn, Kumbi, D., Konings, E., Alexander, S., Drummond, J., Clayton, Y., Scott, G., Sizo, Z., Kibauri, D., Shao, J., Blattner, J., Levin, W.; Shirati Hospital, Musoma, Tanzania, Africa.

F.C.660
SEROPREVALENCE OF HIV-2 IN ZAMBIA. Tembo, G., Luo, N., Hira, S., Kapanda, S., Syambango J., Kasumba, K; University Teaching Hospital, Lusaka, Zambia.

F.C.661
HIV-2 INFECTION IN MARSEILLES. Tamalet, Catherine*; Rousseau, S.*; Gallais, H.†; Pestre, P.†; Tamalet, J.*; *Virology, hopital de la Timone; †Department of Infectious Diseases, hopital de la Conception, Marseilles, France.

F.C.662
HIV-2 IN PORTUGAL: SITUATION IN 1990. Benito-Garcia, Ana; Goncalves, H.; Pista, A.; Furtado, C.; Padua, E.; Ayres, L.; Avillez, F.; Instituto Nacional de Saude, Lisbon, Portugal.

F.C.663
HIV-2 INFECTION IS ASSOCIATED WITH TUBERCULOSIS. Gnaore Emmanuel*, Adjorlolo G*, Bretton G†, Coulibaly IM†, Coulibaly D†, Traore M†, Porter A*, Lafontaine M-F*, Ouattara D‡,Braun #, De Cock KM*#, Heyward WL#.; *Projet RETRO-CI, Abidjan; †Centres Antituberculeux, Abidjan; ‡Centre National de Transfusion Sanguine, Abidjan; #Centers for Disease Control, Atlanta, USA.

HTLV-1 and HTLV-2 Seroprevalence

F.C.664
SEROPREVALENCE OF HUMAN T-LYMPHOTROPIC VIRUS TYPE I/II (HTLV-I/II) AMONG INTRAVENOUS DRUG USERS (IVDUS) AND SEXUALLY TRANSMITTED DISEASE (STD) PATIENTS IN THE U.S. Khabbaz, Rima F.*; Onorato, I.M.†; Hartley, T.M.*; Cannon, R.O.‡; Kaplan, J.E.*; and State and Local Health Departments.; *Retrovirus Diseases Branch, †Division of HIV/AIDS, ‡Division of STD/HIV Prevention, CDC, Atlanta, GA, U.S.A.

F.C.665
HTLV I/II IN INTRAVENOUS DRUG USERS AND HOMOSEXUAL MEN IN SAN FRANCISCO: RISK FACTORS ASSOCIATED WITH SEROPOSITIVITY. Feigal, Ellen, G.*, Murphy, E.†, Vranizan, K.†, Bacchetti, P.†, Chaisson, R.‡, Drummond, J.||, Blattner, W.*, McGrath, M.†, Moss, A.†; *University of California, San Diego, CA; †University of California, San Francisco, CA; ‡Johns Hopkins University, Baltimore, MD; ||Frederick Cancer Research Facility, Frederick, MD; *NCI, NIH, Bethesda, MD, USA.

F.C.666
HTLV-I/II AND HIV-1 SEROPREVALENCE AND RISK FACTORS IN INTRAVENOUS DRUG USERS (IVDUS) IN A COUNTY IN THE SAN FRANCISCO BAY AREA. Gaudino, James A.*; Livermore, T.*; Cahoon-Young, B.*; Tempelis, C.*; Benjamin, R.*; Chandler, A.*; *Alameda County Health Care Services Agency, Oakland, CA, USA.

F.C.667
SEROEPIDEMIOLOGY OF HTLV-I AND HEPATITIS C AMONG IVDU. Jain, Sunita; Zeldis, J.; Flynn, N.; Holland, P.*; Richards, C.*; Kuramoto, K.*; University of California, Davis, *Sacramento Medical Foundation, Center for Blood Research, Sacramento, CA USA.

F.C.668
SEROPREVALENCE OF HTLV/II AMONG MALE INTRAVENOUS DRUG USERS (IVDU) IN CHICAGO, AS DETERMINED BY COMBINED WESTERN BLOT (WB) AND RADIO IMMUNO-PRECIPITATION ASSAY (RIPA). Lentino, Joseph R.*, Pachucki, C.T.*, Schaaff, D.* Schaefer, M.*, Dorus, W.* Holzer, T.†, Heynen, C.†, Dawson, G.†; *Hines VA Hospital, Hines, Illinois, Abbott Laboratories, North Chicago, IL.† USA.

F.C.669
EPIDEMIOLOGY OF HUMAN T-CELL LYMPHOTROPIC VIRUS TYPES I AND II (HTLV-I AND II) IN A GROUP OF INTRAVENOUR DRUG USERS (IVDA). Wiktor, Stefan Z.*, Weiss, S.†, Shaw, G.‡, Alexander, S.||, Shorty, V.*Blattner, W.*; *National Cancer Institute, Bethesda, MD; †New Jersey Medical School, Dept. of Medicine and Dentistry, Newark, NJ; ‡University of Alabama, Birmingham, AL; ||Biotech Co., Rockville, MD; *Desire' Clinic, New Orleans, LA; USA.

F.C.670
HTLV 1 AND HTLV II INFECTION IN HIV INFECTED PATIENTS: REPORT OF 45 CO-INFECTED PATIENTS. Kaplan, Mark, Hall, W.H., Hsieh, H.C., Coronesi, M., Liu, C.R.; North Shore University Hospital, Cornell University Medical College, Manhasset, NY, USA.

F.C.671
HIV AND HTLV-I/II INFECTION AMONG OPIATE ADDICTS IN AND OUT OF METHADONE TREATMENT IN PHILADELPHIA. Metzger, D.*, †; Abrutyn, Elias*, ‡; Stolley, P.†; and Woody, G.*, †; *VA Hospital; †University of Pennsylvania; and Medical College of Pennsylvania, Philadelphia, PA, USA.

F.C.672
PREVALENCE OF HTLV I INFECTION IN JAPANESE AND IN OTHER RISK GROUPS IN ARGENTINA. Bouzas, Maria B.*; Muchinik, G.*; Campestri, R.*; Maeda, H.†; Hanson, C.V.‡; Gallo, D.‡; *Instituto de Investigaciones Hematologicas Academia Nacional de Medicina, Buenos Aires, Argentina; †Centro Nikai, Buenos Aires, Argentina; ‡Viral & Rickettsial Disease Lab., CA Dept. of Health Services, Berkeley, CA, USA.

F.C.673
HTLV INFECTION IN GUAYMI INDIANS FROM CHANGUINOLA, PANAMA. Kaplan, Jonathan E.*; Gracia, F.†; Castillo, L.†; Cutler, J.R.*; Hartley, T.M.*; Levine, P.H.‡; Lairmore, M.D.*; Reeves, W.C.*; *Centers for Disease Control, Atlanta, Georgia, USA; †Gorgas Memorial Laboratory, Panama; ‡National Cancer Institute, Bethesda, Maryland, USA.

F.C.674
PREVALENCE OF HTLV ANTIBODIES IN BLOOD DONORS IN CONTINENTAL FRANCE. Coste, Joliette*; Lemaire, J.M.*; Courouce, A.M.†; French Retrovirus Study Group.; *Centre Regional de Transfusion Sanguine, France; †Institut National de Transfusion Sanguine, France.

Modelling and Research Methods: Projections and Forecasts

F.C.675
TEN YEAR PROJECTIONS OF HIV MORBIDITY, MORTALITY, AND COSTS IN A MILITARY ASSOCIATED POPULATION IN THE U.S. Brundage, J.F.; Miller, Richard N.; McNeil, J.G., Tramont, E.C.; Walter Reed Army Institute of Research, Washington,DC, USA.

F.C.676
HIV/AIDS INCIDENCE IN CALIFORNIA: BACK CALCULATION ESTIMATES AND PROJECTIONS BY REGION AND RISK GROUP. Hay, Joel*; Osmond, Dennis†; *Hoover Institution, Stanford University, Stanford, California, USA, †University of California, San Francisco, California, USA.

F.C.677
SHIFTING AIDS BURDEN FROM LOS ANGELES AND SAN FRANCISCO TO OTHER CALIFORNIA COUNTIES: REGIONAL PROJECTIONS. Singleton, James A., Capell, F.J.; California Department of Health Services, Office of AIDS, Sacramento, CA, USA.

Modelling and Research Methods: Model Sensitivity

F.C.678
HIV EPIDEMIOLOGY AND SEXUAL MIXING PATTERNS IN INTRAVENOUS DRUG USING COMMUNITIES. Blower, Sally*; Dowlatabadi, H.†; May, R.‡; Anderson, R.‖; *GH Sergievsky Center, Columbia Univ. & Imperial Coll. of Science, Tech. & Med., London; †Rockefeller Fdn., NY; ‡Oxford Univ., Oxford; ‖Imperial Coll. of Science, Tech. & Med.

Modelling and Research Methods: Data Analysis Issues

F.C.679
CLANDESTINE COHORTS: ISSUES FOR DATA ANALYSIS. Hauck, Walter; Segal, M.; Neuhaus, J.; Gee, L.; Univ. of CA, SF, CA, USA.

F.C.680
SHARED NEEDLE USE AND HEALTH BELIEFS CONCERNING AIDS: REGRESSION MODELING OF ZERO-HEAVY COUNT DATA. Heilbron, David C.; Gibson, D.R.; Univ. of CA, SF, CA, USA.

F.C.681
NEW STATISTICS FOR AIDS RISK FACTOR ASSESSMENT THAT OVERCOME DISTORTIONS IN RISK RATIOS AND REGRESSION PARAMETERS. Koopman JS, Jacquez JA, Simon CP, Longini IM, Martin WR, Haber M; University of Michigan & MABRC, Emory University.

F.C.682
THE EFFECT OF ERRORS IN MEASUREMENT OF IMMUNOLOGIC MARKERS ON ESTIMATES OF RELATIVE RISK WHEN MODELING PROGRESSION TO AIDS. Raboud, Janet*; Farewell V.T.*; Reid N.*; Coates RA*.; *University of Toronto, Toronto, Ontario, Canada †University of Waterloo, Waterloo, Ontario, Canada.

Modelling and Research Methods: Data Collection Issues

F.C.683
COMPARISON OF HIV SEROPREVALENCE METHODOLOGIES IN A HIGH PREVALENCE POPULATION: BLINDED AND NON-BLINDED SURVEYS IN AN SEXUALLY TRANSMITTED DISEASE CLINIC. Bolan, Gail*; Kellogg, T.A.*; Geoghegan, C.*; Back, A.*; Lemp, G.F.*; Wilson, M.J.†; Rutherford, G.W.*; *San Francisco Department of Public Health, San Francisco, †California Department of Health Services, Sacramento, CA, USA.

F.C.684
ASSOCIATION OF HUMAN IMMUNODEFICIENCY VIRUS SEROSTATUS WITH CONFIDENTIAL AND UNLINKED ANTIBODY TESTING IN AN STD CLINIC. Cabral-Evins, Daramola N.*; Stone, Susan†; Anderson, Laura†; Gaudino, James*; *Alameda County Health Care Services Agency and †City of Berkeley, Department of Health and Human Services, Berkeley, California, USA.

F.C.685
THE UNSEEN SAMPLE IN AIDS COHORT STUDIES. Hoover, Donald; Munoz, A.; Carey, V.; Taylor, J.; Chmiel, J.; Odaka, N.; Vermund, S.; Armstrong, J.; Multicenter AIDS Cohort Study (MACS), Bethesda, MD, USA.

F.C.686
SOCIAL NETWORK CHARACTERISTICS OF IV DRUG USERS (IVDUS): IMPLICATIONS FOR ETHNIC/NEIGHBORHOOD STUDIES OF HIV TRANSMISSION. Altmann, Michael*; Peterson, D.*; Willard, K.*+; Needle, R.*; *University of Minnesota, Minneapolis, Minnesota, USA: +VA Medical Center, Minneapolis, Minnesota, USA.

F.C.687
UNUSUAL STUDY OF HOMELESS IV DRUG USERS COMBINES QUALITATIVE AND QUANTITATIVE METHODS. Strug, David*; Lidz, Victor†; SUNY—Health Science Center, Brooklyn, NY, USA †UMDNJ, Camden, NJ, USA.

F.C.688
WHAT IS A SEXUAL ENCOUNTER?. Hunt, Andrew J.*; Coxon, A.P.M.†; Davies, P.M.*; McManus, T.J.‡; Weatherburn, P.‖; Project SIGMA, *South Bank Polytechnic, London, UK; †University of Essex, UK; ‡King's College Hospital, London, UK; ‖University College of Wales, Cardiff, UK.

F.C.689
RAPID ASSESSMENT OF SEXUALLY TRANSMITTED DISEASES (STD) IN DEVELOPING COUNTRIES. Ndoye, Ibra*; Mboup, S.*; Moran, J.†; Van Dyck, E.‡; Nkowane, B.||; Heymann, D.||; De Schryver, A.*; Meheus, A.*; *STD and AIDS Control Program, Senegal; †Centers for Disease Control, Atlanta, USA; ‡Institute of Tropical Medicine, Antwerp, Belgium; ||Global Programme on AIDS; *Programme of Sexually Transmitted Diseases, WHO, Geneva Switzerland.

F.C.690
DO CURRENT MORTALITY STATISTICS PROVIDE A VALID ESTIMATE OF AIDS INCIDENCE?. Tasco, Carolina; Chierchini, P.; Orchi, N.; Arca, M.; Perucci, C.A.; Abeni, D.; Regional Epidemiology Unit, Rome, Italy.

F.C.691
PRIMARY REASONS FOR NONRESPONSE IN THE DALLAS COUNTY HOUSEHOLD HIV SURVEY. Ezzati, Trena*; Visscher, W.†; Massey, J.*; McQuillan, G.*; *National Center for Health Statistics, Hyattsville, MD, †Research Triangle Institute, Research Triangle Park, NC, USA.

Modelling and Research Methods: Progressional Models

F.C.692
NONPARAMETRIC ESTIMATION OF THE AIDS INCUBATION PERIOD FROM A PREVALENT COHORT WITH UNKNOWN INFECTION TIMES. Bacchetti, Peter; Jewell, N.P.; University of California, San Francisco and Berkeley, CA, USA.

F.C.693
IMPUTED AND CRUDE ESTIMATES OF LEAD TIME INFECTION IN A SEROPREVALENT COHORT OF HOMOSEXUAL MEN. Craib, Kevin J.P.*; Schechter, M.T.*; Le, T.N.*; Montaner, J.S.G.*; Sestak, P.*; Douglas, B.*; McLeod, W.A.*; O'Shaughnessy, M.†; *The Vancouver Lymphadenopathy-AIDS Study, University of British Columbia and St. Paul's Hosptial, Vancouver, Canada; †Federal Centre for AIDS, Ottawa, Canada.

F.C.694
PARAMETRIC MODELING OF THE HAZARD FUNCTION OF TIME TO AIDS IN SEROPOSITIVE HOMOSEXUAL MEN. Wright, Paul; Munoz A; Hoover D; Taylor J; Chmiel J; Zhou S; Graham N; VanRaden M; Multicenter AIDS Cohort Study (MACS), Bethesda, MD, USA.

F.C.695
SIMULATION MODEL OF THE NATURAL HISTORY OF CD4 T-CELL NUMBERS IN HIV-INFECTED INDIVIDUALS. Taylor, Jeremy M.G.*; Tan, S-J.*; Detels, R.*; *UCLA School of Public Health and Medicine.

Modelling and Research Methods: Estimates of Prevalence

F.C.696
BACK-PROJECTION OF THE HIV EPIDEMIC FROM AIDS INCIDENCE: A MODIFIED APPROACH, THE INCLUSION OF COMPETING RISKS, AND IMPLICATIONS FOR THE HIV-TO-AIDE INCUBATION FUNCTION. Hamill, David N.*; Cooley, P.C.*; Liner, E.C.*; Reade-Christopher, S.J.*; van der Horst, C.M.†; *Research Triangle Institute, RTP, NC, USA, †UNC, Chapel Hill, NC, USA.

F.C.697
BACK-CALCULATION OF HIV INFECTION DISTRIBUTIONS: CONVOLUTION OF WEIBULL AND LOG-LOGISTIC. Byers, Robert H., Jr.*, Hessol, N.A.†; *Centers for Disease Control, Atlanta, GA, USA; †Department of Public Health, San Francisco, CA, USA.

F.C.698
ESTIMATION OF INFECTION/ONSET PATTERN OF SA-AIDS BASED ON PAST PATTERNS OF TA-AIDS. Holmes, William S.*; Greatbatch, Wilson†; *State University College at Buffalo;: †University of Buffalo; Buffalo, NY.

F.C.699
BACK-CALCULATION AS A TOOL TO ESTIMATE THE PREVALENCE OF HIV INFECTION IN FRANCE. Rude, Nathalie, Costagliola, D., Valleron, A.; INSERM U 263, University of Paris, Paris, France.

F.C.700
THE REST OF THE ICEBERG: THE ASSOCIATION BETWEEN RECENT AIDS CASES AND THE PREVALENCE OF HIV INFECTION AT U.S. SENTINEL HOSPITALS. St. Louis, Michael; Karon, J.; Centers for Disease Control, Atlanta, Georgia, USA.

F.C.701
DEVELOPMENT OF STANDARD PARAMETERS TO COMPARE MODELS OF AIDS EPIDEMIC AND ITS DEMOGRAPHIC IMPACT IN PATTERN II COUNTRIES. Palloni, Alberto*; Morrison, F.†; Heligman, L.‡; Chin, J.||; *University of Wisconsin, Madison, Wisconsin, USA, †El Carrito, California, USA, ‡Population Division, United Nations, New York, USA, ||Global Programme on AIDS, WHO, Geneva, Switzerland.

F.C.702
ESTIMATING PEDIATRIC AIDS AND INFANT MOTALITY IN PATTERN II AREAS. v. Sonnenburg, Falkner*; Rehle, T.†; *University of Munich, Munich, FRG; †Gesellschaft fur Technische Zusammenarbeit (GZT), Munich, FRG.

F.C.703
MODELS OF AIDS VACCINES. Struchiner, Claudio*; Halloran, M.E.†; †Emory University, Atlanta, Georgia, U.S.A.

F.C.704
THE SPREAD OF AIDS IN PATTERN II AND PATTERN III COUNTRIES. Stanley, E. Ann Seitz, STWay, PA and Johnson, PD Curry, TF; Los Alamos National Laboratory, Los Alamos, NM USA University of Illinois, Champaign, IL USA Center for Int'l Research, Washington, DC USA US Air Force Academy, Colorado Springs, CO USA.

Modelling and Research Methods: Infectivity

F.C.705
STATISTICAL METHODS FOR ESTIMATION OF HIV INFECTIVITY FOR PARTNER STUDY DATA. Shiboski, Stephen; Jewell, N.; Univ. of California, Berkeley, CA, USA.

Determinants of Risk Behavior: Homosexual and Bisexual Men

F.C.706
5-YEAR TRENDS IN SEXUAL BEHAVIORS AMONG SAN FRANCISCO GAY AND BISEXUAL MEN. Hughes, Gail*; Henne, J.C.†; Lemp, G.F.*; Payne, S.F.*; Frutchey, C.D.‡; Bye, L.L.†; San Francisco Department of Public Health; †Communication Technologies; ‡San Francisco AIDS Foundation.

432

F.C.707
BISEXUAL MEN IN SAN FRANCISCO: ARE THEY A VECTOR OF HIV DISEASE TO HETEROSEXUALS?: THE SAN FRANCISCO MEN'S HEALTH STUDY. Ekstrand, Maria L.*,‡; Coates, T.J.*; Cheng, Yu-Teh†; Hulley, S.B.*; *UCSF Center for AIDS Prevention Studies (CAPS), San Francisco; †UCB Survey Research Center, Berkeley; ‡Scholar, American Foundation for AIDS Research, CA, USA.

F.C.708
SOCIAL SETTINGS AND AIDS-RISK SEXUAL BEHAVIOR AMONG INNER-CITY MINORITY HOMOSEXUAL MEN. LaBoy, Felicity; Jimenez, D.; McKirnan, D.J.; Midwest AIDS Biobehavioral Research Center and Univ. of Illinois at Chicago, Chicago, IL, USA.

F.C.709
HOMOSEXUALITY AS A RISK FACTOR FOR HIV INFECTION IN ZAIRE. Bombelenga Bomboko*, Bertrand W.E.*, Moore M.‡, Kashala T.D.*; *Ecole de Sante of the University of Kinshsa, Zaire †Tulane University, USA; ‡CDC, Atlanta USA.

F.C.710
PILOT BIRACIAL STUDY OF PSYCHOLOGICAL SYMPTOMATOLOGY IN INFECTED INNER-CITY GAY MEN. Fisher, Evelyn*; Ostrow, D.†;Frazier, K.*; Whitaker, R.†; MABRC and *Dept. of Infectious Diseases, Henry Ford Hospital, Detroit, MI, USA; †Univ. of Michigan, Ann Arbor, MI, USA.

F.C.711
MARGINAL MEN, MAINSTREAM RISK. Beeker, C.; Rose, D. Thomas; Ames, L.; AIDS Institute, New York State Department of Health, Albany, New York, USA.

F.C.712
HETEROSEXUAL BEHAVIOUR IN A COHORT OF HOMOSEXUALLY ACTIVE MEN IN ENGLAND AND WALES. Davies, P.M.*; Coxon, A.P.M.†; Hunt, A.J.*; McManus, T.J.‡; Weatherburn, P.||; *South Bank Polytechnic, London, UK; †University of Essex, UK; ‡King's College Hospital, London, UK; ||University College of Wale, Cardiff, UK.

F.C.713
POPULATION PREVALENCE AND DEMOGRAPHIC DISTRIBUTIONS OF MALE SAME GENDER: SEXUAL CONTACT IN THE U.S., THE U.K. AND FRANCE. Sell, Randall*; Wells, J.*; Valleron, A.†; Will, A.*; Cohen, M.†; *Project HOPE, Washington, D.C., U.S., †Universite Paris, Paris, France.

F.C.714
HIV TENDENCIES AND RISK FACTORS IN 5040 HOMO AND BISEXUAL MEN IN MEXICO (1985-1989). Garcia, MariaDe Lourdes, Izazola, J., Loo, E., Magis, C., Valdespino, J., Sepulveda, J.; Mexico Ministry of Health, Mexico City, Mexico.

F.C.715
THE MEN WHO GOT AWAY: CHARACTERISTICS OF GAY/ BISEXUAL COHORT VOLUNTEERS LOST TO FOLLOW-UP. Ames, Lynda; Beeker, C.; AIDS Institute, New York State Department of Health, Albany, New York, USA.

F.C.716
REACTIONS TO THE THREAT OF AIDS: COPING AND SEXUAL BEHAVIOR IN A COHORT OF HOMOSEXUAL MEN. De Wit, John*; de Vroome, E.*; Sandfort, T.*; van Griensven, G.†; Metselaar, C.* & Tielman, R.*; *University of Utrecht; †Municipal Health Service Amsterdam, The Netherlands.

F.C.717
RELAPSE FROM SAFER SEX AMONG HOMOSEXUAL: EVIDENCE FROM FOUR COHORTS IN THE AIDS COMMUNITY DEMONSTRATION PROJECTS. O'Reilly, Kevin R.*, Higgins, DL*, Galavotti, C.*, Sheridan, J.†; The CDC Aids Community Demonstration Projects *Centers for Disease Control, Atlanta, GA U.S.A., †Professional Management Associates.

F.C.718
FROM LOW-RISK TO HIGH-RISK: DISTINGUISHING AMONG GROUPS OF GAY MEN ON THE HIV RISK RELAPSE CONTINUUM. Bartholow, Bradford N.*; Cohn, D.*; Cole, V.*; Judson, F.*; O'Reilly, K.†; *Denver Disease Control Service, Denver, CO; †Centers for Disease Control, Atlanta, GA, USA.

F.C.719
GAY MEN IN SMALL CITIES: HOW RISKY ARE THEY?. Ames, L.; Beeker, Carolyn; New York State Department of Health, Albany, New York, USA.

F.C.720
A TELEPHONE SURVEY OF GAY AND BISEXUAL MEN IN MINNESOTA. Isensee, Jill*; Bye, L.†; Henne, J.†; Beniak, J.*; Danila, R.*; *Minnesota Dept. of Health, Minneapolis, MN, USA; †Communication Technologies, SF, CA, USA.

F.C.721
CURRENT REASONS FOR HAVING UNSAFE SEX AMONG GAY MEN IN SAN FRANCISCO: THE AIDS BEHAVIORAL RESEARCH PROJECT. Pollack, Lance*; Ekstrand, M.L.*; Stall, R.*; Coates, T.J.*; *Center for AIDS Prevention Studies, University of California, San Francisco.

F.C.722
WHY ARE YOUNG GAY MEN ENGAGING IN HIGH RATES OF UNSAFE SEX?. Hays, Robert B.; Kegeles, S.M.; Coates, T.J.; Center for AIDS Prevention Studies, University of California, San Francisco, California, USA.

F.C.723
SEXUAL BEHAVIOUR IN A GROUP OF YOUNG HOMOSEXUAL ACTIVE MEN IN ENGLAND AND WALES. McManus, Thomas J.‡; Coxon, A.P.M.†; Davies, P.M.*; Hunt, A.J.*; Weatherburn, P.||; *South Bank Polytechnic, London, UK; †University of Essex, UK; ‡King's College Hospital, London, UK; ||University College of Wales, Cardiff, UK.

F.C.724
RELAPSE IN SAFER SEXUAL PRACTICES AMONG HOMOSEXUAL MEN: TWO YEAR FOLLOW-UP FROM THE CHICAGO-MACS. Adib, Maurice, Joseph J.G., Ostrow, D.G.; University of Michigan, Ann Arbor, MI, USA.

F.C.725
FACTORS WHICH PREDICT RELAPSE TO UNSAFE SEX BY GAY MEN. St. Lawrence, Janet S.; Brasfield, T.L.; Kelly, J.A.; University of Mississippi Medical Center, Jackson, MS, USA.

F.C.726
RECREATIONAL DRUG USE AND HOMOSEXUAL BEHAVIOR: THE ROLE OF VOLATILE NITRITES (POPPERS) IN EXPLAINING THE ASSOCIATION. Ostrow, David*; Beltran, E.*; Wesch, J.†; Joseph, J.*; *University of Michigan, Ann Arbor, Michigan, USA, †Howard Brown Memorial Clinic, Chicago, Illinois, USA.

Determinants of Risk Behavior: Heterosexuals

F.C.727
CONDOM USE AMONG HETEROSEXUALS IN A SEXUALLY TRANSMITTED DISEASE [STD] CLINIC IN SAN FRANCISCO. Weinstock, Hillard*; Lindan, C.†; Bolan, G.† ‡; Grant, P.†; Johnson, D.†; Kegeles, S.†; Hearst, N.†.; *Division of STD/HIV Prevention, CDC, Atlanta, Georgia; †University of California, San Francisco, California; ‡Dept. of Public Health, San Francisco, California, USA.

F.C.728
UNDERREPORTING RISK BEHAVIORS FOR HIV INFECTION AMONG STD CLINIC PATIENTS: CASE-CONTROL STUDY OF COINCIDENT MORBIDITY. Ellis, Bernard H.*; Cox, K.†; Federspiel, C.†; *Tennessee Dept. of Health, Nashville, TN; †Memphis/Shelby County Health Dept., Memphis, TN; ‡Vanderbilt Univ., Nashville, TN.

F.C.729
SEXUAL BEHAVIOUR OF LONG-DISTANCE TRUCK DRIVERS AND THEIR CONTRIBUTION TO THE SPREAD OF SEXUALLY TRANSMITTED DISEASES AND HIV INFECTION IN EAST AFRICA. Mohamed Ali, Omari*, Bwayo, J.J.*, Mutere, A.N.*, Jaoko, W.*, Plummer, F.A.*'†, Kreiss, J.K.‡.; *University of Nairobi, Nairobi, Kenya; †University of Manitoba, Winnipec, Canada; ‡ University of Washington, Seattle, Washington.

F.C.730
THE INFLUENCE OF ACCULTURATION ON THE PERCEIVED RISK FOR AIDS AMONG MEXICAN AMERICANS. Fernandez Esquer, Maria E.*; Estrada, Antonio L.*; University of Arizona, College of Medicine, Tucson, Arizona.

F.C.731
RACIAL DIFFERENCES IN RISK BEHAVIOR, CONTRACEPTIVES AND HIV SEROPREVALENCE AMONG WOMEN IN FAMILY PLANNING CLINICS IN LOS ANGELES COUNTY. Hill, Deirdre; Rose, T.; Kerndt, P.R.; Los Angeles County Department of Health Services, AIDS Epidemiology Program, Los Angeles, California, USA.

F.C.732
HETEROSEXUAL BEHAVIOUR IN CENTRAL AFRICA-GEOGRAPHIC AND SOCIOCULTURAL VARIABLES IN THE USE OF CONDOMS FOR SAFE SEX. Louis, J.P.*; Hengy, C.*; Salla, R.†; Hamono, B.‡; Gardon, J.*; Trebucq, A.*; *Organisation de Coordination pour la Lutte contre les Endemies en Afrique Centrale, Yaounde, Cameroun; †Service National de Lutte Contre le SIDA, Yaounde, Cameroun; ‡Ministere de la Sante Publique, Libreville, Gabon.

F.C.733
HOW DO HISPANIC AND WHITE ADOLESCENT WOMEN DIFFER IN SEXUAL RISK BEHAVIOR AND IN THEIR ANTECEDENTS?. Kegeles, Susan*; Greenblatt, R.†; Cardenas, C.*; Catania, J.*; Ontiveros, T.†; Coates, T.J.*; *UCSF Center for AIDS Prevention Studies; †UCSF Department of Medicine, San Francisco, CA; ‡Planned Parenthood of Santa Cruz, CA.

F.C.734
NOT STRESS, BUT HOW YOU COPE WITH IT, IS RELATED TO SEXUAL RISK BEHAVIOR AMONG GAY MEN. Phillips, Constance; Folkman, S; Pollack, L; Chesney, M; Center for AIDS Prevention Studies, University of California, San Francisco, California, USA.

F.C.735
PHYSICIANS' PERCEPTION OF THE RISK FOR HIV TRANSMISSION. Nadeau, Denise, Boyer, R., Fortin, C., Duval, B., Godin, G.*.; Unite de Recherche Clinique sur le Traitement du SIDA, Centre Hospitalier de l'universite Laval; *Universite Laval; Quebec, Cana.

F.C.736
SEXUAL PRACTICES AND STD'S IN FEMALE DOMINICAN SEX WORKERS. Guerro, Ernesto*, Quinones, M.*, Spegman, D.†, Spegman, P.†, Rosario, S.*, Quinn, T.†, Shah, K.†, Ruff, A.†, Hook, E.†, Halsey, N.†; *Centro de Orientacion e Investigacion Integral, Santo Domingo, Dominican Republic; †The Johns Hopkins University School of Hygiene, Baltimore, MD, USA.

F.C.737
FACTORS WHICH INHIBIT SAFE SEXUAL BEHAVIOR IN AN OLDER HETEROSEXUAL POPULATION. Davis, Arlene M.; Peoria City/County Health Department, Peoria, Illinois, USA and Illinois State University, Normal, Illinois, USA.

F.C.738
HIV RISK BEHAVIOUR AND STD INCIDENCE IN LONDON PROSTITUES. Ward, Helen*; Day, S.*; Donegan, C.*; Harris, J.R.W.*; Jefferiss Wing Clinic; and *Academic Dept. of Public Health, St. Mary's Hospital, London W2, UK.

F.C.739
SEXUAL BEHAVIOR AND KNOWLEDGE ABOUT AIDS AMONG BLOOD DONORS IN QUITO, ECUADOR. Reyes, Oswaldo*; Lindan, C.†; Merino, M.*; Leoro, G.*; Weilbauer, F.*; Hearst, N.* *Ecuadorian Red Cross, Quito, Ecuador; †UCSF Center for AIDS Prevention Studies (CAPS), San Francisco, California, USA.

F.C.740
ACCEPTABILITY OF CONDOM USE AMONG PATIENTS AT A SEXUALLY TRANSMITTED DISEASE CLINIC. Farr, G.*; Magruder, Charles†; Foldesy, R.*; Staab, R.‡; *Family Health International, Durham, NC, USA, †Womack Hospital, Ft Bragg, NC USA, ‡Schmid Labs, Little Falls, NJ, USA.

F.C.741
PROSTITUTE USE BY HETEROSEXUAL MALES IN THE U.S., 1982. Lever, Janet; Kanouse, D.E.; Rogers, W.H.; Carson, S.; The RAND Corporation, Santa Monica, CA, USA.

F.C.742
THE EFFECTS OF GENDER AND CRACK USE ON HIGH RISK BEHAVIORS. Golden, Eve 1; Fullilove, M. 1; Fullilove, R. 1; Lennon, R. 2; Porterfield, D. 3; Schwarcz, S. 4; Bolan, G. 5; 1. Multicultural Inquiry and Research on AIDS, UCSF Center for AIDS Prevention Studies, Bayview Hunter's Pt. Fndtn, San Francisco, CA, USA, 2. Univ of Northern Colo. 3. UCSF School of Medicine 4. Cntrs for Disease Control 5. San Francisco Dept Pub Health.

F.C.743
VALIDATION OF A QUESTIONNAIRE ON SEXUAL ACTIVITY AMONG AN HETEROSEXUAL PARNERS IN MEXICO. Romieu I. Herrera E, Hernandez M. Ramirez G, Avila Sepulveda J. Directorate of Epidemiology, Secretariat of Health, Mexico.; Objetive; To validate a questionnaire on sexual activity among stable heterosexual parthers in Mexico City.

F.C.744
SEXUAL ACTIVITY AMONG WOMEN IN THE UNITED STATES AND NEW YORK CITY IN 1988. Fordyce, E. James; Balalnon, A.; Stoneburner, R.; NYC Dept. of Health, NYC, NY.

F.C.745
RISK FACTORS AMONG WOMEN IV AND NON-IV DRUG USERS IN A NATIONAL AIDS PREVENTION PROGRAM-U.S., PUERTO RICO, AND MEXICO. Young, Peggy*, Sowder, B.*, Weissman, G.†; *NOVA Research Company, Bethesda, Maryland, USA, †National Institute on Drug Abuse, Rockville, Maryland, USA.

F.C.746
A DESCRIPTION OF HIV RISK FACTORS AMONG 17,655 WOMEN. Robbins, Susan*; Spence, M.*; Armstrong, K.†; Marks, S.†; Lauver, D.†; *Hahnemann University, Philadelphia, Pennsylvania, USA, †Family Planning Council of Southeastern Pennsylvania, Philadelphia, Pennsylvania, USA, ‡University of Wisconsin, Madison, Wisconsin, USA.

F.C.747
CONDOM USE BY WOMEN SEEKING FAMILY PLANNING SERVICES. *Aral SO, †Soskolne V, ‡Magder LS and *Bowen GS.; *Centers for Disease Control, Atlanta, Georgia, U.S.A. †Hadassah Medical Organization, Jerusalem, Isreal ‡Johns Hopkins University, Baltimore, Maryland, U.S.A.

F.C.748
PERCEIVED RISK OF DEVELOPING AIDS AMONG A COHORT OF HETEROSEXUALS IN SOUTHEASTERN NEW ENGLAND. Feingold, Lisa; Zierler, S.; Laufer, D.; Mayer, K.; The New England Behavioral Health Study, Brown Univ., Providence, RI, USA.

F.C.749
SEX EDUCATION, EXPERIENCES, AND BELIEFS IN ZAMBIA: IMPLICATIONS FOR AIDS CONTROL. Matondo P, Tembo G, Lungu G. Sikazwe N, and Hira S.K.; University Teaching Hospital, Lusaka, Zambia.

F.C.750
HIV-1 INFECTION OF THE LOWER FEMALE GENITAL TRACT. Donegan, S. Patrick*; de la Monte, S.†; Steger, K.A.*; Dewees-Dunk, B.*; Byington, R.†; Hirsch, M.S.†; Craven, D.E.*; *Boston City Hospital and †Massachusetts General Hospital, Boston, Massachusetts, USA.

F.C.751
CANADIAN MULTICENTER STUDY OF HETEROSEXUAL HIV TRANSMISSION IN HEMOPHILIACS: RISK BEHAVIORS. Poon, Man-Chiu; Akabutu, J.; Card, R.; Gill, J.; Growe, G.; Marion,S.; Mathias, R.; Ramsum, D.; Tsoukas,C.; Universities of Calgary, Alberta, Saskatchewan, British Columbia, and McGill, Canada.

F.C.752
HEALTH PERSONNEL, TEACHERS AND STUDENT KNOWLEDGE AND ATTITUDES ABOUT CAUSES, TRANSMISSION AND PREVENTION OF AIDS. Ojofeitimi, Ebenezer O.; Department of Community Health, Obafemi Awolowo University, Ile-Ife, Nigeria.

F.C.753
KNOWLEDGE, ATTITUDE, BEHAVIOR AND PERCEPTION TO AIDS: THE FRENCH SURVEYS 1987-1990. Dab, William*; Moatti, J.P.†; Serrand, C.‡; Menard, C.‖; Pollak, M.#; Jayle, D.§; *Observatoire Regional de Sante D'Ile de France †Inserm U.240 ‡AFLS ‖CFES #WHESS §CRIPS. Paris, France.

F.C.754
AIDS RELATED KNOWLEDGE, ATTITUDE AND INFECTION-RISK INDEX NUMBERS IN LOW AND HIGH-RISK PRACTICE GROUPS. Del-Rio, Aurora Z., Izazola, J.L., Basanez, R., Palacios, M., Valdespino, J., Sepulveda, J.; Mexico Ministry of Health, Mexico City, Mexico.

Determinants of Risk Behavior: Drug Users

F.C.755
RISK BEHAVIORS OF INFREQUENT IV COCAINE USERS. Snyder, Frederick*, Nemeth-Coslett, R.†, Myers, M.*, Young, P.*NADR Consortium; *NOVA Research Company, Bethesda, MD, USA, †National Institute on Drug Abuse, Rockville, MD, USA.

F.C.756
EXAMINING RISK FOR AIDS AMONG MINORITY INTRAVENOUS DRUG USERS (IVDUS). Erickson, J.R.*; Estrada, A.*; Stevens, S.†; *University of Arizona, Tucson, Arizona †Amity, Inc., Tucson, Arizona.

F.C.757
HIV RISK BEHAVIORS AMONG NATIVE AMERICAN IVDUS. Estrada, Antonio L.*; Erickson, J.R.*; Stevens, S.†; Fernandez, M.*; *University of Arizona College of Medicine, Southwest Border Rural Health Research Center, Tuscon, Arizona, †Amity, Inc., Tuscon, Arizona.

F.C.758
RISK FACTORS FOR TRANSMISSION OF HIV AMONG INTRAVENOUS DRUG USERS IN LOS ANGELES, CALIFORNIA. Kerndt, Peter R.*; Rose, T.*; Mohilef, E.*; Strantz, I.†; Leasler, J.†; Onorato, I.M.‡; Ford, W.L.*; *Los Angeles County Department of Health Services, AIDS Epidemiology Program, Los Angeles, CA, USA; †LACDHS, Drug Abuse Program Office, Los Angeles, CA, USA; ‡Centers for Disease Control, Atlanta, GA, USA.

F.C.759
HIV RELATED BEHAVIORS AMONG COCAINE USERS. Kowalewski, Mark R.*; Khalsa, Hari K.*; Anglin, M. Douglas*; *UCLA Drug Abuse Research Group, California ,USA.

F.C.760
PROCESS EVALUATION TECHNIQUES TO ASSIST IN ASCERTAINING INFORMATION REGARDING HIGH-RISK INJECTION DRUG USERS. Bowser, Benjamin*; Evans, P.†; Hembry, K.†; Gross, S.*; Dasher, T.*; *Bayview-Hunter's Point Foundation, SF, CA, USA; †SF Dept. of Public Health, SF, CA, USA.

F.C.761
PREDICTORS OF CONDOM USE AMONG WOMEN SEXUAL PARTNERS OF INTRAVENOUS DRUG USERS. Choi, Kyung-Hee; Wermuth, L.; Sorensen, J.; Univ. of CA, SF, SF, CA, USA.

F.C.762
SEXUAL BEHAVIOR AND SEXUAL SELF IDENTITY IN MALE BISEXUAL AND HETEROSEXUAL IV DRUG USERS. Lewis, Diane K.* † and Watters, J.K.† ‡; *University of California, Santa Cruz, California, USA, †Urban Health Study, San Francisco, California, USA, ‡University of California, San Francisco, CA, USA.

F.C.763
TRENDS IN CRACK USE IN AN AIDS EPICENTER: SAN FRANCISCO, 1986-1989. Abramowitz, Alton G.*; Guydish, J.†; Woods, W.†; Clark, W.*; *Community Substance Abuse Services (CSAS), DPH, SF, CA, USA; †UCSF Center for AIDS Prevention Studies, SF, CA, USA.

F.C.764
COCAINE USE ASSOCIATED WITH INCREASED RISK BEHAVIOR FOR IVDUS WHO SHARE NEEDLES. Clark, Wayne*; Guydish, J.†; Abramowitz, A.*; Woods, W.†; Sorensen, J.†; *Community Substance Abuse Services, SF, CA, USA; †UCSF Center for AIDS Prevention Services, SF, CA, USA.

F.C.765
SEXUAL BEHAVIOR AND HIV INFECTION AMONG WOMEN INTRAVENOUS DRUG USERS. McKay, Carolyn*; Chitwodd, D.D.*; McCoy, H.V.†; Comerford, M.*; *Univ. of Miami School of Medicine; †Florida Intl. Univ., Miami, FL, USA.

426

F.C.766
AIDS RISK BEHAVIOR CHANGE IN FEMALE SEXUAL PARTNERS OF IVDUS. McCoy, H. Virginia; McCoy, C.B.; Trapido, E.; Chitwood, D.; McKay, C.; Vogel, J.; Florida Intl. Univ., Miami, FL, USA & Univ. of Miami Sch. of Med., Miami, FL, USA.

F.C.767
COCAINE INJECTION AS A PREDICTOR OF HIV RISK BEHAVIORS. Wiebel, W.; Guydan, Cheryl; Chene, D.; University of Illinois at Chicago, Chicago, Illinois, USA.

Community Organization and Advocacy

F.D.768
ORGANIZATION OF A HEALTH CARE AND EDUCATION CENTER FOR HIGH RISK GROUPS IN ECUADOR. Brito, Germania; Ministry of Public Health, Quito, Ecuador.

F.D.769
WORKING WITH NON-GOVERNMENTAL ORGANIZATIONS (NGOS) TO IMPLEMENT A NATIONAL HIV PREVENTION STRATEGY. Fernandez, M.I.; Dietz, Susan E.; West, G.R.; Bowen, G.S.; Cahill, K.; Centers for Disease Control, Atlanta, Georgia, U.S.A.

F.D.770
LOCAL HEALTH DEPARTMENT: FOCAL POINT IN COMMUNITY RESPONSE TO AIDS. Werdegar, David*; Peters, Thomas*; Rutherford, George*; San Francisco Department of Health, San Francisco, U.S.A.

F.D.771
DRUG ABUSE AND AIDS COMMUNITY EDUCATION PROGRAM: ORGANIZING THE COMMUNITY TO BECOME INVOLVED. Ferguson, Leona D*; Link, W E†; *National Institute on Drug Abuse, Rockville, Maryland, USA. †ROW Sciences. Inc., Rockville, Maryland, USA.

F.D.772
A COMMUNITY BASED EFFORT TO ESTABLISH LEGAL NEEDLE EXCHANGE IN THE STATE OF HAWAII. Schouten, Jeffery*; Thorburn, K.†; Diamond, M.‡Kendro, B.‡; Partika, N.‖; Peak, A.*; StarbuckG.†; *Life Foundation, Honolulu, Hawaii, U.S.A., †John A. Burns School of Medicine, University of Hawaii, Honolulu, Hawaii, U.S.A., ‡Hawaii Medical Association, Honolulu, Hawaii, U.S.A., ‖Governor's Committee on AIDS, Honolulu, Hawaii, U.S.A.

F.D.773
COMMUNITY-BASED LEGAL SERVICE DELIVERY TO HIV-AFFECTED COMMUNITIES OF COLOR. Hansell, David*; Calabrese, Teresa; *Director of Legal Services, Gay Men's Health Crisis, New York, NY.

F.D.775
AIDS PREVENTION, SERVICE DELIVERY AND EDUCATION THROUGH COMMUNITY BASED ORGANIZATIONS IN THE SOUTH BRONX, NEW YORK CITY. Lee, Jacalyn; Freudenberg, N.; Trinidad, U.; Hunter College Center for Community Action to Prevent AIDS.

F.D.776
YOU CAN GET THERE FROM HERE: A CITY'S STRATEGIC RESPONSE TO AIDS. Getzenberg, Joy; Lenihan, P.; Salem, E.; Chicago Department of Health, Chicago, IL, USA.

F.D.777
MODEL SYSTEM FOR AIDS PLANNING AND PROGRAM DEVELOPMENT IN A MEDIUM SIZED CITY WITH HIGH NUMBERS OF MINORITY INTRAVENOUS DRUG USERS. Miller, Laurel A., Bellefeuille, D.G.; Greater New Bedford Community Health Center, New Bedford AIDS Consortium, New Bedford, MA, USA.

F.D.778
PUBLIC BENEFITS ADVOCACY SERVICES FOR PWA'S. McCormack, Thomas,P.*; Whitman Clinic, Washington, D.C. and Yale University Press, New Haven CT, USA.

F.D.779
COMMUNITY-BASED HIV PREVENTION IN NEW YORK CITY: LESSONS LEARNED AS YEAR FOUR APPROACHES. Omi, J; Lance, J; Hayes-Cozier, R; Rautenberg, E; All of the NYC Dept. of Health, Division of AIDS Program Services New York City, NY, USA.

F.D.780
THE AIDS HEALTH PROMOTION WORKER: A COMMUNITY BASED VOLUNTEER. Mwilu, Roy*; Rader, A.; Campbell, I.; Towani, C.; *Chikankata Hospital, Zambia.

F.D.781
PROMOTION OF SOCIAL MOBILIZATION IN THE FIGHT AGAINST AIDS. Ornelas, Gloria; Alcantara, V.; Chavez Peon, F.; Sepulveda, J.; National Council for Prevention & Control of AIDS, Ministry of Health of Mexico.

F.D.782
BRENDA LEE'S HOUSE: A PLACE FOR COUNSELLING HIGH RISK POPULATION. Brenda Lee; Fernandes, M.E.; Inglesi, E.; Grandi, J.L.; Kakihara, R.H.; Ferreira, A.C.;: The Reference and Training Center on AIDS, Sao Paulo, Brazil.

F.D.783
OVERCOMING OBSTACLES TO PROJECT IMPLEMENTATION: A RURAL ZAMBIAN PERSPECTIVE. Rader, Alison *; Campbell, I.; *The Salvation Army Chikankata Hospital, Zambia.

F.D.784
THE ROLE OF A PARTICIPANT ADVISORY BOARD IN THE MANAGEMENT OF PROSPECTIVE COHORT STUDIES IN HIV RESEARCH. Mattison, Andrew, Weinrich, J., Atkinson, H., Grant, I., Graham, B., Chandler, J.; University of California, San Diego, USA.

F.D.785
PEER PARTICIPATION IN POSTER PRODUCTION. Graves, Genevieve.; Queensland Intravenous AIDS Association (QuIVAA) Brisbane. Queensland. Australia.

F.D.786
PEER SUPPORT FOR PEOPLE WHO ARE HIV POSITIVE—AN EVALUATION OF INNOVATIVE PROGRAM. Giblett, Terence; AIDS Council of NSW, Sydney, Australia.

F.D.787
THE MALE OUTREACH PROJECT: REACHING THE HISPANIC COMMUNITY. Hernandez, Ramon A.*; *Greater Lawrence Family Health Center Lawrence, MA, USA.

F.D.788
THE BROADENING OF COMMUNITY ADVOCACY INTO AN EFFECTIVE LEGISLATIVE COALITION. Jones, David C.; North Carolina AIDS Service Coalition, Chapel Hill, North Carolina, USA.

F.D.789
ACT-UP SURVEY (PART OF AN ONGOING DOCTORAL DISSERTATION CALLED THE SOCIOLOGY OF AIDS ACTIVISM). Elbaz, Gilbert; CUNY, ACT-UP, New York, NY, USA.

F.D.790
THE WORKSHOP APPROACH OF THE DEUTSCHE AIDS-HILFE FOR PEOPLE WITH HIV AND PEOPLE WITH AIDS. Hengelein, Hans, Deutsche; AIDS-Hilfe, Berlin, West-Germany.

F.D.791
BURNOUT IN VOLUNTEER AND COMMUNITY BASED AIDS ORGANIZATIONS. Crooks, L.; Univ. of Wollongong AIDS Project, Darlinghurst, NSW, Australia.

F.D.792
SOCIAL COGNITIVE THEORY APPLIED TO RECRUITMENT OF VOLUNTEERS FOR FAMILIES OF CHILDREN WITH HIV INFECTION. Probst, Deborah; Bartholomew, K.; Chacko, M.; Knutson, K.; Saunders, A.; Baylor Coll. of Med. and TX Children's Hospital, Houston, TX, USA.

F.D.793
ROLE OF HERBALISTS IN HIV AIDS INFORMATION AND PREVENTION IN KENYA. Odero, Theresa A.; Narobi, Kenya.

F.D.794
UNION OF AMERICAN HEBREW CONGREGATIONS COMMITTEE ON AIDS: A MODEL FOR RELIGIOUS DENOMINATIONAL RESPONSE. Rankin, R. Michael; Gilson, I.; Union of American Hebrew Congregations (UAHC) Committee on AIDS, New York, NY, USA.

F.D.795
CHURCH-BASED AIDS INTERVENTION PROGRAMS. Wilson, Mary; Tobin, R.; Christ Church, Cambridge AIDS Concerns Committee, Cambridge, MA, USA.

F.D.796
THE EFFECTS OF RELIGIOUS TOLERANCE UPON CONVICTIONS TO PROTECT THE CIVIL RIGHTS OF PEOPLE OF COLOR LIVING WITH AIDS. Garcia, Homer, Arguelles, L., Cadena, G., Romero, G., Rivero, A.; Pitzer College, Claremont, CA, USA.

F.D.797
PROMOTING HIV PREVENTION OUTREACH ACTIVITIES VIA COMUNITY-BASED ORGANIZATIONS. Thompson, P. Imani; Jones, T.S.; Cahill, K.; Medina, V.; Centers for Disease Control, Atlanta, GA, USA.

F.D.798
AIDS AND THE CHURCH CLERGY. Ankrah, E. Maxine; Nkumbi, S.; Kisembira, M.; Makerere Univ. , Kampala, Uganda.

Cost and Financing: Models

F.D.799
NATIONAL PROJECTIONS OF HOSPITAL COSTS OF PATIENTS WITH AIDS (PWAS) IN THE NETHERLANDS 1990-1991. Dijkgraaf, Marcel G.W.*; Borleffs, J.C.C.*; Jager, J.C.†; Poos, M.J.J.C.‡; Jong, J.T.L.†; Schrijvers, A.J.P.‡; *University Hospital Utrecht, The Netherlands, †Nat. Inst. of Public Health and Environmental Protection, Bilthoven, The Netherlands, ‡State University of Utrecht, The Netherlands.

F.D.800
METHODS, STRENGTHS, AND LIMITATIONS OF PRIVATE HEALTH PLAN DATA FOR HIV COST, UTILIZATION, AND OUTCOME RESEARCH. Durbin, M*; Kahn, J*; Shimasaki, Gary†; Benjamin, AE*; Lee, PR*; *University of California, San Francisco; †Blue Shield of California, San Francisco, CA, USA.

F.D.801
ABOUT THE COST OF AIDS IN FRANCE: A META-ANALYSIS ON ECONOMIC RESEARCH FLORI, YVES A., UNIVERSITE DE BOURGOGNE, DIJON, FRANCE. Flori, Yves A., Universite de Bourgogne, Dijon, France; Souteyrand, Y., Agence Nationale de Recherches sur le SIDA, Paris, France Triomphe, Annie, Universite de Paris I, Paris, France.

Cost and Financing: Hospital Inpatient and Ambulatory

F.D.802
TRENDS IN HOSPITAL UTILIZATION FOR PATIENTS WITH AN HIV DIAGNOSIS, UNITED STATES, 1984-1988. Moien, M.; National Center for Health Statistics, Hyattsville, Maryland, USA.

F.D.803
AIDS HOSPITAL CHARGES IN WASHINGTON STATE: 1985—1988. Shields, Anne Wesling; Lafferty, W.; Harwell, J.; Kim To, T.; Nelson, W.; Sandwith, E.; Tyree, P.; Washington State Office on HIV/AIDS, Seattle, Washington, U.S.A.

F.D.804
ESTIMATION OF AIDS TREATMENT COST THROUGH A PROSPECTIVE STUDY. Tapia-Conyer Roberto*; Martin, A†; De La Rosa, B*; Garcia, A*; *CONASIDA, Mexico D.F. Mexico; †FHI/AIDSTECH, Durham, NC, USA.

F.D.805
THE IMPACT OF THE HIV EPIDEMIC ON HOSPITAL COSTS OF AN INFECTIOUS DISEASES DEPARTMENT, 1982-1989. Marasca, Giuseppe; Cambieri, A; Camilli, G; Damiano, F; Bevilacqua, N; Fantoni, M.; Universita Cattolica Sacro Cuore, Roma, Italy.

F.D.806
INCREASED HOSPITAL REVENUE ASSOCIATED WITH ADMITTING HIV POSITIVE PATIENTS TO A RURAL ZAIRIAN HOSPITAL. Bertozzi, Stefano*; Mposo, N.†; Green, S.‡; Mandiyangu, M.‡; Walker, D.‖; Ryder, R.†; *MIT, Cambridge, MA, USA; †Projet SIDA, Kinshasa, Zaire; ‡IME, Kimpese, Zaire; ‖ U Penn, Phila, PA.

F.D.807
COSTS DERIVATED FROM HIV INFECTIONS IN A GENERAL HOSPITAL IN SPAIN. Arribas, Jose Luis; Carreter C.A.; Lopez J.A.; Barrasa I.; Amorin M.J.; Garcia J.R.; Servicio de Medicina Preventiva, H. Miguel Servet. Zaragoza. Spain.

F.D.808
HOSPITAL COST DERIVATED FROM HIV INFECTIONS. Gomez, Luis Ignacio; Aibar, C; Alonso, J; Febrel, I; Rabanaque, MJ; Tomas C.; Servicio Medicina Preventia, Hospital Universitario Zaragoza (Spain).

F.D.809
PATTERNS OF DISCHARGE DELAY AND RESULTING FINANCIAL IMPACT FOR AIDS RELATED ADMISSIONS. Hunter-Young, Nancy*; Ricardi, M.†; Gallagher, D.‡; Daley, J.†+; Graf, L.*; Makadon, H.†+; *Clinical Partners, Boston, MA, USA; †Beth Israel Hospital, Boston, MA, USA; +Harvard Medical School, Boston, MA, USA.

F.D.810
CARE OF AIDS PATIENTS IN GENEVA, 1981-1989. Vanhems, Philippe, Paradisi, S., Gabriel V., Wintsch, J., Hirschel, B.; Division of Infectious Diseases, Hopital Cantonal Unive sitaire, CH-1211 Geneva, Switzerland.

F.D.811
CHANGES IN HIV CARE ORGANIZATION. COMPARISONS BETWEEN HOSPITALS FOR MEDICAL SERVICES AND COSTS IN FRANCE. Gabriel BEZ; Ministere De La Sante—1 Place Fontenoy—75007 Paris, France.

F.D.812
AIDS COSTS AND UTILIZATION: TRENDS AMONG 8,775 CASE INSURED BY EMPIRE BLUE CROSS & BLUE SHIELD. Padgug, Robert*. Eisenhandler, John*; Empire Blue Cross and Blue Shield, New York, NY, USA.

F.D.813
CHANGING PATTERNS IN ANNUAL RESOURCE UTILIZATION AND COSTS FOR PATIENTS WITH AIDS: 1985-1989. Coltin, Kathryn; Wurtman, D.; Kuvin, L.; goldberg, J.; Saxberg, B.; Harvard Community Health Plan, Boston, MA 02146 U.S.A.

Cost and Financing: Non-hospital Service

F.D.814
OUT PATIENT CONSUMPTION AND PATIENT OCCUPATION: AN ECONOMIC ANALYSIS. Triomphe, Annie*; Flori, Y.A.*; Livrozet, J.M.†; *University of Paris, I-Pantheon-Sorbonne, France †Hospices Civils of Lyon, France.

F.D.815
INPATIENT HOSPITAL UTILIZATION BY PARTICIPANTS IN A STATEWIDE HIV HOME CARE PROGRAM. Merzel, Cheryl*; Crystal, S.*; Karus, D.*; Kurland, C.†; *AIDS Research Group, Institute for Health, Rutgers Univ., New Brunswick, NJ, USA; †Office of Home Care Programs, NJ Dept. of Health, Trenton, NJ, USA.

F.D.816
RESOURCE USE FOR AIDS CARE IN NURSING HOMES. Swan, J.H., California State University Long Beach, USA Benjamin, A. Edward, Lee, P.R., University of California, San Francisco, USA; Health Care Administration Program.

F.D.817
THE ECONOMIC SIGNIFICANCE OF VOLUNTEER SERVICES IN A COMMUNITY BASED ORGANIZATION. Rodriguez, Maria R.*; Toro Alfonso, J.†; Meaux, A.†; Nigaglioni, A.†.; *University of Puerto Rico, San Juan, P.R., U.S.A.; †Fundacion SIDA de Puerto Rico, S.J., P.R.

F.D.818
PROJECT HOME CARE: COST SAVINGS THROUGH OUTPATIENT AIDS TREATMENT. Liekweg, Richard; Adinolfi, A.; Dideriksen, P.; Waskin, H.; Bartlett, J.A.; Duke University Medical Center, Durham, North Carolina, USA.

Cost and Financing: By Age, Sex, Risk Group, Payer and Severity of Illness

F.D.819
VARIATIONS IN INPATIENT AND OUTPATIENT HOSPITAL USEBY CLASS OF ILLNESS AMONG HIV-INFECTED CHILDREN. Boland Mary, Conviser R., Kelly M., Connor E., Oleske J.; Children's Hospital AIDS Program, United Hospitals, Newark, NJ, USA.

F.D.820
VARIATION IN COST OF AIDS RELATED TO GENDER AND RISK STATUS. Seage, G.*, Hertz, T.*, Stone, Valerie *,†, Epstein, A.‡; *Boston Department of Health & Hospitals, †Harvard School of Public Health, ‡Harvard Medical School, Boston, MA, USA.

F.D.821
HOSPITAL RESOURCE CONSUMPTION OF ADULT AND ADOLESCENT PWA BY RISK FACTOR AND PAYER. Coye, Molly J.*, Conviser, R.†, Grant, C.‡; *Johns Hopkins University, Baltimore, MD; †Children's Hospital of New Jersey, Newark, NJ; ‡New Jersey Department of Health, Trenton, NJ; USA.

F.D.822
CARE AND TREATMENT OF PEDIATRIC AIDS PATIENTS IN CHILDREN'S HOSPITALS. Hintz, Elizabeth A.*; Allbritten, D.†; Weslowski, V.*; Spolarich, A.*; Andrulis, D.*; *National Public Health and Hospital Institute (NPHHI), Washington, D.C. USA; †National Association of Children's Hospitals and Related Institutions (N ACHRI), Alexandria, Viriginia, USA.

F.D.823
MEDICAL CARE USE AND CHARGES FOR PERSONS WITH ARC IN 6 CALIFORNIA HOSPITALS. Kahn, James*; Moss, N.†; Benjamin, A.*; Wolfe, H.*; *University of California, San Francisco, California, USA,: : : : †National Institutes of Health, Bethesda, Maryland, USA.

Cost and Financing: Financing

F.D.824
SOURCES OF PAYMENT FOR SELECTED SERVICES FOR HIV-INFECTED PATIENTS IN 21 U.S. CITIES. Matheny, Samuel; Paquin, N., Hostetter, C.; Health Resources and Services Administration, United States Public Health Service (USPHS), Rockville, MD, USA.

F.D.825
ENHANCED MEDICAID RATES FOR THE TREATMENT OF HIV. Rango, N., M.D., Feldman, I., Burke, G., M.D., Anderson, E., Anderman, S., Kelly, S.; AIDS Institute, New York State Department of Health, Albany, New York, USA.

F.D.826
FINANCING AIDS MEDICAL CARE COSTS IN NEW YORK, SAN FRANCISCO AND LOS ANGELES: 1983-1987. Green, Jesse*; Arno, P.†; *NY Univ. Med. Ctr., NY, NY, USA; †Montefiore Med. Ctr./Einstein Coll. of Med., NY, NY, USA.

F.D.827
DIFFERENTIAL ELIGIBILITY FOR PUBLIC HEALTH CARE FINANCING PROGRAMS BY PERSONS IN VARIOUS STAGES OF HIV INFECTION. Smith, Elmer W.; Klemm, John; Pine, Penelope.; Health Care Financing Administration, Baltimore, Maryland. USA.

F.D.828
WILL DEVELOPING COUNTRIES' AIDS PROGRAMMES GET THEIR MONEY? EXTERNAL ASSISTANCE AND NATIONAL AIDS PROGRAMMES IN DEVELOPING COUNTRIES, 1987-1990. Drager, Nick; Tarantola, D.; Mann, J.; World Health Organization, Geneva, Switzerland.

Financing and Resource Allocation: Cost Effectiveness of Early Drug Treatment

F.D.829
ECONOMIC IMPACT OF EXPANDED AZT CRITERIA IN A LOW INCIDENCE AREA. Miedzinski, Lil; Otten, N.; Kunimoto, D.; Samuels, S.; Shafran, S.; Taylor, G.; University of Alberta, Edmonton, Alberta, Canada.

F.D.830
COST-EFFECTIVENESS OF AEROSOLIZED PENTAMIDINE (AP) PROPHYLAXIS AGAINST PNEUMOCYSTIS CARINII PNEUMONIA. Smith, Mark D, Murray, RB, McAvinue, S, Suldan, M, Chaisson, RE.; The Johns Hopkins University, Baltimore, Maryland, USA.

F.D.831
ECONOMIC AND POLICY IMPLICATIONS OF EARLY INTERVENTION IN HIV DISEASE: AN UPDATE. Arno, Peter*; Green, J.†; *Montefiore Medical Center, New York, NY, USA; †New York University Medical Center, New York, NY, USA.

F.D.832
ARE AZT AND PROPHYLAXIS FOR PNEUMOCYSTIS CARINII PNEUMONIA (PCP) COST EFFECTIVE?. Freedberg, Kenneth*; Tosteson, A. †; Cohen, C.J.†; Cotton, D.J.†; *Boston City Hospital and † Beth Israel Hospital, Boston, MA, USA.

F.D.833
THE RISING COSTS OF DRUG THERAPY IN AN HIV TREATMENT UNIT IN SOUTH EAST LONDON. Fitt Sarah, Moxham J., McManus T.J.; King's College Hospital, London England.

Financing and Resource Allocation: Cost Effective Means of Prevention

F.D.834
PREVENTION SCENARIOS: SWISS AIDS PROGRAMME. Cameron, Charles*; Shepard, Julia*; Mann, Jonathan*; Somaini, Bertino†; Dubois, Jean-Alain†; Billo, Nils†; Zwahlen, Marcel†; *GPA, WHO, Geneva, Switzerland, †Federal Office Of Public Health,Suisse.

F.D.835
ESTIMATED PUBLIC COSTS OF HIV COUNSELING AND TESTING, UNITED STATES, 1990. Hedlund, Kathleen; Spencer, J.; Schalla, W.; Johnson, L.; Fehd, R.; Centers for Disease Control, Atlanta, GA, USA.

F.D.836
COST PROJECTIONS FOR ADDING CD4 TESTING AND PROPHYLACTIC TREATMENT FOR HIV INFECTED INDIVIDUALS AT PUBLICLY FUNDED COUNSELING AND TESTING (CT) SITES, U.S., 1990-1993. Moore, M.*, Spencer, Jack*, Bowen, G.S.*, West, G.R.*, Francis, D.P.†; *Centers for Disease Control, Atlanta, Georgia and †San Francisco, CA, USA.

F.D.837
COST-EFFECTIVENESS OF AN STD/AIDS CONTROL PROGRAMME FOR HIGH FREQUENCY STD TRANSMITTERS IN NAIROBI, KENYA. Moses, Stephen*,†, Ngugi, E.N.*, Nagelkerke, N.J.D.†, Bosire, M.†, Waiyaki, P.†, Plummer, F.A.*, †; *University of Nairobi, Nairobi, Kenya, †Kenya Medical Research Institute, Nairobi, Kenya; †University of Manitoba, Winnipeg, Canada.

Financing and Resource Allocation: Other

F.D.838
PREMATURE MORTALITY RELATED TO HUMAN IMMUNODEFICIENCY VIRUS INFECTION IN CALIFORNIA 1980-1992. Singleton, J.A.*, Otten, M.W.†, Doebbert, Gwendolyn*; *Califronia Department of Health Services, Sacramento, CA; †Centers for Disease Control, Center for Prevention Services, Atlanta, GA.

F.D.839
THE ECONOMIC IMPACT OF AIDS AT THE HOUSEHOLD LEVEL IN MEXICO. Tapia-Conyer, Roberto*; Martin, A†; Revuelta, A*; Rodriguez, S*; Conasida, Mexico, D.F. Mexico † FHI AIDSTECH, Durham, NC, USA.

Media and Dissemination of Information

F.D.840
THE SOCIAL IMPACT OF AIDS IN NEWSPAPERS, SPAIN; 1984-87. Feijoo, Rosa; Marcos, G; Aibar, C; Gomez, L.; Departamento de Medicina Preventiva, Universidad de Zaragoza, Spain.

F.D.841
AIDS AND CANCER, WHERE DO PEOPLE OBTAIN INFORMATION. Fisman Noemi*,Santarelli M.T.*,Volonteri C.#,Sylwan R.# *G.A.T.L.A.(Groupo Argentino de tratamiento de la Tratamiento de la Leucemia Aguda), #Argentum; (Grupo de Prevencion,Investigacion y Asistencia Psicosocial).Buenos Aires, Argentina.

F.D.842
THE BRAZILIAN LAY PRESS AND AIDS REPORT COVERS: INCOHERENCE ?. Adeodato Filho, Sergio*; Longo, Paulo H.†; *Jornal Do Brasil; †Instituto Brasileiro de Inovacoes Em Saude Social (IBISS)—Rio de Janeiro, Brazil.

F.D.843
EVALUATION OF AIDS EDUCATION THROUGH MASS MEDIA IN NIGERIA. Ogunyankin, O,Jinadu, M.K.; Department of Disease Control and Occupational Health, Ondo State Ministry of Health, Akure, Nigeria; Obafemi Awolowo University, Ile-Ife, Nigeria.

F.D.844
EVALUATION OF THE AIDS INFORMATION PROGRAM, USING MASS MEDIA CAMPAIGN IN LUBUMBASHI-ZAIRE. Dr. Rukarangira Wa Nkera, Ngirabakunzi Kitembo Bihimi; Harvard School of Public Health Boston USA Connaissida Lubumbashi-Zaire.

F.D.845
MASS MEDIA AND AIDS EDUCATION IN NIGERIA. M.K. Jinadu; Department of Community Health and Nutrition, Faculty of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria.

F.D.846
THE IMPACT OF AN AIDS TELEVISION CAMPAIGN ON AN URBAN AUDIENCE: THE KINSHASA EXPERIENCE. Kyungu, M.*; Eiger, R*; Kalombo, K†; Kambama, SA*; Convisser, J*; *PSI, Washington, D.C.; †Bureau Central de Coordination de la Lutte Contre le Sida.

F.D.847
THE IMPACT OF INTERPERSONAL AND MASS COMMUNICATION ON RISK BEHAVIOR AND AIDS KNOWLEDGE IN FRANCE. Cohen, Mitchell*; Guiguet, M.†; Wells, J.†; Valleron, A-J.†.; *INSERM Unite 21, Villejuif, France, †INSERM SC4 and U263, Paris, †Project HOPE Center for Health Affairs, Chevy Chase, MD, USA.

F.D.848
THE IMPACT OF THE MICHIGAN MASS MEDIA CAMPAIGN ON HOTLINE CALLS, KNOWLEDGE LEVELS AND REQUESTS FOR HIV COUNSELING AND TESTING. Bryce, Jennifer*; Pope, R.S.†; Ruff, J.A.†.; *International Health Program Office, Centers for Disease Control, Atlanta, Georgia, USA, †Center for Health Promotion, Michigan Department of Public Health, Lansing, Michigan, USA.

F.D.849
CRACK COCAINE AND THE RISK FOR HIV INFECTION: MEDIA PORTRAYAL AND SCIENTIFIC EVIDENCE. Miller, Kim S.; Darrow, W.W.; Centers for Disease Control, Atlanta, GA, USA.

F.D.850
SOCIAL MOBILIZATION IN THE PREVENTION OF AIDS. Helguera, Gabriela; Acuna, M. Luisa; Chavez-Peon, Federico; Sepulveda, Jaime.; Conasida Mexico D.F.

F.D.851
IV DRUG USERS: MEDIA SOURCES FOR AIDS INFORMATION. Liza Solomon, J. Jason*, D. Vlahov, S. Cohn, D. Celentano, M. Smith.; Johns Hopkins School of Hygiene & Public Health, Baltimore, MD and National AIDS and Information Program, Centers for Disease Control, Atlanta, GA.* USA.

F.D.852
POTENTIAL MEDIA CHANNELS FOR INTRAVENOUS DRUG USER (IVDUS) AIDS PREVENTION MESSAGES. Jason, Janine M.*, Vlahov, D.†, Solomon, L.†, Smith, M.†; *Applied Communications Research & Evaluation, National AIDS Information & Education Program (NAIEP), Centers for Disease Control (CDC), Atlanta, GA, USA; †Johns Hopkins School of HYgiene & Public Health, Baltimore, MD, USA.

F.D.853
DEAR CONCERNED CITIZEN: AN ANALYSIS OF CORRESPONDENCE RELATED TO HIV/AIDS. Garza, B.W.*; Greenspan, Allison*; Cyphers, J.L.*; *Centers for Disease Control, Atlanta, Georgia, USA.

F.D.854
THE DEVELOPMENT OF A CENTER TO DISSEMINATE AIDS/HIV INFORMATION TO THE HEMOPHILIA COMMUNITY IN THE U.S. Hall, Christopher; Flam, L.; National Hemophilia Foundation, New York, New York, USA.

F.D.855
THERAPEUTIC NARRATIVE: MULTI-MEDIA USES OF CROSS-CULTURAL STORYTELLING FOR PEOPLE LIVING WITH AIDS. Mark Freeman; Health Care For The Homeless, Dept. of Public Health, San Francisco, CA, USA.

F.D.856
A KNOWLEDGE BASED SYSTEM FOR RISK EVALUATION AND PREVENTION MANAGEMENT. Beuscart, C.; Beuscart, R.; Sivery, B. ; Senneville, E. ; Beaucaire, G.; Houriez, S.; Leroy, O.; Mouton, Y.; Universite de Lille, Tourcoing, France.

F.D.857
METHOD OF HEALTH EDUCATION AMONG HAITIANS. Prudent, Nicole; Jeanty, Georgette; Jean Louis, Eustache; Raphael, Renald; Haitain American Public Health Initiatives, Boston University School of Public Health, Boston, Massachusetts, USA.

F.D.858
INFORMATION TO YOUNG PEOPLE ON HIV, AIDS AND SAFER SEX DURING FESTIVALS IN THE CITY OF COPENHAGEN. Lindholm, Merete; Hansen, Bente; The Municipal School System of Copenhagen, Demark.

F.D.860
AIDS EPIDEMIOLOGY IN THE CONTEXT OF COMPLEX PROBLEM SOLVING AND COMPUTER BASED LEARNING. Gonzalez, Jose J.; AID, 4890 Grimstad; and ASA, 4800 Arendal, Norway.

F.D.861
INFORMATION: A CRITICAL COMPONENT IN STOPPING THE AIDS EPIDEMIC. Gale A.Dutcher and Ginny DuPont; National Library of Medicine, Bethesda, MD, USA.

F.D.862
QUALITATIVE AND QUANTITATIVE ANALYSIS OF AIDS EDUCATION MATERIALS. Halleron-Tweedley, Trish; Ranieri, A.; American Foundation for AIDS Research (AmFAR), New York, NY, USA.

F.D.863
THE DEUTSCHE AIDS-HILFE CONCEPT FOR PRINTED MEDIA. Beisswenger, Klaus-Dieter; Deutsche AIDS-Hilfe e.V., Berlin, West-Germany.

F.D.864
NATIONWIDE DIFFUSION OF A REGULARY UPDATED COMPUTER-AIDES INFORMATION SYSTEM ON THERAPEUTIC APPROACHES TO AIDS-RELATED CONDITIONS. Kamps, Bernd Sebastian*,†, Stille, W.*; *Zentrum de Inneren Medizin, Johann Wolfgang Goethe-Universitat, †Kuratorium AIDS, Frankfurt, Federal Republic of Germany.

F.D.865
PREVENTION/INTERVENTION BY REMOTE COMPUTER BBS. Gardiner, Ben; AIDS Info BBS, San Francisco, California, USA.

F.D.866
A PRACTICAL APPROACH TO MANAGING THE FLOW OF AIDS INFORMATION. Indyk, Leonard*, Indyk, D.†, Wu, X.†; *Neptune Computer Group, Stamford, CT; †Mount Sinai School of Medicine, New York, NY; USA.

F.D.867
SOCIAL CHARACTERISTICS OF PERSONS WHO KNOW PERSONS WITH AIDS. Gagnon, J*, Laumann, E†, Michaels, S†, Michael, R†; *State University of New York at Stony Brook, Stony Brook, NY, USA † University of Chicago, Chicago, IL, USA.

F.D.868
COMPETING HEALTH CONCERNS OF BLACKS, HISPANICS, AND WHITES: HOW SALIENT IS AIDS?. Elder-Tabrizy, Kelly A., Wolitski, R.J., Rhodes, F., and Baker, J.G.; AIDS Research & Education Project, California State University, Long Beach, CA, USA.

F.D.869
THE IMPACT OF WHO YOU KNOW AND WHERE YOU LIVE ON YOUR OPINIONS ABOUT AIDS. Gerbert, B.; Sumser, J.; Maguire, B.; UCSF, Center for AIDS Prevention Studies, San Francisco, California, USA.

F.D.870
THE AMERICAN PUBLIC'S SOURCES OF INFORMATION ABOUT AIDS. Sumser, J.; Gerbert, B.; Maguire, B.; University of California, San Francisco, California, USA.

F.D.871
ATTITUTES AND OPINIONS TOWARDS HIV INFECTION OF 1008 PARTICIPANTS TO THE V AIDS INTERNATIONAL CONFERENCE, MONTREAL, 4-9 JUNE 1989. Micheluz, Sandra*; Tirelli, U.*; Franceschi, S.*; Lazzarin, A.†; Clumeck, N.+; Volberding, P.++; *Centro di Riferimento Oncologico, Aviano, Italy, †Hospital Sacco, Milan, Italy, +Hospital S. Pierre, Brussels, Belgium, ++General Hospital, S. Francisco, USA.

F.D.872
EVALUATION OF MOSCOW TEENAGER'S AIDS KNOWLEDGE. Mozharova Galina; Pokrovsky V.; Central Research Institute of Epidemiology, 3-a Novogyreyevskaya, Moscow, USSR.

National and International Programs

F.D.873
THE INTERNATIONAL WORKING GROUP ON AIDS AND DRUG USE: DEVELOPING INFORMATION FOR AND ABOUT COUNTRIES WITH EMERGING EPIDEMICS. Des Jarlais, D.C.*; Friedman, S.R.†; Woods, Joycelyn Sue†; *Beth Israel Medical Center; †Narcotic and Drug Research Inc., New York, NY, USA.

F.D.874
STRENGTH IN SOLIDARITY: BUILDING EFFECTIVE NGO AIDS NETWORKS. Grose, Robert*; Mann, Dr J*; O'Malley, J*; Morrison, K†; *World Health Organization, Geneva; †Canadian AIDS Society.

F.D.875
WHAT HAPPENS TO RECOMMENDATIONS? A WHO/GPA STATUS REPORT ON NURSING AND HIV INFECTION. Anderson, Sandra; Sylvest-Hansen, B; Mann, J; Tarantola, D; Hirschfeld, M*; World Health Organization, Global Programme on AIDS/Human Resources for Health*, Geneva, Switzerland.

F.D.876
NATIONAL PROGRAM SUPPORT IN THE REGION OF THE AMERICAS: AIDS. Mongalo, Gloria*, Kimball, A.M.*, Zacarias, F.*; *Pan American Health Organization, 525–23rd Street N.W., Washington, D.C. 20037.

F.D.877
PEACE CORPS' EXPERIENCE IN AIDS PREVENTION ACTIVITIES IN THE CENTRAL AFRICAN REPUBLIC: PROSPECTS FOR THE FUTURE. Somse, P.*; Richardson, A.†; *Ministry of Health, Bangui, Central African Republic (CAR); † Peace Corps (PC), CAR.

F.D.878
TRENDS IN SEXUALLY TRANSMITTED DISEASES IN ZAMBIA AND THE VALUE OF STD SURVEILLANCE DATA FOR EVALUATION OF EFFECTIVENESS OF NATIONAL AIDS PROGRAMMES. Hira, Subash K.*, Slutkin, G. †, Keenlyside, R.‡, van Praag, E.‡, Heymann, D.L.‡, Holmes, K.K.‡, Meheus, A.‖, Mann, J.‡; *National STD Program and ‡AIDS Program, Zambia and ‡Global Program on AIDS and ‖Program of Sexually Transmitted Diseases, World Health Organization, Geneva, Switzerland.

F.D.879
POLICY INTERVENTION STRATEGIES AND THEIR IMPLICATIONS FOR AIDS IN DEVELOPING NATIONS. Seitz, Steven, T.*, Stanley, E.A.†, Way, P.O.‡, Curry, T.F.‖, Johnson, P.D.‡; *University of Illinois, ‡Los Alamos National Laboratory, ‡Center for International Research, ‖US Air Force Academy, USA.

F.D.880
A DONOR-SPECIFIC METHOD FOR DETERMINING RESEARCH DIRECTIONS AND PRIORITIZING FUNDING. Tollefson, Janet E.; de Savigny, D.†; *University of British Columbia, Vancouver, Canada; †International Development Research Centre (IDRC), Ottawa, Canada.

F.D.881
THE IMPACT OF AIDS ON SOCIO-ECONOMIC DEVELOPMENT: A SECTORAL APPROACH. Gerald M. Desmond; U.N. Dept. of Internat'l Econ. and Social Affairs United Nations, New York, USA.

F.D.882
CRIDIS. A REGIONAL MODEL TO EXCHANGE INFORMATION AND EXPERIENCES IN PREVENTION AND EDUCATION ON AIDS. Rico, Blanca; Ayala, M.; Aramoni, G.; Guzman, L.; Dominguez, G.; Etchegaray, P.; Sepulveda, J.; Cridis—Conasida. Mexico City (WHO,PAHO).

F.D.883
TITLE: AMERICAN RED CROSS HIV/AIDS EDUCATION INSTRUCTOR TRAINING PROGRAM. Salisbury Ed.D., Zora; Peterson Ph.D., Karen; Richman, Katherine; Bonifer, Patricia; Scarlett D.M.S., Margaret; The listed authors are all affiliated with the American Red Cross, NHQ and are all located at: 1709 New York Avenue, NW, Suite 208, Washington, DC 20006.

F.D.884
PERSONAL COMMUNICATION AND AIDS EDUCATION IN THE FEDERAL REPUBLIC OF GERMANY. Damm, Christa; Lehmann, H.; Marsen-Storz, G.; Federal Center for Health Education, Cologne, Federal Republic of Germany.

F.D.885
AIDS-PLATFORMS: FROM NATIONAL POLICY-MAKING TO LOCAL IMPLEMENTATION. Tillemans, Geert; National Committe on AIDS Control, Amsterdam, the Netherlands.

F.D.886
DEVELOPING A NATIONAL STRATEGY TO ADDRESS AIDS AMONG ABORIGINAL PEOPLE IN CANADA. Imrie, Robert A; Federal Centre for AIDS, Health & Welfare Canada 301 Elgin Street, Ottawa, Ontario, Canada.

F.D.887
AIDS PREVENTION AND HEALTH EDUCATION IN THE FEDERAL REPUBLIC OF GERMANY. Pott, Elisabeth; Federal Center for Health Education, Cologne, Federal Republic of Germany.

F.D.888
PERSPECTIVES ON THE EVALUATION OF HIV/AIDS EDUCATION AND HEALTH PROMOTION. Aggleton, Peter*; Kapila, M.†; Pye, M.‡; *Faculty of Education, Bristol Polytechnic, Bristol, England; †Health Education Authority, London, England.

F.D.889
IMPLEMENTING POLICY CONSENSUS IN THE FORMATION OF THE PHILIPPINE NATIONAL AIDS PREVENTION AND CONTROL PROGRAM. Gust, Dulce*; Dayrit, M.*; Hernandez, E.*; MacDonald, G.†; *Department of Health, Manila, Philippines, †AIDSCOM, Washington, D.C.

F.D.890
THE UK NATIONAL AIDS TRUST MODEL FOR PROMOTING A COORDINATED VOLUNTARY RESPONSE TO AIDS AND HIV. Jay, Margaret*, Adler, M†, Bide, Sir A*, Jellicoe, Lord‡; *National AIDS Trust (NAT), London, England †NAT and University College and Middx Hospital Medical School ‡NAT and Medical Research Council, London, UK.

F.D.891
BUILDING CAPACITY IN NEW COMMUNITY BASED ORGANIZATIONS (CBOS) FOR HIV PREVENTION ACTIVITIES. Schindler, Stephen*, Murguia, M.†, Johnson, R.†, Harris, B.J.†, Phields, M.‡, Bowen, S.*, West, G.*; Centers for Disease Control *CDC), Atlanta, GA, USA, *The United States Conference fo Mayors (USCM), Washington, DC, USA.

F.D.892
CHANGES IN SWITZERLAND: CONDOM USE IN OCCASIONAL RELATIONS. Hausser, Dominique*; Dubois-Arber, F.*; Zimmerman, E.*; Zeugin, P.†; *University of Lausanne, Lausanne, Switzerland, †IPSO, Zurich, Switzerland.

F.D.893
CONDOM PROGRAMMING IN CARIBBEAN MEDIUM TERM PLANS. Rumbaitis, Maria del Rio, Bond, L.S.; Pan American Health Organization, Regional Program on AIDS, Washington, DC, USA.

F.D.894
QUEBEC'S PHYSICIANS OPINION CONCERNING MANDATORY SCREENING FOR IMMIGRANTS IN CANADA. Boyer, R; Fortin, C.; Duval, B.; Nadeau, D.; Godin, G.*; Unite de Recherche Clinique sur le Traitement du Sida. Centre hospitalier de l'U. Laval, Quebec (CANADA), *U. Laval; Quebec (CANADA).

F.D.895
THE HIV SEROPOSITIVE INTERNATIONAL TRAVELER: HEALTH AND POLITICAL ISSUES. Turner-Hubbard, Kathleen A.; University of California, SF, CA, USA.

F.D.896
ROLE OF NATIONAL NONGOVERNMENT ORGANIZATIONS IN ADDRESSING HIV: FEDERAL STRATEGIES FOR PROMOTING GREATER INVOLVEMENT. Williams, Kenneth R.; Centers for Disease Control Atlanta, Georgia, U.S.A. 30333.

F.D.897
AMA POLICY EFFECTIVENESS IN ENACTMENT OF U.S AIDS LAW. Szabat, Ronald P.; MD, USA.

F.D.898
THE DESIGN AND DEVELOPMENT OF AIDS EDUCATIONAL MATERIALS. de Francesco, S.; Austin, D.; Bordowitz, G.; Carlomsuto, J.; Hoskins, V.; Gay Men's Health Crisis, Inc. (GMHC) New York, New York USA.

F.D.899
CONSULTATION ON NEEDLE EXCHANGE EVALUATION. Mitchell, Winnifred L., Rapporteur; National AIDS Program Office, U.S. Public Health Service, Washington, D.C.

F.D.900
NEEDLE EXCHANGE PROGRAMS: ETHICAL AND POLICY ISSUES. O'Brien, Maura; Network for Continuing Medical Education, Secaucus, NJ, USA.

F.D.901
ORGANIZATIONAL ADAPTATION TO THE INCREASED NEEDS IMPOSED BY AIDS/HIV INFECTION. Flam, L.*, Brownstein, A.*; *The National Hemophilia Foundation, New York, New York, USA.

F.D.902
AIDS HOTLINE: MODEL IN A DEVELOPING COUNTRY. Carrillo Ma Elvira, Tovar S.M., Cipriano P.B.,Uribe Z.P., Ornelas H.G. Chavez P.F., Sepulveda A.J.; National AIDS Hotline (TELSIDA). CONASIDA. Mexico.

F.D.903
PHONE COUNSELLING TO PERSONS AT RISK FOR HIV: THE ITALIAN EXPERIENCE. Benedetti, Paolo; Declich, S.; Giuliani, M.; Pavone, R.; Valdarchi, C.; Zaccarelli, M.; Greco, D.; AIDS Unit, Istituto Superiore di Sanita, Rome, Italy.

F.D.904
THE CENTER FOR POPULATION OPTION'S RESPONSE TO HIV PREVENTION FOR ADOLESCENTS: A COMPREHENSIVE AND INTERDISCIPLINARY APPROACH. Wigfall-Williams, Wanda; The Center for Population Options, Washington, D.C.USA.

F.D.905
PREVENTION OF HIV INFECTION AMONG INJECTION DRUG USERS IN CANADA—THE ROLE OF THE FEDERAL GOVERNMENT. MacKenzie, Betsy; Elmslie, K.; Federal Centre for AIDS, Health Protection Branch, Ottawa, Ontario, Canada.

F.D.906
SYNERGISTIC EPIDEMICS: HOW THE UNCHECKED SPREAD OF CRACK COCAINE ADDICTION EXACERBATES HIV SPREAD IN FOUR U.S. DRUG EPICENTERS. Forbes, Anna; ActionAIDS, Philadelphia, PA, USA.

F.D.907
AIDS EDUCATION FOR TEENAGERS—AN INTEGRATED APPROACH. O'Sullivan, Anna; Dept. of Community Medicine & Epidemiology, Univ. of Nottingham Medical School, Nottingham, U.K.

F.D.908
T.R.A.I.D.S. A SERVICE FOR H.I.V. + VE BLOOD TRANSFUSION RECIPIENTS. Shipway Pamela*, Swanton Katherine†; *T.R.A.I.D.S. Unit, Parramatta, N.S.W., Australia †N.S.W. Red Cross Blood Transfusion Service, Sydney, Australia.

F.D.909
AIDS EDUCATION FOR PUBLIC SCHOOL STUDENTS AND OUT-OF SCHOOL YOUTH. Oros, Cheryl J.; Bascetta, C.; Landry, M.; Rosengren, T.; United States General Accounting Office, Washington, D.C.

F.D.910
INNOVATIVE MATERIALS FOR REACHING IN-SCHOOL YOUTHS WITH AIDS MESSAGES: AN EXAMPLE FROM ZAIRE. S.A. Kambamba; J. Convisser, M. Kyungu, R. Eiger, K. Kalombo.

F.D.911
NATIONAL AIDS HOTLINE: INFORMATION SERVICES FOR THE PUBLIC, HIV/AIDS. Waller, Robert R.; Natl. AIDS Information and Education Program (NAIEP), CDC, Atlanta, GA, USA.

As you see, the abstracts are oriented horizontally rather than vertically on the page. This orientation and the arrangement of four abstracts to a page allowed more space and less photographic reduction of the abstracts while keeping the size of the book functional. The track designation, presentation numbers, and presentation date of the abstracts appear at the top of each page. We believe that you will find the material easily accessible and readable in this format.

TRACK A: BASIC SCIENCE

SYMPOSIUM: ADVANCES IN HIV VACCINE DEVELOPMENT

F.A.1

OVERVIEW OF HIV VACCINE TRIALS IN HUMANS.
Koff, Wayne C.; Vaccine Research and Development Branch, National Institutes of Health, NIAID, Bethesda, MD, USA.

F.A.2

SUMMARY OF VACCINIA gp160 VACCINE TRIALS IN HUMANS.
Corey, Lawrence; University of Washington, Seattle, WA, USA.

F.A.3

HIV IMMUNOTHERAPY: OBSERVATIONS TO DATE.
Levine, Alexandra M.; School of Medicine, University of Southern California, Los Angeles, CA, USA.

F.A.4

OVERVIEW OF HIV VACCINE TRIALS IN CHIMPANZEES.
Eichberg, Jorg W.; Southwest Foundation for Biomedical Research, San Antonio, TX, USA.

F.A.5

OVERVIEW OF SIV VACCINE TRIALS IN RHESUS MACAQUES.

Murphy-Corb, Michael; Delta Regional Primate Center, Tulane University, New Orleans, LA, USA.

F.A.6

REVIEW OF METHODS FOR PRESENTING ANTIGENS TO ELICIT STRONG IMMUNORESPONSES.

Wolf, Hans; University of Munich, Max von Pettenkoffer Institute, Munich, FRG.

TRACK A: BASIC SCIENCE
ABSTRACT SESSION: RELATED RETROVIRUSES

F.A.9 GENOMIC ORGANISATION OF A CHIMPANZEE LENTIVIRUS RELATED TO HIV-1

T. Huet*, R. Cheynier*, A. Meyerhans*, K. Macinnes**, J. Lawrence**, G. Myers** and S. Wain-Hobson*
*Institut Pasteur Paris - France
**Los Alamos National Laboratory, USA

Objectives : To clone and sequence the provirus of SIVcpz, a novel lentivirus from chimpanzees related to HIV-1.

Methods : DNA from SIVcpz infected human PBMC was used to construct a λEMBL3 library. Three full length clones were isolated and tested for expression and infectivity. An infectious molecular clone was sequenced by the M13 shotgun-dideoxy method using a fluorescent sequencing system.

Results and conclusion : The genetic structure of SIVcpz was the same as HIV-1. Thus it did not encode a *vpx* gene but did, a *vpu* gene. A phylogenetic study proved that this virus is the most divergent HIV-1-like virus sequenced to date, more divergent than SIVmac and HIV-2 or HIV-2rod and HIV-2D205. Some parts of *gag* are almost as variable as *env*. There were important differences in the *tat, rev, vpu, env* genes and the LTR. By far the most divergent and intriguing region is the *vpu* gene, being only 35 % homologous to the HIV-1Bru sequence. Hydropathy profiles do suggest that this sequence is however a *vpu* gene. The functional role of this highly divergent *vpu* gene is under study and results will be presented. The SIVcpz sequence indicates that the pool size and complexity of primate and simian lentivirus is probably greater than had been anticipated. It proves that HIV-1, like HIV-2, has its primate or simian counterpart.

F.A.10 HIV1 AND HIV2 WESTERN BLOT PATTERN OF 344 WILD MONKEYS OF THE CENTRAL AFRICAN REPUBLIC

HERVE,Vincent*, BROGAN,T.**, MARTIN,P.*, GEORGES-COURBOT,M.C.*, BARRE-SINOUSSI,F.*** AND GEORGES,A.J.*.
* Institut Pasteur, BANGUI, Central African Republic, ** University of DAVIS, CA, U.S.A., *** Unité de Biologie des Rétrovirus, Institut Pasteur, PARIS, France.

Objectives: To make an inventory of retroviruses in the simian populations of the Central African Republic.
Methods: Three hundred and fourthy four (344) wild monkeys, distributed into 12 different species have been collected from all over the country in the Central African Republic. Sera were tested in ELISA and/or Western blot for the presence of HIV1 and HIV2 antibodies. SIV isolation was attempted either from peripheral blood mononuclear cells or from frozen spleen cells in 23 seropositive monkeys.
Results:Overall, 88 monkeys reacted with HIV antigens: 52 with HIV2, 12 with HIV1, and 24 with both. Of 80 Cercopithecus aethiops (african green monkeys), 30 (37.5%) exhibited anti-HIV2 glycoproteins antibodies and 14 strains of SIVagm were isolated. Fifthy eigth others monkeys reacted with one or several HIV1 and/or HIV2 proteins. Viral isolation was attempted without success for seven of them.
Conclusion:The overall prevalence of SIV infection among Agm (37.5%) in Central African Republic, is comparable (30-40%), to those observed in other countries. The serological patterns produced in this study, suggest the existence of other yet uncharacterized simian lentivirus in Central African, in species other than the african green monkey.

F.A.11 SURVEY OF HIV AND HUMAN T-CELL LEUKEMIA VIRUS TYPE I (HTLV-I) INFECTION IN NIGERIANS.

Williams, Chris*, Alexander, S.**, Bodner, A.**, Levine, A.***, Gallo, R.**** and Blattner, W.***. *Department of Haematology, Univ. of Ibadan, Nigeria, **Biotech Laboratories Inc., Rockville MD, ***Viral Epidemiology Section and ****Laboratory of Tumor Cell Biology, NCI, Bethesda, MD, USA.

Objectives: To measure the seroprevalence of HIV-1 and HTLV-I in sexually transmitted diseases (STD), general outpatient department (GOPD) and lymphoma (NHL) clinics between 1983-1986.
Methods: Screen positive samples were confirmed Western blot (WB) positive by gag core (p24) and envelope [p21e (HTLV-1) and gp120/160 (HIV-1)]. Adult T-cell leukemia was diagnosed by presence of at least 2 among its clinical, chemical and immunophenotypical features.
Results: All study subjects were HIV seronegative. HTLV-I rates were:

Groups	No Sero+ve/Total(%)	Groups	No.sero+ve/Total(%)
Ibadan blood donors	12/198 (6.0)	Calabar prostitutes	6/21 (23.8)
Ibadan STD patients	5/46 (10.9)	Zaria blood donors	0/82 (0.0)
Ibadan prostitutes	0/25 (0.0)	Ibadan NHL patients	13/70 (18.7)
Ibadan religious celibate	3/71 (4.2)	Ibadan NB.NHL pts.	6/24 (25.0)
Calabar GOPD patients	9/58 (15.5)	Ibadan ATL patients	4/5 (80.0)

NB-Non-Burkitt's; BL-Burkitt's lymphoma. (HTLV-I) among STD patients and prostitutes was higher (P=0.06) than among celibates, thus suggesting partial association with sexual activity.
Conclusion: HTLV-I infection is present in Nigeria with some suggestions of geographical variations by regions and exposure risk groups. We have no evidence for HIV infection for the study period. The low % of ATL among Ibadan NHL patients may be due to underdiagnosis or different natural history in Africa versus other viral endemic areas.

F.A.12 IDENTIFICATION OF A COHORT OF HTLV-I INFECTED AND NONINFECTED TROPICAL SPASTIC PARAPARESIS PATIENTS

Canavaggio Michel*; Valderrama R**; Madrid R+; Swanson P*; Montesinos C++; Lee H*; *Abbott Laboratories, N. Chicago, IL, **Suny-HSC-Brooklyn, N.Y., +Institute of Basic Research, Staten Island, N.Y., ++Beth Israel Med Center. Mt. Sinai School of Medicine, N.Y.

Objective: Clinical, electrophysiological and radiological features of HTLV-I seropositive and negative TSP patients were compared.
Methods: Serum from 33 TSP patients were assayed for anti-HTLV-I by EIA and confirmation tests. Virus isolation was performed on lymphocytes of 11 seronegative and 5 of the positive patients.
Results: Serum from 13 patients (39%) were positive for antibody to HTLV-I and 20 (61%) were negative. The two groups did not differ clinically in presentation or evolution of the disease. Brain MRI showed typical lesions of demyelination in 90% of seronegative and 100% of seropositive cases. Visual, brain stem and somatosensory evoked potentials as well as peripheral nerve conduction velocity were abnormal in 80/90% of the seronegative and 62/77% of the positive cases. All patients except 3 Black Americans were Caribbean. Virus isolation was positive in all seropositive patients while it remained negative in the seronegative group. PCR assay using 4 different primer pairs (tax/rex, gag p19, gag 24, env gp21) were also negative in 5 of the cocultures from seronegative cases.
Conclusion: HTLV-I seropositive and seronegative TSP did not differ clinically, electrophysiologically or radiologically. The absence of HTLV-I infection in the seronegative group was confirmed by virus isolation and PCR analysis suggesting that HTLV-I is responsible for only part of the TSP observed in Caribbean patients.

F.A.13

SPONTANEOUS LYMPHOCYTE PROLIFERATION (SLP) IN PCR PROVEN HTLV-II INFECTED DRUG ABUSERS.

Blattner, William; Wiktor, S; Jacobson S; Shaw, G; Shorty, V; Hanchard, B; Weiss, S. et al. Natl. Inst. of Health, Bethesda, Md.; U of Alabama, Birmingham; Desire Narcotics Rehab. Center, New Orleans, LA; U of West Indies, Kingston, JA; and NJMS, Newark, NJ.

Objective: Measure proliferation of unstimulated lymphocytes from New Orleans Drug Abusers (NODA), normal Jamaican (JAFH) and U.S. blood bank donors (USBB).
Methods: Serum was confirmed positive by HTLV-I Western blot (WB) (gag and env present). Viable PBL's were classified HTLV-I vs II by PCR using LTR and Protease primers. Unstimulated viable PBL's cultured in triplicate pulsed with tritiated thymidine were harvested and counts per minute (CPM) at day 4, 5 and 6 (recorded in table).

Results:	WB	PCR	Category	#	Mean CPM	Range	% >10^3 CPM
HTLV-II	+	+	NODA	42	19,015	204-258,331	71%
HTLV-I	+	+	NODA	9	50,362	15,994-156,373	100%
HTLV-1	+	+	JAFH	19	40,660	2,059-161,135	89%
HTLV	-	NP	NODA	10	5,219	251-82,619	40%
HTLV	-	NP	JAFH	15	10,851	596-60,475	60%
HTLV	-	NP	USBB	21	2,053	317-7044	0%

HTLV-II < HTLV-I $p<0.05$/HTLV-II > HTLV neg $p<0.05$/HTLV-I > HTLV neg $p<0.05$

Both HTLV-I and II positives have elevated proliferation of lymphocytes compared to uninfecteds. HTLV-I's have higher mean counts and a higher percentage over cutoff value than do HTLV-II's.
Conclusion: Little is known about the pathogenic potential of HTLV-II save anecdotal cases of T-Hairy cell leukemia. Elevated SLP in HTLV-II's, albeit less marked than seen in HTLV-associated myelopathy and HTLV-I positives suggests potential for shared pathogenic effects.

F.A.14

C-TERMINAL DOMAIN OF HTLV-II ENVELOPE GLYCOPROTEIN IS REQUIRED FOR SYNCYTIUM FORMATION.

Kuritzkes, Daniel R.* and **; Zhang, X.Q.*; Chen, I.S.Y.***; Ho, D.D.***; Schooley, R.T.*; and Young, R.A.**. *Infectious Disease Unit, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA; **Whitehead Institute for Biomedical Research, Cambridge, MA, USA; ***UCLA School of Medicine, Los Angeles, CA, USA.

Objective: To define the domain(s) of the HTLV-II envelope glycoprotein required for syncytium formation. Methods: Recombinant vaccinia viruses that expressed HTLV-II env or HTLV-II env genes with 3' deletions were constructed by introucing the relevant gene, under the control of the vaccinia 7.5 promoter, into the vaccinia thymidine kinase gene. The recombinant viruses were then tested for their ability to induce syncytium formation after infection of human osteosarcoma (143) cells or African green monkey kidney (CV-1) cells. Results: Extensive syncytium formation was induced by infection of 143 or CV-1 cells with vaccinia recombinants that expressed full-length HTLV-II envelope glycoprotein. By contrast, syncytium formation was not induced after infection with vaccinia recombinants that expressed envelope glycoproteins deleted in the C-terminal region. A recombinant that expressed an envelope glycoprotein that included the N-terminus of the gp21 transmembrane subunit but lacked the C-terminal membrane anchor domain also failed to induce syncytium formation. Conclusion: HTLV-II envelope glycoprotein expressed by a recombinant vaccinia virus induces syncytium formation but requires the transmembrane anchor domain to do so. Internal deletions in HTLV-II env are being constructed to define other envelope domains critical for cell fusion.

F.A.15

ANTIBODY-DEPENDENT CELLULAR CYTOTOXICITY MEDIATED BY HTLV-I AND HTLV-II POSITIVE HUMAN SERA, AS WELL AS SERA FROM RABBITS IMMUNIZED WITH HTLV-I AND HTLV-II PEPTIDES

Zhang, Xing-Quan*; Yang, L.*; Ho, D.**; Chen, I.+; and Schooley, R.T.*
*Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA; **Cedars-Sinai Medical Center, Los Angeles, CA; +UCLA, Los Angeles, CA, USA.

Objective: To examine antibody-dependent cellular cytotoxicity (ADCC) mediated by sera positive for HTLV-I or HTLV-II, to determine the degree of cross reactivity between HTLV-I and HTLV-II directed antibodies, and to map immunogenic ADCC epitopes.
Methods: Effector cells (PBMC) were obtained from healthy laboratory donors. The HTLV-I transformed cell line c91/pL and HTLV-II transformed cell line 729 pH6 neo served as target cells in a 4 hour ^{51}Cr release assay system. Sera from HTLV-I or -II infected individuals and from rabbits immunized with HTLV-I or -II encoded synthetic peptides were used as antibodies.
Results: Sera from HTLV-I (n = 48) and -II (n = 7) infected donors mediated significant ADCC activity against c91/pL and 729 pH6 neo cells, respectively. Among the HTLV-I derived sera, some sera exhibited activity restricted against HTLV-I transformed cells. Others exhibited ADCC activity against both targets. In contrast, the HTLV-II derived sera mediated ADCC against both HTLV-I and -II expressing cells. Using sera from rabbits which had been immunized with HTLV-I or -II envelope peptides, the five HTLV-I envelope peptides which mediated the greatest ADCC activity to HTLV-I expressing cells were found in env amino acid residues 186-257.
Conclusion: HTLV-I and -II positive sera mediate ADCC activity. Critical epitopes for ADCC activity against HTLV-I infected cells are located, at least in part, in the exterior glycoprotein (gp46) portion.

F.A.16

CHARACTERIZATION OF A HTLV-II CD4+ CELL LINE DERIVED FROM A PANAMANIAN GUAYMI INDIAN

Beverly D. Roberts, J.E. Kaplan, W.C. Reeves, D.E. Frank, C.S. Goldsmith, and M.D. Lairmore. Centers for Disease Control, Atlanta, GA

Objective: To biologically characterize a T-lymphocyte line infected with HTLV-II virus isolated from a Guaymi Indian from Changuinola, Panama.
Methods: Peripheral blood lymphocytes (PBL) were obtained from a healthy Guaymi Indian seropositive for HTLV. The lymphocytes were positive for HTLV-II by PCR and were established as a primary culture. HTLV production was assessed by antigen capture, electron microscopy and immunochemistry procedures. Cell surface phenotype was determined by FACS analysis.
Results: The cell line (G12) sustained production of high amounts of soluble HTLV-II viral antigen (0.01-0.04 pg/cell). The initial cell population (4 wks. in culture) was characteristic of a CD8+ T-cell population, and the cells expressed CD2, CD3, CD5, CD7, and CD25 (IL-2R), but not significant CD4 antigen. A subsequent phenotypic analysis of G12 (14 wks. in culture) showed a predominant CD4+ T-cell population. Reactivity with HTLV-I polyclonal and monoclonal antibodies to gag p24 was demonstrated by Western blot and avidin-biotin peroxidase techniques, but there was no reaction with HTLV-I monoclonal antibodies to env gp46 or gag p19. Ultrastructure analysis revealed mature 100 nm HTLV viral particles closely associated with the plasma membrane surface. Cytokine studies of G12 and G12/PBL co-cultured cells revealed production of gamma interferon and GM-CSF in culture supernatants, but no evidence of IL-4 or TNF-alpha production. G12 remained dependent upon IL-2 for optimal growth.
Conclusion: The isolation and propagation of HTLV-II from this American Indian demonstrates that HTLV-II infection occurs beyond previously characterized risk groups. The G12 cell line will be an important reagent to further characterize this unique HTLV-II isolate.

F.B.17 PHARMACOKINETICS OF ZIDOVUDINE (ZDV) DURING PREGNANCY.

Schuman, Paula; Kauffman, Ralph; Crane, Lawrence R.; Philpot, Dolores.
Wayne State University School of Medicine, Detroit, Michigan, U.S.A.

OBJECTIVE: A Phase I pharmacokinetic study of ZDV in ten pregnant HIV-infected women.

METHODS: Study eligibility included: (i) Last trimester of uncomplicated pregnancy; (ii) No opportunistic infection; (iii) No illicit drugs during study; (iv) Signed informed consent. Mothers were monitored for ZDV toxicity during the study; conceptus monitored by perinatologists. ZDV dose was 1200 mg daily, begun during third trimester. We measured plasma ZDV concentrations by HPLC during week 36 of pregnancy and at delivery. ZDV suspension was given before anaesthesia and levels measured on mother and infant 90-120 minutes later. We repeated the pharmacokinetic profile on mothers one month postpartum. We obtained serial CD4+, p24 antigen and polymerase chain reaction (PCR) for HIV DNA.

RESULTS: This abstract presents the pharmacokinetic profile of our first subject. The peak plasma ZDV level was 3.8 uM/L at 20 min. T½ elimination was 45 min. T½ absorption was 11 min. Plasma clearance was 4.0 L/kg/hr x F (where F = fraction of absorbed dose, ~ 65%). Thus, plasma clearance was approximately 2.8 L/kg. Volume of distribution was 3.0 L/kg. The ZDV level in mother and infant at delivery, 90 minutes after dose, was 0.43 uM/L and 0.48 uM/L, respectively. p24 antigens were negative on mother and infant and PCR on infant cord blood for HIV DNA was negative. CD4+ rose from 367 cells/mm³ during pregnancy to 480 cells/mm³ postpartum. In this patient, and two others we are studying at present, we have noted only minor hematologic toxicity.

CONCLUSIONS: Although peak plasma ZDV levels and T½ elimination are similar to values reported in nonpregnant adults, the volume of distribution and plasma clearance appear to be significantly increased during pregnancy. ZDV freely crosses the placenta and a 200 mg oral dose given before delivery resulted in plasma levels in the infant comparable to those found in the mother. Trials are needed to see if ZDV administration during labor will prevent HIV transmission during parturition.

F.B.18 THE EFFICACY OF ORAL, INTERMITTENT ZIDOVUDINE (ZDV) IN A PHASE II PEDIATRIC TRIAL (AIDS CLINICAL TRIALS GROUP STUDY 043)

McKinney, Ross ..; Wilfert, C.M.*; Aids Clinical Trials Group of the NIAID; Burroughs Wellcome Company. [*Duke University Medical Center, Durham, N.C.]

Objective: Investigate the effect of oral, intermittent ZDV on measures of efficacy in children with severe ARC and AIDS.
Methods: 9 centers enrolled 88 patients between 3 months and 12 yrs old with severe ARC or AIDS treated with oral ZDV administered at 180 mg/m²/q6h. Median time on treatment: 187 days (range 3 to 352 d).
Results: As of 4/1/89, 65 children remained in the study. 11 died, 7 withdrew, 4 were removed for non-compliance. By Kaplan-Meier analysis, probability of survival at 24 and 36 weeks was 0.88 and 0.84, respectively.

Signs & Symptoms: The proportion of patients with 5 signs or symptoms, of 25 regularly assessed, (loss of appetite, somnolence, diarrhea, decreased activity, and exercise intolerance) decreased while on ZDV. The proportion of patients with nausea and vomiting increased for the first 4 weeks on ZDV, then declined to baseline levels.

Immunological Findings: Concentrations of IgG, IgM, and IgA were elevated at enrollment in most patients. Changes toward more normal concentrations were seen in most of patients with extremely high initial levels. CD4+ cell numbers remained close to the baseline values, although a transient (4-8 week) rise was seen in the mean CD4+ counts.

Virological Results: 49/77 children had p24 antigenemia at entry. The median concentration for these 49 patients was 139.0 pg/ml. After 12 weeks of ZDV, 30 of the positive children had follow-up levels. 12/30 no longer had detectable p24. 3/21 negative children had become positive. The median reduction in p24 concentration after 12 weeks was 98.9 pg/ml. Marked reductions were also seen in the concentrations of CSF p24 antigen levels.
Conclusion: Children treated with chronic, oral ZDV showed beneficial effects in several clinical assessments: symptoms, immunological functioning, and p24 antigen levels. Matched controls are not available for comparison, but the survival of children appears to be greater than anticipated for children with this degree of illness.
[Funding was provided for this study by the AIDS Clinical Trials Group of NIAID]

F.B.19 PHARMACOKINETICS OF ZIDOVUDINE IN CHILDREN

Rolinski Boris*, Wintergerst U*, Debatin KM+, Vocks M#, Roscher A*, Belohradsky BH*
*Children's Hospital L.-Maximilian University Munich, +University Heidelberg, # University Berlin, FRG

Objective: Pharmacokinetic parameters of Zidovudine (ZDV) were investigated in children with respect to age.
Methods: 22 pharmacokinetic studies were performed on 17 patients. 7 were younger than 4 years, 4 between 5 and 15 years, and 6 were young adult hemophiliacs. All were receiving oral ZDV therapy (125 - 600 mg/m² body surface/day). Plasma concentrations of ZDV were determined over a period of 4 hours after intake by HPLC (Good et al.[1], modified).
Results: **(1a).** In 15/22 (Single dose 70-150 mg/m²) biexponential decay of ZDV levels were observed, with a half life of 28.2 ± 13.5 min for the distribution phase and 61.5 ± 17.1 min for the elimination phase. Peak concentrations (5,96 ± 3,43 μmol/l) were reached after 35 ± 9 min. **(1b).** In 7/22 (Single dose 40-135 mg/m²) only low peak concentrations (< 3 μmol/l) were reached after 60-120 min with no clear distribution phase.
(2). The AUC corrected for the dose of ZDV was calculated. The values obtained were age-dependent, with a significant difference ($p < 0,005$) between patients younger than 4 years (AUC/dose: 2,29 ± 0,88 $\mu mol*l^{-1}*min*m^2*mg^{-1}$) and the remaining patients (AUC/dose:3,88 ± 1,61 $\mu mol*l^{-1}*min*m^2*mg^{-1}$).
Conclusion: We found similar half lives for ZDV in children and adults. Further studies of resorption and metabolism of ZDV should be done to explain the lower AUC/dose in younger children.

1.Good SS,Reynolds DJ, Miranda P: Simulteneous quantification of zidovudine and its glucuronide in serum by high-performance liquid chromatography. J Chromatography 431 (1988), 123-133

F.B.20 RESULTS OF ZIDOVUDINE TREATMENT IN CHILDREN WITH AIDS.

De José,MI*;Mellado,MJ**;G-Miguel,MJ*;Cillenuelo,MJ**;G.Rodriguez,MC*;
G.Hortelano,J*.
*Hospital Infantil La Paz.**Instituto de Salud Carlos III.Madrid.Spain.

OBJECTIVES:To analyse the tolerance,toxicity,and efectiveness of ZDV in chidren.To evaluate the clinical,immunological and virological evolution during treatment.
MATERIAL AND METHODS:We study 32 children(16 M,16 F)included in Class P2 of CDC,with ages between 3 m-15 y.Transmission:perinatal 24 chidren(20 mothers IVDA,4 heterosexual contact),11 hemoderivates.The children receive ZDV 28 mg|kg|day.In 14 of them IVIG too.We perform clinical and analitical controls monthly and immuno-virological every term.The follow-up varies between 2-18 months.
RESULTS:All of the children showed a clinical improvement during the first 6 months.In 5 patients (15.6%)there was bad tolerance with vomiting and/or insomnio.Intercurrent bacterial infections decreased in number in 22 patients(69%),opportunistic infections in 6 children (18.7%):systemic CMV sepsis by candida,PCP,candida esophagitis and diarrhoea by Cryptosporidium,oral thrust 100%.We found haemotological toxicity in 6 cases(18.7%);it was necesary permanent drug withdrawal in 1 patient ,while in the other 5 it was only transitory.Immunoglobulins decrease at the begining,returning to pretreatment values after 6-9 months.CD4 count and CD4/CD8 didn't show significant changes P24 Ag was (+) in 17(53%) before ZDV administration;4 of them (23.5%) became (-) during treatment. Initially,15 children were P24 Ag(-) and 3 of them(20%) became (+) while receiving ZDV.Two children (6.25%) died because of sepsis by candida in 1 case and respiratory distress the other one after 18 and 15 months of treatment respectively.
CONCLUSIONS: 1)Tolerance to ZDV has been satisfactory with low toxicity. 2)There is no relationship between P24 Ag values and ZDV treatment. 3)ZDV improves transiently the clinical status of children with AIDS. 4)Perhaps the evolution would be better if ZDV were administered in earlier stages of the diesease.

F.B.21 LYMPHOCYTE SUBSET CHANGES IN CHILDREN WITH ADVANCED SYMPTOMATIC HIV INFECTION TREATED WITH ORAL ZIDOVUDINE

Connor, Edward* and the Zidovudine (ZDV) Study Group**
*UMD-NJ Medical School and Children's Hospital of NJ, Newark, NJ, USA.
**Supported by AIDS Clinical Trials Group (NIAID) & Burroughs Wellcome Company

Objective: To evaluate the changes in lymphocyte subsets (LS) among HIV-infected children with advanced symptoms treated with oral ZDV.
Methods: Eighty-eight children were enrolled in an open label phase II study at nine US centers and treated for 36 weeks with 180mg/m^2 oral ZDV every 6 hours. LS were monitored using standard flow cytometric methods at pre-entry, entry, and weeks 4, 8, 12, 24, 36.
Results: Eighty two children had baseline LS and at least one subsequent evaluation. The mean CD4±SEM at entry was 584±83/mm^3. ZDV treatment was associated with a rise of CD4 to a mean of 669/mm^2 for the first 8 weeks, followed by a decrease during 12-36 weeks. At 36 weeks the mean was 616±134/mm^2. For patients entering with CD4 <500 (63%) there was a more marked increase from 132±18 at baseline to 243±58 and 243±55 at weeks 4 and 8. Between 12-36 weeks CD4 decreased but the mean at 36 weeks remained above baseline at 248±63. Overall, the change from baseline of CD4 for the first month was significant (p=0.002) and when changes were analyzed using CD4%, significant increases were observed for the first three months (p<0.001, p=0.002, p=0.007). CD4/CD8 ratio paralleled changes into CD4.
Conclusions: ZDV treatment was associated with a rise in CD4 which was greater among patients with more severe lymphocyte depletion. This was most consistent and significant during the first two to three months of therapy and was followed by apparent stabilization of CD4 count.

F.B.22 THE ACTIVITY AND TOLERANCE OF DIDEOXYINOSINE, (ddI) ADMINISTERED FOR 24 WEEKS TO SYMPTOMATIC HIV INFECTED CHILDREN: A PHASE I/II TRIAL.

Butler Karina, Husson R, Eddy J, Santacroce S, Jarosinski P, Moss H, Wolters P, El-Amin D, Brouwers P, Wiener L, Balis FM, Poplack D, and Pizzo P. Pediatric Branch, National Cancer Institute, Bethesda, MD

ddI, with its potent antiretroviral activity and favorable toxicity profile, is potentially important in the initial therapy of HIV infected children as well as the rescue of those intolerant or refractory to AZT. To assess ddI in children, we initiated a Phase I/II trial in 1/89, assessing five dose levels (60, 120, 180, 360 or 540 mg/m2/day, orally in three divided doses), in symptomatic (CDC P2) children who had either received no prior antiretroviral therapy (NPT) or had become intolerant or refractory to AZT (IRA). From 1/89-10/89, 43 children, 8 mos-18 yrs (median 4.8 yrs) were enrolled, 24 transplacental, 19 blood product acquired infections; 27 PTA and 16 IRA. 19 patients (pts) were encephalopathic at entry. The CD4 count was<200/mm3 in 23, 200-499 in 11 and >500 in 9. The median CD4/CD8 ratio 0.27. P24 antigen was detectable in 74% at entry. In addition to assessing safety and tolerance, pts in this study are evaluated for changes in clinical, immunological, virological and neurodevelopmental manifestations. The results of all 43 pts will be available for presentation. Of 30 pts who have either reached this 24 week evaluation or are now off study 9/30 gained weight, 10/16 ↓organomegaly, 7/10 ↓lymphadenopathy, 9/30 ↑CD4/CD8 ratio, 9/30 ↑CD4 count, 13/23 ↓P24 antigen, 3/4 IVIG dependent thrombocytopenic pts resolved this dependency. In 2/20 pts CT and MRI abnormalities improved and the X-ray appearance of LIP has improved in 1. Both children with NPT and IRA have benefited. 6/43 children died: no deaths were attributed to ddI. 2 pts developed pancreatitis and in 2 neutropenia interrupted therapy. There has been no evidence of neurotoxicity. These preliminary findings are promising and further follow-up will guide the role of ddI in the treatment of HIV infected children.

F.B.23 SAFETY AND PHARMACOKINETICS OF RECOMBINANT CD4 IN CHILDREN WITH HIV INFECTION

Weintrub, Peggy (1), Yogev, R. (2), Conner, E. (3), Wilfert, K. (4), Mordenti, J. (5), Ammann, A.J. (5). (1) University of California, San Francisco; (2) Children's Memorial Hospital, Chicago; (3) Children's Hospital of New Jersey, Newark; (4) Duke University, Durham; (5) Genentech, Inc., South San Francisco.

OBJECTIVE: To perform a Phase I study of rCD4 in HIV infected children.
METHODS: Seven children 3-17 years of age received 300 µg/kg/d rCD4 as follows: IV for 1 day, 1-day washout, IV for 7 consecutive days, 1-day washout, SC for 7 days, and SC 3/wk for 8 weeks. rCD4 in serum was quantified by an ELISA using two monoclonal antibodies against different CD4 epitopes for capture and detection.
RESULTS: The disposition of rCD4 following IV administration was described by bi-exponential equations: the initial phase accounted for ~90% of the area-under-the-curve. Clearance (mean ± SD) was 1.7 ± 0.6 mL/min/kg. Initial and terminal half-lives were 0.4 ± 0.2 and 4.5 ± 2.7 h, respectively. Following SC administration, the steady-state peak concentrations ranged from 33-262 ng/ml and occurred ≤6 h post administration; the interdose half-lives ranged from 7-46 h; bioavailability ranged from 15-50%. The long terminal half-life following SC represents slow absorption from the injection site. Accumulation did not occur. Age related differences in clearance and volume of distribution of rCD4 within this small group were not apparent. Compared to adults, the volumes of distribution were similar, while clearance, on a per weight basis, was slightly increased. Following SC administration, the peak concentration is lower and occurs earlier in children. During this 10-week period, no clinical or immunologic adverse events could be attributed to rCD4. Low titer antibody to rCD4 was detected in one patient.
CONCLUSION: rCD4 is safe and well tolerated in children. Future studies should evalute its efficacy in the therapy of established infection and in preventing perinatal transmission.

F.B.24 CD4 COUNTS AS PREDICTORS OF *PNEUMOCYSTIS CARINII* PNEUMONIA IN INFANTS AND CHILDREN WITH HIV INFECTION.

Kovacs, Andrea*; Church, J.**; Mascola, L.***; Frederick, T.***; Eller, A.***; Evans, M.***; and The Los Angeles Pediatric AIDS Consortium.
*LAC+USC Medical Center, Los Angeles (L.A.), California (CA.); ** Children's Hospital of L.A.; ***L.A. County, Dept. of Health Services.

Objective: To determine if CD4+ lymphocyte counts are predictive of *Pneumocystis carinii* pneumonia (PCP) in pediatric patients with human immunodeficiency virus infection (HIV-1) and if the current recommendation for prophylaxis in those with CD4 counts < 500 is appropriate for infants < 1 year old.
Methods: From 1/82 through 11/89, HIV-1 positive (classified PO-AIDS) infants with and without PCP were identified and CD4 counts and clinical information were obtained as part of an active surveillance system for pediatric HIV-1 in Los Angeles County. Charts were reviewed for additional clinical and laboratory data. The CDC case definition for PCP, either presumptive evidence or biopsy or bronchoscopy proven, was used. CD4 counts were obtained either prior to or within one month of PCP.
Results: 38 cases of PCP were identified with CD4 counts available on 34. 23 or 68% of the cases had CD4 counts < 500. Comparing these PCP cases with 149 non-PCP cases (PO-AIDS) reported in the surveillance system showed that a CD4 count <500 was associated with PCP (OR=3.5, 1.5-8.3 95% CI) although the association was stronger for those transfused (OR = 7.9) than the perinatal cases (OR = 4.1). Among the PCP cases. 93% (14/15) of those transfused had CD4 counts <500 compared to only 41% (7/17) of the perinatals. Mean age of PCP for the perinatals was 8.5 months vs. 5 years for the transfused (p < 0001). 74% (14/19) of perinatals with PCP presented at < 6 m.o. Among the perinatals with PCP < 1 y.o. with available CD4 counts, 67% had a CD4 count > 500 and 33% had a CD4 count > 1000.
Conclusions: Although surveillance data on 183 cases shows that having a CD4 < 500 is associated with PCP, most perinatals with PCP had CD4 > 500. Current recommendations for PCP prophylaxis should be reevaluated for infants < 1 y.o.

F.B.25 NEUROPSYCHOLOGICAL STATUS OF MEN WITH HAEMOPHILIA AND HIV INFECTION: A CONTROLLED INVESTIGATION

Hodges, Sally*, Klimes, I.**, Catalan, J.***, Day, A.*, Bond, A.*, Garrod, A.*, and Rizza C.****.
*Oxford University Dept. Psychiatry and ** Dept. Clinical Psychology, Warneford Hospital, Oxford, UK. *** Charing Cross and Westminster Medical School, London, UK. **** Oxford Haemophilia Centre, Oxford, UK.

Objective: To establish baseline prevalence of neuropsychological problems in HIV+ men with haemophilia by a comparison with HIV- men with haemophilia as part of a 3-year prospective study with follow-up assessments at 6-monthly intervals.
Methods: 32 HIV+ and 31- men with haemophilia were assessed on measures of pre-morbid IQ (Nart); verbal skills (Vocabulary*, Similarities*, COWAT); concentration (Arithmetic*, Digit Span*); visuospatial skills (Block Design*, Object Assembly*); psychomotor speed (Digit Symbol*, Grooved Pegboard, Trails A and B); memory (WLM, AVLT, RMT); frontal lobe functioning (MCST). Two subjects were excluded: one (HIV-) because of documented brain trauma, one (HIV+) because of IVDU. (* = WAIS-R).
Results: All HIV+ subjects had been infected for more than 3 years; 26 were asymptomatic. The data for the two groups, HIV+ (N = 26) and HIV- (N = 30), was analysed in two ways: (1) scores, corrected for age and education, were compared using univariate analyses; (2) global impairment scores were computed using cut-offs of 1sd and 2sd taken from the standard deviation of the HIV- control group. We found no neuropsychological deficits in either group. There was minimal variation in performance and no significant differences for either individual test scores or global impairment.
Conclusions: Baseline neuropsychological assessment of HIV+ men with haemophilia shows that subjects who are asymptomatic have no neuropsychological impairment.

F.B.26 NEUROPSYCHOLOGICAL EVALUATION OF SEROPOSITIVE PARENTERAL DRUG USERS WITHOUT AIDS

Stern, Yaakov; Sano, M.; Goldstein S.; Richards, M.; Kloehn, J; Mindry, D; Chen, J; Ehrhardt, A.; and Gorman, J.
HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, New York, NY, USA.

Objective: To investigate the possible presence of cognitive changes in a cohort of seropositive parenteral drug users without AIDS.
Methods: An extensive neuropsychological battery, including tests of memory, language, executive function, visuospatial ability, attention, motor speed and praxis, was administered to 198 subjects (64 women, 134 men) at a methadone maintenance clinic and a city hospital ID clinic. All testing was performed blind to HIV status.
Results: 87 subjects were HIV- and 111 HIV+: 33 asymptomatic, 25 mildly symptomatic and 53 symptomatic but without AIDS. Although HIV- and HIV+ groups were comparable in age, education, sex distribution, and history of head trauma all comparisons were controlled for these possible confounders. The HIV+ group performed significantly worse than the HIV- group on the Trail Making test, the Odd Man Out and WAIS-R Digit Symbol. These comparisons remained significant when restricted to the HIV+ asymptomatic group only. The frequency of overall abnormal neuropsychological performance, based on blind review of the protocols, was comparable in the two groups.
Conclusion: HIV+ drug abusers perform more poorly on speeded tests and those that tap executive function. Since these functions are affected in AIDS dementia complex, these changes may represent an early manifestation of HIV-related cognitive change.

F.B.27 MOTOR ABNORMALITIES IN 100 HIV-INFECTED PATIENTS IN CORRELATION TO CDC STAGES

Wendtland, B.*, Hefter, H.*, Elsing, C.**, Arendt, G.*
Department of Neurology* and Internal Medicine**, University of Düsseldorf

Objective, Methods: Motor function (postural tremor of the outstretched hands, most rapid voluntary alternating index finger movements and rise times of most rapid voluntary isometric index finger extensions) was tested in 100 HIV-infected patients without clinically detectable central nervous deficits belonging to all CDC-stages with normal MRI-Scans; patients with drug-, alcohol- or tranquilizer-abuse, opportunistic cerebral infections or fever were excluded from the study. Results: Tremor-peak frequencies and reaction times did not show any significant difference to an age- and sex-matched control group. The most rapid alternating index finger movements showed a significant slowing in the patients ($\bar{x}_{pat.}$ = 5,8 ± 1,01 Hz; $\bar{x}_{con.}$ = 6,8 ± 1,01 Hz), but no correlation to the CDC-stages. The most rapid isometric index finger extensions were significantly prolonged in the patient group ($\bar{x}_{pat.}$ = 145,2 ± 38,6 ms, $\bar{x}_{con.}$ = 118,2 ± 17,9 ms) and showed a worsening according to the CDC-stages (CDC II = 125,77 ms ± 22,52, CDC III = 141,71 ± 36,31 ms, CDC IV A = 176,05 ± 49,75 ms, CDC IV C = 179,98 ± 50,12 ms) with a higher percentage of pathological results in advanced stages (CDC II = 30% pathological performance, CDC IV C = 80%). Conclusion: It can be concluded, that motor function tests are a simple, but sensitive parameter in detecting central nervous deficits in HIV-infected patients without clinically evident symptoms. Abnormalities of rapid isometric index finger extensions correlate with the CDC-stages and therefore can probably be used for monitoring disease progression and the effects of therapy.

F.B.28 COMPARISON OF EVOKED POTENTIAL RESPONSES AND NEUROPSYCHOLOGICAL MEASURES IN EARLY HIV DISEASE.

Hollander, Harry, Gardi, J, Volberding, P, Walker, J.
University of California, San Francisco, California, USA

Fifty one neurologically intact class 2 men enrolled in an open label (N=11) or a placebo-controlled (N=40) trial of AZT underwent a battery of tests which included 17 neuropsychological measures, long latency cortical and brainstem auditory evoked responses. Results were considered abnormal if 3 or more neuropsychological measures were >2 S.D. below mean for age or if the measured waves on evoked responses were >2.5 S.D. above mean for age.
Results: Mean CD4 count at the time of study was 584 (N=44). Incidence of abnormalities is as follows: cortical evoked responses - 12% (N=43), neuropsych - 13% (N=46), auditory evoked responses - 20% (N=44). Thirty eight subjects had all 3 tests; 25 (66%) had normal results, 9 abnormality on 1 test, 1 abnormalities on 2 tests and 3 abnormalities on all tests. The correlation between results follows:

		Neuropsych	
		Normal	Abnormal
Evoked	Normal	25	3
Responses	Abnormal	7	3

Conclusions: The majority of these neurologically normal subjects had no abnormalities on detailed testing. However, prolongation of evoked responses was more common than neuropsychological impairment. The occurrence of electrophysiological abnormalities without neuropsychological dysfunction suggests that evoked responses may provide a more sensitive way of screening for subclinical HIV CNS disease. Confirmation will require longitudinal observation of the clinical neurological status.

F.B.29

SEQUELAE OF HIV INFECTION: EVOKED POTENTIAL LATENCIES, NEUROPSYCHOLOGICAL PERFORMANCE, & IMMUNE DYSFUNCTION IN HIV+ & HIV- GAY MEN

Dilley, James W., Boccellari A.; Yingling, C.; Moss, A.; Wagner, B.; Kelly, T.
San Francisco General Hospital & Univ. of California School of Medicine, San Francisco, California, USA.

Objective. To characterize the group differences between and relationships among measures of immune functioning (IF), neuropsychological performance (Np), and evoked potentials (EP) in HIV+ and HIV- gay men.
Methods. Forty-seven HIV+ Gay men (CDC Groups II, III, & IV-A) and 31 HIV- Gay men were evaluated with Np tests and Auditory Brain Stem Responses (ABR). For the ABR, we calculated Waves I-III and Waves III-V interpeak latencies as a measure of central conduction time (CCT). For HIV+ subjects, measures of immune functioning were also obtained (CD4 cells, CD8 cells, CD4/CD8 ratio, $Beta_2$ and p24 antigen). Group differences were determined by the use of T tests. Correlations among the measures were also calculated and immune dysfunction was predicted to be associated with increased CCT and decreased Np performance.
Results. 1. No significant differences were found between the HIV+ vs. HIV- subjects on Np measures.
2. However, in the HIV+ group, performance on several Np procedures significantly correlated with immune dysfunction. Measures of complex problem solving (Booklet Category Test) significantly correlated with the presence of p24, $Beta_2$, CD4, and CD4/CD8 ratio. Gross motor strength correlated with p24 and CD8; fine motor speed correlated with CD4. All correlations were significant in the predicted direction at $P<.05$.
3. ABR wave III-V interpeak latency for the right ear was significantly delayed in the HIV+ subjects ($T=-2.9$, $P<.01$).
4. Immune status was clearly associated with ABR abnormalities in HIV+ subjects. Wave III-V latencies correlated significantly with $Beta_2$ and with absolute number of T4 cells ($r=.34$, $r=-.31$, $P=<.05$).
Conclusions. 1. Speed of brain stem processing (CCT) was impaired in this group of HIV+ Gay men and the delay in processing was more severe in subjects with immune abnormalities.
2. In this group, increased CCT was seen without significant differences found in Np measures.
3. While no group differences were apparent between HIV+ and HIV- Gay men on Np function, those HIV+ subjects with greater immune suppression performed more poorly on measures of complex problem solving, gross motor strength and fine motor speed.
4. These specific areas of Np dysfunction and increased CCT, together with the presence of p24, elevated $Beta_2$, and reduced T cell counts may foreshadow the development of more severe cognitive impairment.

F.B.30

ZIDOVUDINE THERAPY FOR HIV ENCEPHALOPATHY

Tozzi Valerio*, Galgani S.+, Gerace C.+, Narciso P.*, Giulianelli M.*, Sette P.*, Visco G.*, et al.
USL RM/10: *L. Spallanzani Hosp., +S. Camillo Hosp., Rome, Italy.

OBJECTIVE. To assess the efficacy of Zidovudine (AZT) therapy for HIV encephalopathy.
METHODS. Thirty patients (pts) with HIV encephalopathy were treated with AZT at daily doses of 1000 mg (9 pts), 750 mg (8 pts) and 500-600 mg (13 pts). Mean follow up was 10 months (range 2-17). Clinical staging (from 0 to 4 according to Price) was established with neurological examination and neuropsychological evaluation. CT scan, MRI and SPECT were used for excluding opportunistic infections and tumors, and for supporting diagnosis.
RESULTS. Improvement of neurologic disfunctions was observed as shown:

	before AZT		1 month		3 months		6 months		9 months		12 months	
staging	N.	%	N.	%	N.	%	N.	%	N.	%	N.	%
0(normal)	-	(-)	7	(24%)	13	(49%)	14	(55%)	12	(63%)	6	(60%)
1(mild)	11	(37%)	9	(30%)	6	(22%)	6	(23%)	5	(27%)	2	(20%)
2(moder.)	6	(20%)	7	(24%)	5	(18%)	4	(15%)	1	(5%)	1	(10%)
3(severe)	9	(30%)	5	(16%)	3	(11%)	2	(7%)	1	(5%)	1	(10%)
4(end st.)	4	(13%)	2	(6%)	0	(0)	0	(0)	0	(0)	0	(0)
Total	30	(100%)	30	(100%)	27	(100%)	26	(100%)	19	(100%)	10	(100%)

Moreover 7 stage 0 patients did not progress to symptomatic stages during a mean follow up of 9 months. A reversal of MRI and SPECT abnormalities was also observed in 4/10 pts. Four untreated patients showed a progressive disease.
CONCLUSIONS. AZT treatment can produce a reversal of neurologic dysfuction in HIV encephalopathy. Positive effects were often seen within few weeks and in most cases were manteined up to 12 months. Preliminary results suggest that a daily dose of 500 mg can be at least partly effective.

F.B.31

EFFECTS OF LONG-TERM ZIDOVUDINE USE ON NEUROPSYCHOLOGICAL PERFORMANCE IN THE MULTICENTER AIDS COHORT STUDY

McArthur, Justin C*, Miller EN**, Selnes OA*, Becker JT***, Cohen BA****, Starkey D*, Hoover D*, Saah A*; *Johns Hopkins Medical Institutions, Baltimore MD, ** University of California, Los Angeles CA, ***University of Pittsburgh, Pittsburgh PA, ****Northwestern University, Chicago IL

Objective: To examine the effects of zidovudine (AZT) on neuropsychological (NP) performance of homosexual men participating in the Multicenter AIDS Cohort Study.
Methods: Standardized NP measures were administered at semiannual intervals between 1986 and 1989. None of the volunteers was taking AZT at baseline testing; subsequent duration of use was assessed by self-report. Subjects were stratified by baseline clinical status and CD4 count. A "worsening" in NP performance was indicated by normal baseline scores and abnormal follow-up testing on 2 or more tests (>2 SD from mean).
Results: Neuropsychological Performance Worse (number (%))

		Asymptomatic	Symptomatic	CD4<200	CD4≥200
6 months	No AZT	26/530 (5)*	3/23 (13)*	2/15 (13)	27/516 (5)*
	AZT	2/125 (2)	2/51 (4)	3/59 (5)	0/106 (0)
12 months	No AZT	10/312 (3)	1/10 (10)	0/7 (0)	11/297 (4)
	AZT	1/56 (2)	1/18 (6)	1/21 (5)	1/50 (2)

*chi-square, $p < 0.05$: AZT vs. no AZT

Conclusion: While overall, the proportion showing NP decline was small, significantly fewer subjects showed worsening NP performance after up to 6 months of AZT. A similar trend was observed with use of AZT for up to 12 months. These preliminary data suggest that AZT may reduce the frequency of development of NP abnormalities.

F.B.32

VITAMIN B_{12} AND COGNITIVE FUNCTION IN HIV INFECTION

Baum, MK; Beach, R; Morgan, R; Mantero-Atienza, E; Wilke, F; Eisdorfer, C.
Biopsychosocial Center for Studies of AIDS, University of Miami School of Medicine, Miami, Florida USA.

Objective: To determine if low levels of plasma vitamin B_{12} (below 250 pg/ml) are associated with impaired cognitive function in HIV infected individuals.
Methods: Subjects were 100 HIV seropositive homosexual males who remained asymptomatic other than persistent generalized lymphadenopathy (CDC stage III). Plasma vitamin B_{12} levels were determined by radio immunoassay. Cognitive function, including the Sternberg paradigm, the paired associates task and the figure-visual scanning task were administered, utilizing standardized psychometric techniques.
Results: Approximately 20% of this group of subjects had plasma vitamin B_{12} levels < 200 pg/ml (overt deficiency) and an additional 14% had vitamin B_{12} levels between 200-250 pg/ml (marginal deficiency). Those HIV infected subjects who were either overtly or marginally B_{12} deficient did more poorly on the overall mean reaction time for the Sternberg short-term memory paradigm ($p<0.06$), the paired associates mean reaction time ($p<0.05$), and the figure-visual scanning task ($p<0.05$), than HIV positive subjects who had normal levels of plasma B_{12}. After six months those who had their vitamin B_{12} status normalized (by intramuscular cyanocobalamin), significantly improved their scores on the Sternberg paradigm to the level observed in HIV seropositive subjects who had normal levels of B_{12}. HIV-infected subjects who remained vitamin B_{12} deficient did not improve over the six month period, and continued to perform significantly more poorly on this test of cognitive function ($p<0.009$). A change in the same direction (not significant) was observed in the paired associates task and the figure-visual scanning task with normalization of vitamin B_{12} status.
Conclusion: A considerable incidence of vitamin B_{12} deficiency occurs in even generally asymptomatic HIV infected subjects. Such vitamin B_{12} deficiency, even if marginal in nature, contributes to impaired cognitive function seen in such individuals. Normalization of vitamin B_{12} status results in a significant improvement of some parameters of cognitive function in HIV infection.

F.C.33

OCCUPATIONAL RISK OF HIV-INFECTION IN HEALTH-CARE WORKERS IN THE UNITED STATES. Bell, David; Centers for Disease Control, Atlanta, GA, USA.

F.C.34

RATE OF SEROCONVERSIONS AFTER OCCUPATIONAL EXPOSURES TO HIV IN HEALTH CARE SETTINGS:THE ITALIAN MULTICENTRIC STUDY

Ippolito, Giuseppe*; Puro, V.* and "Italian Collaborative Study Group on Occupational Risk of HIV Infection": Angarano,G.; Arici,C.; Bertucci,A.; Bini,A.; Bottura,P.; Cadrobbi,P.; Carosi,G.; Cestrone,A.; Collina,D.; Episcopo,P.; Finzi,G.; La Torre,E.; Lombardo,M.; Piazza,M.; Portelli,V.; Ranchino,M.; Rastrelli,M.; Scaggiante,R.; Sommella,L.; Sueri,L.; Vaglia,A.; Vlacos,D.
* Coordinating Center: "L. Spallanzani" Hospital- Rome, Italy,

Objective. To evaluate the risk of HIV trasmission after accidental exposures in health care workers (HCW).
Methods:Thirty italian hospitals enrolled in a multicentric study started, between 1986 and 1987, a surveillance of occupational exposures at risk for HIV infection. All exposed HCW have been tested for HIV at the time of accident and at intervals of 0,3,6 and at least 12 months.
Results As of december 1989, 1154 HCW occupationally exposed to HIV have been observed: 193 (16.7%) physicians, 729 (63.2%) nurses, 49 (4.2%) laboratory workers, 134 (11.6%) housekeepings and 49 (4.2%) other occupational groups. Parenteral exposures were 789 (68.4%), open wound contaminations were 215 (18.6%) and skin/mucous-membrane exposures 146 (12.7%). The exposed HCW were prospectively followed for a mean time of 9 months (range 2-24). Two seroconversions were observed (0.00173 confidence intervals 95%, Poisson distribution 0.00021-- 0.00626).
Conclusion:The study confirms a low risk of HIV transmission after accidental exposures in HCW. However the number of occupational infections could increase proportionally to the number of HIV infected subject assisted in health care settings.
Work supported by Italian Ministry of Health - AIDS research project

F.C.35

AZIDOTHYMIDINE CHEMOPROPHYLAXIS FOR HEALTH CARE WORKERS OCCUPATIONALLY EXPOSED TO HIV.

Gerberding, L.; Wugofski, L.; Chambers, H.; Dilley, J.; Rinaldi, J.; UC San Francisco and San Francisco General Hospital

OBJECTIVE: To evaluate the feasibility and toxicity of post-exposure zidovudine (AZT) treatment in health care workers (HCW) exposed to HIV.
HCW parenterally exposed to HIV risk infection. Efficacy and toxicity of post-exposure AZT are unproven: animal models suggest protection if AZT Rx begun early (< 24 hrs); in healthy HCW no life-threatening irreversible toxicity in 4-6 wks Rx reported. An open protocol for AZT Rx after select HIV exposures at SFGH was therefore begun as an interim practice in 6/89.
PROTOCOL: *Dose*: 200mg AZT q 4 h 5 x/d for 4 wks; *Inclusions*: parenteral exposure and source patient (SP) HIV+ or possible HIV+ pending test; informed consent; reliable contraception. *Exclusions*: pregnancy; immune/hepatic/renal dz; baseline HIV+. *Implementation*: Needlestick Beeper Hotline 24hr/d; immediate triage for Rx; am followup in employee health; counseling. *Monitoring*: q 2 week cbc, SMAC, urine/CPK x 6 wks. *HIV Test:* baseline/6wk/3mo/6mo/1yr post-exposure.

RESULTS: From 6/89-12/89, 28 HCW had eligible parenteral exposures and 16 started AZT Rx. 5 d/c -> SP HIV-; 5 d/c ->subjective toxicity (GI, fatigue, HA); 4 completed Rx; 1 self-d/c. None had serious heme or other toxicity.

CONCLUSION: Many HCW elect post-exposure chemoprophylaxis. Early (< 1 hr post-exposure) Rx is feasible at SFGH. Serious short-term toxicity has not been detected but subjective toxicity resulting in dose change or drug d/c is common. Decreasing the dose or prolonging the dosing interval may increase protocol compliance. Further evaluation of post-exposure chemoprophylaxis is warranted.

F.C.36

PREVENTING OCCUPATIONAL EXPOSURES IN DEVELOPING COUNTRIES. Luo, Nkandu; Department of Pathology and Microbiology, University Teaching Hospital, Lusaka, Zambia.

F.C.37

SAFER MEDICAL DEVICES FOR REDUDING HEALTH-CARE WORKER RISKS. Jagger, Janine; University of Virginia, Charlottesville, VA, USA.

F.C.38

COMPLIANCE WITH UNIVERSAL PRECAUTIONS AMONG EMERGENCY DEPARTMENT PERSONNEL

Campbell, Scott*; Maki, M*.; Henry, K*†. †Univ. of Minnesota Medical School; *St. Paul-Ramsey Medical Center, St. Paul, Minnesota USA

OBJECTIVES. To examine the compliance of Emergency Department (ED) personnel with the Universal Precaution (UP) recommendations derived from CDC guidelines published in August 1987 and June 1988.
METHODS. From 7/89-9/89, ED personnel were observed by 10 Registered Nurse Observers (RNOs) at a Level One Trauma Center at a university-affiliated medical center located in a large midwestern city. UP had been ED policy since 10/88. Gown, mask, goggle, glove use, and needle disposal practices were observed. In fall 1989, a Self-Report Survey (SRS) was sent to ED personnel to determine self-reported UP compliance.
RESULTS. In 270 hours, 1,018 patient-HCW interactions were observed. When appropriate, gowns were worn 12% of the time {95%CI (5%,19%)}; masks 2% of the time {95%CI (0%,6%)}; goggles 19% of the time {95%CI (9%,29%)}; and gloves 80% of the time {95%CI (77%,83%)} excluding IV starts and phlebotomy. Gloves were worn for 55% {95%CI (44%,66%)} of IV placements observed and for 44% {95%CI (36%,52%)} of the phlebotomy procedures observed. Handwashing occurred after 25% {95%CI (22%,28%)} of patient contact termination, including procedures involving glove use. Needles were discarded as recommended 43% of the time {95%CI (38%,48%)}. Recapping occurred 53.4% of the time {95%CI (48%, 58%)} When resheathing was performed, the use of two hands to bring cap and needle together occurred 79% of the time {95%CI (73%,85%)}. Needles used for IM/SQ injections were the type most frequently resheathed in an unsafe manner (92%; {95%CI (86%,98%)}. Self-reported rates of appropriate handwashing {76%; 95%CI (68%,85%)}, masking {25%; 95%CI (16%,33%)}, and goggling {34%; 95%CI (24%,44%)} were considerably higher than rates observed. Self-reported frequency of unsafe recapping by the use of two hands was markedly lower {45%; 95%CI (34%,55%)} than the observed rate. Glove, gown, and overall recapping rates given on the SRS were within 10% of the rates observed. Reasons for non-compliance were: not enough time (67.8% of respondents); reduced dexterity (60.7%); some patients "appear to be at lower risk for HBV or HIV " (48.2%).
CONCLUSIONS. The data indicates that significant problems exist with UP policy. Dexterity issues, time constraints, and pt characteristics may exert considerable influence on HCW compliance with UP. Various strategies to increase UP compliance should be explored. The use of self-reporting to assess compliance with UP recommendations may considerably overestimate compliance with certain UP recommendations.

TRACK C: EPIDEMIOLOGY & PREVENTION

ABSTRACT SESSION: EPIDEMIOLOGY OF HIV AND AIDS—DEVELOPED WORLD

F.C.41 STABILIZATION OF AIDS MORTALITY IN DIVERSE DEMOGRAPHIC GROUPS: EVIDENCE FOR LEVELING OF THE AIDS EPIDEMIC IN NEW YORK CITY.

Stoneburner, Rand; Fordyce, E.J.; Busner, C.; Chiasson, M.
The New York City (NYC) Department of Health, New York, New York, U.S.A.

Objective: Since interpretation of epidemic trends based on AIDS surveillance is hindered by uncertainties, we analyzed mortality in order to determine if there were time trend changes in the course of the epidemic of severe HIV-related disease resulting in death from 1980-89(3rd quarter).
Methods: AIDS and non-AIDS deaths were analayzed in NYC residents using vital records. Total death rates were derived using intercensal population estimates.
Results: There were 15,495 AIDS deaths from 1980-89: 84% male, 67% nonwhite, 91% age 20-54. The average % change in AIDS deaths by 1/4yr for 82-85, 86-87, 88-89 for white males 20-54(WM), non-white males 20-54(NWM), females 20-54(FM), children 0<13(CH), and total AIDS deaths are below:

	WM 20-54 % (P)	NWM 20-54	FM 20-54	CH < 13	Total
82-85	16.7(<.001)	17.8(<.001)	17.4(<.001)	19.1(<.001)	17.0(<.001)
86-87	2.1(NS)	5.6(.002)	8.0(<.001)	8.3(NS)	5.0(.002)
88-89	4.2(.02)*	1.2(NS)	1.1(NS)	0.2(NS)	2.0(.051,NS)

In WM 88-89*, an abrupt increase in deaths occurred in 1988(3q), followed by a 1.5%(NS) rate of change from 1988(3q)-89(3q). Total deaths/10,000 pop. did not significantly increase for WM after 1985, and for NWM and FM after 1987.
Conclusions: Stabilization of AIDS and total mortality as early as 1986-87 in diverse groups, with varying access to medical care, suggests that these trends are unlikely related to zidovudine or other therapies, which weren't widely available until after 1987(3q). Infection saturation, or factors related to the host or infectious agent are likely explanations. These findings may alter projections of the AIDS epidemic both in New York City and the United States.

F.C.42 FINDINGS FROM THE NATIONAL HOUSEHOLD SEROPREVALENCE SURVEY FEASIBILITY STUDY

Horvitz, D. G.*; Folsom, R. E.*; Weeks, M. F.*; Hurley, P. F.**; Wright, Robert A.**
*Research Triangle Institute, Research Triangle Park, NC, USA
**National Center for Health Statistics, Hyattsville, MD, USA

OBJECTIVE: To determine the feasibility of ascertaining the number of persons in the U.S. currently infected with HIV and the population at risk of infection by obtaining an anonymous blood sample and risk factor questionnaire from a probability sample of the civilian noninstitutionalized population.
METHODS: A Pilot Study was conducted in Allegheny County (Pittsburgh), Pennsylvania in February 1989; a Pretest was completed in Dallas County, Texas in September-December. In each community, a probability sample of households was selected, visited by an interviewer and phlebotomist, asked for a blood sample, and asked to complete a self administered questionnaire.
RESULTS: The Pilot Study achieved an overall response rate of 81.2% from the sample of 539 households. About 6% of the persons interviewed indicated having engaged in at least 1 of 5 selected risk behaviors. The Pretest achieved an overall response rate of 80.4% from the sample of 2,141 households. Over 6% of the persons interviewed indicated having engaged in at least 1 of the selected risk behaviors.
CONCLUSION: A national survey may be technically feasible and desirable, depending on the outcome of the statistical evaluations of the quality of the estimates made from the pretest.

F.C.43 ESTIMATES OF HIV SEROPREVALENCE IN CHILDBEARING WOMEN AND INCIDENCE OF HIV INFECTION IN INFANTS, UNITED STATES

Gwinn, Marta*; George, JR*; Hannon, WH*; Hoff, R**; Pappaioanou, M*; Novello, A***. *Centers for Disease Control, Atlanta, Georgia, USA; **Massachusetts Department of Health, Boston, Massachusetts, USA; ***National Institute of Child Health and Human Development, Bethesda, Maryland, USA.

Objective: To estimate HIV seroprevalence in childbearing women and incidence of HIV infection in infants delivered in the United States, 1988-89.
Methods: In 43 States and territories, blood specimens collected on filter paper for newborn metabolic screening were tested anonymously for maternal antibody to HIV. Seroprevalence rates for demographic subgroups were based on available information on date of birth, county of mother's residence and/or hospital location, and mother's age and racial/ethnic group. Nationwide estimates were weighted according to the known distributions of births and of previously reported perinatal AIDS cases.
Results: Based on complete or partially complete data from 24 states, the prevalence of HIV antibody was approximately 1.5 per 1000 childbearing women nationwide; an estimated 1500 to 2000 infants were infected perinatally during a one-year period. In 6 States with data on mother's race, HIV seroprevalence rates in black women were 5 to 15 times higher than in white women. Prevalence of HIV antibody in childbearing women changed little in 6 states conducting the survey for the second year.
Conclusions: In the United States, substantial numbers of childbearing women and infants are infected with HIV. Even if seroprevalence in childbearing women remains unchanged, the number of children developing AIDS as a result of perinatal transmission will continue to increase for the next several years.

F.C.44 HIV SEROPREVALENCE IN CLIENTS ATTENDING SEXUALLY TRANSMITTED DISEASE (STD) CLINICS IN THE UNITED STATES, 1988-90

McCray, Eugene*; Onorato, I.M.,* and State and local health departments, *Centers for Disease Control, Atlanta, Georgia, USA

Objective: To determine the prevalence of HIV infection in clients attending STD clinics in the United States.
Methods: Blinded HIV seroprevalence surveys are being conducted among clients attending sentinel STD clinics in 44 metropolitan areas (MAs). After routine serologic testing, personal identifiers are removed and remaining sera are tested for antibodies to HIV. Information on age group, sex, race/ethnicity and risk exposure groups for HIV infection is collected.
Results: Data from 115,989 clients seen in 85 STD clinics in 31 MAs show a median MA seroprevalence rate of 2.5% (range, 0% to 39%). A median rate of 2% is seen in heterosexual males compared to 0.8% in females with the highest rate for males in the 35-39 year age group and females in the 30-34 year age group. Homosexual men and intravenous drug users (IVDUs) had rates of 38% and 7%, respectively. Rates are similar for Hispanics (3%) and Blacks (3%) but lower for Whites (2%). Seroprevalence among STD clients who reported no risk behaviors for HIV infection was 2.2% with the highest rates in Miami (9%), New York City (7%) and Newark (6%) and San Juan, PR (5%).
Conclusion: These results show that STD clinics see large numbers of clients infected with HIV. Seroprevalence vary by sex, age group, and risk exposure groups. Rates in STD clients with no reported risk behaviors are highest in areas with high IVDU-associated AIDS case incidence rates. However, ascertainment of risk behavior in these clinics may not be complete because of the different methods used to collect this information. Nonblinded (voluntary) surveys are needed to obtain detailed information on behaviors and to assess risk for HIV infection.

F.C.45 CHARACTERISTICS OF RECENT SEROCONVERTERS IN A COHORT OF HOMOSEXUAL MEN: WHO ARE THE PREVENTION FAILURES?

Willoughby, Brian C*; Schechter MT*; Craib KJP*; McLeod WA*; Douglas B*; Fay S*; Nitz R*; O'Shaughnessy M**.
*The Vancouver Lymphadenopathy-AIDS Study, University of British Columbia and St. Paul's Hospital, Vancouver, Canada; **Federal Centre for AIDS, Ottawa, Canada.

Objective: This study was carried out to investigate the demographic characteristics of recent seroconverters, termed *prevention failures*, in our cohort study of gay men.
Methods: Men who have seroconverted in our study since 01/85, denoted PF for prevention failures, were compared with persistently seronegative control subjects using questionnaire responses obtained during the period 04/84 to 03/85. Comparisons were carried out using Mantel-Haenszel methods and logistic regression analysis.
Results: There were 50 men in the PF group and 190 controls who have remained seronegative as of 10/89. When compared with the controls, the PF group were younger (32.4 vs 36.2; p=0.001), were more likely to earn less than $10,000 (27% vs 15%; p=0.021), were less likely to have earned a university degree (19% vs 48%; p<0.001), were more likely to have used cocaine in the prior 6 months (30% vs 10%; p=0.001), were more likely to have used amphetamines in the prior 6 months (15% vs 3%; p=0.002), and were more likely to practice anal receptive intercourse in more than 25% of sexual encounters (50% vs 28%; p=0.008). Logistic regression revealed low income (p=0.010), less education (p=0.011), and use of cocaine or amphetamines (p=0.011) to be independently associated with prevention failure even after adjustment for receptive anal intercourse and number of sex partners.
Conclusion: Although seroconversion rates have fallen, homosexual men continue to become infected even within the context of cohort studies. The present data suggest that recent prevention failures in such cohorts are younger, less educated, of lower socioeconomic status, and more likely to use illicit drugs. The association of these factors with prevention failure, despite adjustment for baseline sexual risk factors, suggests that they are not simply confounded with higher risk sexual activity but that they are demographic markers for those men less likely to modify behaviour in response to preventive measures. Such men should be the targets of specialized interventions.

F.C.46 HIGH PREVALENCE OF HIV HETEROSEXUAL TRANSMISSION IN ONE HUNDRED STABLE COUPLES.

Papetti, Claudia*; Mezzaroma, I.*; D'Offizi, G.P.*; Valdarchi, C.*; Pinter, E.*; Aiuti, F.*; Luzi, G.*
*Dept. of Allergy and Clinical Immunology, University of Rome "La Sapienza", Rome, Italy

OBJECTIVE: To study immunological features and transmission risk in stable heterosexual couples with one seropositive partner.
METHODS: One hundred heterosexual stable couples (76 with seropositive males, 24 with seropositive females) were studied for more than one year of follow-up. Clinical, virological and immunological parameters were evaluated for each couple as well as the number of sexual intercourse per week, condom protection and other risk factors.
RESULTS: The mean rate of heterosexual HIV transmission was 44%. It increased when positive partners had the following laboratory and clinical features: CD4+ cell number less than 400/mm3 (44% of transmission vs 30%), positive HIV antigenemia(43% vs 26.6%), advanced clinical status (60% in IVC1 CDC stage, 48% in IVA, 32% in III and 37% in II). Another risk factor was sexual behaviour: only two couples always used condoms with no transmission; of the 71 couples that never used them, 56% showed transmission versus 14% of couples that seldom adopted this protection.13 couples did not answer to this question On the other hand age, sex, duration and number of sexual contacts, type of intercourse, urogenital infections and risk category of seropositive partners did not seem to influence the rate of transmission. In 13 out 56 seronegarive partners we also studied the HIV genome by PCR; two of them resulted PCR positive
CONCLUSION: Our data show higher rate of transmission in stable couples with respect to international literature (8-22%). In our series the transmission is strongly influenced by the biological and clinical status of seropositive partner and by the absence of condom use. For a real prevention of HIV transmission we suggest constant use of condoms or the safe sex.; seronegative at risk partners should all be tested for HIV genoma with PCR.

F.C.47 HIV-I SEROPREVALENCE IN FACILITIES FOR RUNAWAY AND HOMELESS ADOLESCENTS IN FOUR STATES (FL, TX, LA AND NY)

Stricof, Rachel L.*; Novick, L.F.*; Kennedy, J.T.**
* New York State Department of Health, Albany, New York, USA
**Covenant House, New York, New York, USA

Objective: To determine the HIV seroprevalence and associated risk factors of runaway and homeless adolescents in Fort Lauderdale, FL; Houston, TX; New Orleans, LA; and New York, NY.
Methods: Sera from 15-20 year olds seen in four facilities for runaway or homeless youth were tested blindly for HIV-I by ELISA and Western blot. Data were collected over a 12 month period in 3 sites and a 24 month period in one site (NY). Demographic and risk information were collected on initial medical examination and reported without client identifiers. Seroprevalence rates were compared to determine the association between seropositivity and demographic characteristics and risk factors.
Results: Between October 1987 and September 1989, 4,383 adolescents were tested. The overall HIV seroprevalence rate was 4.13% which varied by site: Florida-2.33%, Texas-2.10%, Louisiana-2.19% and New York-5.69%. Hispanics had the highest seroprevalence rate (5.95%) followed by Blacks (4.70%) and Whites (2.63%). HIV seroprevalence increased with increasing age from 0.74% in 15 year olds to 6.42% in 20 year olds. Males had a rate of 4.3% and females had a rate of 3.8%. HIV infection in males was associated with intravenous drug use, homosexuality, crack use, prostitution and having had a history of a sexually-transmitted disease (STD). HIV infection in females was associated with crack use and having had a history of an STD.
Conclusion: This seroprevalence study has disclosed an alarming rate of HIV infection in runaway and homeless adolescents in 4 major cities in the U.S.

F.C.48

THE MELBOURNE PROSPECTIVE STUDY: CHANGES OVER SEVEN YEARS

Mulhall, Brian *; Fuller, A. **; Carter, L.**; Donovan, B.*
* University of Sydney, Australia; ** Royal Melbourne Hospital, Australia

Objective To determine rates of seroconversion and predictors of immunodeficiency and their relation to sexual life-style.
Method In 1983 a cohort of 100 asymptomatic homosexual men were recruited for a prospective study at a major teaching hospital. HIV seroconversion and immune function assessments were performed at six monthly intervals. In additions, all members were counselled and information on sexual life-style was elicited by questionnaire.
Results The prevalence of antibody to HIV rose from 22% in 1983 to 31% in 1985. There have been no further seroconversions. The cumulative incidence of AIDS is 23% (7/30) and of HIV-related complications (excluding lymphadenopathy) a further 13% (4/30). Hochterling analysis demonstrates the predictive value of repeated measurements in the seropositive group for CD4 T cells ($t = 2.2$, $p<0.01$) and immunoglobulin concentrations ($t = 3.5$, $p<0.001$). Mean Beta 2 microglobulin levels were higher in the HIV+ve group, but the difference was not significant owing to the small number of stored serum samples. There has been a highly significant decrease in the number of sexual partners and the number of reported STDs ($p<0.01$). There has also been a significant fall in the frequency of unsafe sex, though not to zero, and an increase in the use of condoms. This applied to receptive and active anal intercourse, but not to oral intercourse.
Conclusions 1. The spread of HIV into and within this group has been halted. 2. Although there are clear group trends; for a single individual, serial and not point-measurements are required to predict immunodeficiency. 3. The combination of motivation and counselling has resulted in a reduction of practices perceived to be unsafe.

TRACK D: SOCIAL SCIENCE & POLICY

PANEL DISCUSSION: AIDS AND THE MEDIA: A HYPOTHETICAL CASE STUDY

F.D.49

Tom Netter, Public Information Officer, World Health Organization, Geneva, Switzerland

F.D.50

Ruth Marshall, Journalist, Newsweek Magazine, Paris, France

F.D.51

Laurie Garrett, Journalist, Newsday, Long Island, NY, USA

F.D.52

James Curran, Director, Division of HIV/AIDS, Centers for Disease Control, Atlanta, GA, USA

45

F.D.53

Allen White, Journalist, Bay Area Reporter, San Francisco, CA, USA

459

TRACK D: SOCIAL SCIENCE & POLICY

ABSTRACT SESSION: NATIONAL AND INTERNATIONAL PROGRAMS AND POLICIES

F.D.57 PUBLIC POLICY RAMIFICATIONS OF THE UNITED STATES IMMIGRATION AND NATURALIZATION SERVICE'S EXCLUSION OF SEROPOSITIVE ALIENS.

Whitaker, Rupert E.D.*; Edwards, R.K.**

*MidWest AIDS Biobehavioral Research Center, University of Michigan, Ann Arbor, Michigan, USA, **Pine Manor College / Northeastern University, Boston, Massachusetts, USA.

Objective: To analyze the public policy ramifications of the United States Immigration and Naturalization Service exclusion of seropositive aliens.

Methods: A mathematical model was developed to provide perspective on the United States policy of testing applicants for temporary and permanent residency in the U. S. broken down by continental provenance of the applicants and estimated efficacy of the screening tools. In light of the results, the screening program is assessed in terms of the requirements for adequacy promoted by the World Health Organization regarding laboratory reference standards, cost-benefit analysis (financial and psychological), ethical acceptability (re: relative seroprevalence and voluntariness), confidentiality, counseling requirements, and usefulness of results.

Results and Conclusions: The United States' policy fails to meet any of the requirements promoted by international public health bodies as to the efficacy and acceptability of screening programs and is significantly more detrimental to both populations screened and to international co-operation against the spread of AIDS. The failure of the U.S. to consider the problem from a global, rather than insular, perspective aggravates the problems faced by less developed nations in dealing with the pandemic, not least by promoting stigma.

F.D.58 AIDS AND THE SOCIAL SCIENCES:Programs of the French National Agency on AIDS Research (ANRS)

Souteyrand, Yves Agence Nationale de Recherches sur le SIDA-PARIS

The "Agence Nationale de Recherches sur le SIDA" (ANRS), created in December, 1988, is in charge of dispatching public funds among the various groups in all scientific fields doing research on AIDS.
Within the fields of Human and Social Sciences, creation of this agency has enabled a great deal of work to be done: 40 new research projects have been financed. All disciplines are concerned, from psychology to economics, including sociology, political science, law, anthropology...
ANRS also plays an important role in inciting researchers to explore domains which have been insufficiently covered (research on sexuality, drug use...) or to apply analyses developed in other fields to the problems of AIDS (cost evaluation, effectiveness of health education tools...).
A program has been launched in January 1990 in order to cover some of the less well explored themes or domains, such as: 1/ analysis of the modes of caring for the seropositive and PWA, and how it affects their everyday and social life. 2/ attitudes and behavior towards the risk of contamination among some specific populations: prostitutes, intravenous drug users, marginalized youth... 3/ the social impact of the disease (changes in social standards, discrimination...).
In addition, three task forces have been initiated in order to coordinate the research in some key areas: 1/ survey on the sexual behavior of the French people. 2/ analysis of the economic consequences of HIV. 3/ evaluation of prevention campaigns
Finally, ANRS takes care of bringing the results of these labors to the attention of public policy and decision-makers as quickly as possible, so that scientific inquiry may inform and guide policy in the struggle against HIV infection.

F.D.59 APPROACHES TO REVIEW THE PERFORMANCES OF NATIONAL AIDS PROGRAMMES - METHODOLOGY, DEVELOPMENT AND APPLICATION

Tarantola, Daniel*; Slutkin, G.*; Widy-Wirski, R.*
*World Health Organization, Geneva, Switzerland.

Objective: To develop, test and apply methods for the assessment of AIDS programme performances with a view to orienting or reorienting programme strategies and activities.
Methods: Drawing from experiences gained in other disease prevention and control programmes, an approach to reviewing the performances of national AIDS programmes was devised and applied to 10 African countries in 1989. The outcome of these reviews was to suggest to government, nongovernmental organizations and the international community, ways to enhance further positive achievements and resolve programmatic issues. These were most often related to strategy and workplan formulation, management, coordination and needs to accelerate and decentralize implementation. Based on recommendations which will be highlighted, programmes were reformulated. Arising from this experience, a methodology for programme review was devised through a consultation of experts drawn from national programmes, NGOs and international agencies. The reviews will include an analysis of the generation, collection and use of data needed to later evaluate programme effectiveness and impact.
Conclusions: The methodology now applied to the review of national programmes is based on three grades of magnitude and specificity of the review, ranging from the internal review of monitoring system data to an extensive multistage review. These reviews will be described together with their technical features and their recommended criteria of application.

F.D.60 CONSUMER RESEARCH AND CONDOM PROMOTION IN TANZANIA: SOCIAL MARKETING FOR AIDS PREVENTION

Levy, Tennyson (Don)*; Strand, J.*; Stone, D.**
*AIDSCOM/Academy for Educational Development, Washington, D.C.
**AIDSCOM/The Johns Hopkins University, Baltimore, MD

Objective: To develop appropriate packaging, pricing, and positioning strategies to promote purchase and use of a commercial condom product for prevention of HIV infection in Tanzania.
Methods: Six preliminary focus groups were held with male workers and post-secondary students, 18-35 years old, in and around Dar Es Salaam to determine their preferences in brand names, packaging, and pricing as well as their perceptions towards condoms and prevailing barriers to usage. Later focus groups and consumer panels tested both urban and rural reactions to the product logo, an instructional insert, and key promotional messages and materials developed for the product.
Results: The focus group discussions guided selection of a brand name, logo and packaging for the condom product. Potential consumers were segmented by degree of mobility, access to media, and family status which dictated product positioning and development of the promotional strategy, media and messages.
Conclusion: Consumer-oriented social marketing techniques can facilitate product development, positioning and pricing strategies, and promotional activities when launching a new commercial condom product in a sensitive marketplace. Whether the positive condom images promoted by the campaign will succeed in generating sustained consumer demand for condoms, from commercial and/or public sector sources, remains to be studied.

F.D.61 TRENDS IN NATURAL AND "FORCED" DEVELOPMENT OF AIDS PREVENTION PROGRAMS IN THE AMERICAS

Zacarias, Fernando R.K.*, Calderon, M.R.*, Narain, J.*, Lagrava, M.*, Kimball, A.M.*, Zessler, L.*
*Pan American Health Organization, 525 23rd Street N.W., Washington, D.C., USA

Objective: To review the extent of integration, decentralization, and innovation of AIDS programs in selected countries in Latin America and the Caribbean (LAC) from a public health policy and management perspective.
Methods: The following definitions were used: a) Integration: active participation of one or more health programs of the Ministry of Health (1 point); one or more public sector agencies (2 points); one or more private sector groups or institutions (3 points); b) Decentralization: actual planning (1 point), program management (2 points); and budgeting and financial control (3 points) beyond the central (seat of government) level; c) Innovation: new approaches to AIDS prevention (1 point each) in the areas of technology transfer, operational research, international sharing of resources (subregional AIDS prevention), and other.
Results: Highest scores in integration were obtained by countries with either a well-established AIDS prevention program or paradoxically, by those with a relatively weak or incipient public health sector approach. As expected, only the larger countries had initiated or continued efforts of decentralization, but high scores were not common. Innovation in the region of the Americas seemed to be related to the level of development of health services for operational research and technology transfer, or to historical and cultural or to economy of scale linkages between countries (subregional approach).
Conclusion: The complexity, diversity, and multiplicity of factors involved in integration, decentralization and innovation of AIDS programs in LAC preclude "cause-effect" conclusions. However, it appears that natural trends in the evolution of health systems are necessary for de facto decentralization and, in some cases, for integration and innovation. "Forced" program development through political and social pressures and the availability of extra governmental financial resources seems to have provided a strong stimulus for integration and innovation.

F.D.62 PROJECT CONASIDA – NATIONAL UNIVERSITY: AIDS PREVENTION FOR THE YOUTH.

A. COUDURIER; G. CONDE; F.CHAVEZ PEON; J. SEPULVEDA.

OBJETIVE: 1) The National University located in Mexico City has a population of 350,000 students in age of intense sexual activity and therefore submitted to a high risk of adquiring AIDS, the first objective is to guide and inform the University comunity about transmission ways, preventive measures and AIDS control in a permanent campaing.
2) To train medical, academical and voluntary University staff, in order to participate in the proyect programmes.
METHODOLOGY: Human, academical, financial and material resources were compromised by both institutions in an agreement between CONASIDA and the National University, in order to attend and support comunity needs on information, testing and follow – up.
2) Strategies were designed in order to incorporate AIDS programmes in the University Educational curricula.
3) Contests on posters, videos, T.V. and movie spots were organized.
4) The installation of a University Hot – Line is programmed.
RESULTS: 1) As a consequence of the National University proyect aginst AIDS, the Universidad Autonoma Metropolitana, Universidad de Guadalajara, Universidad de Sinaloa, and the Universidad de Coahila are interested in signing a similar agreement with CONASIDA.
2) The University Comunity's demand of information and testing has increased as well as the offer of voluntary work.
CONCLUSIONS: The main point of having a University proyect in coordination with the National prevetion program is based in the increasing services demand by the University comunity, as well as the offer of voluntary work to support the National and University programmes.

F.D.63 STATE AIDS LEGISLATIVE AND POLICY TRENDS: 1983-1989

Merritt, Richard, Cauley, K., and Boleg, L., AIDS Policy Center, Intergovernmental Health Policy Project, Washington, D.C.

Objective: To describe the response of state legislatures to the epidemic from 1983-1989 and to analyze the evolution of state AIDS policy on key issues affecting confidentiality, occupational exposure and notification, discrimination, disease control, education, and patient care. Method: All bills and laws were collected from all state legislatures from 1983-1989. They were analyzed by category, frequency, and content from both a legislative and health policy perspective. Results: Since 1983, more than 2000 bills and 450 laws have been passed by state legislatures. Categories reviewed included testing, discrimination, confidentiality, health care services, financing, education and public health measures. In 1989 states most heavily impacted by the AIDS epidemic primarily finetuned existing legislation and began addressing a "second generation" of policy issues, e.g., access to care, mental health and AIDS, and early intervention. State-only, non-medicaid spending on AIDS increased 100 million dollars since 1988. Legislation in the area of testing began to focus on mandatory testing of specific populations; confidentiality legislation continued to reflect protection of individual privacy, but shifted somewhat to include "discretion to warn or inform" legislation regarding the responsibility of physicians to third party contacts; and discrimination legislation continued to protect the HIV infected individual in areas of housing and employment and began addressing insurance issues. The trends toward least restrictive measures for recalcitrant individuals were continued; and in some states stricter controls on access to care provisions were enacted.

F.D.64 AIDS POLICY AND HIV EPIDEMIC IN CUBA

Moas, Carlos; Paya, R; Gordon, A.
Finlay AIDS Working Group, Miami, Florida, USA

Objective: To determine the extend of HIV infection in Cuba and evaluate AIDS prevention and control policies ennacted.

Methods: Survey of serological HIV testings performed in the Cuban population.

Results: 2,225,738 Cubans have been tested for HIV antibodies in various campaigns and studies yielding the following sero-positive rates: Blood donnors 0.001%, pregnant women 0.002%, hospital admissions 0.003%, Venereal Disease Clinics 0.016%, foreigners 0.4%, and emmigrants 0.6%.

Conclusion: AIDS behaves as a sexually transmitted disease. Multiple factors influence the actual reporting of AIDS cases. Among these: diagnostic and clinical accumen, pharmacotherapy with transcriptase inhibitors and antibiotic prophylaxis, public health surveillance methods, popular education, social acceptance and discrimination, and lastly political issues. Issues regarding the progression versus regression of the HIV epidemic are discussed. While Cuban health and political leaders claim that AIDS is not a problem in Cuba, epidemiologic and testimonial evidence rule to the contrary.

TRACK A: BASIC SCIENCE
ABSTRACT SESSION: ANTI-VIRAL DRUG DEVELOPMENT

F.A.65

A NEW APPROACH FOR TESTING THE EFFECTS OF AIDS DRUGS ON HIV-1 EXPRESSION AND REPLICATION IN VITRO.

Volsky, David J.; Hamblet, N.; Volsky, B.; Pellegrino, M.G.; Decker, S.*; Li, G.; St. Luke's/Roosevelt Hosp. Center and Columbia Univ. Coll. of Physicians and Surgeons, New York, NY; *Gene-Trak Systems, Framingham, MA.

Objective: To develope a secondary drug screen which simultaneously evaluates drug effects on multiple parameters of the HIV-I life-cycle in vitro.
Methods: T-cells or monocytes were infected with HIV-1, challenged with the drug, and evaluated for: a) levels of intracellular HIV-1 RNA, by a liquid RNA hybridization method; b) levels of HIV-1 p24 antigen, by p24 ELISA; c) % of HIV-1 Ag+ cells by IF; and d) cell viability. Chronically infected T-cells (ACH-2) or monocytes (U1.1) were exposed to the drug or to supernatants from cultures of PBLs pre-treated with the drug, and tested as above. The drugs studied were: the RT inhibitors AZT, ddC and Suramin; immunomodulators THF and Ampligen; the anti-cancer drug Lentinan; the anti-bacterial drug Rifabutin; and others.
Results: The anti-viral activities of each of the RT inhibitors were similar when measured by the 3 virus detection methods early after infection (2 days): IC-50 of 0.01 uM for AZT, 0.1 uM for ddC and 12.5 ug/ml for Suramin. When measured 7 days p.i., the IC-50 for AZT was 10 uM by RNA measurement, 0.1 uM by IF, and 0.01 uM by p24 assay. THF had no effect on HIV-1 replication when added directly, but some supernatants from THF-treated PBLs transiently induced HIV-1 secretion, but not HIV-1 transcription rate. Rifabutin showed an unexpected dose-dependent inhibition of HIV-1 expression in acutely but not chronically infected cells. Lentinan had no effect on HIV-1 expression in any system tested.
Conclusion: The screening of prospective anti-HIV drugs should include testing multiple parameters of the HIV-1 infectious cycle. Non-antiviral drugs should be evaluated for their potential to indirectly induce HIV-1.

F.A.66

HIV-1 INHIBITORY INTERACTIONS BETWEEN 2',3'-DIDEOXYINOSINE (ddI) AND EITHER ZIDOVUDINE (AZT), RECOMBINANT SOLUBLE CD4 (rsCD4), OR RECOMBINANT INTERFERON-ALPHA-A (rIFN-α-A).

Johnson, Victoria A*; Merrill, D.P.*; Chou, T.-C.**; Hirsch, M.S.*.
*Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA; **Memorial Sloan-Kettering Cancer Center, New York, NY, USA.

Objective: To assess the interactions of ddI and either AZT, rsCD4, or rIFN-α-A in combination against HIV-1 replication in vitro.
Methods: We evaluated ddI (a reverse transcriptase-RT-inhibitor) in combination with either AZT (another RT inhibitor), rsCD4 (a soluble virus receptor), or rIFN-α-A (an agent that may affect viral assembly and release). H9 cells were exposed simultaneously to HIV-1 and various concentrations of each agent, either alone or in 2-drug combinations. Drug interactions were evaluated by the median-effect principle and the isobologram technique.
Results: Representative HIV-1 p24 antigen production (ng/10^6 cells) on day 10 in culture:

Expt. no.	Inf. Control	ddI 1.28 μM	AZT 0.64 μM	rsCD4 0.08 μg/ml	rIFN-α-A 32 U/ml	2-Drug Comb. ddI+ AZT	ddI+ rsCD4	ddI+ rIFN-α-A
1	720	209	217	208	138	22	5	6
2	3346	1194	789	1962	456	628	738	27

Conclusion: Additive to synergistic anti-HIV-1 interactions were seen between ddI (1.28-5.12 μM) and either AZT (0.64-2.56 μM), rsCD4 (0.08-0.32 μg/ml), or rIFN-α-A (32-128 U/ml) without additive toxicity. These combinations deserve consideration for future clinical trials.

F.A.67

EFFECTS OF GLQ223™ ON HIV REPLICATION IN HUMAN MONOCYTE/MACROPHAGES CHRONICALLY INFECTED WITH HIV

McGrath, Michael*; Gaston, I.**; Lifson, J.**
*San Francisco General Hospital, University of California, San Francisco, California; **Genelabs Incorporated, Redwood City, California, USA.

Objective: To test GLQ223™ for selective anti-HIV activity in chronically infected macrophages infected *in vitro* as well as cells isolated from AIDS patients.
Methods: Peripheral blood macrophages were infected *in vitro* and cultivated in suspension for at least 2 weeks prior to GLQ223™ treatment. Heparinized whole blood samples from AIDS patients were treated the day of isolation. Anti-HIV effects were quantitated by measurement of cytoplasmic HIV p24, by both ELISA and flow cytometry and HIV RNA levels were measured by slot blot analysis. Toxicity was quantitated by measuring tritiated leucine incorporation in treated infected versus uninfected cultures.
Results: Five days after a single 3 hour pulse of GLQ223™ there was a dose dependent decrease in all measurable HIV parameters within all infected cultures. The anti-HIV effects persisted at least 28 days without evidence for increasing HIV expression. Parallel GLQ223™-treated uninfected macrophages showed no inhibition of tritiated leucine uptake.
Conclusion: A single pulsed exposure of macrophages infected with HIV *in vitro* or in AIDS patients' whole blood with GLQ223™ caused a dose-dependent decrease in all measured HIV parameters.

F.A.68

TIBO DERIVATIVES ARE A NEW FAMILY OF POTENT AND HIGHLY SELECTIVE ANTI-HIV-1 AGENTS IN VITRO

Pauwels, Rudi*; Andries, K.**;, Desmyter, J.*; Kukla, M.J.***; De Clercq, E.*; Janssen, P.A.J.**
*Rega Institute for Medical Research, K.U.Leuven, B-3000 Leuven, Belgium, **Janssen Research Foundation, Turnhoutseweg 30, B-2340 Beerse, Belgium ***Janssen Research Foundation, Bethlehem Pike, Spring House, Pennsylvania 19477, USA

Objective : Identification and development of potent and selective anti-HIV agents with novel chemical structures and a new mode of action.
Methods : Several hundreds of different prototype compounds which were without effect in standard pharmacological and toxicological assays were selected. They were assessed for inhibition of multiple cycle growth and cytopathicity of HIV-1, and for cytotoxicity, in an automated tetrazolium-based assay in MT-4 cells.
Results : Following the discovery of lead compound R14458, a novel series of tetrahydro-imidazo[4,5,1-jk][1,4]-benzodiazepin-2(1H)-one and -thione (TIBO) derivatives were synthesized. Thus far, R82150 and R82913 emerged as the most potent and selective TIBO derivatives. They inhibited 4 strains of HIV-1 at nanomolar concentrations that were 10,000 to 100,000 times lower than their cytotoxic concentration. The 50 % HIV-1 inhibitory concentration of R82913 in MT-4 cells was 1.5 nM which was about 100 and 3000-fold lower than of the dideoxynucleoside analogues DDC and DDI, respectively. The lack of activity against HIV-2 or any other retrovirus suggest a new mechanism of action. Further studies pointed to an unique interaction with a reverse transcriptase associated process. Even with plasma levels greatly exceeding the antiviral concentration, no adverse effects have been seen in dogs or man.
Conclusion : TIBO derivatives are a new family of candidate anti-AIDS drugs.

F.A.69

Ro 31-8959, A SPECIFIC INHIBITOR OF HIV PROTEASE

Roberts, Noel A., Craig, J.C., Duncan, I.B., Kay, J.*, Malcolm, S.L., Martin, J.A., Redshaw, S. & Taylor, D.L.**.
Roche Products Ltd., Welwyn Garden City, U.K., *Dept. Biochemistry, University of Wales, Cardiff, U.K., **MRC Collaborative Centre, London, U.K.

OBJECTIVE Ro 31-8959 is a potent inhibitor of HIV-1 and HIV-2 proteases (K_i 0.12 nM and <0.1 nM respectively) with good antiviral activity against HIV-1 strain RF in C8166 cells. Further biological studies were undertaken to assess its suitability as a potential therapeutic agent for the treatment of AIDS.

METHODS Protease inhibition studies were performed using purified human aspartic proteinases and peptide substrates. Antiviral potency was measured by inhibition of syncytium formation over 3 days in JM cells infected with HIV-1 strain GB8. Cytotoxicity was assessed by cell growth curves. Electron microscopy was performed with the co-operation of D. Hockley and C Grief, NIBSC, Potters Bar, U.K. Blood plasma levels of Ro 31-8959 were determined by HPLC.

RESULTS Against human renin, pepsin, gastricsin, cathepsin D and cathepsin E Ro 31-8959 has an IC_{50} value in excess of 10 µM giving a selectivity for inhibition of HIV protease of at least 50,000-fold. In infected JM cells Ro 31-8959 inhibited syncytium formation with an IC_{50} of 2.5 nM. It was non-toxic to these cells at 500 nM. Electron microscopy of CEM cells chronically infected with HIV-1 IIIB showed that virions produced in the presence of 10 nM Ro 31-8959 were largely of the immature "doughnut" morphology. Plasma concentrations of Ro 31-8959 in excess of 10 nM are maintained for 6 hours following a dose of 10 mg/kg p.o. in rats.

CONCLUSION These results support the further evaluation of Ro 31-8959 as a potential therapeutic agent for the treatment of AIDS.

F.A.70

CD4-PSEUDOMONAS EXOTOXIN CONJUGATES DELAY BUT DO NOT FULLY INHIBIT HIV REPLICATION IN LYMPHOCYTES IN VITRO.

Tsubota, H.*; Winkler, G.**; Meade, H.M.**; Letvin, N.L.*
*Harvard Medical School, New England Regional Primate Research Center, Southborough, MA, USA, **Biogen, Inc., Cambridge, MA, USA.

Since the CD4 molecule is a high affinity receptor for the HIV envelope glycoprotein, it has been suggested that a soluble form of CD4 might be utilized as a targeting agent to deliver toxins selectively to cells infected with HIV. We demonstrate that CD4-Pseudomonas exotoxin A (PE) conjugates specifically inhibit the proliferation of gp160 transfected CHO cells at a 1.2 nM concentration. Moreover, spread of HIV infection from infected to uninfected H9 cells is inhibited by CD4-PE conjugates at concentrations as low as 6 nM. However, this inhibition appears to be incomplete since virus replication is detectable in these cultures following removal of CD4-PE conjugates. A 12 nM concentration of CD4-PE also delays but does not inhibit HIV replication in peripheral blood lymphocytes (PBLs) co-cultured with HIV-infected H9 cells. Interestingly, CD4-PE does not inhibit HIV transmission from PBLs of an HIV-infected individual to uninfected PBLs. These studies suggest that CD4-PE conjugates may be less potent than previously assumed in biologically relevant systems and should be assessed as adjunctive therapies in AIDS.

F.A.71

EXPRESSION OF ANTI-HIV COMPOUNDS DIRECTED FROM THE HIV-LTR: A POTENTIAL GENE THERAPY FOR HIV INFECTED INDIVIDUALS

Mosca, Joseph D.,* Ritchey, David W.*, d'Arcy, Lisa A.*, Burke, Donald S.**
*The Henry M. Jackson Foundation, Rockville, MD; **Walter Reed Army Institute of Research, Washington, D.C.

Objective: To construct inducible retroviral vectors which express compounds that inhibit HIV expression and replication in response to HIV infection.

Methods: DNA transfection of hybrid anti-HIV genes in the presence and absence of HIV infection. Expression of the hybrid gene product was monitored at both the RNA and protein levels. HIV expression was monitored by RNA analysis and p24 antigen production.

Results: Previous work showed that alpha2 interferon production regulated by the HIV-LTR in permanently transfected cell lines render the cells resistant to HIV infection. However, circulating alpha2 interferon in response to HIV infection could be detrimental in animal model systems. Therefore, we tested the ability of modified alpha2 interferon genes to inhibit HIV replication. Modifications included the removal of either 15AA or 22AA from the signal sequence. Presumably the deletion of these nucleotides would prevent extracellular transport of IFN from an infected cell. In addition, the expression of these modified IFN hybrid genes was regulated by a kappa B deleted HIV-LTR, imposing HIV-encoded tatIII inducibility but unresponsiveness to heterologous stimulation. In transient assays, cotransfected with both the intact alpha2 IFN hybrid construction and the HIV provirus in the absence and presence of tatIII, resulted in a drop in p24 antigen production from 890ng/ml to 3ng/ml, respectively. This compared to a drop from 1593ng/ml to 109ng/ml and 1492ng/ml to 246ng/ml for the partially and completely deleted signal sequence respectively.

Conclusions: The insertion into retroviral vectors of tatIII inducible hybrid genes expressing anti-HIV compounds could provide future therapeutic and/or prophylactic usefulness towards HIV infection in humans.

F.A.72

THE EVALUATION OF ANTIVIRAL COMPOUNDS IN THE SCID-hu MOUSE

Mc Cune, Joseph M.; Shih, C.-C.; Namikawa, R.; Rabin, L.; Kaneshima, H.
SyStemix, Inc., Palo Alto, CA. USA

An animal model for HIV infection would facilitate the selection of antiviral compounds which might later be tested in clinical trials. Optimally, such an animal model would be small, replete with human target cells and organs that can be infected with HIV, and safely used on a large scale. The SCID-hu mouse, constructed by transplantation of interactive human lymphoid organs into the immunodeficient C.B17 scid/scid mouse, fits these criteria. Highly reproducible protocols have been developed for infection of this animal model with HIV. Administration of 3'-azido-3'-deoxythymidine (AZT) to SCID-hu mice prior to intrathymic injection can be shown to suppress infection, but not completely: removal of drug results in subsequent appearance of virus. When studies are carried out using intravenous infection and subsequent venous sampling of peripheral blood to test for viremia, large numbers of animals can be studied simultaneously. Both AZT and dideoxyinosine can be shown to suppress viremia in a dose-dependent manner. The dose of each drug which protects 50% of animals is not dissimilar from that which is now used in man. Thus, the SCID-hu mouse is a practical small animal model in which the efficacy of novel antiviral compounds might be rapidly determined, prior to their use in man.

TRACK A: BASIC SCIENCE

ABSTRACT SESSION: CELLULAR IMMUNITY IN HIV INFECTION

F.A.73 HIGH LEVEL OF HIV-SPECIFIC CYTOTOXICITY IN INFANTS FROM HIV-INFECTED MOTHERS

R. Cheynier*, P. Langlade-Demoyen*, M.R. Marescot**, S. Blanche°, G. Blondin+, C. Griscelli°, E. Vilmer+ and F. Plata*
*Institut Pasteur Paris ; **Hôpital Pitié-Salpêtrière Paris ; °Hôpital Necker Enfants Malades Paris ; +Hôpital Robert Debré Paris - France

Objectives : To investigate the anti-HIV cytotoxic response in infants born from seropositive mothers.

Methods : 19 children, 3 months to 5 years old were studied over a 2 year period. Peripheral blood lymphocytes (PBL) were stored in liquid nitrogene and thawed just before use.
Two types of experiments were performed : 1) detection of cytotoxic activity in PBL without *in vitro* stimulation ; 2) quantification of the precursor cells after *in vitro* stimulation with PHA in a standard limiting dilution assay.
The activities were tested against different types of targets : for patients HLA-A2, the mouse cell line P815 cotransfected with human HLA-A2 and different viral genes (*env, gag* or *nef*), for patients HLA-A1 or HLA-A3, the human cell lines H9 and H9 HTLV-III were used as targets.

Results : All children had detectable cytotoxic activities when the lymphocytes were tested directly from the blood on HLA-matched targets. Reactivities to gag, nef and env antigens were detectable with most individuals, while a few children responded only to gag antigen. High levels of circulating cytotoxic precursor cells were detectable.

Conclusions : It can be concluded from this study that children born from HIV infected mothers have strong cytotoxic responses to HIV even at 3 months of age. The cytotoxic responses and the frequency of cytotoxic cells were comparable to those observed in HIV-infected adults. Finally, most individuals had circulating cytotoxic cell against various HIV antigens.

F.A.74 GAG-SPECIFIC CYTOTOXIC T LYMPHOCYTES IN SIVmac-INFECTED RHESUS MONKEYS EXHIBIT RESTRICTED EPITOPE SPECIFICITY

Miller, M.D.*; Yamamoto, H.*; Stallard, V.**; Mazzara, G.P.**; Panicali, D.**; Letvin N.L.*
*Harvard Medical School, New England Regional Primate Research Center, Southborough, MA, **Applied bioTechnology, Inc., Cambridge, MA.

The fine antigenic specificity of the gag-specific cell-mediated immune response was characterized in SIVmac-infected rhesus monkeys. Peripheral blood lymphocytes (PBL) from the majority of SIVmac-infected rhesus monkeys can, upon in-vitro activation with concanavalin A and growth in interleukin-2-supplemented medium, lyse autologous B-cell lines infected with a recombinant vaccinia virus which contains the SIVmac gag gene. This lysis is mediated by CD8+, major histocompatability complex (MHC) class I restricted cytotoxic T lymphocytes (CTL). Gag-specific CTL in the PBL of five infected monkeys, all of which express a shared MHC class I allele, also demonstrate an identical fine specificity. This specificity maps to a single 25 amino acid fragment of the gag protein corresponding to amino acids 171-195. Moreover, each of a series of independently isolated gag-specific CD8+ CTL clones from one of these five monkeys exhibits the same peptide specificity. Finally, in a limited prospective study of SIVmac-infected rhesus monkeys, the presence of the SIVmac gag-specific CTL in PBL correlates with a reduced efficiency in isolating SIVmac from PBL of these monkeys and with their extended survival following infection. The identification of a single dominant T cell epitope which is restricted by a single, commonly expressed class I MHC molecule demonstrates a remarkably restricted epitope recognition of this AIDS virus-specific CTL response.

F.A.75 GENERATION OF CD8+ T CELL CLONES THAT INHIBIT HIV REPLICATION IN VITRO.

Walker, Christopher*; Hsueh, F.**; Erickson, A.*; Levy, J.**
*Chiron Research Laboratories, Emeryville, California, USA.
**University of California, San Francisco, California, USA.

Objective: To generate human CD8+ T cell clones that inhibit HIV replication in vitro from 3 HIV infected individuals.
Methods: CD8+ T cells were enriched from peripheral blood mononuclear cells (PBMC) of healthy HIV infected subjects by immunoaffinity selection. These cells (greater than 98% pure) were cloned by limiting dilution in microtiter dishes with 3000R irradiated normal PBMC in RPMI medium containing IL 2 and phytohemagglutinin (PHA). After expansion, clone-derived CD8+ T cell lines were tested for antiviral activity by co-culture with PHA stimulated HIV_{SF33} infected normal CD4+ T cells. Virus replication was monitored by reverse transcriptase (RT) activity.
Results: Clone-derived CD8+ cell lines were maintained in vitro for several months. For two subjects, 20-30% of the cell lines suppressed HIV growth, while for a third subject only 1% of the cell lines had this activity. HIV replication was inhibited in CD4+ cells from a variety of randomly selected HIV-seronegative donors at CD4:CD8 cell ratios of 1:1, suggesting that suppression was not HLA-restricted. Efficient antiviral activity required cell:cell contact. However, cloned CD8+ cells did not lyse the HIV infected CD4+ blasts, or autologous EBV-transformed B cells expressing the HIV RT, envelope or nef proteins. HIV antigens did not induce them to proliferate.
Conclusions: Peripheral blood from HIV infected subjects contained a sub-population of CD8+ T cells that suppress HIV growth. Antiviral cells are not HLA-restricted or cytotoxic, and thus are not genetically restricted CTL. The mechanism of antiviral activity by these CD8+ T cells remains to be defined.

F.A.76 STRUCTURAL AND FUNCTIONAL CHARACTERISTICS OF HIV-SPECIFIC CTL

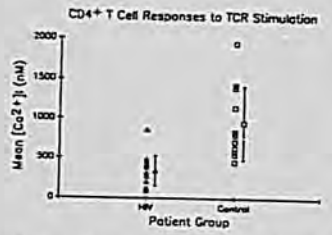
Koenig, Scott*; Fuerst, T.**; Wood, L.V.*; Woods, R.**; Jones, G.*; Fauci, A.S.* *LIR, NIH, NIAID, Bethesda, MD, USA; **MVI, Inc., Gaithersburg, MD, USA.

Objective: To characterize HIV-specific CTL with respect to the specific epitopes recognized, their pattern of MHC Class I restriction, and their ability to inhibit HIV replication.
Methods: Fresh peripheral blood mononuclear cells (PBMC) and cells cloned by limiting dilution from HIV-seropositive donors were used as sources of effector cells in a 4hr-^{51}Cr release CTL assay. Target cells were prepared from lymphoblastoid cell lines (LCL) either infected with recombinant vaccinia viruses expressing different HIV proteins or pulsed with synthetic peptides. In separate experiments, to examine the effect of $CD8^+$ cells on regulation of HIV replication, autologous fresh $CD8^+$ cells sorted by FACS or cloned $CD8^+$ CTL were added in various ratios to sorted and α-CD2 stimulated $CD4^+$ PBMC from HIV seropositive patients. Culture supernatants were assayed for RT production.
Results: NEF-specific CTL from two donors were found to lyse target cells pulsed with the synthesized peptide QVPLRPMTYK in association with HLA A3.1. GAG-specific (p24) CTL were able to lyse targets pulsed with the peptide PQDLNTMLNTV in association with HLA B14. On the other hand, while fresh uncloned $CD8^+$ cells efficiently suppressed HIV replication in stimulated $CD4^+$ cells, multiple cloned CTL capable of lysing cells expressing different HIV proteins, could not inhibit HIV replication.
Conclusion: Fresh unfractionated PBMC can be used to finely map specific epitopes recognized by HIV-specific CTL. Cloned HIV-specific CTL may not be as efficient as unfractionated $CD8^+$ populations in inhibiting HIV replication. Inhibition may occur by a mechanism independent of cell lysis.

F.A.77 ZIDOVUDINE THERAPY CAN REVERSE THE ANTIGEN RECEPTOR SIGNALING DEFECT IN CD4+ T CELLS FROM HIV-INFECTED PATIENTS

Linette, Gerald*, Pierce, P.F., Hartzman, R.H.**, June, C.H.**
*Georgetown University, Washington DC, **NMRI, Bethesda, MD.

Objective: We have previously shown that HIV-infected T cells shown a selective transmembrane signaling defect after perturbation of the antigen receptor (Science 241:578). Our objective was (1) to determine if a similar signaling defect exists in patients with HIV infection (WR stages II-III);(2) prospectively determine if the defect is reversible after short term Zidovudine therapy.
Methods: Using 4 color flow cytometry and Indo-1 loaded patient lymphocytes, we measured Ca^{2+} in single cells of the CD4 phenotype.



Results: Data in Figure summarizes the mean maximal increase Ca^{2+} in CD4 cells from HIV-seropositive (n=16) and age/sex matched seronegative controls (n=12) after incubation with CD3 antibody. Approximately 90% of CD4 cells from control donors respond to CD3 stimulation, while only 15-50% of CD4 cells from HIV patients respond. Zidovudine therapy has completely reversed the antigen receptor signaling defect of CD4 cells from 3 of 5 patients and has partially reversed the defect in the other 2 patients studied.
Conclusions: (1) CD4 cells from HIV infected patients (WR II-III) have impaired responses to antigen receptor stimulation; (2) Zidovudine therapy can correct the signaling defect of CD4 cells obtained from patients.

F.A.78 HIV-1 GLYCOPROTEINS GP120 AND GP160 SPECIFICALLY INHIBIT THE CD3/T CELL-ANTIGEN RECEPTOR PHOSPHOINOSITIDE TRANSDUCTION PATHWAY

Cefaï, Daniel*, Debré, P.*, Kaczorek, M.**, Idziorek, T.*, Autran, B.* and Bismuth, G.*
* Lab. Immunol. Cell. & Tiss., CH Pitié-Salpétrière, Paris, FRANCE
** Pasteur Vaccins, BP 101, Val de Reuil, FRANCE - * Lab. Biol. & Génét. Infect. Rétrovir., CH Pitié-Salpétrière, Paris, FRANCE

Objective : We studied the interference of the recombinant HIV-1 glycoproteins gp160 and gp120 with the CD3/T cell antigen receptor (TcR) mediated activation process of a CD4+ antigen specific human T cell clone.
Methods : Both glycoproteins were assessed for their effect on the T cell proliferation (thymidine incorporation), antigen modulation, and transduction signals (calcium flux, phosphoinositide turn-over) induced in an accessory cell free system by various cross linked monoclonal antibodies specific for the CD3 or the TcRα chain.
Results : A clear inhibition of T cell proliferation (up to 80%), and of the CD3/TcR phospholipase C transduction pathway without affecting the CD3/TcR cell surface expression was obtained after a 16 hours exposure of T cells to both glycoproteins. Similar results are not observed for short term exposure of the clone ($<$ 2 h). We also found that gp160 and gp120 have no effect on the CD2 activation pathway.
Conclusion : These results demonstrate that, in addition to their postulated role in the alteration of accessory cell-T lymphocyte interactions, soluble HIV-glycoproteins may directly and specifically impair the CD3/TcR mediated activation of PLC in uninfected T cells via the CD4 molecule.

F.A.79 SELECTIVE LOSS OF T-CELL FUNCTIONS IN DIFFERENT STAGES OF HIV INFECTION.

Frank Miedema, Gruters R.A., Van Noesel,C.J.M., Terpstra,F.G., Schellekens,P.Th.A., van Lier,R.A.W. Central Lab. Netherlands Red Cross Blood Transfusion Service and Lab. for Exp. and Clin. Immunol. University of Amsterdam.

Qualitative defects in T-cell reactivity can be observed in asymptomatic HIV-infected men even before depletion of $CD4^+$ T cells occurs. We present functional and phenotypic evidence that T-cell unresponsiveness in early infection is due to selective loss of $CD29^+$ T-memory cells. Like normal naive $CD29^-$ T cells, T cells in early HIV infection have a diminished response to anti-CD3 Mab, due to a lack of IL-2 production, that can be enhanced by costimulation with anti-CD28 Mab or by adding IL-2. Anti-CD3 induced CTL generation is normal. T-cell unresponsiveness is not caused by a failure in early signal-transduction events ($[Ca^{2+}]_i$ increase and PKC activation). FACS analysis and cell-separation experiments demonstrated that T-cell unresponsiveness is due the loss of responsive $CD29^+$ T cells. In progression to AIDS also naive $CD29^-$ T cell numbers are declining, anti-CD3 induced proliferation is further affected and CTL generation becomes severely decreased, which can be restored by IL-2. These findings show immune dysfunction early in infection and gradual loss of T-cell functional capacity which may have implications for the control of HIV replication and the emergence of virulent HIV variants in the course of infection.

F.A.80 ANTI-CD2 RECEPTOR ANTIBODIES ACTIVATE THE HIV LONG TERMINAL REPEAT IN NORMAL PERIPHERAL BLOOD T LYMPHOCYTES.

Bressler, Peter, B.; Pantaleo G; Fauci, A.S. LIR, NIAID, NIH, Bethesda, Maryland, USA.

Objective: The CD2 T lymphocyte glycoprotein is the natural ligand for LFA-3 and is involved in cell to cell adhesion as well as in T cell activation. Since cell to cell contact may be important in the spread of HIV infection, we have investigated whether stimulation of normal peripheral blood lymphocytes (PBL) with ant CD2 ab activates the HIV long terminal repeat (LTR).
Methods: Normal PBL were isolated from an HIV negative donor, treated with PHA, and co-transfected with both an HIV LTR chloramphenicol acetyl transferase (CAT) construct and an HIV LTR-TAT construct. Cells were maintained in media plus IL-2 and treated with a combination of two monoclonal antibodies to CD2. Transfections were also performed with an LTR CAT construct that contained a deletion of the NFkB binding sites. Cell lysates were harvested 48 hours after transfection and assayed for CAT activity using standard techniques.
Results: Treatment of normal PBL with antibodies to CD2 resulted in a 10 fold increase of CAT activity in transfected cells over CAT activity of untreated cells. When the NFkB binding region was deleted from the LTR CAT construct, induction of CAT activity was decreased to near baseline levels.
Conclusion: In this study we demonstrate that treatment of transiently transfected T lymphocytes with anti-CD2 antibodies results in the activation of the HIV LTR. Furthermore, deletion analysis of the LTR-CAT construct demonstrates that this activation occurs through activation of the NFkB enhancer region. Since the CD2 glycoprotein is involved in cell to cell adhesion and T cell activation, these studies suggest that interaction of CD2 with its natural ligand, LFA-3, may play an important role in regulation of HIV expression.

TRACK B: CLINICAL SCIENCE & TRIALS

SYMPOSIUM: THE IMPACT OF THERAPY ON THE COURSE OF HIV INFECTION

F.B.81

THE EFFECT OF ANTIRETROVIRAL THERAPY ON CLINICAL PROGRESSION AND MARKERS OF HIV DISEASE.
Lange, Joep M.A.; Academy Medical Center, University of Amsterdam, The Netherlands.

F.B.82

SERUM MARKERS AS CANDIDATE SURROGATE MARKERS FOR ANTIRETROVIRAL EFFICACY.
Jacobson, Mark A.; San Francisco General Hospital, University of California, San Francisco, CA, USA.

F.B.83

CD4 AND CD8 LYMPHOCYTES AS SURROGATE ENDPOINTS FOR ANTI-RETROVIRAL EFFICACY.
Schoenfeld, David; Massachusetts General Hospital, Boston, MA, USA.

F.B.84

PLASMA VIREMIA AS A MARKER OF ANTI-RETROVIRAL EFFICACY.
Coombs, Robert W.; Departments of Laboratory Medicine and Medicine, University of Washington, Seattle, WA, USA.

166

F.B.85

EFFECT OF THERAPY ON AIDS PATIENT SURVIVAL.

Lemp, George F.; Department of Public Health, San Francisco, CA, USA.

F.B.86

THERAPY MAY EXPLAIN RECENT DEFICITS IN AIDS INCIDENCE

Gail, M.H.; Rosenberg, P.S.; Goedert, J.J.
National Cancer Institute, Rockville, Maryland U.S.A.

Objective: To examine the hypothesis that use of zidovudine (AZT) and other treatments explains an abrupt departure since mid 1987 from the increasing trend in AIDS incidence among gay men.
Methods: A "consistent" series of delay-corrected quarterly AIDS incidence counts was constructed to conform to the surveillance definition of 1985 (MMWR 1985;34:373-5) except that presumptive diagnoses were included. Backcalculation (J. Am. Stat. Assoc. 1988;83:301-8) was used to extrapolate this series beyond June 30, 1987 to produce expected incidence (E) for the three succeeding semesters. AIDS deficits, E-O, and fractional AIDS deficits, 100x(E-O)/E, were computed, where O is the delay-corrected observed incidence.
Results: Fractional AIDS deficits increased from 13% in the last half of 1987 to 29% in the last half of 1988 for all gay men in the U.S.; these fractional deficits were 18% and 38% for gay men in San Francisco, Los Angeles and New York City. These latter figures were consistent with survey estimates of the case-weighted proportions of AIDS-free patients receiving AZT in the San Francisco Men's Health Study (data kindly provided by Dr. Warren Winkelstein). For all gay men in the U.S., the AIDS deficit from July 1, 1987 through December 31, 1988 was estimated as 6,749 cases, which could be entirely explained if between 15,000 and 22,000 of the sickest AIDS-free patients had received treatment. In contrast, deficits were negligible for intravenous drug users, who would be expected to have less access to medical care. Five alternative explanations, including cessation of HIV transmission in the early 1980's, were unable to explain observed deficits.
Conclusions: AZT and other treatments can account for a major portion of observed AIDS deficits. Failure to consider treatment can lead to serious underestimates by backcalculation of the numbers infected with HIV and of future AIDS incidence.

TRACK B: CLINICAL SCIENCE & TRIALS

ABSTRACT SESSION: CMV AND OTHER VIRAL OPPORTUNISTIC INFECTIONS

F.B.89

RAPID IDENTIFICATION OF ACYCLOVIR RESISTANT (ACV-R) HERPES SIMPLEX VIRUS (HSV) IN PATIENTS WITH HIV INFECTION

Glick, Ellen J.; Pottage, J., Benson, C., Kapell, K., Kessler, H.
Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois, USA.

Objective: To determine the incidence and clinical significance of ACV-R HSV isolates from a clinical virology laboratory utilizing a rapid antiviral susceptibility test (RAVST).
Methods: All HSV isolates (262) detected in our clinical virology laboratory from 6/88 - 12/89 were tested for ACV susceptibility. The RAVST is based on a neutral red dye extraction method utilizing VERO cell monolayers. Cells are grown in 96-well microtiter plates and cytopathogenicity is quantitated in an automated multichannel spectrophotometer. Each plate accommodates 1 viral isolate and up to 3 antiviral drugs The results are detectable within 48 hours of primary HSV isolation. ID50 values determined by the RAVST are compared with those determined by standard plaque reduction assay (PRA) in VERO cells. The RAVST can detect as few as 10% ACV-R HSV in a mixed population of sensitive and resistant virus. All isolates identified as ACV-R by RAVST are tested by PRA.
Results: We identified 13 ACV-R isolates by RAVST. Six of these isolates were also ACV-R by PRA. Five of these 6 isolates were from 3 patients with AIDS and 1 was from a patient with laryngeal carcinoma. All 6 ACV-R isolates were HSV type 2. All ACV-R isolates from AIDS patients demonstrated clinically significant resistance to ACV. Two of the 3 AIDS patients had received chronic acyclovir therapy. The isolate from the patient with laryngeal carcinoma was not clinically significant. The 7 remaining isolates were ACV-R by RAVST, but sensitive by PRA. These were obtained from patients who were immunocompetent.
Conclusion: The RAVST is a rapid, inexpensive method of determining acyclovir resistance of HSV. Clinically significant ACV-R HSV appears to be a problem predominantly confined to the AIDS population. Acyclovir susceptibility testing may be useful for HSV isolates obtained from immunocompromised patients who are clinically unresponsive to ACV.

F.B.90

DIAGNOSIS OF PROGRESSIVE MULTIFOCAL LEUKOENCEPHALOPATHY IN VIVO BY POLYMERASE CHAIN REACTION

Weber, Thomas*; Turner, R.W.*; Ruf, B.**; Lüer, W.*; Lüke, W.***; Haas, J.****; Stark, E.*; Poser, S.*; Pohle, H.-D.**; Hunsmann, G.**; Felgenhauer, K.
*University of Göttingen, Göttingen, FRG; ** Free University of Berlin, Berlin, FRG ***, German Primate Research Center, Göttingen, FRG, ****Medizinische Hochschule Hannover, FRG.

Objective: Polymerase chain reaction (PCR) has been evaluated as a method for the diagnosis of progressive mutlifocal leukoencephalopathy (PML) in vivo.
Methods: Cerebrospinal fluid (CSF), serum, blood mononuclear cells and brain tissue samples of six patients with autopsy proven PML, four patients with clinically suspected PML and 29 HIV-1 positive as well as HIV-negative patients without any clinical, radiological (CT,MRI) and pathological evidence of PML were anlyzed by PCR.
Results: In all cases JC virus-specific DNA was detected in CSF, and in most in serum. No signals were obtained on 42 occasions from CSF, serum, mononuclear cell and/or brain samples from the control group.
Conclusion: PCR seems to be a rapid, highly sensitive and specific method for the diagnosis of PML. The use of nested primers from a highly conserved region (agnoprotein) of papovaviruses allows the distinction between JC, BK and SV40 by simple restriction analysis. It remains to be shown if JC viremia is present in the majority of patients, hence permitting diagnosis of PML by a simple analysis of a serum sample.

F.B.91

PHASE I STUDY OF THE SAFETY AND PHARMACOKINETICS OF ORAL GANCICLOVIR.

Follansbee, S.*; Busch, D.*; Connor, J.**; Jung, D.***; Mastre, B.***; Buhles W.*** Davies Medical Center, San Francisco, CA., U.S.A. **University of California,San Diego, San Diego, CA., U.S.A. ***Syntex Research, Palo Alto, CA. U.S.A.

Objective: To determine the pharmacokinetics and safety of oral ganciclovir (GCV), 1000 mg q8h, in patients with cytomegalovirus (CMV) retinitis and AIDS.
Methods: Patients with stable CMV retinitis who had received >4 wks. IV GCV treatment were eligible. Patients received a single 200 mg IV GCV dose followed by a single 1000 mg oral GCV dose with a 24 hr. pharmacokinetic (pk) profile after each dose. Oral dosing continued at 1000 mg q8h for 28 days. Pk profiles were obtained at 14 and 28 days. Patients were monitored by hematology, serum chemistry, urinalysis, and physical exam.
Results: Eight patients were evaluated for pk. Following the single 1000 mg oral dose GCV dose, mean pk values were: Tmax=2.5h, Cmax=0.60ug/ml, AUC=4.47ug.hr/ml, and bioavailability=6%. At 1000mg q8h, mean trough plasma levels ranged from 0.37ug/ml at day 3 to 0.67ug/ml at day 10. Mean day 14 pk values were: Tmax=1.5h, Cmax=1.20ug/ml, Cave=0.82ug/ml, and bioavailability=9%. No patient discontinued dosing for safety reasons. Mild sporadic gastrointestinal symptoms occurred.
Conclusion: Oral GCV at 1000 mg q8h is well tolerated. Total bioavailability is similar to values previously reported. Plasma Cmax (1.20ug/ml) and Cave (0.82ug/ml) exceed the ID50 of most CMV isolates.

F.B.92

SAFETY AND EFFICACY OF COMBINED GANCICLOVIR (GCV) AND GRANULOCYTE-MACROPHAGE STIMULATING FACTOR (GM-CSF) VS. GANCICLOVIR ALONE FOR CYTOMEGALOVIRUS (CMV) RETINITIS IN AIDS (ACTG 073): A PRELIMINARY REPORT.

Hardy, David*; Spector, S.**; Polsky, B.***; Heath-Chiozzi, M.+; Holland, G.*; Freeman, W.**; Heinemann, MH***; Sharuk, G+; Feinberg, J++; Power, M++.
*UCLA Sch Med, Los Angeles, CA, **UCSD Sch Med, San Diego, CA, ***Mem Sloan-Kettering CC, New York, NY, +Harvard Med Sch, Boston, Mass, ++NIAID AIDS Program, Bethesda, MD, USA.

Objective: To evaluate the safety and efficacy of combined GCV/GM-CSF therapy compared to GCV alone in the treatment of CMV retinitis in AIDS.
Methods: Twenty-five AIDS patients (pts) with sight-threatening CMV retinitis have been randomized to receive IV GCV therapy (5mg/kg, BID X 14d, then qd) with (N=11) or without (N=14) GM-CSF (progressive, intrapatient dose escalation, 1,2,4,8 mcg/kg/d, sc, to maintain target ANC in 2500-5000 range. Hematologic, biochemical, ophthalmologic and virologic (CMV and HIV cultures, in situ hybridization, HIV p24 AG) parameters have been followed. Pre- and post-GM-CSF, pharmacokinetics (PKs) of GCV have been completed (N=8). Zidoudine (ZDV) therapy (600 mg/d) has been added in 6 pts after 16 weeks on study.
Results: Pts. have been followed for a mean of 18 wks (range 1-41 wks); 11 pts have expired during study. Neutropenia (ANC < 750) has occured in 6 GCV pts (23 episodes) and in 3 GCV/GM-CSF patients (8 episodes). Thrombocytopenia (THP) < 50,000 has occurred in 3 pts (10 episodes each) in each treatment group; severe THP (<25,000) accounts for 7 of these in the GCV/GM-CSF pts. Eosinophilia (>35% total leukocytes) has occurred in 3 GCV/GM-CSF pts. Malaise, fatigue and fevers have occurred in 4/11 GCV/GM-CSF pts and 4/14 GCV pts. Pre-and post-GM-CSF, GCV PKs show no apparent drug-drug interactions with average C_{max} of 8.4 and 8.0 mcg/ml and t 1/2 of 3.61 and 3.40 hr, respectively. Three pts receiving ZDV/GCV have developed ANC <750 within 1-3 wks. GM-CSF "rescue" has allowed for improved tolerance. ZDV/GCV/GM-CSF tolerance has been without problem in 3 pts.
Conclusion. Combined GCV/GM-CSF decreases the occurence of neutropenia compared to GCV alone. Systemic toxicites are slightly more common with GM-CSF as is thrombocytopenia. No significant PK interactions occur between the 2 drugs. ZDV/GCV/GM-CSF is well-tolerated to date.

F.B.93

PREVALENCE OF RESISTANCE IN PATIENTS RECEIVING GANCICLOVIR FOR SERIOUS CMV INFECTION

Drew, W. Lawrence*; Miner, R.*; Busch, D.**; Follansbee, S.***; Gullett J.****; Mehalko, S.***; Gordon, S.**; Owen, W.***; Matthews, T.*****; Buhles, W.*****
*Mount Zion Hospital and Medical Center, San Francisco, California, USA, **Children's Hospital of San Francisco, California, ***Davies Medical Center, San Francisco, California, ****University of California, San Francisco, *****Syntex Research, Palo Alto, California, USA.

Objective: Seventy-two AIDS patients treated with ganciclovir for cytomegalovirus infection were prospectively monitored for the development of drug resistance.
Methods: Isolates of CMV were assayed by plaque reduction.
Results: The percent of patients who were urine culture negative during therapy was remarkably consistent from 80% of 72 patients after 1-2 months of therapy to 78% of 49 patients after seven months of therapy. No resistant strains were found in 33 patients before therapy or among seven culture positive patients treated for ≤ 3 months. Of 13 culture positive patients treated for ≥3 months three excreted virus with moderate (ED50 > 6 uM, or ED90 > 12 uM) and five with high levels of resistance (ED50 > 12 uM, or ED90 > 30 uM).
Conclusion: Thus, 62% of 20% (the approximate percentage excreting virus) or, in all, 13.6% of patients receiving ganciclovir for more than 3 months were excreting CMV that was moderately or highly resistant to the drug. Excretion of resistant strains was associated with progression of CMV disease, but clinical deterioration also occurred in patients who excreted sensitive strains after long-term (i.e., > 6 months) ganciclovir treatment.

F.B.94

RANDOMIZED, PLACEBO-CONTROLLED STUDY OF GANCICLOVIR TREATMENT OF CYTOMEGALOVIRUS (CMV) COLITIS IN AIDS PATIENTS (PTS).

Dieterich, Douglas; Kotler, D.; Busch, D.; Crumpacker, C.; Mastre, B.; Du Mond, C.; DeArmand, B.; Buhles, W. NYU Med Ctr, St. Luke's Hospital, NY, NY; Children's Hospital, San Francisco, CA; Beth Israel Hospital, Boston, MA; Syntex Corporation, Palo Alto, CA.

Objective: To evaluate the efficacy and safety of ganciclovir (GCV) treatment of CMV colitis in AIDS pts. Methods: Sixty-two pts with AIDS and CMV colitis were enrolled in a multicenter, randomized, double-blind, placebo (P) controlled study of GCV (5mg/kg BID for 14 days). Pts underwent colonoscopy before and after treatment. All pts were hospitalized and received supportive care. Changes in colonscopy scores measuring gross appearance and histopathology (normal=0; pancolitis=3), diarrhea, body weight, viral shedding and adverse events were evaluated. Results: A significant reduction of CMV positive colonic and urine cultures were seen in the GCV treated group (p=0.034 and p=<0.001 respectively). Diarrhea scores improved in both groups. In contrast, GCV pts maintained their body weight, while P pts had an average weight loss of 1.5 kg during this 2 week study. Of the 52 pts who had both Baseline and Day 14 colonoscopies, 20/30 (67%) GCV pts and 11/22 (50%) P pts showed improvement in colonoscopy scores. One GCV pt terminated from the study early due to an adverse event and 1 terminated on Day 3 due to progression of CMV retinitis. Two P pts terminated early due to an adverse event, and 4 terminated early when they developed CMV retinitis. Overall, 20/32 (63%) GCV pts and 11/30 (33%) P pts successfully completed the study and had reductions in colonoscopy score between Baseline and Day 14 (p=0.042). Conclusions: GCV treatment was associated with significantly decreased viral excretion and improvement in colonscopy scores. In addition, there was a trend towards stabilization of body weight in GCV pts during this 2 week study. Fewer P pts were able to complete the study due to development of CMV retinitis. GCV appears to be an effective treatment for CMV colitis.

F.B.95

AN OPEN RANDOMISED COMPARATIVE STUDY OF FOSCARNET AND GANCICLOVIR IN THE TREATMENT OF CMV RETINITIS

Moyle Graeme*; Mathalone, B*; Gazzard, B*.
*Westminster Hospital, London, England

OBJECTIVE: To compare the efficacy and safety of Foscarnet(F) and Ganciclovir (G) in a randomised trial of treatment and relapse prevention of CMV retinitis.
METHODS: Forty patients with active CMV retinitis were studied over 18 months. Three weeks intravenous (IV) treatment with F (200mg/Kg/day, 21 patients) and G (5mg/Kg/bd, 19 patients) was followed by maintenance doses 5 days per week (F 130mg/Kg/day, G 5mg/Kg/day). Adverse events or continued activit were managed by change of drug or dosage. In incomplete responses the treatment period was prolonged.
RESULTS:

		Worse	WCC/Hb	BUN	Ca++	Other	Incomplete response
Treatment	G(19)	1	2	0	0	0	0
	F(21)	3	1	2	1	3	6

		No problem	Line Sepsis	BUN	WCC/Hb	Change*	Detachment
Maintenance	G(19)	4	13	0	10	4	3
	F(15)	3	3	4	4	5	0

*Changes of therapy were due to both adverse events and viral reactivation. BUN=Blood urea. WCC/Hb=Bone marrow suppression. Ca++ = Hypocalcaemia.
CONCLUSIONS: Treatment response is similar with both drugs but possibly longer therapy with F is required. Adverse events are common with maintenance. Line sepsis is commoner with G and may be due to neutrophil dysfunction. Renal dysfunction with Foscarnet, despite prehydration, occurs in up to a quarter. Retinitis reactivation occurs in up to 25% of patients despite maintenance with either therapy.

F.B.96

DOSE-RANGING STUDY OF DAILY INTRAVENOUS (IV) MAINTENANCE FOSCARNET (PFA) THERAPY (RX) FOR CYTOMEGALOVIRUS (CMV) RETINITIS IN AIDS PATIENTS (ACTG PROTOCOL 015/915)

Jacobson, Mark A*, Causey, D**, Polsky, B***, Hardy, D****, Feinberg, JE*****, O'Donnell, JJ*, Kuppermann, BD**, Heinemann, MH***, Holland, G****, Mills J*.
*UCSF and SF General Hospital, San Francisco, CA; **LAC-USC Med Center, Los Angeles, CA; ***Memorial Sloan Kettering Cancer Center, NY, NY; ****UCLA Center for Health Sciences, Los Angeles, CA; *****AIDS Clinical Trials Group, NIAID, Bethesda, MD, USA.

Objective: Determine tolerance and efficacy of escalating doses of daily iv maintenance PFA Rx for CMV retinitis.
Methods: We treated 55 AIDS patients (pts) with newly diagnosed CMV retinitis with induction iv PFA (60 mg/kg q 8 hr x 14 d) followed by escalating daily maintenance Rx (first 23 pts received 60 mg/kg/d, next 32 pts randomized to 90 or 120 mg/kg/d). Doses in all arms were proportionally reduced for any decrease in renal function. Pts had biweekly ophthalmologic exams to evaluate for retinitis progression, defined as a new CMV lesion or advancement of the border of a pre-existing lesion by >750 u.
Results: Median time to retinitis progression on maintenance PFA Rx was longer for 16 evaluable pts treated with 120 mg/kg/d than 13 pts treated with 90 mg/kg/d or 16 pts treated with 60 mg/kg/d (>123 d vs 90-95 d, p<.02). Among those randomized to 90 vs 120 mg/kg/d, there was no difference in mean maximum serum creatinine (Cr), dose-limiting nephrotoxicity (Cr>2.8 mg/dl) or severe anemia (Hb<8 gm/dl); however, 2 pts in the 120 mg/kg/d arm had dose-limiting neurotoxicity.
Conclusion: Chronic daily maintenance PFA Rx at 120 mg/kg/d was more effective than lower doses in preventing retinitis progression without increased nephrotoxicity or anemia.

TRACK C: EPIDEMIOLOGY & PREVENTION

ABSTRACT SESSION: EPIDEMIOLOGY OF HIV AND AIDS—DEVELOPING WORLD

F.C.97 IMPORTANCE OF SENTINEL SURVEILLANCE OF HIV INFECTION IN LATIN AMERICA AND THE CARIBBEAN

Zessler, Laurent*, Zacarias, F.*, Gonzalez, R.*, Kimball, A.M.*
*Pan American Health Organization, Washington, D.C. 20037 USA

Objective: To stress the importance and necessity of sentinel surveillance of HIV infection, especially in the heterosexual population in Latin America and the Caribbean.
Methods: Data on reported AIDS cases from 1986 to 1989 to the Pan American Health Organization were reviewed as well as 200 seroprevalence studies detailed in the National AIDS prevention and control plans from the following countries: Argentina, Bolivia, Colombia, Costa Rica, Dominican Republic, Honduras, Mexico and Peru. Data from the U.S. Census Bureau, Center for International Research, that collects information related to HIV seroprevalence studies, were also reviewed.
Results: The number of reported cases associated to heterosexual transmission is increasing. Overall, in 1988, six times more cases were reported in women in some countries of Latin America and Caribbean, compared to 1986. Furthermore, a revision of 200 seroprevalence studies conducted in eight countries of the Americas shows that most of the studies have focused on other various groups of population (i.e., 25% of the studies focused on prostitutes, 13.5% on homosexuals-bisexuals, and 7% on IV-drug users). In addition, the sampling size of these studies was generally small (i.e., in 46.5% of these studies between 100 and 500 persons participated). Many of these studies were done to establish an initial assessment of HIV infection in each country, however, no standardized survey design was used.
Conclusion: The need to measure the extent of HIV infection emerged from this review and has directed the Pan American Health Organization to establish sentinel surveillance systems in countries of Latin America and the Caribbean. In collaboration with national authorities proper sentinel sites and types of population have been selected, especially in the heterosexual population and will contribute to a better knowledge of the extent of the epidemic.

F.C.98 THE AIDS EPIDEMIC IN BRAZIL. 1980-1989.

Rodrigues, Lair*; Chequer, P.*; Castilho, E.**
*Division of DST/AIDS, Ministry of Health, Brasilia-Brazil,
**Oswaldo Cruz Foundation, MH, Rio de Janeiro-Brazil.

Objective: To describe the Brazilian AIDS epidemic in terms of temporal trends

Methods: Cases reported on a routine basis to the Ministry of Health were evaluated in terms of rates, ratios and proportions over time.
Results: Between july 1980 and december 1989, 9555 AIDS cases were reported. The incidence rate increased from 0.05 in 1982 to 19.0 in 1989(per million pop.).The male/female ratio changed from 120:1 in 1984 to 8:1 in 1989. The first 8 pediatric cases occurred in 1984 and in 1989 they represent 4% of the total reported cases.In 1985,7% of the pediatric patients were infected by perinatal transmission,however,this proportion reached 60% in 1989. The proportion of homo/bisexual AIDS cases decreases from 79% in 1985 to 52% in 1989. Among IVDU(s)the male/female ratio changed from 7:1 in 1985 to 3:1 in 1989. The proportion of IVDU(s)wich was 1% in the span of time between 1982 and 1985, increased to 20% in 1989.As far as associated diseases are concerned,it was observed that tuberculosis increased from 8%(1982-1984)to 18%(1988-1989).
Conclusion: It has been occurred many important changes in the profile of the AIDS epidemic in Brazil,over time.The proportion of IVDU(s)AIDS cases, the proportion of female patients as well as perinatal transmission cases, of heterosexual patients and tuberculosis as an opportunistic disease are increasing.Considering that the profile is not uniform,it is very important a frequent evaluation of the trends in the epidemic in order to apply adequate actions of prevention and control.

F.C.99 FIRST NATIONAL SENTINEL SEROPREVALENCE SURVEY FOR HIV-1 INFECTION IN THAILAND, JUNE 1989

Ungchusak, Kumnuan*; Thanprasertsuk, S.*; Sriprapandh S.*; Pinichpongse S.**; Kunasol, P.***
*Division of Epidemiology, **Office of Permanent Secretary, ***Department of Communicable Disease Control, Ministry of Public Health (MOPH), Bangkok, Thailand.

Objective: In June 1989, the Thailand MOPH initiated national sentinel HIV-1 surveillance to assess the extent and monitor trends of HIV infection in the population.
Methods: Fourteen of 72 provincial capitals were surveyed; 5 provinces were major commercial and tourist centers, while 9 were typical of other provinces. For each province and subgroup at least 100 subjects, if available, were randomly selected.
Results: HIV-1 seroprevalence in **intravenous drug users (IVDUs)** (n=895) ranged from 33% to 51% in 10 provinces, and 0% to 25% in 4. Rates in **female prostitutes in brothels** (n=2574) were 44% in "province A," 1% to 5% in 12 other provinces, and 0% in 1. Among **female prostitutes in other locales** (n=1386) the rate was 5% in "province A," 1% in 4, and 0% in 8 others. **Male homosexual prostitutes** (n=293) in 4 provinces had rates from 0% to 4%. **Male STD-clinic attendees** (n=1433) had rates of 10% in "province A," 1% to 3% in 5 provinces, and 0% in 8 others. **Antenatal-clinic attendees** (n=1564) had 1% rates in 2 provinces and 0% in 11 others. **Recently-admitted male prisoners** (n=1313) ranged from 18% to 37% in 4 provinces, 2% to 9% in 8, and 0% in one. Among **pre-release male prisoners** (n=1151) prevalence was 28% to 51% in 5 provinces, 1% to 9% in 7, and 0% in one. **Recently-admitted female prisoners'** (n=214) rates were 4% to 28% in 5 provinces and 0% in 4. **Pre-release female prisoners'** (n=154) rates were 4% to 7% in 2 provinces and 0% in 5. **Blood donors** (n=13788) ranged from 0.9% to 3.7% in three provinces and ≤0.4% in 10.
Conclusion: High HIV-1 prevalence among IVDUs is widespread, and female prostitutes are rapidly becoming infected. The MOPH is targeting prevention programs as a result of these findings. Followup surveys will occur every 6 months.

F.C.100 HIV 1 RISK FACTORS IN A RANDOMLY SELECTED POPULATION IN RURAL RAKAI DISTRICT, UGANDA.

Serwadda, David*; Musgrave, S.**; Wawer, M.J.**; Musagara, M.***; Konde-Lule, J.**** Sewankambo, N.****
*Mulago Hospital, Kampala; **Columbia University, NY; ***AIDS Control Programme, Entebbe; **** Makerere University, Kampala.

Objective: To determine risk factors for HIV infection in randomly selected, rural population clusters enrolled in a longitudinal cohort in a high prevalence district of Uganda.
Methods: 21 clusters of 40 households each (9 clusters in trading centers and 12 in rural villages) were randomly selected. All residents were enrolled in a KAB/serological survey.
Results: KAB and serological results are available on 1290 consenting adults aged 13 and over. Overall adult seroprevalence was 19.8%. 23.6% of women were HIV1 positive, compared to 15.3% of men. (20% of men in high risk age groups were away from the villages, potentially resulting in an underestimate of total male seroprevalence.) Average age of infected women was 26.7 years; of men, 29.6 years. Among inhabitants of trading centers, prevalence was 34.7%; among the rural, 12.7%. Age, sex, place of residence, occupation, travel outside the district, previous history of STD (particularly GUD), and the number of sex partners in the past 5 years were strongly associated with seroprevalence. Extrapolated to District level, results yielded an adult seroprevalence of 13.7%. Multivariate analysis showed place of residence is the single strongest predictor of individual risk.
Conclusion: In high prevalence Rakai District, prevention, including STD treatment, is urgently required.

F.C.101

INFANT AND CHILDHOOD MORTALITY IN CHILDREN OF HIV-INFECTED MOTHERS IN MALAWI.

Miotti, Paolo*; Dallabetta, G*; Chiphangwi, J**; Liomba, G**, Saah, A*;
*Johns Hopkins University, Baltimore, USA, **Ministry of Health, Malawi.

OBJECTIVE: To compare fetal wastage rates and mortality rates in children of HIV-1 infected and non-infected women living in an urban setting in Malawi.
METHODS: 1152 multiparous pregnant women presenting for routine care to the antenatal clinic of a large urban hospital in Malawi were interviewed to assess obstetrical histories and previous pregnancy outcomes. Participants were also screened for HIV-1 antibody. Only the outcome of the immediately preceding pregnancy was analyzed, as time of HIV-1 infection was not known.
RESULTS: 231/1152 (20%) of the multiparous women in the prenatal clinic were found to be HIV-1 seropositive. Adverse outcomes were as follows:

	HIV-1 positive	HIV-1 negative	OR	p-value
Hx of spontaneous abortion	30/231 (13%)	62/921 (7%)	2.07	0.002
Hx of stillbirth	4/231 (2%)	17/921 (6%)	0.94	NS
Infant mortality	26/197 (132/1000)	57/842 (68/1000)	2.09	<0.005
Under-5 mortality	50/185 (270/1000)	91/821 (111/1000)	2.97	<0.001

CONCLUSION: The more frequent occurrence of adverse outcomes before birth (abortion) or after birth (death) in HIV-1 infected mothers compared to uninfected ones, suggests that maternal HIV-1 infection severely affects the off-spring. Infected mothers may directly transmit HIV-1 infection to their children or may be sick themselves and unable to care for the child. HIV-1 infection in this population contributes an extra 12/1000 to the infant mortality rate and an extra 29/1000 to the under-5 mortality rate.

F.C.102

EMERGENCE OF HIV-1 IN A HIGH RISK GROUP FROM AN HIV-2 ENDEMIC AREA (SENEGAL)

M'Boup, Souleymane*; Kanki, P.**; N'Doye,I.*; Siby, T.*; Sankale J-L.*; Gueye A.*; Gaye, A.*; Boye, CS.*; Marlink, R.**; Essex, M**.
*University of Dakar, Dakar, Senegal, ** Harvard School of Public Health, Boston, Mass. USA.

Objective: To survey for the presence of HIV-1 in a select high risk population group with significant HIV-2 infection. Our studies in female sex workers (prostitutes) in Senegal have shown a high rate of HIV-2 infection, we wished to assess and monitor changes in prevalence to HIV-1 in this sentinel population group.
Methods: Registered prostitutes (practicing within the law) were sampled in six different urban centers in Senegal between 1988-89. In 3 of these centers, seroprevalence of the same population sampled 2-4 years previously, were obtained. Questionnaire data and serum samples were obtained; HIV-1 and HIV-2 serodiagnosis was provided by western blot to both virus types and radioimmunoprecipitation analysis
Results:

City	No.of samples	HIV-2%	HIV-1%
St. Louis	41	0	5.1
Thies	120	11.0	2.0
M'Bour	111	10.8	0.9
Dakar*	888	9.8 (7.0)	1.8 (0)
Kaolack*	212	24.1 (27.0)	0.8 (0)
Ziguinchor*	200	34.0 (40.0)	1.0 (0)

*Seroprevalence of the same populations sampled in 1985-87 are indicated in (%).
Increase in seroprevalence of HIV-2 from north to south in the country was observed, but not significant for HIV-1. In all 3 centers surveyed twice in the last 5 years a signficant increase in HIV-1 seroprevalence was noted.
Conclusion: HIV-2 is the predominant retrovirus in Senegal as in most other West African countries. High risk groups for HIV-2 infection may also be at risk for HIV-1, although regional variation in risk factors may differ. Our studies indicate that HIV-1 may be increasing rapidly in West Africa, emphasizing the importance of prevention and control programs for both HIVs.

F.C.103

AIDS - THE LEADING CAUSE OF ADULT DEATH IN A WEST AFRICAN CITY (ABIDJAN)

De Cock Kevin M * **, Gnaore E*, Diaby L*, Barrere B***, Lafontaine M-F*, Odehouri K***, Dago Akribi A***, Porter A*, Heyward WL**
* Projet RETRO-CI, Abidjan, Cote d'Ivoire; ** Centers for Disease Control, Atlanta; *** University of Abidjan, Cote d'Ivoire

Objective: To determine AIDS-specific and AIDS-proportional mortality in adults in Abidjan, Cote d'Ivoire.
Methods: Consecutive cadavers admitted to the two largest mortuaries in Abidjan were studied for periods of 62 and 43 days respectively. Blood from each cadaver was screened for HIV-1 and HIV-2 antibodies by ELISA, Western blot and synthetic peptide ELISA as appropriate. Information from hospital records, death certificates, and physical exams were used to define AIDS-specific deaths. Extrapolations were made to estimate proportions of deaths due to AIDS, population-based mortality from AIDS, and AIDS-specific years of potential life lost (YPLL).
Results: Of 1,177 cadavers studied, 59% were adults, representing 38-43% of adult deaths in Abidjan over the study period, or 7-8% of all annual adult deaths. The overall prevalence of HIV reactivity (HIV-1 and/or HIV-2) was 41% in male and 31% in female adult cadavers. AIDS was the leading cause of death (15% of deaths) and of YPLL in males, after unintentional injury and pulmonary tuberculosis (TB); and the second leading cause (13% of deaths) in women, after maternal mortality. Of pulmonary TB cases not counted as AIDS, 50% were HIV-reactive. Minimum AIDS-specific mortality in Abidjan is 66/100,000/year in men, and 31/100,000 in women.
Conclusion: (1) AIDS is the leading cause of adult death in Abidjan; (2) AIDS-specific and proportional mortality rates may be similar or higher in other African cities where HIV infection rates are higher and more longstanding.

F.C.104

ARE HIV SEROPREVALENCE TRENDS USEFUL TO NATIONAL PROGRAMMES? A GLOBAL OVERVIEW OF TRENDS, USES AND LIMITATIONS.

Slutkin G, Tarantola D, Heymann DL, Chin J, Sato P, and Mann J.
World Health Organization, Global Programme on AIDS, Geneva, Switzerland.

Objectives: To review the current trends in reported HIV seroprevalence (HS) within national HIV sentinel surveillance systems, and identify uses and limitations of data for national programmes.
Methods: Analysis of trends from national sources, first 10 national AIDS programme (NAP) reviews, selection of examples of HS methodologic problems.
Results: In some sentinel populations, increases in HS have been up to 20%-30% per year (eg. IVDU populations/Asia, prostitutes/Africa and male homosexuals/U.S.A.), and 4% per year in antenatal women in a country in Africa. Participation bias has been a factor in both increases and to explain flat or declining curves. In one country, major increases in HS in prostitutes from 4 to 90% may have been due in part to population shifts rather than seroconversions. In another country, apparent stability of HS at 18% in antenatal mothers could be attributed to an increase of refusers to 5%.
Conclusions: Trends in HIV derived from HS data are useful for targeting interventions, and for advocacy. NAP reviews and replanning workshops are important opportunities to use HS information. The role of participation bias in affecting trend data argues for unlinked testing where feasible. Caution and critical analysis is needed when "flat" trends are seen to avoid false interpretations and a false sense of security.

TRACK C: EPIDEMIOLOGY & PREVENTION

ABSTRACT SESSION: ISSUES IN PARENTERALLY TRANSMITTED HIV INFECTION

F.C.105 RESULTS OF THREE SEROPREVALENCE SURVEYS FOR HIV IN IVDU IN BANGKOK

Vanichseni S., Sakuntanaga Pralom ,et al,

Objective : To determine the trends of the HIV infection in the IVDU treatment population and their changing of risk behaviors.
Method : Fifty percent random sampling of IVDU in a day in 17 out patient Narcotics Clinics of Bangkok Metropolitan Administration were asked to participate voluntarily in HIV testing and interviewed,but all female (7% of total population) were asked
Results : This third sero prevalence was found to be 44.6% in 1020 IVDU done during April 1989 after 42.7% in the 2nd and 15.6% in the 1st with 6 months intervals,with 20.0% sero conversion rate and 35% in the previous survey. In addition to the well documented risk factors associated with drug use behavior, this survey has just found that sexual intercourse is emerging as one more risk factor. Sharing of needles as well as number of persons sharing have declined (from 66.5% in the 2nd to 52.2% in the 3rd and shared more than 3 persons from 40.6% in the 2nd to 32% in the 3nd).Bleaching of equipment(from 8.4% in the 2nd to 15.3% in the 3rd) and use of condoms (from 7.8% in the 2nd to 18.7% in the 3rd) increased. Inject heroin in shooting galleries has declined but,among those who do inject there only 1.7% cleaned the equipment. Knowledge of AIDS has reached more than 90% for most indicators.
Discussion and conclusion.A year after the beginning epidemic of HIV infection the risk behaviors have changed even in those infected including abstinence of drugs which should be investigated further. So most of the risk factors can not be determined then and there after,only the actively sexual intercourse just found to be risk factor one year afterwards. Efforts should be put into the cleaning of injection equipment in the shooting places.

F.C.106 EPIDEMIOLOGY AND PREVENTION OF HIV IN INTRAVENOUS DRUG USERS IN SAN FRANCISCO, 1986-1989

Watters, John K.*; Cheng, Y.**; Segal, M.*; Lorvick, J.*; Case, P.**; Carlson, J.***
University of California (U.S.A.) at: *San Francisco, California; **Berkeley, California; ***Davis California.

Objective: To determine HIV-1 seroprevalence rates among intravenous drug users (IVDUs) and evaluate their relationship to risk factors within the changing context of prevention efforts.
Methods: Six cross-sections (waves) of IVDUs were interviewed and tested for HIV-1 antibodies in San Francisco in 1986 through 1989 (N=3,441). Paid respondents were convenience samples from three 21-day drug detoxification clinics and targeted samples from three inner-city street locations. X^2, ANOVA, and logistic regression were used to examine the relationships of HIV-1 infection, race, gender, drug treatment status, drug injection practices (frequency of injection, needle-sharing, needle-cleaning, use of needle exchange), drug use profiles, sexual behavior, geographical factors, and cross-section.
Selected Results: After eliminating multiple responses (N=941) resulting from recapture and males who reported homosexual contact in the past five years (n=379), the resulting sample (N=2,114) was: 847 (40.1%) Black, 799 (37.8%) White, 310 (14.7%) Hispanic, and 158 (7.5%) others. 1,361 (64.4%) were male and 753 (35.6%) were female, of whom 204 (27.1%) reported same sex contact in the past five years. 1,024 (48.4%) were not enrolled in drug treatment at time of interview. ANOVA results presented in table below.

Table: HIV-1 Seroprevalence Rates and Selected Risk Behaviors by Year/Wave

	86/1	87/2	87/3	88/4	88/5	89/6	p<
HIV-1 seroprevalence rate	6.5	12.8	11.1	11.2	13.2	11.4	.0472
pct. time reported using condoms/intercourse	2.8	15.4	21.7	21.3	23.3	21.5	.0000
pct. who reported no needle sharing past year	8.8	15.9	16.3	26.7	27.1	34.5	.0000
pct. time reported use of safe needle-hygiene	13.0	63.5	69.5	67.3	63.9	73.3	.0000
pct. who reported bleach use (needle-sharers)	3.0	60.9	71.4	86.2	85.5	85.8	.0000
sample size	363	478	368	345	332	228	

Conclusions: Improvements in self-reports of key risk behaviors coincide with: (a) the implementation of an aggressive prevention campaign directed at IVDUs in mid-1986; and (b) a flattened HIV-1 seroprevalence curve observed over waves 1987/2 through 1989/6.

F.C.107 USE OF NEEDLE EXCHANGE PROGRAMS BY SAN FRANCISCO DRUG USERS IN METHADONE TREATMENT

Keffelew, Atnaf, Clark G, Bacchetti P, Gorter R, Osmond D, Moss AR.
University of California, San Francisco, USA.

Objective: To examine use of local needle exchange programs by San Francisco intravenous drug users (IVDU's) in methadone treatment programs.

Methods: IVDU's from all methadone treatment programs in San Francisco are routinely offered anonymous HIV antibody screening and interviewed concerning their drug use behaviors.

Results: Of 693 IVDU's screened from June to December 1989, 527 (76%) reported injecting drugs in the past month. Of these, 149 (28%) reported using a needle exchange program at least once. Subjects who already knew that they were HIV positive were significantly (p<.001) more likely to have exchanged needles (17/25 or 68%) than those who thought they were negative (88/308 or 29%) or those who didn't know (40/169 or 24%). This led to a higher overall rate of exchanging among positives (29/68 or 42%) than among negatives (115/442 or 26%). Fewer hispanics had exchanged needles (10/56 or 18%) than whites (87/286 or 30%, p=.04) or blacks (45/142 or 30%, p=.04), and fewer women had (31/147 or 17%) then men (118/347 or 34%, p<.001). The rate of needle sharing was comparable between exchangers (44%) and non-exchangers (42%).

Conclusion: The rate of needle use is high in this treatment population, and 28% have used a needle exchange. A high proportion of subjects who already knew they were HIV positive HIV have used needle exchanges, so screening for HIV may reduce transmission because those who learn that they are positive are more likely to use needle exchanges.

F.C.108 DIFFERENCES IN HIV RATES AND RISK BEHAVIOUR OF DRUG INJECTORS ATTENDING, AND NOT ATTENDING, SYRINGE-EXCHANGES IN ENGLAND

Dolan, Katie; Stimson, G.V. and Donoghoe, M.C.
Centre for Research on Drugs and Health Behaviour, Charing Cross and Westminster Medical School, London, England.

Objective: To ascertain HIV prevalence and HIV risk behaviour in injectors attending syringe-exchanges, and in a comparison group of non-attenders.
Method: Subjects had injected in the 4 weeks before interview in 1989. Group A (n=86) was quota-sampled by sex at 4 syringe-exchanges. Group B (n=121) had not attended syringe-exchanges for 3 months and were found via social networks from the same areas. Subjects' saliva samples were tested for HIV antibodies.
Results: HIV prevalence was 1.2% in Group A and 3.3% in Group B. In the 4 weeks prior to interview, 24% of Group A and 32% of Group B had shared a syringe. Attenders shared with a mean of 2.2 others and non-attenders with 3.2. Most attenders (95%) had regular access to syringes compared with 72% of non-attenders. Men shared syringes less than women.
Conclusion: This study provides further evidence of lower rates of syringe sharing among syringe-exchange attenders. Irregular access to injecting equipment by non-attenders shows the need to expand supply. Research must examine the role of gender in risk behaviour.

F.C.109

DIABETES IS PROTECTIVE AGAINST HIV INFECTIONS IN IV DRUG USERS (IVDUs)

Nelson Kenrad E., Vlahov D, Cohn S, Lindsay A, Solomon L, Anthony JC. The ALIVE Study, School of Hygiene and Public Health, The Johns Hopkins University, Baltimore, Maryland, USA.

Objective: We studied the prevalence of diabetes mellitus (DM) and its correlation with HIV seropositivity in a cohort of IV drug users (IVDUs) to determine whether IVDUs with DM might be spared HIV infection because of the legal accessibility of injection equipment.
Methods: A cohort of 2911 IVDUs was recruited for a natural history study from street outreach, drug treatment, hospitals and clinics, and word of mouth. Subjects with AIDS were excluded from this study. At baseline all were tested for HIV antibodies and questioned about their medical histories and drug injection practices in the past 10 years.
Results: Although HIV seropositivity was associated with a history of pneumonia, endocarditis and syphilis, it was inversely correlated with a history of diabetes. Among 2290 HIV neg IVDUs, 36 (1.63%) had diabetes, whereas among 702 HIV pos IVDUs only 4(0.57%) had diabetes (x^2 = 4.42, p = 0.03). Stratification by age, race, frequency of illicit drug use or type of illicit drug used (i.e. heroin, cocaine, other) did not affect the significant inverse association between HIV seropositivity and diabetes.
Conclusions: Our data suggest that the unrestricted access to injection equipment that diabetics have might prevent HIV transmission among active IV drug users.

F.C.110

CHANGE IN RISKY PRACTICES OF PATIENTS WITH COCAINE AND/OR OPIATE DEPENDENCE AFTER KNOWING THEIR HIV INFECTION STATUS. A NATIONAL STUDY (SPAIN).

Fuente, Luis de la; Barrio, G.; Izquierdo, M.; Roig, A.; Forteza, J.; Tor, J.
State Office for the National Plan on Drugs, Madrid, Spain.

Objective: To study whether the patient's knowledge of being infected by HIV changes risky practices associated with HIV transmission

Methods: A sample of 1,232 patients with cocaine and/or opiate dependence, who were under ambulatory treatment in 83 centers of Spain between April-1-1989 and September-30-1989, was studied. Sampling was performed in two steps. First, the treatment centers were randomly selected from a list submitted by the Ministry of Health. Second, patients were randomly chosen up to a quota determined for each center. The maximum sampling error estimated was ± 2.56%. The independent variable was the patient's knowledge of HIV infection status. The following variables were considered as dependent: number of treatments for the dependence (to adjust for) and level of compliance, practices related to the use of intravenous route, sexual practices, and practices related to the protection --of HIV transmission-- of relatives, partners, etc. The data were collected by a direct interview. All the interviewers were trained in filling in the questionnaire. The statistical methods used include univariate, bivariate and multivariate (logistic regression) procedures. The BMDP package was used.

Results: An 80.5% of the sample had received at least one treatment before, being outpatient care with psychological support the most frequently type of care sought. HIV infection status was known by a 64%. HIV(+) patients changed their habits in the use of intravenous route (to a less risky habits) more frequently --a 54% more-- than those HIV(-). The same happened with sexual practices, but in a lower percentage, just a 41%. Both of these percentages remained statistically significant after controlling for confounding factors in multivariate analisys.

Conclusion: 1. It is more feasible to observe positive changes of risky practices in the use of intravenous route than in sexual practices when a patient knows he/she is infected by the HIV. 2. It would be necessary more research, especially analytical, on this topic since this research is a cross-sectional study.

F.C.111

RATES AND PREDICTORS OF PROGRESSION TO HIV DISEASE AND AIDS IN A COHORT OF INTRAVENOUS DRUG USERS (IVDUs), 1985-1990

Selwyn, Peter A.; Hartel D.; Schoenbaum, E.E.; Davenny, K.; Budner, N.; Klein, R.S.; Friedland, G.H.
Montefiore Medical Center/Albert Einstein College of Medicine, Bronx,NY,USA

OBJECTIVE: To determine rates and predictors of HIV disease progression and AIDS in a cohort of HIV+ IVDUs (n=319) in a N.Y.C. methadone program.
METHODS: HIV+ IVDUs enrolled in a prospective study begun in 1985 were monitored for progression to AIDS, oral thrush (OT), ≥2 constitutional symptoms (CS), and other disease outcomes (DIS) including: bacterial pneumonia (BP), endocarditis/sepsis (E/S), tuberculosis (TB), and herpes zoster (HZ); outcome rates were calculated in person-years (p-yrs.). Uni- and multivariate analyses were performed using laboratory markers and clinical variables to predict HIV disease progression.
RESULTS: Mean follow-up was 2.8 yrs. (range 0.5-4.5); 17% subjects were lost to follow-up. Incidence rates/100 p-yrs. were: AIDS=5.4; OT=8.7; BP=6.9; E/S=2.1; TB=1.2; HZ=1.2; CS=4.0. Only 12% of living subjects observed in 1989 who were asymptomatic at baseline remained so. AIDS and OT were predicted by CD4<20%, β-2 microglobulin >5.0 mg/l, and +p24 antigen (p<.001). DIS outcomes were predicted by Hgb <13g/dl (p<.02), and +p24 (p<.04). On multivariate analysis, AIDS and OT were best predicted by low CD4% (p<.005), +p24 (p<.002), and time since DIS (p<.001) and onset of ≥2 CS (p<.07). Progression was slower in subjects taking AZT (p<.005).
CONCLUSION: HIV+ IVDUs showed high rates of disease progression including non-AIDS defining events, predicted by CD4%, β-2 microglobulin, Hgb, +p24, and certain clinical variables. Effective therapeutic strategies to slow disease progression are urgently needed in this population.

F.C.112

CAUSE SPECIFIC RISK OF DEATH IN A COHORT OF INTRAVENOUS DRUG USERS (IVDUs) RECRUITED IN MILAN.

Galli,Massimo;Musicco,M.;Codini,G.;Zampini,L.;Ciaci,D.;Cruccu, V.;Marozzi,F.;Carito,M.;Villa,A.;Corsi,L.;Corbellino,M.;Fracchia,S.;Rastrelli, M.;Lovicu,G.F.;Saracco,A.;Riva,A.;Gervasoni,C.;Moroni,M.
Clinic of Infectious Diseases and COMCAT study group, Milan,Italy.

Objective: to evaluate the cause specific risk of death in different calendar years in a cohort of IVDUs recruited in Milan.
Methods: the analysis was performed in 2279/3852 recruited subjects followed up from 1981 to 1988 for 13069 person years (p/y).
Results: the observed deaths as of December 89 were 317. The cause specific risk of death * 1000 p/y (R) by calendar year is reported in the table.

years	81	82	83	84	85	86	87	88
p/y	622	1041	1338	1627	1867	2092	2219	2264
Total death	12	15	13	24	22	31	60	72
R total	19.3	14.4	9.7	14.7	11.7	14.8	27	31.8
R overdose	3.2	8.7	4.5	6.7	5.4	5.8	9.9	15.0
R AIDS	0	0	[illegible]	1.8	1.1	4.3	9.0	10.6
R violent death	8.0	2.8	2.2	2.4	0.5	2.9	3.6	3.0
R others	8.1	2.9	3.0	3.8	4.7	3.3	4.5	3.2

The total R of death (80-89) was 9.3 for overdose and 5.4 for AIDS.
Conclusion: the mortality, stable until 86, increased rapidly in the cohort during the last years, due to AIDS and overdose which remains in Milan the leading cause of death among IVDUs.

F.D.113 THE NEED FOR A SPECIAL COMMUNICATIONS PROGRAM FOR THE ANTIBODY POSITIVE

Edelmann, Frédéric*, COHEN B.* .Mettetal, J.-F** .* ARCAT-SIDA, CIVIS; ** Hôpital Necker, ARCAT-SIDA, CIVIS;

Objective : Identify the communications breakdown in information campaigns aimed at HIV carriers with a view to improved prophylactic treatment.
Méthod : A semiological analysis of public prevention campaigns; monitoring and analysis of public and specialized information on HIV, interviews with professionals (doctors, psychologists, sociologists), antibody negative individuals belonging to exposed or unexposed groups, asymptomatic carriers, patients, in-the-field surveys.
Results: 1) The asymptomatic carrier population, even when suitably informed at the time of testing, is not covered by information campaigns aimed at the general public and the antibody negative population. The image of the antibody positive individual is *de facto* tarnished either because of the content of the message or because of a feeling of guilt. In every case the asymptomatic carrier feels "left out" of the public debate. This prevents the drawing of conclusions on the efficiency of campaigns: one of the couple concerned by the viral transmission perceives the opposite message to that intended by the campaign. 2) Almost all antibody positive individuals met consider their doctor, and gay press fort part of gay people, to be the sole sources of information concerning them. 3) The abundant information in circulation concerning the illness and those suffering from it heightens the feeling of isolation of the asymtomatic antibody positive individual. Although classing together asymptomatic carriers and PWAs may be scientifically reasonable, it would appear to be more psychologically comforting to the latter than to the former. It is not sure that this favours prophylactic treatment.
Conclusion :The asymptomatic antibody positive suffers from the silence over his situation, and is ignorant of, or hesitates over, prophylactic treatment or secondary prevention. He has no other motivation other than moral reasons for primary prevention. A specific communication aimed at the asymptomatic antibody positive would appear to be urgent.

F.D.114 AIDS PREVENTION AND COMMUNITY ORGANIZING FOR DEVELOPMENT

Apisuk, Chantawipa*; Teerarojjanapongs, N.**; Mann, Dr J.***; Grose, R.***; O'Malley, J.***
*EMPOWER, Bangkok, Thailand; **FACT, Thailand; ***World Health Organization

Objective: To determine the relationship between AIDS prevention activities and community development objectives in nongovernmental organizations in Thailand.
Methods: A comparative analysis of evolution, programme content and efficacy in EMPOWER, a community-development NGO involved in AIDS prevention, and FACT, an AIDS service NGO involved in community development.
Results: EMPOWER works with women in Bangkok's sex industry. It attracts members by offering opportunities for individual development, especially foreign-language classes. Through this process, women often feel empowered enough to begin organizing collectively on community issues, including AIDS prevention activities among sex workers and clients.
FACT was first organized by a group of men who have sex with men. Initial activities were education among self-identified gay men and young men who have sex with men as a survival strategy. Subsequently, FACT's activists have become increasingly aware and committed to broader community development issues such as gay liberation.
Conclusions: Tightly defined communities, especially those with solidarity born of marginalization, prove effective in organizing both around AIDS prevention and broader community development. Grass-roots community development can grow to encompass AIDS prevention and, conversely, AIDS prevention work can grow to encompass community development. Determinants of this include groups' perceptions of the subculture in the larger social formation, and degree of prior organization in the community.

F.D.115

INTRAVENOUS DRUG USER SELF ORGANIZATION AS AN HIV TRANSMISSION PREVENTION STRATEGY IN AUSTRALIA

J. Dixon* & A. Buzolic**
* Queensland Intravenous AIDS Association, Brisbane, Australia.
**Alcohol & Drug Dependence Services, Dept of Health, Brisbane, Australia.

The philosophy and importance of User Self Organizations (USO) is discussed in the Australian context and principles of their successful establishment and operation are identified.

Objective: To identify the determinants of the successful establishment and operation of USO groups.

Method: Historical analysis of USO groups in Australia using key informant information provided by Australian I.V. League member groups.

Results: USOs have operated in Australia since 1987. All mainland Australian States and Territories now have some form of USO. These groups are affiliated under the umbrella organization, the Australian I.V. League. A number of key factors are identified as associated with successful USO groups. They include: establishment of credibility with relevant authorities; clear aims and objectives within the bounds of HIV transmission prevention; adequate funding; establishment of credibility prior to funding; low media profile during establishment phase; access to and support of professionals; successful financial management; judicious staff selection; clearly defined and achievable project plans; consistent and cohesive management committees;

Conclusions: USOs are an important HIV transmission prevention strategy and can be successfully established. The experience of establishing USOs in Australia provides valuable indications of those factors which determine the success of USOs.

F.D.116

ACTIVISM AND ORGANIZING IN MINORITY COMMUNITIES.

Jones, Billy; National AIDS Network, Washington, DC, USA.

F.D.117

ADVOCATING FOR CHILDREN WITH HIV AND THEIR FAMILIES. Monforti, Jeff; Federation for the Care of Children's Health, Atlanta, Georgia, USA.

F.D.118

PAST, PRESENT, AND FUTURE OF ACTIVISM IN THE US. Kramer, Larry; AIDS Coalition to Unleash Power, New York, NY, USA.

TRACK D: SOCIAL SCIENCE & POLICY

ABSTRACT SESSION: COST, FINANCING, AND RESOURCE ALLOCATION

F.D.121 SHORT TERM SCENARIOS ON THE SOCIOECONOMIC IMPACT OF AIDS ON SOCIETY

Jager, Johannes C.*; Poos, M.J.J.C.*; Postma, M.J.*; Houweling, H.*; Postema, C.A.**; Coutinho, R.A.***
* Nat.Inst.of Public Health and Environmental Protection, Bilthoven, The Netherlands, ** Ministry of Welfare, Health and Cultural Affairs, Rijswijk, The Netherlands, *** Municipal Health Service, Amsterdam, The Netherlands.

Objective: To develop a coherent set of methods for construction of short term scenarios on the impact of AIDS on society with respect to epidemiological (regions, risk groups) and socioeconomic features.
Methods: The set of methods includes (i) statistical estimation, from routine surveillance data on AIDS cases, of AIDS incidence with adjustment for reporting delay, (ii) subsequent assessment of HIV prevalence by back-calculation and (iii) construction of short term scenarios for potential years of life lost and hospital beds needed.
Results: The above methods have been applied to surveillance data on AIDS cases (reported by 30 June 1989: 884; adjusted: 975) in The Netherlands, for several regions (Amsterdam: doubling time in months, dt, 35; The Netherlands without Amsterdam: dt 14) and riskgroups (homo/bisexual: dt 30; IVDU: dt 16). Estimated cumulative HIV incidence amounts to 10,000-15,000. Short term scenarios have been evaluated (survival time assumed to be 1.5 years) for potential years of life lost (mean per case: 34.5) and hospital beds needed (mean number of beds in 1991: 129). More detailed outcomes (updated to include surveillance up to 31 December 1989) and specifications of assumptions will be given.
Conclusion: The standardized set of methods represents a tool for monitoring some basic epidemiological and socioeconomic variables in support of public health strategy development.

F.D.122 UPDATED FORECASTS OF THE MEDICAL CARE COSTS OF TREATING PERSONS WITH AIDS, 1990-94

Hellinger, Fred J., Ph.D.
National Center for Health Services Research, U.S. Dept. of Health and Human Services, Rockville, Maryland USA

Objective. To forecast the medical costs of treating persons with AIDS (PWAs) in the United States during the years 1990 through 1994.
Methods. Estimates of the number of PWAs from 1990 through 1994 are derived using data on the number of AIDS cases reported to the Centers for Disease Control (CDC) between January 1984 and November 1989. The estimates are derived using statistical trend analysis, and information on the cost of treating a PWA is obtained from insurance companies, Medicaid agencies, HMOs, and hospitals.
Results. The projections for the number of PWAs are lower than estimates derived using earlier data because the rate of increase in the number of reported cases has fallen over the past 18 months. However, the estimate of $75,000 per PWA for lifetime medical care costs is higher because it reflects longer survival times and the diffusion of costly drug therapies.

Year	CDC (Updated) Number of Cases	Hellinger Number of Cases	Hellinger Cost(Billions)
1990	60,000	48,425	$3.632
1991	71,000	59,565	$4.467
1992	80,000	71,763	$5.382
1993		85,006	$6.375
1994		99,297	$7.447

Conclusion. The cost of AIDS in the United States will be greater than expected due to enhanced longevity and costly drug therapies.

F.D.123 THE ECONOMIC IMPACT OF AIDS IN MEXICO

TAPIA-CONYER, ROBERTO*; MARTIN, A.**; DE LA ROSA, B.*, GARCIA, A.*; PIEDRAHITA, C.**

*CONASIDA, Mexico, D.F., Mexico. **FHI/AIDSTECH, Durham, NC. USA

OBJECTIVE: To assess the economic burden of the AIDS epidemic in the health sector and Mexico's overall development and to support national decisions on resource allocation and program implementation.

METHOD: The country's total medical costs were calculated applying a prevalence and incidence based approach based on the information provided by a comprehensive retrospective study and a detailed time and motion study on AIDS patients admitted to three representative hospitals. Indirect costs were estimated by calculating and discounting the number of years lost and adding the disability time prior to death. Individuals productivity was valued as the discounted present salary by type of occupation.

RESULTS: Incidence based direct costs: range from 4.5 to 7.1 million USD. Prevalence based costs: range from 6.1 to 9.6 million USD for 1988, which represents an impact of 0.5% to 0.8% of the total health budget for the same year. If the indirect cost are considered the total cost per patient would greatly increase to 44,000 USD, which would have an impact to the family income:

CONCLUSION: A) The total cost per patients represents 40 times the per capita GNP for the same year; B) AIDS Epidemic has a greater impact in the country's economy than that seen in other developing countries.

F.D.124 AIDS/HIV COSTS IN ENGLAND: THE COST EXTRACTION METHOD

Malcolm S. Rees, AIDS Costing Project, c/o Economic Advisers Office, Department of Health, London, England

Objective To provide estimates of the cost of AIDS/HIV to the National Health Service (NHS) in England and Wales.
Method Extraction of AIDS/HIV costs from the global revenue cost totals of 3 NHS districts, Riverside, Oxfordshire and Brighton, whose revenue budgets have been seriously affected by AIDS/HIV problems. Costs are broken down into AIDS inpatient and outpatient work, HIV inpatient and outpatient work, haemophilia work, counselling and testing, research and teaching, health education, drug misuse, infection control and administration.
Results Cost per AIDS case/year is estimated at £15,000 for Riverside in 1987/8, £17,000 for Oxfordshire in 1988/9 (non haemophiliac cases only) and £18,000 in Brighton in 1989/90 (at 1988/9 prices). The average cost per AIDS inpatient day is currently about £250. A large percentage of the total estimated AIDS/HIV cost does not go directly on AIDS patient work. For example in Brighton other cost categories comprise 56% of expenditure. Estimates are also made of the national cost of AIDS/HIV.
Discussion The cost extraction method is preferable to the patient costing method for making estimates of the impact of AIDS/HIV on costs, being both more up-to-date and accurate.

F.D.125 **COSTS OF AIDS IN A DEVELOPING AREA; INDIRECT AND DIRECT COSTS OF AIDS IN PUERTO RICO**

Shepard,Donald*; Kouri,Y.*; Rizek,J.**;Garib,J.**
*Harvard Institute for International Development, Cambridge, Massachusetts,U.S.A., **San Juan AIDS Institute, Puerto Rico.

Objective: To calculate the direct and indirect costs of the AIDS epidemic in Puerto Rico, using the most recent data available. **Methods:**The overall lifetime direct cost of care per person with AIDS is the sum of costs of care in inpatient, ambulatory, and other modes and were calculated for most of the cost components through research underway in Puerto Rico.Indirect costs from AIDS are losses from illness and death during the prime period of life. **Results:**The overall lifetime direct cost of care per person with AIDS in San Juan ranged from $11,773 for patients treated by the San Juan AIDS Institute, to $51,842 for private patients. The present value of indirect costs of an AIDS case is $80,000 for an adult and $56,000 for a pediatric case.The direct costs are 4.2 times the per capita GDP; indirect costs are 14.8 times, and total costs are 19.0 times. The economic impact of AIDS cases diagnosed in 1988 was: direct costs: $22 million, indirect cost: $78 million, and total cost $100 million, or 0.54 percent of the GDP of Puerto Rico. Through 1992, projections forecast a cumulative number of AIDS cases of between 10,240-15,340 with an economic impact of $541 million which is 2.6 percent of the present GDP. **Conclusion:** Data on the economic impact, stress the need for comprehensive, cost-effective programs emphasizing prevention through education, early detection and alternative forms of care.

F.D.126 ECONOMIC ANALYSIS OF HEALTH-CARE COST OF HIV ANTIBODY POSITIVE INDIVIDUALS IN BULGARIA

Vlaev, Russi
Clinic of Infection Diseases, Sofia,Bulgaria

Objective: To estimate the health-care costs of HIV-Ab(+) individuals in Bulgaria and to work out a forecast for the economic costs till 1995. *Methods:* Review of the health-care costs for the 83 HIV-Ab positive individuals in Bulgaria. These costs include:

1. Direct costs (for medical care when submitted in a hospital): a) personnel's salaries, b) drugs c) other materials (bandages, cotton, etc.) d) other expenditures in hospitalization e) others.
2. Indirect costs: a) morbidity losses; b) mortality losses, c) social aids.

Results: Number of HIV-Ab (+) - 83. AIDS cases - 10. ARC cases - 7. HIV-related admission in a hospital - 154.Mean length of hospitalization - 8 days. Mean costs per admission - about 700 $.
Conclusions: The mean cost per every HIV-Ab (+) is about 1400$ - about 2.4 % of all infectious diseases costs. Compared to other infectious diseases of large costs (viral hepatitis, meningitis) AIDS is still not an economic problem for the public health care in Bulgaria. This investigation helps in planning the economic resources for the spread of HIV infection in Bulgaria till 1992.

F.D.127 RAPID ASSESSMENT OF NATIONAL AIDS PROGRAMME COSTS

Shepard, Julia*; Cameron, Charles*; Gizaw, Getachew**; Khodakevitch, Lev*; Tarantola, Daniel*
* Global Programme on AIDS, World Health Organization, Geneva, Switz.
** National AIDS Programme, Addis Ababa, Ethiopia

Objective: To determine total resources utilized for national AIDS programmes (NAP) in two East African countries and examine distributions of resources and annualized costs.
Methods: Data were collected from accounting and financial reports and through interviews in-country with staff in the NAP programme, Ministry of Health, donors, and other organizations. Using a Lotus spreadsheet model (AIDSCOST) developed by the authors, resources expended during the first year of implementation of the Medium Term Plan (MTP) wereanalyzed. Resources were characterized and analyzed by:

- Programme area: programme management, health education, surveillance and control, and laboratory support
- Funding source: WHO (designated and undesignated funds) national governments, direct bilateral or multilateral organizations
- Cost type: capital and recurrent

Results: National government contributions totalled between 8 and 13% of all resources expended. Capital expenditures represented approximately one-third of all first-year expenditures. Health education represented the largest programme area with between 33% and 60% of all resources expended. Conclusion: Assessment of national programme costs provides useful insight into resource allocation decisions, financing, and sustainability issues. Standardized tools, such as AIDSCOST, are needed to facilitate resource allocation analyses.

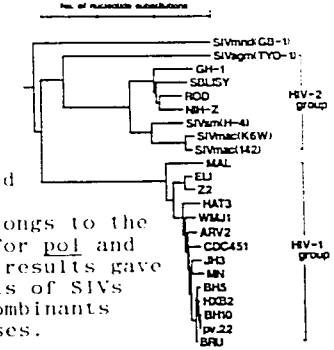
TRACK A: BASIC SCIENCE

POSTER DISCUSSION: EVOLUTIONARY RELATIONSHIP OF IMMUNE-DEFICIENCY VIRUSES

F.A.200 THE ORIGIN OF HUMAN AND SIMIAN IMMUNODEFICIENCY VIRUSES

Moriyama, Etsuko N.*, Ina Y.*, Ikeo K.*, Miura T.**, Tsujimoto H.***, Yokoyama S.****, Hayami M.**, and Gojobori T.*
*National Institute of Genetics, Mishima, Japan
**Institute for Virus Research, Kyoto University, Kyoto, Japan
***Institute of Medical Sciences, University of Tokyo, Japan
****University of Illinois at Urbana-Champaign, Illinois, USA

Objective: To examine phylogenetic relationships between HIV-1s, HIV-2s, and SIVs, particularly viruses isolated from African green monkeys (SIVagm), mandrills (SIVmnd), and sooty mangabeys (SIVsm).
Methods: Using the numbers of nucleotide substitutions, we constructed phylogenetic trees for each genes by the unweighted pair-grouping and neighbor-joining methods.
Results and Conclusion: The evolutionary positions on phylogenetic trees of SIVmnd and SIVagm depend on the genes examined. In the trees for gag and env, SIVagm belongs to the HIV-2 group (see Figure), but in those for pol and nef, it does to the HIV-1 group. These results gave evidence that HIVs are different variants of SIVs and that they emerged possibly from recombinants between different SIVs and related viruses.



F.A.201 PROSPECTIVE CLINICAL STUDY OF INFANTS WITH PERINATALLY ACQUIRED HIV1 INFECTION, IN BRAZZAVILLE, CONGO.

Lallemant-Le Coeur, Sophie*; Lallemant, M.**; Cheymer, D.***; Nzingoula, S.***, Larouzé, B.* et al. * IMEA/INSERM U13, Paris, France; ** ORSTOM, S/URB Paris/ Brazzaville, Congo; *** Dir. Sante Maternelle et Infantile, Brazzaville, Congo.

Objective: To study the natural history of perinatally acquired HIV1 infection in an African environment.
Subjects and methods: 27 infants born to seropositive mothers and infected by the HIV1 virus (positive serology after 18 months of life and/or deceaded of AIDS) were compared with 118 control infants born to seronegative mothers. They were followed up from birth and every 3 months by the same pediatrician with a standard clinical examination. At one year of age, the onset of each symptoms was expressed as cumulative frequency and otherwise analysed by the Kaplan-Meier method.
Results: Comparison between the 2 groups showed among infected infants, a significantly earlier occurence and higher cumulative frequency of lymphadenopathy (38.5% vs 10.4%), hepatomegaly (58.3% vs 27.3%), splenomegaly (47.8% vs 19.8%), failure to thrive, and minor neurological signs (35.3% vs 3.6%). None of the infected infants developed a severe encephalopathy. Of these 27 infected infants, only one (4%) remained symptom-free after 12 months of life, one (4%) had symptoms possibly attributable to HIV1, 9 (33%) developed AIDS, and 16 (60%) died.
Conclusion: Hepato-splenomegaly, lymphadenopathy and failure to thrive, while more frequent in infected babies, are not specific to this group. In contrast, minor neurological signs are rarely observed in the controls. The high frequency of these neurological signs associated with the absence of severe encephalopathy (as opposed to data from industrialised countries) suggest that those African infants might die of other causes before the occurence of encephalopathy.

F.A.202 COMPARATIVE STUDY ON HIV/SIV STRAINS ORIGINATING FROM CENTRAL AFRICAN REPUBLIC

Lang, M.-C.*; Nerrienet, E.*; Georges-Courbot, M.-C.**; Deslandres, A.*; Sonigo, P.*; Barré-Sinoussi, F.*; Georges, A.J.**
*Institut Pasteur, Paris, France, **Institut Pasteur, Bangui, CAR.

Objective: To identify the eventual relationship between HIV and SIV strains from the same African country (Central African Republic, CAR). *Methods:* We isolated the first HIV_2 strain ($HIV_{2/1169}$) from CAR and two SIV_{AGM} strains named SIV_{AGMB05} and SIV_{AGMB14} from blood samples seropositive by HIV_2 blot. Infectivity and cytopathogenicity of isolated strains for human and monkey cells has been studied as well as immunologic relatedness with HIV/SIV prototypes and genetic analysis by PCR. *Results:* Cellular tropism indicates that $HIV_{2/1169}$ isolated from a woman with AIDS shows a similar tropism than the prototype HIV_2/ROD, in opposite the two SIV isolates from CAR, particularly SIV_{AGMB5} appear to be poorly infectious for human lymphocytic cell lines compared to $HIV_{2/1169}$. Studies on the cytopathic effect of these CAR strains for human T cells indicate that both $HIV_{2/1169}$ and SIV_{AGMB14} show similar cytopathic propertie than $HIV_{2/ROD}$ whereas SIV_{AGMB5} is highly cytopathic for these human cells. Similar antigenic features between $HIV_{2/1169}$ and $HIV_{2/ROD}$ were shown by RIP assays. The env protein of $HIV_{2/1169}$ cross react with the env protein of simian viruses such as SIV_{MAC}, SIV_{SMM} and but to a limited extend with SIV_{AGM} from CAR. Southern blot analysis of DNA extracted from $HIV_{2/1169}$ infected CEM cells shows a clearly different restriction pattern between $HIV_{2/ROD}$, SIV_{MAC} and SIV_{SMM}. Genetic analysis revealed that SIV_{AGMB14} is divergent from other published SIV_{AGM} and does not present more than 50% of homology with $SIV_{AGMTyO-1}$. By PCR experiment we could amplify several regions of the genome of these three strains from CAR. *Conclusions:* First HIV_2 isolate from CAR might be considered as a HIV_2 variant, with high degree of similarities with the prototype $HIV_{2/ROD}$. It is, thus, distinct from SIV_{AGM} strains identified in the same region. However, our study on SIV_{AGM} isolates from CAR confirms the high degree of heterogeneity among SIV_{AGM} subtypes.

F.A.203 CHARACTERIZATION OF AN INFECTIOUS HIV-2 CLONE FROM A GERMAN AIDS PATIENT WITH NEUROLOGICAL DISEASE.

Kirchhoff, Frank; Jentsch, K.D.; Bachmann, B.; Stuke, A.; Lucke, W.; Stahl-Hennig, C.; Hunsmann G.
Deutsches Primatenzentrum, Gottingen, FRG

Objective: A new HIV-2 isolate, HIV-2BEN, has been moleculary cloned and sequenced. The infectivity of one clone, HIV-2BEN MK6, has been investigated for various human T-cell lines, human and macaque peripheral blood lymphocytes (PBL) and for cynomolgus macaques (*Macaca fascicularis*) in order to establish a simian model for human AIDS with a well characterized molecular clone.
Methods: DNA from infected Molt-4 clone 8 cells was partially digested with Sau 3A and ligated to Lambda EMBL-3 BamHI arms. Recombinant plaques were screened with probes of the HIV-2ROD genome (Tm - 25°C) and positive clones were restriction mapped. Human T-cell lines and PBL were transfected with 10 µg DNA of the full-sized clone MK6 using the DEAE Dextran method. Macaque PBL were infected with 1 x 10^7 cpm reverse transcriptase (RT) activity of cell-free MK6 virus. Virus in the supernatant of transfected cells was analyzed by RT assay and western blot analysis. Proviral DNA was detected in the host cell genome by Southern blot and PCR analysis. Cynomolgus macaques were infected with cell-free MK6 virus from supernatant of transfected Molt-4 clone 8 cells and seroconversion was monitored by western blotting and immunoprecipitation. Virus was reisolated after cocultivation of PBL from the infected macaques with Molt-4 clone 8 cells.
Results: The restriction map and sequence analysis revealed, that HIV-2BEN is highly different from previously described HIV-2. The proviral clone MK6 replicated with high rates (peak RT activity 1 x 10^7 cpm/ml) and was highly cytopathic in Molt-4 clone 8 and MT-2 cells, whereas in HUT-78, Jurkat and CEM cells only RT activities up to 2 x 10^5 cpm/ml and low or no cytopathic effects were observed. In the supernatant of transfected cells gp160, gp120, gp42, and the main core protein p24 were detectable. Proviral MK6 DNA was present in all cell lines transfected. MK6 efficiently infects human, cynomolgus and rhesus macaque (Macaca mulatta) PBL. The provirus could be detected in DNA from PBL, Molt-4 clone 8 cocultures by PCR analysis. Cynomolgus monkeys seroconverted within four weeks after inoculation of MK6 virus. One of two infected animals developed viremia.
Conclusions: The infectious molecular clone HIV-2BEN MK6 offers the opportunity to study regulatory gene functions *in vitro* and allows studies in macaques with a well characterized human AIDS virus.

F.A.204

COMPLETE NUCLEOTIDE SEQUENCE OF A GUINEA-BISSAU HIV2 ISOLATE (HIV2 CAM2)

Tristem, Michael*; Karpas, A.*; Hill, F.*
*Department of Haematology, University of Cambridge, Cambridge, UK

Objective: To study the genetic variability of HIV-2 by sequencing a Guinea-Bissau isolate.
Methods: The isolate was obtained by co-cultivating a Guinea-Bissau AIDS patient's peripheral blood mononuclear cells with the Karpas 45 T-cell line. A genomic library of the infected line was screened with a pROD probe and a full length clone has been sequenced.
Results: The provirus HIV2 CAM2 is 10372 nucleotides in length. Nucleic and amino acid homology with the prototype ROD is shown.

	LTR	gag	pol	vif	tat	rev	env	nef
Nucleic acid homology	93.7	92.5	93.3	94.4	91.0	91.0	87.9	88.9
Amino acid homology	-	93.3	93.8	89.8	79.3	88.9	83.6	80.0

CAM2 has a stop codon at position 4089. Site directed mutagenesis has been used to change this stop codon to a Trp codon (TGA->TGG as in ROD). The virus contains no other unexpected stop codons or major deletions.
Conclusion: Although the geographical origins of the isolates ROD and CAM2 are close (Cape Verde Islands and Guinea-Bissau) there is still substantial variability between them. This and sequence data from other HIV-2 isolates suggests that there may be greater variability between them than among those of HIV1. It is therefore possible that HIV2 has existed in humans for a longer period than HIV1.

F.A.205

ISOLATION OF A HIGHLY DIVERGENT HIV-2 DISTINCT FROM KNOWN ISOLATES OF HIV-2 AND SIV

Kawamura,Meiko*; Sakuragi,J*; Fukasawa,M.*; Miura, T.*; Gojobori,T.**; Moriyama,E.N.**; Mingle,J.A.A.***; Nettey, V.B.A.****; Hayami,M.*
*University of Kyoto,Kyoto,Japan, **National Institute of Genetics,Shizuoka,Japan, ***University of Ghana,Accra,Ghana, ****St. Joseph Hospital,Koforidua,Ghana.

Objective:As the origin and evolution of HIV is controversial, we tried to isolate in Ghana a new HIV distinct from known isolates of HIV/SIV.
Methods:A HIV isolate, GH-2 obtained from a Ghanaian ARC patient was characterized antigenetically and phylogenetically.
Results:The env products have some difference from those of known HIV-2 in antigenicity and in molecular size. It grew well in PBMC but not effectively in monocyte/macrophage cells. The partial nucleotide sequence by PCR showed 16-20% divergence from the known isolates of HIV-2/SIVMAC/SIVSM, while it is closely related to HIV-2ALT recently reported. Phylogenetical tree shows it diverged before the divergence of known HIV-2 and SIVSM/SIVMAC.
Conclusion:GH-2 is HIV-2-related virus, very similar to HIV-2ALT with some difference. These two viruses together form a novel group distinct from and ancestral to known isolates of HIV-2 and SIVSM/SIVMAC, indicating that SIVSM and SIVMAC are included in a large heterogeneous group of HIV-2 of human virus.

F.A.206

A HIGHLY DIVERGENT HIV-2 RELATED STRAIN, HIV-2_{ALT}, DEFINES AN ALTERNATIVE TYPE RELATED TO THE HIV-2/SIV_{MAC}/SIV_{SM} FAMILY OF VIRUSES

Dietrich, Ursula; Adamski, M.; Kühnel, H.; Seipp, A.; Kreutz, R.; Rübsamen-Waigmann H.
Chemotherapeutisches Forschungsinstitut, Georg-Speyer-Haus, Frankfurt, Federal Republic of Germany

Objective: To study genetic variation of HIV-2 isolates
Methods: The nucleotide (nt) and deduced aminoacid (aa) sequences of the proviral clone HIV-$2_{D205.7}$, isolated from a genomic library of infected peripheral blood lymphocytes from an asymptomatic Ghanaian, were compared to the HIV-2 and SIV_{mac}/SIV_{sm} sequences from the Los Alamos HIV Sequence Database. Minimum length evolutionary trees were constructed using the PAUP program and the Phylip bootstrapping algorithm. Sizes of external glycoproteins (gp) were determined by immunoprecipitation of ^{35}S-cysteine labelled proteins from virus infected cells, followed by SDS-PAGE
Results: HIV-2_{ALT} is genetically equidistant between the HIV-2 viruses (ROD, NIHZ, ISY, D194) and the simian viruses SIV_{mac} and SIV_{sm}, having 76.2-76.8 % nt identity with the HIV-2 group and 75.0-76.4 % with SIV_{mac}/SIV_{sm}. In the evolutionary tree HIV-2_{ALT} branches before SIV_{mac} and SIV_{sm} separated from the HIV-2 prototypes. Like HIV-1 the precursors of the external gp of HIV-2_{ALT} do not form a dimer as is the case for the viruses of the HIV-2/SIV_{mac}/SIV_{sm} family and they are larger in size.
Conclusion: HIV-2_{ALT} is the oldest virus of the HIV-2/SIV_{mac}/SIV_{sm} family of viruses known so far being genetically equidistant between the human and the simian viruses. HIV-2_{ALT} defines an alternative type of the HIV-2 viruses characterized by high sequence divergence (24 %), lack of dimer formation of the gp precursors and different sizes of the gp.

F.A.207

PATTERNS OF SEROLOGICAL CROSS REACTIVITY OF HIV-2 ANTIBODY-POSITIVE SPECIMENS ON HIV-1 WESTERN BLOT

Adams, Colleen Westphal*; Beatrice, S.**; Cabrian, K.***; Krieger, M.** Majewski, S.*; Shriver, M.K.***
* Epitope Incorporated, Beaverton, Oregon, USA, **Division of Retrovirology and Immunobiology, Bureau of Laboratories, New York City Department of Health, New York, New York, USA, *** Genetic Systems Corporation, Seattle, Washington, USA.

Objective: Determine patterns and extent of antibody cross-reactivity of sera from HIV-2 infected individuals in the HIV-1 Western blot assay.
Methods: Forty-nine known HIV-2 positive specimens obtained from individuals in various geographical locations, including West Africa, were tested by the following methods: whole viral Enzyme Immunoassays (EIAs), peptide-based EIAs, and Western blots specific for HIV-1 and HIV-2. Five HIV-1 Western blot Indeterminate samples from the United States (New York City Department of Health) were also evaluated for the presence of antibodies specific to HIV-2 by the same methods.
Results: The following results were obtained on the HIV-2 positive specimens: All 49 samples (100%) were reactive in both the HIV-2 peptide assay and the HIV-2 Western blot. In the HIV-1 Western blot, 45 (92%) of these samples were Indeterminate. Analysis of band distribution in the HIV-1 Western blot Indeterminate samples showed that 40 (89%) reacted with the p31 band, and 26 (58%) reacted with the p24 band. Twenty-five (56%) samples reacted with both the p31 and p24 in the HIV-1 Western blot. The United States HIV-1 Western blot Indeterminate group showed all 5 (100%) reactive in the HIV-2 peptide assay as well as the HIV-2 Western blot. These samples showed similar band distribution on the HIV-1 Western blot.
Conclusions: Most samples containing antibodies specific to the HIV-2 virus showed cross reactivity with the viral proteins of the HIV-1 Western blot. Specimens tested for HIV-2 on the basis of an Indeterminate band pattern on HIV-1 Western blot proved to be HIV-2 antibody positive. The results of this study indicate that specimens exhibiting Indeterminate band patterns in the HIV-1 Western blot should be tested for the presence of antibody to HIV-2.

TRACK A: BASIC SCIENCE

POSTER DISCUSSION: EVOLUTIONARY RELATIONSHIP OF IMMUNE-DEFICIENCY VIRUSES

F.A.208 IMMUNOGENIC NATURE OF THE GP120 C-TERMINAL EXTREMITY OF HIV1, HIV2 AND SIVmac .

[1]BAILLOU A., [1]BARIN F., [2]MAYER R.,[3]KANKI P.,[4]M'BOUP S.,[5]LEONARD G., [1]GOUDEAU A.

[1]LAB VIROLOGIE, URA CNRS 1334 TOURS, FRANCE, [2]CENTRE MARCEL DELEPINE, CNRS, ORLEANS, FRANCE, [3]HARVARD SCHOOL OF PUBLIC HEALTH BOSTON MA, USA, [4]UNIVERSITE DE DAKAR, SENEGAL, [5]LAB MICROBIOLOGIE, CHR DUPUYTREN, LIMOGES, FRANCE

OBJECTIVES: To study the reactivity of both human sera positive for antibody to HIV1 or HIV2 and monkey (African green monkey,AGM) sera positive for antibody to SIV/HIV2 towards peptides located at the C-terminus of GP120 of HIV1, HIV2 and SIVmac

SERA: 372 human serum samples including 80 HIV negative sera, 162 HIV1 positive sera, 130 HIV2 positive human sera (from Senegal, Guinea-bissau and Ivory-coast) and 35 SIV/HIV2 positive monkey sera have been tested for the presence of antibodies reacting to these peptides.

METHODS: 6 peptides including 3 peptides of 31-34 amino-acids and 3 peptides of 13-16 amino-acids corresponding to the the C-terminus of the GP120 of HIV1, HIV2 and SIVmac were synthetised.These peptides were bound to bovine serum albumin and used as antigens in ELISA microtiter plates.Serum samples were incubated at 1:10 dilution and the binding of antibodies was revealed with peroxydase conjugated goat $F(ab')_2$ to human Ig and OPD/H_2O_2.

RESULTS: 92% and 48% of HIV1+ sera collected from African and French patients reacted respectively to the 31mer HIV1 peptide. These sera also reacted to the 13 mer C-terminus HIV1 peptide.33 and 29% of human HIV2+ sera reacted to the 33 mer HIV2 peptide and the 34 mer SIVmac peptide respectively.The sera that were reactive to the 33 mer and the 34 mer were also reactive to the corresponding 15 mer and the 16 mer .The sera from AGM reacting to SIV/HIV2 peptide did not bind to HIV2 peptide alone.They reacted either to SIV peptide alone or to both SIV and HIV2 peptides.65% of sera from Senegal reacting to the 33-34 mer HIV2/SIV peptides did bind to the HIV2 peptide only compared to 27% of sera from Guinea-bissau 54% of sera from Ivory-coast reacting to the 33-34 mer HIV2/SIV peptides did bind to the SIV peptide only compared to 23% of sera from Guinea-bissau.

CONCLUSION: These data indicate that there is an immunogenic domain located at the C-terminal extremity of the GP120 of HIV1, HIV2 and SIV.Within the HIV2/SIV serotype the sera from infected individuals reacted preferentially to either SIV or HIV2 GP120 C-terminal epitope depending on their origin.This kind of assay could be an interesting tool to realize precise seroepidemiological studies.

F.A.209 A NEW ENZYME IMMUNOASSAY FOR TITRATION OF ANTIBODIES TO A CROSS-REACTIVE EPITOPE OF THE MAJOR CORE PROTEIN OF HIV1 AND HIV2 : DIAGNOSIS AND PROGNOSIS USEFULNESS.

B. Janvier*, F. Barin*, B. Mandrand**.
*URA-CNRS 1334, 37044 Tours, France,**UM103 CNRS-BIOMERIEUX, 69364 Lyon,France.

OBJECTIVE. To study the immune response towards a cross-reactive epitope of p24/HIV1 and p26/HIV2 proteins in sera of HIV1 or HIV2 infected patients. A sequential inhibition assay (SIEIA) was developped using a murine monoclonal antibody, 23A5G4, recognizing the linear epitope AAEWDRVHP (a.a. 209 to 217 of p55/HIV1).

MATERIALS. Anti-p24 titration was done on HIV1 sera from France and Central Africa, "anti-p24 only" sera. Anti-p26 titration was done on HIV2 sera. Positive sera were chosen at different clinical stages of the disease.

METHODS. Solid phase of SIEIA was composed by HIV1/HTLV3B or HIV2/TY viruses captured on rabbit polyclonal IgG to p24/HIV1 or p26/HIV2. Samples were incubated 15' at 37°C before to add the peroxydase monoclonal anti-p24 conjugate for 90' at 37°C. A standard curve was done in every run to compare antibody titers.

RESULTS. Percent inhibition and antibody titer were calculated for each sample. Results obtained confirm the anti-p24 decline in sera of european patients developping AIDS. Whereas 79% of CDC II patients were positive in anti-p24, 48% of CDC III were positive and only 27% of CDC IV were positive. Results were different in african patients since 82% of CDC IV patients were anti-p24 positive. None of the"anti-p24 only" reactive sera was positive in our SIEIA. Most of the sera collected at the early phase of HIV1 and HIV2 seroconversions were positive in the SIEIA, indicating that AAEWDRVHP epitope is recognized early in infection.

CONCLUSION. Both monoclonal antibody 23A5G4 and the corresponding epitope AAEWDRVHP are interesting diagnosis and prognosis tools in both HIV1 and HIV2 infection.

F.A.210 RELATIONSHIP BETWEEN ONE HIV STRAIN FROM A DOUBLE SERO-POSITIVE PATIENT IN THE IVORY COAST AND SIV_{AGM} ISOLATES FROM AFRICA

Nerrienet, Eric*; Pouliquen, J.-F.*; Lang, M.-C.*, Courgnaut, V.**; Bréchot, C.**; Barré-Sinoussi, F.*; Georges, A.J.***; Ouattara, S.A.****
*Institut Pasteur, Paris, France, **U75 CHU-Necker, Paris, France, ***Institut Pasteur, Bangui, CAR, ****Institut Pasteur, Abidjan, Ivory Coast.

Objective: To discriminate between a double infection and an infection with an intermediate virus in a double seropositive patient from the Ivory Coast and to compare the HIV strain from this patient (HIV_{885} strain) with SIV_{agm} isolates from Africa.

Methods: Studies were performed on the tropism and cytopathic effect of HIV_{885} and two SIV_{agm} strains from CAR for human cell lines and for lymphocytes of different monkey species. Antigenic relationships were determined by RIPA and by Western blot analysis. Genetic analysis were performed using the PCR technology; PCR amplified fragments were analysed by Southern blot and then cloned and sequenced.

Results: Neither HIV_{885} nor SIV_{agm} was easily propagated in human cell lines. As was the case for one SIV_{agm} strain from CAR, HIV_{885} was produced only on MT_4 cells and then adapted to SupT1 cells ; it is low cytopathic virus. The external glycoprotein of HIV_{885} is closely related to the SIV_{agm} env protein. PCR analysis clearly showed that both HIV_1 and HIV_2 sequences were present in HIV_{885} producing PBL, whereas in MT_4 infected cells, only HIV_2 type was detected. This last data suggests that the patient from the Ivory Coast was doubly infected and that HIV_2/SIV type was selected by propagating the virus in MT_4 cells.

Conclusion: A double seropositive patient from the Ivory Coast appears to be doubly infected by HIV_1 and by HIV_2/SIV. After adaptation on a continuous cell line, only HIV_2/SIV subtype was detected and this subtype seems to share common biological and antigenic features with SIV_{agm} from Central Africa. The genetic relationship between HIV_{885} and SIV_{agm} will be discussed. This work was supported by the American Foundation for AIDS Research (AmFAR Grant) and by the French National Agency for AIDS Research (ANRS).

F.A.211 THE HIV-1 PRINCIPAL NEUTRALIZING DETERMINANT CONTAINS CONSERVED SEQUENCES AND STRUCTURAL ELEMENTS.

Putney, Scott*; LaRosa, G*; Lewis, J***; Profy, A*; Weinhold, K**; Matthews, T**; Boswell, N;Dreesman, G;Holley, H****;Karplus, M****;Emini, E***;Bolognesi, D**
*Repligen Corp., Cambridge, MA,**Duke U., Durham, NC,***MSD Research Labs, West Point, PA,****Harvard U., Cambridge, MA

Objective: To investigate the amino acid variability of the HIV-1 principal neutralization determinant (PND) to discern whether common elements exist and whether isolates can be grouped into neutralization classes. The PND is part of gp120 (positions 303 to 338) and PND specific sera neutralize virus infectivity. The PND is highly variable in amino acid sequence and antibodies elicited by the PND from one isolate generally do not neutralize different isolates.

Methods: The determinant from 249 HIV-1 isolates was sequenced and analyzed for conserved sequences and conserved structures by a neural network analysis.

Results: The analysis reveals that the PND is less variable than thought originally and suggests that there are constraints on the variability that can be tolerated. For example, particular hexa, hepta, and octapeptides occur in a significant percentage of the isolates even though they have different overall gp120 sequences. The average PND sequence is predicted to have a β strand---turn---β strand---α helix structure. This motif is predicted to be common to many of the PNDs and may be the structural attribute that constrains the sequence variability.

Conclusions: The HIV-1 principal neutralizing determinant contains conserved sequence and structural elements that should be useful for vaccine development.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER DISCUSSION: PROJECTIONS AND ESTIMATES OF HIV AND AIDS

F.C.212

ESTIMATION OF THE STAGE-SPECIFIC INCIDENCE AND PREVALENCE OF HIV INFECTION BY USING A MARKOV MODEL AND BACK-CALCULATION

Longini, Jr., Ira M.*; Byers, R.H.**; Horsburgh, C.R.**
Hessol, N.A.***
*Emory University, Atlanta, Georgia, USA; **Centers for Disease Control, Atlanta, Georgia, USA; *** Department of Public Health, San Francisco, California, USA.

Objectives: To present a method for estimating the prevalence of HIV infection for different stages of infection from reported AIDS incidence.
Methods: The natural history of HIV is modeled by a Markov process with five basic stages: 1) infected but antibody negative; 2) antibody positive but asymptomatic; 3) symptomatic HIV infection and/or abnormal hematologic/immunologic indicator; 4) clinical AIDS; 5) death. The estimated AIDS incubation period distribution from the Markov model is used in back-calculation from AIDS incidence data to estimate the total number of HIV infections and the infection probability distribution. These estimates are then used in the Markov model to estimate the stage-specific prevalence and incidence of HIV infection.
Results: The method was applied to AIDS incidence data from the San Francisco City Clinic cohort of 6,706 men. In December 1988, we estimate the numbers of infected men in stages 1 - 4 were estimated at 2 ± 2.4, 533 ± 143, 1609 ± 134, and 545 ± 17, respectively. In contrast, the numbers of infected men in stages 1 - 4 in June 1982 were estimated at 71 ± 23, 2329 ± 120, 629 ± 36, and 19 ± 3, respectively.
Conclusion: A staged Markov model can be used in conjunction with the back-calculation to estimate the stage-specific number of HIV infected individuals from AIDS incidence data.

F.C.213

AIDS CASE PREDICTIONS FOR THE UNITED STATES

Karon, John M.; Green, T.
Centers for Disease Control, Atlanta, GA, USA

Objective: To evaluate the accuracy of the 1986 and 1988 U.S. Public Health Service (PHS) predictions, to present revised predictions, and to describe problems in making predictions.
Methods: AIDS cases reported through September 1989 were adjusted for estimated reporting delays. Projections were made by several analysts using extrapolation and back-calculation.
Results: Previous predictions have been quite accurate (diagnosed cases reported to CDC; see Table). New predictions must take into account a

Year	1986 pred.	1988 pred.	Diagnosed
1986	15,800	--	18,400
1987	23,400	--	28,000
1988	33,100	35,300	34,000
1989 (Jan-June)	20,800	21,300	19,100

change in the AIDS incidence trend during 1987, which occurred nationally and in men who have sex with men, from quadratic to linear with a smaller slope. New projections are for cases diagnosed through 1993, give plausible ranges, and are about 15% lower than the 1988 projections (new prediction for 1992, 58,000-85,000 cases, vs. 1988 prediction of 86,000 cases). The revised projections are that 390,000-480,000 cases will be diagnosed through 1993, with 285,000-340,000 deaths in diagnosed cases.
Conclusions: The decreases in the PHS projections reflect the observed change in AIDS incidence trends. Projections from back-calculation can be sensitive to recent changes in these trends. Methods used to make projections must incorporate plausible causes for the observed changes.

F.C.214

BACKCALCULATION OF THE NUMBER WITH HIV-1 INFECTION IN THE UNITED STATES

Rosenberg P.S.; Biggar R.J.; Goedert J.J.; Gail M.H.
National Cancer Institute, Rockville Maryland USA

OBJECTIVE: To estimate the cumulative number of HIV infected persons in the USA as of January 1985 and July 1987, and to provide estimates of prevalence separately by race, by sex, and by risk-group.
METHODS: Quarterly, delay-adjusted (JAIDS 1990, Vol 3, p.49-54) counts of AIDS incidence were calculated from national AIDS surveillance data. Previous rates of HIV infection were estimated using flexible linear models (Applied Statistics, in press) and incubation distribution $F(t)=1-\exp(-.0021t^{2.516})$. A "plausible range" of estimates was calculated which reflected systematic uncertainty about the incubation distribution and random variation from model selection and fitting.
RESULTS: We estimated that, as of 1985, 398,000 to 765,000 persons were infected, including 29,000 to 75,000 women. The infected population included 275,000 to 550,000 homosexual men, 66,000 to 138,000 intravenous drug users (IVDU's), 24,000 to 50,000 homosexual IVDU's and 9,000 to 26,000 persons infected through heterosexual contact. An estimated 235,000 to 450,000 Whites, 89,000 to 197,000 Blacks, and 53,000 to 117,000 Hispanics were infected. The estimated prevalence of infection among persons 15 to 55 years of age was 0.30 percent in Whites, 0.81 percent in Hispanics, and 0.82 percent in Blacks. Compared to White women aged 15 to 55, the relative prevalence of infection was 5.3 times higher in Hispanic women and 10 times higher in Black women. Plausible estimates for the total number infected as of July 1987 ranged from 593,000 to 1,398,000, with the most likely estimate being 1,010,000.
CONCLUSION: Backcalculation provides an assessment of the HIV epidemic that is independent of serosurveys in special populations. Results from both methods are broadly consistent and emphasize the need for vigorous programs to prevent the spread of AIDS in minority communities.

F.C.215

IMPACT OF INTRAVENEOUS DRUG USERS ON THE HETEROSEXUAL AND PAEDIATRIC AIDS EPIDEMIC. Evaluation and prediction (by 1995) with a mathematical model applied to Paris, France.

Flahault, Antoine*; Nguyen Phong, C.*; Guiguet, M.*; Le Pont, F.*; Valleron, A.J.*
*INSERM U263 - Université Paris 7, 2 place Jussieu, 75251 Paris cedex 05

Objective: A model has been developped to simulate the dynamic of the section of the AIDS epidemic which is caused by heterosexual and mother-to-infant transmissions, related to contacts with intraveneous drug users (IVDU).
Methods: It is a compartmental model based upon differential equations. Two hypothesis drawn from other studies have been tested in order to forecast the next trends of the epidemic curves. Hypothesis (A) assumes that 2% of the 20-34 years old persons are IVDU in Paris. Hypothesis (B) assumes a proportion of 0.7%. For both hypothesis, the initial sex-ratio of the IVDU population was 3 males : 1 female.
Results: The model reproduced closely the observed numbers of AIDS cases in these subgroups, in Paris, France, as notified to the Health Authorities from 1985 to 1988. The vertical probability of transmission was 30% for all the simulations. As a by-product of the model, the adults parameters of transmission were estimated. The yearly probability of transmission per heterosexual partnership has been estimated to 13% (identical for both sexes). For needle share the yearly probability of transmission was 70%. With regard to the hypothesis (B) and (A), predictions of the model would lead to a cumulative number of 3,300 to 3,900 patients with heterosexual AIDS by 1995 in Paris (this number was 256 by 1988). Among IVDU the number would be between 6,800 and 11,400 by 1995 (481 by 1988). Paediatric number of cases would reach 400 to 760 (37 by 1987). The model also predicted that the sex-ratio of the heterosexual AIDS will inverse from 1990 (1988 1.3 male : 1.0 female).
Conclusion: This work emphasizes the major role of IVDU and notably males in the spread of AIDS among the non-IVDU community. To date, prevention should focus efforts on IVDU.

TRACK C: EPIDEMIOLOGY & PREVENTION

POSTER DISCUSSION: PROJECTIONS AND ESTIMATES OF HIV AND AIDS

F.C.216

FORECASTING AIDS CASES AS AN INSTRUMENT TO MONITOR AIDS CASE SURVEILLANCE.

Khodakevich Lev*, Mengistu M.** Bekele S.**
* WHO Team Leader, AIDS Control Programme, Ethiopia, ** Department of AIDS Control, MOH, Ethiopia.

Objective: To evaluate the extent of the AIDS epidemic in Ethiopia and to assess the efficiency of the surveillance on AIDS cases.
Materials and Methods: A model "AIDS Calculator" developed by the Global Programme on AIDS was used for the calculation. Reports on HIV prevalence rates in various population groups provided the basis for extrapolation of the actual prevalence.
Results: 2663 females practicing multipartner sexual contacts (MPSC) in Addis Ababa and 6564 in other cities and major towns of the country represented 52,345 females at a high risk of HIV infection. 524,588 persons of general population in major towns were represented by blood donors who had the prevalence rate of 2.6%. 324,596 adult males from Addis Ababa were also represented by donors (HIV PR-2.4%) and 180,716 females by the attendants of antenatal clinics (HIV PR-4.0%). Analysis of the incidence by year showed exponential increase in AIDS cases, and the cumulative number of cases only in the study groups has reached 1153 by the end of 1989. The surveillance system developed in Ethiopia during the third quarter of 1989 was able to identify about one quarter of the AIDS cases.
Conclusion: Forecasting AIDS cases on the basis of HIV prevalence is an efficient instrument to determine efficiency of AIDS case surveillance system. The level of precision however depends on representativeness of the population groups studied.

F.C.217

SHORT-TERM PROJECTION OF AIDS CASES USING HIV SEROLOGIC DATA

Chin, James*; Sato, P.*
*Global Programme on AIDS, World Health Organization, Geneva, Switzerland

Objective: To provide a method for estimation and short-term projection of AIDS cases in areas where reporting of AIDS is unreliable.
Method: The method relies on estimation of annual HIV-infected "cohorts" and on annual progression rates from HIV infection to AIDS for each cohort. Estimation of annual infections are based on observations as to when HIV infections began to extensively spread and on the estimated shape and intensity of the annual infection curve. The annual progression rates are derived and projected from cohort studies of gay men.
Results: Using published and unpublished HIV serologic data, adult AIDS cases were estimated and projected for selected countries or regions in areas where homosexual men and IV drug users are the predominantly affected population (Pattern I); where heterosexual transmission of HIV predominates (Pattern II); and where HIV infection only began to spread extensively after the mid-1980s (Pattern III).
Conclusion: This method is useful for estimating the current and future AIDS case load, especially in areas where the reporting of AIDS is unreliable. Such estimates are critically needed for public health and health care planning.

F.C.218

RATIO HIV PREVALENCE/AIDS INCIDENCE IN A COHORT OF HOMOSEXUAL MEN AND THE ESTIMATION OF THE HIV PREVALENCE IN URBAN AREAS.

Hendriks, Jan*; Medley, G**; Van Druten, J***; Van Griensven, GJP*; Bindels, PJE*.
*Municipal Health Service Amsterdam, the Netherlands; **Imperial College London, U.K.; ***University of Nijmegen, the Netherlands.

Objective: To estimate the HIV prevalence in Amsterdam using the development of the ratio HIV prevalence/AIDS incidence in the course of time in a cohort of homosexual men in Amsterdam.
Methods: The ratio was assessed among 750 homosexual men participating in a cohort study in Amsterdam since the end of 1984. The ratio of interest is the no. of HIV positives at the beginning of a given year to the no. of AIDS cases diagnosed during the year. Active surveillance of the no. of AIDS cases in Amsterdam was done by the Municipal Health Service. A field study showed that underreporting was minimized to 5%. The method developed by Cox and Medley was used to incorporate the reporting delay on the estimated no. of AIDS cases. Results: Before Jan. 1990 286 men were HIV positive or seroconverted of whom 66 developed AIDS. The ratio for each year from 1985 to 1989 was 35, 15, 12, 11, 11, respectively. Until Oct. 1989 607 homosexual men with AIDS were registrated in the city of Amsterdam. Using the AIDS incidence per year after correction for the reporting delay and the ratio mentioned above the estimates for the HIV prevalence in the city are: 1749, 1391, 1782, 2250 and 2795. From the short term prediction of the no. of AIDS cases and the stable character of the ratio the HIV prevalence in the years 1990-92 would be 3204, 3547 and 3808 respectively.
Conclusion: The stabilizing ratio in the years 1987-89 suggests that the ratio can be used to estimate the number of HIV infected homosexual men in the city of Amsterdam.

F.C.219

SIZE OF THE EPIDEMIC OF TRANSFUSION-ASSOCIATED AIDS IN FRANCE

Le Pont, Françoise; Costagliola, D; Massari, V; Valleron, A-J.
INSERM U 263, Université Paris 7, Paris, France

Objective: To assess the size of the epidemic of transfusion-associated AIDS before and after the introduction of the HIV antibody screening test in August 1985.
Methods: Two models were used. Model 1 simulates the transfusion process in order to fit the number of notified transfusion-associated AIDS cases, using the previously estimated risk of distributing an infected unit of blood after the introduction of screening (due to the seroconversion window) and including the mortality pattern of transfusion recipients. Three different seroconversion delay distributions were assumed with a mean delay of 1, 2, or 3 months. Model 2 is a more direct approach. Using date of transfusion (infection date) of reported cases and an estimate of incubation time distribution for transfusion recipients, total number of AIDS cases were projected.
Results:

	Total size of the epidemic	Number contaminated in 1986	1987	1988
-Model 1 mean seroconversion delay				
1 month	2,500	100	50	30
2 months	3,000	200	100	70
3 months	3,200	270	170	100
-Model 2	2,900	180	NA	NA

Conclusion: Both models lead to comparable results, especially when selecting the currently admitted hypothesis of a two month mean seroconversion delay. So far, by september 1989, 526 transfusion-associated AIDS cases have already been reported and, based on these models, 2,500 other cases are likely to be reported in the future.

F.C.220

MONITORING AND SHORT-TERM FORECASTING OF AIDS IN EUROPE

Downs, Angela M.*+; Ancelle-Park,R.A.*; Costagliola,D.C.+; Rigaut,J.P.+; Brunet,J-B.*; and national correspondants.
*WHO Collaborating Centre on AIDS, +INSERM U263,Univ.Paris 7, Paris, France.

Objective: Development and application of methods for the short-term forecasting of AIDS from routine surveillance data.
Methods: Half-yearly AIDS incidence data reported by European Community (EC) and other European countries were adjusted for reporting delays and modelled using 5 alternative approaches: exponential (EXP) and linear fitting over 3 years, and linear & quadratic Box Cox and linear logistic fitting over longer periods. Average (3 year) doubling times (DT) were estimated. Short-term projections were obtained by extrapolation from the fitted models. Forecasting of transfusion associated (TA) cases was based on data from the European TA data base and estimates of the incubation period distribution.
Results: Latest results, based on data to 30 June 1989, include:

Transmission group	DT (months)	Cumulated projections to June 1991 EXP	Other models (range)
EC: all combined	17.1	79 000	61 000 - 72 000
EC: homo/bisexual	24.8	29 000	22 000 - 28 000
EC: IV drug user	11.4	39 000	23 000 - 29 000
EC: heterosexual	13.6	6 200	4 300 - 5 800
EC: transfusion	-	-	1 400 - 4 500 (to Dec 1991)

For EC homo/bisexuals, recent incidence trends are fitted much better by the linear than by the exponential model. However, growth rates among IV drug users, although less than exponential, continue to be much higher.
Conclusion: Projections based on current doubling times are no longer adequate and should be regarded as upper limits (EXP). As the most appropriate model for forecasting in a given group varies over time, a range of forecasts from different models should always be provided.

F.C.221

HIV-INFECTED CHILDREN AND AIDS-RELATED ORPHANS IN SUB-SAHARAN AFRICA

Cheek, James*; Chin, J.*

* Global Programme on AIDS, World Health Organization, Geneva, Switzerland

Objective: To estimate the numbers of infected and uninfected children born to HIV-infected women in sub-Saharan Africa.
Method: The numbers of HIV-infected women in sub-Saharan Africa were estimated using available serologic and epidemiologic data. Routine demographic procedures were used for estimating fertility. Potential AIDS orphans were estimaated by calculating duration of maternal infection before development of AIDS.
Results: By 1990, the cumulative number of HIV-infected children under ten years of age (who were born to a mother who developed AIDS) will be over 65,000. The number of uninfected AIDS-related orphans under the age of ten will be over 250,000.
Conclusion: The current numbers of HIV-infected children and AIDS-related orphans in Africa are large and can be expected to increase markedly over the next few years. The advances of child-survival programs of the past 20 years may be reversed already.

F.C.222

SCOTLAND'S HIV EPIDEMIC BACK PROJECTION APPLIED TO "C200 CASES"

Bird A G*, Brettle R P*, Galloway E**, Gore S M***, Gruer L*, McGee M A***, Reid D**, Wilkinson P**.
*University of Edinburgh, **Glasgow, ***MRC Biostatistics Unit,Cambridge,UK.

By 30 September 1989, adult AIDS cases number 2417 in England and Wales (EW), and 114 in Scotland. Their distribution by exposure category was different: homosexual/bisexual men (HOMO) accounted for 85% of cases in EW, infecting drug user (IDU) and heterosexual (HET) contact for 4% each, compared to 55% HOMO, 25% IDU, 10% HET transmission in Scotland.
Immunological monitoring of HIV positive individuals has centred on two laboratories (Edinburgh and Glasgow), was started by clinicians early in the epidemic and is repeated three monthly. By October 1989, nearly 500 HIV patients with CD4 count below 500 had been monitored, of whom 7, 27, 62 became C200 cases in 1986, 1987, 1988 and a further 59 up to 30 June 1989, with exposure category: HOMO 39% IDU 48% and 5% HET transmission. However, whereas only 21% percent of C200 injecting drug users had no previous CD4 count, this applied for 43% of homosexual/bisexual men.
Back projection on C200 cases depends critically on the final C200 count for 1989. We assume Weibull incubation distribution (mean 8.5 years, index 2) and that h(t), the number of new infections in time t to t+dt, can be described as $h(t) = a \exp(bt+ct^2)$, with t = 0 at January 1985. Imputation of 120 C200 cases for 1989 gives a best fit of HIV incidence having peaked in mid 1987 but the data are consistent also with continued exponential increase. If 160 C200 cases are assumed for 1989, then only the low fit embraces an epidemic which peaked in mid 1987.
Conclusion Uncertainty about the Scottish HIV epidemic is narrowed by applying back projection to C200 cases.
1) HIV patients whose CD4 count is below 200 on two consecutive visits.

F.C.223

A MULTI-POPULATION MODEL OF HIV EPIDEMIC IN LATIUM, ITALY.

Arcà M.*; Perucci C. A.*; Spadea T.*; Rossi C#.
*Regional Epidemiology Unit, Rome, Italy. #Dept. of Mathematics. II^a Università, Rome, Italy.

OBJECTIVES: To formulate a multi-population mathematical model of the HIV epidemic; to study its dependence on several parameters and to compare the results with data from the Latium HIV Surveillance System (LHSS), Italy.
METHODS: The model describes the interrelations between the low-risk general population (GP; N=2,200,000) and the high-risk IVDU group (N=30,000), the relative importance of the homosexual epidemic being low, in Italy. Transmission occurs through needle exchange among IVDUs and heterosexual intercourses between and within the two groups. Contacts among the various behavioural subgroups are ruled by two preference, "complex choice mixing", matrices. A 4 stage incubation period is introduced (mean = 9.8 years). Numerical solutions of the equations, for the basic model and for models derived by modifying the values of the matrices and of behavioural and transmission parameters, were obtained using a 4th order Runge-Kutta method.
RESULTS: In the basic model the incidence of infection peaks 10 years after virus introduction (>1,300 new cases per quarter); prevalence rates among IVDUs stabilize after 15 years at around 80%. Later on the GP epidemic gains increasing importance (600 new cases of infection per quarter). At the steady state the simulation gives 4,000 new adult AIDS cases per year. A 50% reduction of the needle sharing rate would cause a decrease in the incidence and prevalence for both groups, but does not, by itself, stop the epidemic.
CONCLUSIONS: Incidence and prevalence data from the LHSS for II quarter 1989 are consistent with results obtained around the 9th year of the simulation. The ongoing sensitivity analysis of the model will allow further deepenings.

TRACK A: BASIC SCIENCE
POSTER SESSION

HIV Replication

F.A.225 **EVIDENCE THAT TAT PROTEIN FROM HUMAN IMMUNODEFICIENCY VIRUS LINKS VIRAL RNAS TO NUCLEAR MATRIX**

Müller, Werner E.G., Okamoto, T.*, Ugarković, D. and Schröder, H.C.
Institut für Physiologische Chemie, Universität, 6500 Mainz, FRG; and *National Cancer Center Research Institute, Tokyo, Japan.

Objective: The processes of transcription and posttranscription are assumed to proceed in close association with the nuclear matrix. In this study we demonstrated that Tat, the trans-activating protein from human immunodeficiency virus type 1 (HIV-1), binds both to the TAR-region of the nascent HIV mRNAs and the nuclear matrix with high affinity.
Methods and Results: Both North/Western blotting experiments and nitrocellulose binding studies revealed that Tat binds with an association constant (K_a) of ~ 1 x 10^7 M^{-1} to the TAR segment of HIV RNA; binding of Tat to this sequence which is present between position 32 and 82 downstream from the TATA-box was also confirmed by gel retardation assays. Binding of Tat to TAR only occurs if the loop segment in the proposed stem-loop secondary structure of HIV leader mRNA is present. Likewise, Tat binds to the nuclear matrix with a K_a of 7.5 x 10^7 M^{-1}. The number of binding sites has been estimated to be 2 x 10^8 per µg of matrix protein, corresponding to 4 x 10^3 sites per nucleus. Tat displays its bimodal function only in the presence of Zn^{2+} ions. In vitro transcription experiments, using HIV-1 infected nuclei, demonstrate that beyond the TAR-region HIV RNA synthesis occurs only in the presence of Tat.
Conclusion: Present studies indicate that Tat may function as a linker by binding of nascent HIV RNAs to the nuclear matrix.

F.A.226 **IN MURINE CELLS, HIGH LEVEL HIV-1 AND HIV-2 TAT MEDIATED *TRANS*-ACTIVATION MAY REQUIRE DIFFERENT HUMAN CELLULAR COFACTORS**

M. Newstein, I.-S. Lee and P.R. Shank
Division of Biology and Medicine, Brown University, Providence Rhode Island, U.S.A.

Objective: We are attempting to characterize species specific cellular cofactors which are essential for Tat mediated *trans*-activation of HIV-1 and HIV-2.

Methods: We cotransfect constructs expressing the *tat* gene of HIV-1 or HIV-2, along with reporter constructs in which the viral LTR is used to drive transcription of the human growth hormone (HGH) gene or the bacterial chloramphenicol acetyltransferase gene into various cell types including: mouse cells, human cells and mouse human cell hybrids.

Results: We find the Tat mediated *trans*-activation functions of both HIV-1 and HIV-2 Tat are significantly lower in rodent cells than in human cells. Stable mouse-human hybrids containing only human chromosome 12 support a dramatically higher degree of *trans*-activation by the HIV-1 Tat protein.

Conclusion: Human chromosome 12 encodes a Tat cofactor which, at least partially, restores high levels of HIV-1 Tat mediated *trans*-activation. HIV-2 Tat *trans*-activation is complemented to a lower extent, if at all, by human chromosome 12 in mouse human cell hybrids.

F.A.227 THE *nef* GENE DOWN-REGULATES HIV-1 PRODUCTION

Gama Sosa, M.A.*,**; DeGasperi, R.*; Bernard, L.D.**; Hall, J.**; Fazely, F.*,** and Ruprecht R.M. *,**.
*Harvard Medical School and **Dana-Farber Cancer Institute, Boston, MA, USA.

Objective: To analyze the effect of the *nef* gene product on HIV-1 propagation.
Methods: Human adenocarcinoma (HeLa) and T-lymphoid (Jurkat) cells constitutively expressing the HIV-1 *nef* gene product were prepared by transduction with recombinant retroviruses. The resulting HeLa *nef* and Jurkat *nef* cells were tested for *nef* expression and for their ability to modulate the expression of the reporter gene chloramphenicol acetyltransferase (CAT) following transfection of pU3R-III CAT, a plasmid containing the CAT gene under the transcriptional control of the HIV-1 LTR U3R region. We also measured virus production after transfection of the infectious HIV-1 proviral clone pHXBc2 into *nef*-expressing cells, and in parallel, we tested the susceptibility of these cells to infection with cell-free virus particles.
Results: HeLa and Jurkat cells stably expressing the *nef* gene product down-regulated CAT expression following transient transfection of pU3R-III CAT and yielded markedly less virus after transfection of pHXBc2. Following infection with cell-free HIV-1 particles, the Jurkat *nef* cells produced significantly less virus as compared to infection of wild-type Jurkat cells. Jurkat cells expressing the highest levels of *nef* exhibited the lowest levels of CD4 receptors as measured by FACS.
Conclusion: Human cells expressing the HIV-1 *nef* product down-regulated virus production. Furthermore, human T cells expressing *nef* had significantly lower levels of CD4 receptors on their cell surface. These results suggest that the HIV-1 *nef* gene product not only down-regulates HIV-1 replication, but also profoundly influences host cell CD4 receptor levels. These observations implicate the *nef* product as an important factor in the regulation of HIV-1 propagation.

F.A.228 PLEIOTROPIC EFFECTS UPON HIV REPLICATION INDUCED BY THE nef GENE

Terwilliger, Ernest, Langhoff, E., Obaru, K., Haseltine, W., Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA, USA, 02115

Objective: Apparently conflicting observations concerning the role of the nef gene of HIV-1 have been reported recently. Numerous groups have reported that nef exerts a down-regulatory effect upon virus replication. Several investigators have further stated that the nef product specifically down-regulates transcription from the viral LTR. Others have reported difficulty in duplicating either or both of these effects. Our goal in this work to seek some resolution to this confusing situation.

Methods: Nef genes from different divergent strains of HIV-1 were studied. The effects of the different nef products were examined in the context of the intact proviruses as well as following transfection of individual nef expression vectors. Nef reading frames incorporating either a frame-shift or other point mutation were included as controls.

Results: We are able to demonstrate down-regulation of HIV LTR-driven heterologous gene expression by the products of some of the nef gene expressors. These results, however, are not adequately predictive indicators of the effects of each nef product upon virus replication.

Conclusions: Nef appears to be involved in modulation of virus replication via an additional mechanism besides down-regulation of transcription.

F.A.229 HIV-1 virus replicating efficiently in a T4 cell line produces a non-functional nef protein.

Anne G. Laurent[1], Ara G. Hovanessian[1], Yves Rivière[1], Bernard Krust[1], Armelle Regnault[1], Luc Montagnier[1], Annie Findeli[2], Marie Paule Kieny[2] and Bruno Guy[2].
1. Unité d'Oncologie Virale (URA CNRS 1157), Institut Pasteur, 25, rue du Dr. Roux 75724 Paris. 2. Transgène, S.A., 11, rue de Molsheim, 67000 Strasbourg, France.

The nef gene product of the human immunodeficiency virus (HIV) is suggested to be a negative factor involved in down regulating viral expression by a mechanism in which the correct conformation of the nef protein is essential and its phosphorylation might be an important parameter to consider. For this reason, we investigated the synthesis of the nef protein and its state of phosphorylation during HIV-1 infection of a T4 cell line, the CEM cells. Maximum synthesis of viral proteins occured three days after infection, when more than 90 % of cells were producing viral proteins. The synthesis of the nef protein was detected in parallel with the envelope and gag proteins. As expected, the nef protein was found to be myristilated but it was not phosphorylated and its half-life was less than 1 hour. By the use of the polymerase chain reaction technique, we isolated and sequenced the nef gene of this HIV-1 stock. Two significant mutations were observed : 1) the threonine (amino-acid number 15) into an alanine ; this is the site of phosphorylation by protein kinase C ; 2) the aspartic acid of the tetrapeptide WRFD into an asparagine ; this site is probably involved in GTP binding. In view of these results, the mutated nef gene was expressed in a vaccinia virus system and demonstrated that it was not phosphorylated and its half-life was dramatically reduced compared to the wild-type nef gene product. Furthermore, down regulation of CD4 cell surface expression was no longer effective by the mutated nef gene. These results emphasize that phosphorylation of the nef protein provides an efficient test to monitor its biological activity. Thus any attempt to study the role of the nef gene in HIV expression should always consider a parallel biochemical characterization of the nef protein.

F.A.230 CHARACTERIZATION OF DIRECT INHIBITION OF HIV-1 REVERSE TRANSCRIPTASE ACTIVITY BY ANTI-P66 MONOSPECIFIC ANTIBODY

DeVico, Anthony*, Sarngadharan, M.*
*Advanced BioScience Laboratories, Inc., Kensington, MD USA

Objective: To determine the mechanism of enzyme inhibition mediated by a monospecific antibody (C2003) directed against a 14 amino acid synthetic peptide derived from a conserved sequence in the C-terminus of HIV-1 RT p66.

Methods: The separate components of the RT reaction were tested for the ability to block antibody-mediated inhibition of HIV-1 RT, and the kinetic mechanism of inhibition was analyzed in detail. Since the target sequence for the antibody is well conserved among other retroviral RTs, the effect of the antibody on the activities of a number of these enzymes was also examined.

Results: C2003 antibody inhibited the activities of a wide range of RTs, but did not inhibit RNAseH activity, terminal deoxytransferase activity, or E. coli DNA polymerase activity. Inhibition of the RTs was blocked by preincubation of enzyme with template primer, and inhibition was competitive with respect to template primer.

Conclusion: The mechanism by which C2003 antibody inhibits RT activity indicates that the conserved epitope sequence is located within, or very near, sequences that comprise a portion of the polymerase active site of the free enzyme. Such information may be helpful in designing agents that specifically inhibit RT.

F.A.231 CHARACTERIZATION OF LONG TERMINAL REPEAT (LTR) MUTATIONS ON HIV REPLICATION AND CYTOPATHICITY

Vicenzi, Elisa, Ross, E.K., Buckler-White*, A.J., Leonard, J., Rabson, A.B., Martin, M.A. LMM, NIAID, NIH, Bethesda, MD, USA; * Georgetown University, Rockville, MD USA

Objective. To construct and analyze mutations in the U3 or U5 portions of HIV LTR which function in the context of an infectious proviral DNA.

Methods. Deletions were introduced between nucleotide -350 and -125 (within U3) of the HIV LTR. Since these alterations interrupted the nef open reading frame, all the LTR mutations were initially examined in a nef(-) background. Deletions affecting the U5 region of LTR were also made. Mutant LTRs were then introduced into an infectious molecular clone of HIV and were used to generate virus stocks as previously described (Leonard J. et al., J. Virol. 63:4919, 1989).

Results. The introduction of a nef mutation into an infectious molecular clone of HIV reduced progeny particle production 5 to 7 fold compared to its wild type (WT) isogenic parent. The negative effect of the nef mutation on replicative capacity was associated with a marked increased cytopathic effect (CPE), as monitored by both dye exclusion and 3H-thymidine uptake. Thus, the reduction in the yield of nef(-) virus compared to WT was very likely secondary to the massive cell killing observed. Surprisingly, some of the deletions within the -350 to -125 region of HIV LTR (in the context of the nef(-) genotype) restored the production of virus particles to WT levels. The augmented levels of the nef(-) virus production, affected by the U3 mutations, were accompanied by diminished CPE.

The deletion of 26 base pairs (bp) in the center or 3' one-third of the U5 region of HIV LTR generated infectious virions which exhibited slightly delayed kinetics of replication compared to WT. In contrast, the deletion of 29 bp, comprising the 5' one-third of U5, completely abolished virus replication.

Conclusion. nef(-) HIV exhibited impaired replicative capacity and increased CPE compared to WT virus. The nef(-) phenotype could be reversed by making "secondary" alterations within the U3 portion of the HIV LTR. The mechanism(s) responsible for the nef-LTR interaction will be discussed. In addition, the U5 portion of LTR clearly contributes to the replicative capacity of HIV.

TRACK A: BASIC SCIENCE
POSTER SESSION

F.A.232

AMINO ACID SUBSTITUTIONS WITHIN CONSERVED DOMAINS OF THE HIV-1 ENVELOPE IMPAIR INTRACELLULAR TRANSPORT AND PROCESSING OF GP160.

Willey, Ronald L., Martin, M.A., National Institute of Allergy and Infectious Diseases, National Institutes of Health, Bethesda, Maryland, USA.

Objectives: Identify and characterize domains within the HIV-1 envelope which are important to intracellular transport and processing of the envelope precursor protein, gp160.
Methods: Oligonucleotide-directed site-specific mutagenesis was used to introduce specific amino acid codon substitutions into the env gene of an infectious molecular clone of HIV-1. The wild-type and mutant proviral DNAs were transfected into HeLa cells and envelope processing analyzed during transient expression.
Results: Pulse/chase experiments revealed that drastic amino acid substitutions within highly conserved domains of the gp120 or gp41 envelope proteins impaired the intracellular transport of the gp160 precursor leading to a marked reduction in cell-associated gp120. A corresponding decrease in the amount of secreted gp120 was observed with the gp120 mutant while near wild-type levels of gp120 were released from cells transfected with the gp41 mutant. The potential structural implications of these mutations will be discussed.
Conclusion: The conserved domains identified in this study have been previously reported to be critical to envelope function during the fusion of viral and cellular membranes. The results from the current study indicate that these same regions are also important to intracellular transport and processing of the precursor protein, gp160. Thus, specific domains in gp120 and gp41 play important roles in both envelope processing and fusion, events associated with different stages of the viral replicative cycle.

F.A.233

REGULATED TRANSPORT AND PROCESSING OF THE HIV-1 GP160 IN TRANSFECTED MAMMALIAN CELLS.

Haffar Omar K.[*], Nakamura G.R.[**], Berman P.W.[**]
[*] Oncogen Corp., Seattle, WA, USA, [**] Genentech Inc., South San Francisco, CA, USA

Objective: To study the export and processing of the HIV-1 envelope glycoprotein, gp160, in transfected mammalian cells. When the env gene was transfected into CHO cells in the absence of any other viral genes, gp160 was retained in an intracellular compartment and failed to be proteolytically processed into mature gp120 and gp41. Based on this initial observation, we considered the possibility that gp160 contained sequences which functioned as a retention signal.
Methods: Mutagenesis of recombinant gp160 was performed and the gene products of the resulting variants were analyzed by transfection into 293 cells.
Results: Replacement of the transmembrane domain (TM) and cytoplasmic tail of gp160 with corresponding sequences derived from the HSV-1 envelope glycoprotein D generated a chimeric gene (d665.gD1). The encoded chimeric protein was transported to the cell surface and was proteolytically processed intracellularly to generate mature gp120 and membrane associated gp41-gD1 proteins. The gp120 was secreted efficiently into the culture supernatant, and was transported to the cell surface in complex with the gp41 sequences. Replacement of the invariant arginine residue in the TM domain, by mutagenesis, with a number of different hydrophobic as well as polar uncharged residues, did not alter the cellular transport and processing of gp160. However, truncation of gp160 at a site corresponding to residue 750 in the cytoplasmic tail, resulted in the proteolytic processing of the modified protein.
Conclusion: Our data suggests that sequences in the cytoplasmic region of the HIV-1 gp160 is involved in modulating the processing and export of gp160, and thus might play a role in viral maturation and encapsidation.

F.A.234

Early maturation steps of the HIV-1 envelope analyzed *in vitro*

Heinz Ellerbrok, Norberto Serpente, Luc d'Auriol*, Marc Sitbon and Catherine Vaquero. INSERM U152, Hôpital Cochin, Paris; * GENSET, Paris

Expression of the HIV-1 Env is a highly regulated process. Production of the mRNA coding for the Env precursor gp160 derives from splicing of the full length viral transcript. These transcription and splicing events require the action of both the Tat and Rev proteins. After transport of the spliced mRNA to the cytoplasm translation is initiated and the nascent polypeptide chain is translocated into the endoplasmic reticulum. Subsequently, the protein is extensively glycosylated, and cleaved into the extracellular surface protein SUgp120, associated with a transmembrane anchor protein, the TMgp41.

In order to facilitate the study of the intermediate steps translation, translocation and glycosylation of the HIV-1 Env, we derived an in vitro transcriptional and translational model. In vitro transcribed RNA was translated in rabbit reticulocyte lysates and glycosylated and further processed in microsomes.

Using this system, we generated a complete gp160 that was recognized by envelope specific antibodies. In addition, an early gp120 was produced independently from the cleavage of the gp160 Env precursor. This protein was initiated correctly and slightly larger than expected. For these reasons we termed this protein gp120*.

When analysing the transcriptional products of the env, we found in addition to the full-length 2.8 kb env messenger a smaller 1.8 kb transcript, that could correspond or contribute to the gp120*. Using site-directed mutagenesis we identified a stem-loop within the Rev responding element (RRE) as being responsible for premature termination of transcription. Nevertheless, this particular loop structure did not account for the premature translational termination yielding the gp120*. We are currently examining the role of other secondary structures and other potential mechanisms, that would lead to the formation of a precursor-independent early gp120*.

A distinct late trimming step of the sugar moiety for both, the gp160 and the gp120*, produced in our *in vitro* translation and maturation system, was also detected in the HIV chronically-infected T-cell line SE5. This indicated, that our model reproduced faithfully maturation steps of the HIV-1 Env products, that would be more difficult to identify in the whole cellular context. We are presently testing this hypothesis.

In conclusion, possible alternative HIV-1 Env products have been identified that could be highly relevant to several yet unexplained immunological and pathological features of HIV.

F.A.235

DOMAINS IN THE HIV/SIV ENV TRANSMEMBRANE PROTEIN CRITICAL FOR CLEAVAGE, FUSION, AND INFECTIVITY

Klimkait, Thomas; Willey, R; Turner, W; Martin, M.A.
Laboratory of Molecular Microbiology, NIAID, NIH, Bethesda, MD, USA

Objective: To identify functional domains in the transmembrane env protein of HIV and to determine their role in the viral life cycle.
Methods: Point mutations introduced into different invariant regions of the env glycoprotein 41 of an infectious HIV-1 clone were analysed using transiently transfected or acutely infected human CD4-positive cells. The impact on gp160-env precursor cleavage, association of the mutant gp41 with gp120, as well as the effect on cell fusion, particle release, and infectivity were studied.
Results: Mutational analysis of the hydrophobic N-terminus or a Gln-motif in the adjacent hydrophilic region demonstrated that these domains were involved in gp160 cleavage, gp120/gp41 association and membrane fusion. Removal of the conserved charged amino acid Arg near the center of the membrane anchor resulted in greatly reduced cell fusion. Stop codons introduced C-terminal from the transmembrane region do not affect membrane fusion but abrogate infectivity.
Conclusion: The HIV env TM-proteins contain several highly conserved domains which are essential for a productive HIV-infection. Single point mutations can abolish function by interference with intermolecular protein-protein interactions, or by inhibition of membrane fusion.

F.A.236 Analysis of the different domains of the HIV-1 envelope signal peptide

Heinz Ellerbrok, Luc d'Auriol*; Catherine Vaquero and Marc Sitbon.
INSERM U152, Hopital Cochin, Paris; * GENSET, Paris.

The HIV envelope is a major determinant of viral pathogenesis. One of the central elements for expression of the envelope proteins at the cellular surface is the signal peptide (SP). The SP drives the nascent polypeptide chain through the endoplasmic reticulum and Golgi apparatus where complete glycosylation and maturation take place.

SP are short N-terminal amino acid sequences, that precede most secretory and membrane-bound proteins. Despite their lack of sequence homology SP have a common arrangement in an N-terminal charged region followed by a hydrophobic core and a region defining the cleavage site. In addition to this arrangement in three different domains, the SP of the HIV-1 envelope protein gp160 has unique structural features: a highly charged N-terminus, the presence of a tryptophan motif, and finally the presence of a cysteine in the cleavage site.

Because of the prominent role of the SP and because little is known on retroviral envelope SP, we initiated a systematic study of the HIV-1 envelope SP by introducing defined changes using site-directed mutagenesis. Since the regulation of HIV-1 Env expression *in vivo* involves complex mechanisms at both, the transcriptional and post-transcriptional levels, we analyzed the effects of the introduced mutations on protein translocation in an *in vitro* transcription and translation model.

We made several observations concerning the properties of the HIV-1 Env SP. Thus, the *in vitro* results underlined, as expected, the central role of the hydrophobic core for protein translocation and the importance of a defined sequence of the last three C-terminal amino acids of the SP. However, unexpectedly, no effect was observed after introduction of either a polar or a charged amino acid in the hydrophobic core. Also, no or limited changes were observed after suppression or deletion of N-terminal charges or deletion of the tryptophan motif. Nevertheless, these features might be essential for efficient translocation in the presence of cellular competing mRNAs. We are currently studying this possibility.

F.A.237 MUTATIONAL ANALYSIS OF GP41 CARBOXY TERMINAL SEQUENCES INVOLVED IN HIV-1 REPLICATION

Gabuzda, Dana H., Lever, A., Helseth, E., Olshevsky, U., Haseltine, W., Sodroski, J., *Dana-Farber Cancer Institute, Harvard Medical School, Boston, MA 02115

Objective: The carboxyl terminus of the HIV-1 envelope glycoprotein contains sequences which are critical for virus replication. To identify and characterize carboxyl terminus sequences involved in HIV-1 replication, the effect of changes in the carboxyl 160 amino acids of gp41 on cell-free and/or cell-to-cell virus transmission was investigated.

Methods: Mutants were constructed in an HIV-1 envelope expressor plasmid (pSVIIIenv) encoding envelope glycoproteins under the control of the HIV-1 LTR. Cell-free virus transmission was assessed by co-transfecting wild-type or mutant envelope expressor plasmids with an envelope-defective HIV-1 provirus containing a chloramphenicol acetyl transferase (CAT) gene (pHXBΔenvCAT) into Cos-1 cells. The ability of the recombinant viruses in filtered cell-free supernatants to infect Jurkat T-lymphocytes was measured by CAT assays. Cell-free and cell-to-cell transmission were studied by cotransfecting pSVIIIenv wild-type or mutants with pHxBΔenvCAT into Jurkat cells and measuring CAT activity.

Results: We found that mutations affecting the 3' carboxy terminal 160 amino acids significantly reduced cell-free virus transmission. However, only the carboxy terminal 68 amino acids were required for efficient cell-to-cell virus transmission in Jurkat cells.

Conclusions: The involvement of HIV-1 envelope glycoprotein carboxyl terminus sequences in viral replication is dependent on cell type and is more critical for cell-free than cell-to-cell virus transmission.

F.A.238 N-ASPARAGINE LINKED OLIGOSACCHARIDE SIDE CHAINS OF THE HIV-1 gp120 ENVELOPE GLYCOPROTEIN ARE POSTTRANSLATIONALLY MODIFIED BY SULFATE MOIETIES

Stein, Barry S.; Engleman, E.G.
Stanford University School of Medicine, Stanford, California, USA

Objective: To establish whether HIV-1 envelope substituents are post-translationally modified by the addition of sulfate residues in the trans Golgi complex during biosynthesis.
Methods: HIV-1 envelope glycoprotein determinants were immunoprecipitated from chronically infected H9 cells (HXB) metabolically radiolabeled with either [^{35}S]sulfate or ^{35}S-labeled amino acids and analyzed by SDS-PAGE.
Results: [^{35}S]Sulfate was readily incorporated into both cell- and virion-associated gp120 biosynthesized in HXB cells. Digestion of [^{35}S]sulfate-labeled gp120 with N-glycanase resulted in the complete loss of radiolabel; whereas N-glycanase digestion of [^{35}S]cysteine- and [^{35}S]methionine-labeled gp120 yielded a radiolabeled digestion product with the expected apparent molecular mass of 60 kDa. gp160 as well as HIV-1 gag encoded proteins (p55, p41, p39, and p24), however, all failed to incorporate any detectable [^{35}S]sulfate.
Conclusions: The trans Golgi is the major intracellular site where protein sulfation occurs. N-asparagine linked glycans, O-linked glycans, and O-tyrosine residues are the predominant substrates for posttranslational sulfation. The data indicate that gp120 is subject to Golgi-mediated sulfation, with sulfate moieties residing primarily, if not exclusively, on associated N-asparagine linked oligosaccharides. gp160 on the other hand, is not subject to such sulfation. These data are consistent with our previous finding that gp120, unlike gp160, undergoes trans-Golgi mediated oligosaccharide modification which results in extensive charge heterogeneity.

F.A.239 THE NONCYTOPATHIC PHENOTYPE OF A NATURALLY OCCURRING HIV-1 IS THE RESULT OF A *VIF* GENE MUTATION

Sakai, Koji*; Ma, X.*; Gordienko, I.**; Volsky, D.J.*
*St. Luke's/Roosevelt Hospital Center, and College of Physicians & Surgeons, Columbia University, New York City, New York, **Medical School of Yale University, New Haven, Connecticut, USA

OBJECTIVE: The *in vitro* cytopathicity of HIV has been implicated in the *in vivo* pathogenicity of the virus. One of multiple HIV-1 clones from a patient was found to exhibit slow infection kinetics and a lack of cytopathic effects in T cells and monocytes. Our objective was to determine the gene responsible for these biological features which may be relevant to the progression of AIDS.
METHODS: Recombinant viral clones were systematically constructed between two closely related molecular clones derived from the same parental isolate: the cytopathic NlT-A and its noncytopathic counterpart, NlT-E. The resulting recombinant plasmids were transfected into CEM cells, and progeny viruses were tested for their infection kinetics and cytopathicity.
RESULTS: During the construction of the recombinant clones, a deletion was found in the *vif* gene of the NlT-E clone. Based on the results of nucleotide sequencing the deletion was found to be 35 bases long and is predicted to result in the premature termination of translation of *vif* mRNA. Whether the NlT-E virus produces a truncated Vif protein or no Vif product at all is being studied using antibodies to synthetic peptides derived from the N- and C-termini of the Vif protein. Comparative biological analysis of the recombinant viruses indicated that mutation in the *vif* gene indeed accounted for the observed differences in phenotype between the NlT-A and NlT-E viruses.
CONCLUSION: In the case of the NlT-E virus, the *vif* gene deletion is the cause of the slow infection kinetics and the lack of cytopathic effects.

487

TRACK A: BASIC SCIENCE
POSTER SESSION

F.A.240 DEFECTIVE HIV STRAINS PREDICTED TO ARISE THROUGH REVERSE TRANSCRIPTION

Hill, Andrew* Nee, S**; Anderson RM*
*Imperial College, London, UK. **Oxford University, Oxford UK

Objective: To produce a mathematical model of HIV sequence evolution which predicts the frequency of mutations occurring during reverse transcription (RT) and their possible effects on viral viabilty.
Methods: The error rate of HIV reverse transcriptase (taken to be one base substitution error per 2000 nucleotides reverse transcribed) and genome size of HIV (9 kilobases) are combined to derive a probability distribution for the number of mutations occurring in an HIV genome during a round of RT. Ks/Ka, the ratio of silent nucleotide substitutions to those which change amino acid sequence, gives a quantitative measure of the degree of amino acid sequence conservation in the different HIV proteins. Ks and Ka are measured using rates of nucleotide and amino acid sequence divergence between HIV isolates. Ks/Ka is used to predict the probability that a mutation changing amino acid sequence will be deleterious to an HIV strain. The intersection between distributions for probability of mutation and probability of deleterious mutation gives a measure of the frequency of generation of defective HIV genomes after RT.
Results: 90-95% of HIV genomes are predicted to have a deleterious mutation in at least one gene during RT. An estimated 77.2% of changes in amino acid sequence in env gp120, and 97.3% of changes in gagp24, will be deleterious to viral viability.
Conclusions: While certain mutations of the amino acid sequence of HIV are known to be adaptive (eg in resistance to antibody neutralisation) the model predicts that most mutations of amino acid sequence will make an HIV virion defective. Defective viral particles, known to be important in the pathogenesis of Feline Leukaemia Virus and Murine Leukaemia Virus, may thus be abundant in HIV infection as well.

F.A.241 FUNCTIONAL ANALYSIS OF THE HIV-1 CAPSID PROTEINS BY SITE-DIRECTED MUTAGENESIS

Heinrich G. Göttlinger, Sodroski, J.G., Haseltine, W.A., Division of Human Retrovirology, Dana-Farber Cancer Institute, Boston, M 02115

Interactions amongst the proteins and nucleic acids which comprise the inner capsid of the HIV-1 particle are critical to both early and late stages of infection. Early in infection, capsid proteins must protect the nucleic acid within the cellular environment and permit the synthesis of a complete proviral DNA. Late in the infection process, the assembly, budding and release of the virus particles is driven by self-association of the capsid proteins. To study the complex nature of the interactions of the capsid proteins with one another, with host cell components, and with viral nucleic acids, we have undertaken a systematic mutagenic analysis. The effects of site-directed mutations on each of the viral capsid proteins, p17, p24, p9 and p6 as well as the viral protease responsible for their proteolytic maturation will be delineated. The effects of mutations in these genes on virus replication, virus morphology and interactions of the viral capsid proteins with the viral nucleic acids and with subcellular components will be presented. A general model of virus morphogenesis and virus export will be presented based on the data accumulated from these studies.

F.A.242 Parental gag proteins of HIV-I penetrate into the nuclei of infected cells.

Natalie Sharova, Leonid Ouryvayev, Alice Bukrinskaya. D.I.Ivanovsky Institute of Virology USSR Academy of Medical Sciences, Moscow.

As shown for a number of enveloped RNA viruses, the subviral structure that initiates infection represents nuleonrotein, i.e. viral genome associated with capsid proteins. The composition of the HIV component whithin which proviral DNA is synthesized and transported into nucleus remains obscure. To investigate HIV proteins which penetrate into the nuclei of infected cells Jurkat-tat cells were infected with HIV-I, fractionated 40 min and 2 hours after infection, and the proteins of membrane fraction, cytosol, nuclear washings and nuclei were analyzed by immunoblotting using the sera of AIDS patients and monoclonal antisers against p24.All the viral proteins were seen in the membrane fraction representing apparently the proteins of the virions still attached to the cell surface. Cytosol and nuclear washings contained mostly p24 as a minor component. Purified nuclei contained p55, p39 and large amount of the protein at the position of about 15 kD; the amount of this protein corresponded to that of p24 in the input virus. The same distribution of the proteins was observed in the presence of cycloheximide indicating that the gag proteins in the nuclei were not nascent proteins. Monoclonal antibodies against p24 reacted with all the three intranuclar proteins.

We conclude that gag proteins p55, p39 and p24 of input virus penetrate into the nuclei of infected cells as early as 4o min after infection and p24 is cleaved there to smaller molecules. The physiological role of nuclear localisation of input gag proteins is investigated.

F.A.243 HIV-1 SUPERINFECTION OF CEM-SS CLONES INFECTED WITH AN INTERFERING RECOMBINANT RETROVIRAL PARTICLE.

Federico, Maurizio; Taddeo, B.; Saggio, I.; Orecchia, A.; Verani, P.; Rossi, G.B.
Dept. Virology, Istituto Superiore di Sanità, Rome, Italy.

Objective: To verify if a non-producer HIV-1 variant integrated in an Hut-78 cell clone (F12) -CD4 down regulated- is directly involved in F12 resistance to the HIV infection.
Methods: The F12 HIV provirus has been cloned from an SstI genomic library and subcloned in a retroviral vector (pLJ) harboring the G418 resistance gene. Transfection of this construct in an amphotropic packaging cell line (PA 317) yields stocks of retroviral recombinant particles harboring the F12 HIV genome. These were used to infect CEM-SS cells: after one month of G418 selection and a subsequent cell cloning, we have isolated several G418 resistant CEM-SS clones, which have been challenged with HIV-1 at different multiplicities.
Results: Integration and transcription of F12 HIV in CEM-SS clones was revealed by DNA- (7 positive out of 10 clones analyzed) or RNA-PCR (using gag and env specific primers) and Southern blot. Preliminary results indicate in the PCR DNA positive CEM-SS clones a reduction up to 95% of the superinfecting HIV-release as compared with a CEM-SS control clone harboring solely the pLJ sequences. The reduction of HIV-production was obtained only in presence of G418 (0.8 mg/ml) selection, suggesting an intrinsec instability of pLJ construct in CEM-SS clones.
Conclusion: We are able to transfer, via recombinant retroviral infection, the HIV resistance from a cell clone (F12) to a CD4 positive cells line. Using other retroviral vectors than pLJ, we could avoid the problem of instability of the construct in lymphocytes.

F.A.244 HUMAN IMMUNODEFICIENCY VIRUS INFECTION OF CD4+ T CELLS BLOCKED IN DNA SYNTHESIS

Tang, Shen-Bei; Poulin, L.; Levy, J.A. University of California, School of Medicine, San Francisco, California, USA

Objective: To define whether cell division is required for HIV infection and replication.

Methods: P25 antigen, indirect immunofluorescence and reverse transcriptase assays were used to determine the expression of HIV proteins and viral replication. Trypan blue exclusion and syncytium formation were used to measure cell viability and cytopathic effects. Tritiated thymidine uptake was used to assess cellular DNA synthesis. Hirt extraction and Southern DNA transfer procedures were used to assess the unintegrated and integrated forms of HIV DNA.

Results: Sup T Cells were transiently blocked in cell division by treatment with non-cytotoxic amounts of Aphidecolin (4ug/ml) and then infected by HIV-1SF33. No cellular division subsequently occurred. No expression of HIV protein nor production of progeny HIV took place. After the compound was removed, enhanced production of progeny virus was noted when compared to untreated cells and extensive syncytium formation occurred. More than 75% of these infected cells were involved in single cell killing. Substantial amounts of unintegrated linear viral DNA were found in the infected Aphidecolin-treated Sup T cells, both during drug inhibition and following removal of the inhibitor as compared with the untreated infected Sup T cells.

Conclusion: The results indicate that HIV entry and reverse transcription can occur in cells that are not involved in cell division. Complete synthesis of the provirus and its integration into cellular DNA appear to require division of the Sup T cells. The accumulation of unintegrated linear viral DNA might contribute to high level expression of HIV proteins and HIV-induced CPE.

F.A.245 ANALYSIS OF THE EARLY PHASE OF THE HIV-1 REPLICATIVE CYCLE IN VITRO USING sCD4, ddC AND AZT.

Pellegrino, Michael G.; Ma, X-P.; Li, G.; Ma, X-Y.; Potash, M.J.; Volsky, D.J.; St. Lukes/Roosevelt Hosp. Center and Columbia Univ. Coll. of Physicians and Surgeons, New York, NY.

Objective: To isolate early events in the HIV-1 life-cycle (prior to viral DNA integration) and ascertain their contribution to overall viral expression.
Methods: HIV-1 infection or transfection of HIV-1 DNA of human T-cell lines was followed by exposure of cells to soluble CD4 (sCD4), dideoxycytidine (ddC), or 3'-azido, 3'-deoxythymidine (AZT) at either 0 hour (time of virus challenge), or 3, 12, or 24 hours post-challenge. Measurements of unintegrated viral cDNA, viral RNA and viral antigens were used to monitor virus expression.
Results: Viral RNA and protein expression was significantly inhibited following continuous or delayed treatment with any of the agents during infection, although the level of inhibition was not uniform. Intracellular RNA and P24 levels were higher in cells treated with sCD4 post virus-challenge than in cells similarly treated with ddC. cDNA expression at 1 day following delayed addition of sCD4 was unimpaired. Irrespective of the time of its addition, ddC blocked subsequent cDNA synthesis, as well as expression of viral RNA and proteins. Expression of transfected HIV-1 DNA was similarly constrained: sCD4 blocked protein expression whereas ddC and AZT blocked expression of both protein and cDNA. Addition of ddC and sCD4 produced similar effects in a transfection using DNA from an HIV-1 (N1T/E) which lags in its expression after nucleocapsid entry.
Conclusion: Both ddC and AZT completely block HIV-1 expression in vitro when added up to 24 hours post-virus challenge. In contrast, addition of sCD4 after virus entry or after DNA transfection blocks reinfection but not progressive expression of the internalized viral genome.

F.A.246 THE INFLUENCE OF DNA METHYLATION AND HISTONE BINDING ON HIV-1 VIRAL GENE EXPRESSION.

Laughlin, Mark A.; Harouse, JM; Kim, JYH; Gonzalez-Scarano, F. University of Pennsylvania Medical Center, Philadelphia, PA

Objective: To evaluate the influence of DNA methylation and histone binding on HIV-1 expression in a chronically infected cell line.
Methods: TE671/RD cell lines containing an LTR-CAT construct with a neomycin resistance gene were maintained in selective media for several months, to insure integration. The parent cell line was also infected with HIV-1/IIIb and cloned to obtain a uniformly infected cell population. Infected and LTR-CAT transfected cells were exposed to either sodium butyrate, an inhibitor of histone deacetylase, or 5-azacytidine, an inhibitor of DNA methylation and then either assayed for CAT activity or p24 antigen production.
Results: This cell line was very poorly responsive to either tumor necrosis factor (TNF) or phorbol myristate acetate (PMA), with maximum increases in CAT activity of only 2-fold over untreated cells. In contrast, sodium butyrate produced a marked dose response increase in CAT activity (max of 40-fold) and p24 antigen production (max of 12 fold). 5-azacytidine produced a modest 2-fold increase in CAT activity after five days of exposure, however, worked synergistically with both TNF and PMA. In addition, sodium butyrate showed synergy in up-regualting both CAT activity and p24 antigen production with these agents.
Conclusion: In this chronically infected and chronically transfected cell line, both DNA methylation and histone binding contribute to proviral latency.

F.A.247 EFFECT OF HIV-1 INFECTION OF NEONATAL MACROPHAGES.

Andrea R. Sperduto, Yvonne J. Bryson and Irvin S Y. Chen*
Departments of Pediatric Infectious Diseases and *Microbiology and Immunology, UCLA School of Medicine, Los Angeles, CA 90230

Perinatal Human Immunodeficiency Virus type 1 (HIV-1) infection has a more rapid fatal course than HIV-1 disease seen in adults or older children. The fetus and neonate are particularly susceptible to severe and fatal disseminated illness (including viral and bacterial infections) which may be partially explained by an immature immune system. The macrophage has become a focus of attention as a reservoir of HIV-1 infection in adults and can be infected in vitro by only certain strains of macrophage-tropic HIV-1. Previous studies in our laboratory and others have suggested that the newborn macrophages are functionally immature and thus more susceptible to viral replication of Herpes Simplex Virus (HSV). The relative susceptibility of the neonatal macrophage to HIV-1 infection has not been previously investigated. In a series of 6 experiments, our data reveal that one HIV-1 strain, HIV-1(JR-FL), isolated from the brain of an adult patient JR with acquired immunodeficiency syndrome (AIDS), can infect neonatal/cord macrophages more readily than adult cells. After 4 days in culture, simultaneous infections of neonatal and adult macrophages with the HIV-1 viral stain JR-FL were carried out. We found neonatal/cord macrophages to be more efficiently infected by HIV-1(JR-FL) than adult cells by an observed average 3.5 fold difference. Similar experiments were conducted after growing macrophages 7 days in culture which resulted in an average 18-fold increase in virus production when comparing simultaneous infections of cord and adult cells. In addition, a second viral isolate, HIV-1(JR-CSF) derived from cerebrospinal fluid of patient JR, infected neonatal/cord macrophages more efficiently than adult cells in a few experiments as well. HIV-1(JR-CSF) was initially thought to be non-macrophage-tropic in adult cells. Further studies are underway investigating the mechanism by which neonatal/cord macrophages are more permissive to infection with HIV-1 than adult macrophages.

F.A.248 INFECTION OF NORMAL HUMAN BLOOD MACROPHAGES WITH HIV-1, HIV-2 AND SIV

Valentin, A.*, Albert, J.*,**, Nauclér, A.***, Putkonen, P.O***
Fenyö, E.M.* and Asjö, Birgitta*
* Dept. Virology, Karolinska Institute, Stockholm, ** Dept. Virology and
***Dept Immunology, National Bacteriological Laboratory, Stockholm, Sweden.

OBJECTIVE: To compare the susceptibility of normal human blood macrophages to infection with HIV-1, HIV-2 and SIV.

METHODS: Macrophage cultures were prepared from peripheral blood mononuclear cells (PBMC) recovered by Ficoll-Hypaque gradient centrifugation. PBMCs were cultured in RPMI medium containing 10% HIV-negative human serum and 20% FCS. After five days non-adherent cells were washed away with PBS and adherent macrophages were grown in 20% FCS-RPMI medium. Supernatant from PBMC cultures of 8 HIV-1, 7 HIV-2 and 2 SIV isolates were used to infect 7 days old macrophage cultures. Infections were monitored by reverse transcriptase (RT)-activity an p24 antigen assay (Coulter Corporation) in culture medium.

RESULTS: All HIV-1 and HIV-2 isolates could productively infect the macrophage-cultures as measured by antigen assay. About half of the HIV-1 and HIV-2 cultures were also RT-positive. Replicating virus was detectable for the entire culture period of 2 months. In contrast to HIV-infected cultures, both SIV isolates yielded infections detectable by RT-assay.

Virus	No of positives	Relative intensity of RT-activity
HIV-1	4/8	+
HIV-2	3/7	+
SIV	2/2	+++

CONCLUSIONS: Similarly to HIV-1, HIV-2 and SIV can infect normal macrophages. Compared to HIV-1 and 2, SIV showed the highest replicative capacity.

F.A.249 STRUCTURAL CHARACTERIZATION OF THE EXTRACHROMOSOMAL HIV-1 REPLICONS IN PERSISTENTLY INFECTED MONOCYTIC CELLS

Pauza, C. David, Singh, M. and Galindo, J.
Developmental Biology Laboratory, The Salk Institute for Biological Studies, San Diego, California, USA

Objectives Persistent HIV-1 infection of monocytic cells is associated with accumulation of novel, self-replicating, extrachromosomal viral DNA species (Pauza and Galindo (1989) J. Virol. 63:3700). It is our objective to characterize the requirement for host sequences in these replicons and to assess the interaction between host and microbial sequences necessary for viral persistence.
Methods DNA blot hybridization, molecular cloning, DNA sequence analysis, and reintroduction of cloned molecules have been used to perform these studies.
Results Molecular clones were obtained of the extrachromosomal viral DNA in the persistently infected HU.17 cell line. The nucleotide sequences of the integration site, relevant host fragments, and selected portions of the virus were determined. This molecular clone was capable of directing the production of infectious HIV-1 upon reintroduction into a T cell line despite the low levels of virus production in HU.17 itself. Extrachromosomal viral DNA structures remained stable and present in virtually all cells in the population in culture for at least 14 months. We are attempting now to isolate similar molecules form naturally-infected tissues.
Conclusions The discovery of self-replicating, extrachromosomal viral DNA species in persistently infected monocytic cells illustrates a mode of lentiviral replication unique to cells of the monocyte/macrophage lineage and may account for the ability of HIV-1 to infect productively this non-dividing cell type. Inefficient expression of extrachromosomal viral DNA species appears to account for the reduced levels of HIV-1 replication in these monocytic cells lines. This mechanism for limiting the extent of viral gene expression may have profound implications for understanding persistent HIV-1 infection of monocyte/macrophages and the mechanisms controlling establishment and maintenance of the viral reservoir.

F.A.250 BIOSYNTHESIS, PROCESSING, AND ASSEMBLY OF HIV IN INFECTED MONOCYTES AND T CELLS

Hansen, Brian D., Meltzer, M. S., and Gendelman, H. E.
Dept. of Cellular Immunology, Walter Reed Army Inst. of Res., Washington, DC USA 20307-5100

Objectives: Assess HIV synthesis, processing, and assembly
Methods: PHA/IL-2 treated lymphoblasts, MCSF-treated monocytes, H9 or CEM T cell lines were infected with ADA, a monocyte tropic HIV isolate or HTLV-IIIB. Cultures were labelled with ^{35}S-methionine with or without NH_4Cl and methionine methyl ester; viral proteins were analyzed by radioimmunoprecipitation with antibodies to CD4 or HIV.
Results: HIV gp160 and gp120 in infected monocytes and T cells bound CD4. Compared to T cells, HIV-infected monocytes showed > 5-fold reductions of *env* glycoprotein synthesis with coincident increases in levels of *gag* proteins (p55, p41, p27, p24 and p17) both within infected cells and in proteins packaged into progeny viruses. Amounts and rates of progeny HIV released into culture fluids of infected monocytes was less than those of infected T cells. Addition of inhibitors of lysosomal proteolysis to infected cultures showed degradation of gp160 in lysosomal compartments. Rates of gp160 cleavage in HIV-infected monocytes were reduced.
Conclusions: Rates of viral protein synthesis and processing in HIV-infected monocytes were less than that of infected T cells. A > 5-fold decrease in the ratio of *env* to *gag* gene products was found in monocytes compared to that in T cells; this difference persisted in the virions released from infected cells.

F.A.251 DIFFERENT INDUCTIVE PATHWAYS OF MONOCYTE ACTIVATION AFFECT IN VITRO HIV REPLICATION

OLIVIER, René*; MONTAGNIER, L.*
* Viral Oncology Unit, Pasteur Institute, Paris, France.

Objective : Does HIV replication in monocytes depend on different stimuli of macrophage activation ?

Methods : The regulation of HIV gene expression has been investigated (extra and intra-cellular RT and Ag capture assay; viral RNA; Facs analysis of cell markers and viral Ag; PCR) on normal donor monocytes and monocytic cell lines (THP1, U937,...) in various inductive pathways of cellular activation (TNF-alpha, IL6, GM-CSF, IFNs, PMA and human serum) under endotoxin-free conditions. Neutralizing antibodies to cytokines have been used to block autocrine cellular activation (anti-TNFα, anti-IL6, anti-GM-CSF, anti-IFNs).

Results : Stimulation by PMA, γ-IFN and GM-CSF prior to infection induced an early maturation of the cells before infection and inhibited HIV production. On the other hand, PMA or γ-IFN added after infection increased HIV replication, but IL6, TNFα and GM-CSF induced only a short interval of HIV replication. Stimulation by TNFα and IL6 prior to infection had no effect on viral replication. Blocking of γ-IFN or GM-CSF activity on normal monocytes cultured in human serum, modified cell activity (phagocytosis and membrane antigens expression) and diminished viral replication.

Conclusion : Stimuli that activate monocytes seem to affect positively or negatively the occurrence of different chains of events that impact on proviral integration, HIV gene expression or the production of viral particles.

F.A.252 HIV INFECTION OF MONOCYTIC CELLS INDUCES TRANSCRIPTION FACTORS ABLE TO BIND THE HIV ENHANCER.

Bachelerie, F.; Alcami, José ; Arenzana-Seisdedos, F.; Virelizier, J.L.
Unité d'Immunologie Virale, Institut Pasteur, Paris, France.

Objective : The U 937 cell line does not express constitutively detectable nuclear proteins able to bind the HIV enhancer (EBP). However, U 937 cells are highly permissive to HIV replication. We have tested the hypothesis that HIV infection itself is able to enhance permissiveness to its own replication in U 937 cells by inducing EBP.
Methods : U 937 cells were infected for 1 hour with a mycoplasma free preparation of HIV (LAV-1-Bru strain). Control cells were either uninfected U 937 cells, or cells in which infection was blocked by recombinant CD4 (10 ug/ml). Nuclear proteins were extracted from cells at different stages of infection, and tested by gel retardation assays using a radioactive oligonucleotide with the sequence of the 10 bp repeat of the HIV enhancer.
Results : EBP were detected in infected cells at peak of HIV replication as measured by RT activity, and were also detectable during the chronic stage of infection observed afterwards. Control cells remained EBP-negative during a similar observation period. No TNF activity was detected at any stage in infected or control cells.
Conclusion : Our results show that HIV infection induces EBP in U 937 in a TNF-independant manner, a phenomenon that may perpetuate HIV genome transcription during persistent infection of human monocytes.

F.A.253 REGULATION OF HIV REPLICATION IN INFECTED MONOCYTES AND T CELLS BY INTERFERONα (IFN): MECHANISMS FOR VIRAL RESTRICTION.

Gendelman, Howard E.[1,2,3], Baca, L. M.[2], Turpin, J. A.[2], Kalter, D. C.[1,2], Hansen, B. D.[2], Friedman, R.[3], and Meltzer, M. S.[2] [1]Henry M. Jackson Fnd., Rockville, MD; [2]Dept. Cell. Immunol., Walter Reed Army Inst. Res., Washington, DC, and [3]Dept. of Path., USUHS, Bethesda, MD USA

Objectives: Assess mechanisms of HIV restriction by IFNα_{2a}.
Methods: PHA/IL-2 treated lymphoblasts and MCSF-treated monocytes were infected with ADA, a monocyte tropic HIV isolate. HIV replication was monitored by PCR, Northern blot hybridizations, p24 antigen (Ag)and reverse transcriptase (RT) assays.
Results: Culture fluids of IFN-treated HIV-infected T cells had 3-fold less RT activity than that in control infected cultures, but frequency of infected cells and levels of p24 Ag were unchanged. Levels of p24 Ag and RT activity in lysates of IFN-treated infected T cells were 3-fold greater than those of controls. These differences suggest that mechanisms for IFN-induced antiviral effects in T cells reside in assembly and release of HIV. Monocytes treated with IFN at the time of virus challenge showed no p24 Ag or RT activity, no HIV-specific mRNA, and no proviral DNA in cells through 3 wks after infection. IFN treatment of chronically infected monocytes induced gradual decreases in viral mRNA (< 1% productively infected cells), p24 Ag, and RT activity to undetectable levels over 3 wks. Virions released 24 hr after IFN treatment were 1000-fold less infectious than equal numbers of control virions. HIV-induced cytopathic changes in monocytes also decreased. However, levels of proviral DNA in the IFN-treated and control HIV-infected cells were indistinguishable. The presence of large quantities of proviral DNA in cells with little or no evidence for active transcription documents a situation approaching true microbiological latency.
Conclusions: IFN restricts viral replication in macrophages and T cells: the mechanisms of anti-viral action in each cell type are distinct.

F.A.254 HIGH HIV-1 REPLICATION IN HUMAN LEUKOCYTE SUBSETS ENRICHED IN DENDRITIC CELLS

Langhoff, Erik; Terwilliger, E; Poznansky, M; Lu, Y; Haseltine, W.A.
Dana Farber Cancer Institute, Boston, Massachusetts, USA.

Objective: Primary human peripheral blood leukocytes (PBL), T cells, macrophages, and dendritic cells were examined for their capacity to support growth of HIV-1.
Methods: Two molecular clones of HIV-1 were constructed in which the nef gene was replaced by the CAT gene. One clone (NRE$^-$) was constructed with an LTR devoid of the NRE (bases -419 to -157) but otherwise isogenic to the control clone (NRE$^+$). PBL cultures were isolated by Ficoll and depleted of T cells by E-rosetting. Macrophages were the E-rosette negative (E$^-$) population and further purified by Fc panning. The Fc receptor negative and E-rosette negative (E$^-$) subset contained a cell population enriched in dendritic cells. The leukocyte subsets were cultured in PHA conditioned medium 48 hrs. prior to infection with viral stocks using 40 ng p24 per $5x10^6$ cells. All cell cultures were supplemented every 2-3 days with fresh conditioned medium. Cell supernatants were collected for p24 assays and cell lysates for CAT assays. Titered viral stocks were obtained from transfected Jurkat cell cultures.
Results: PBLs were readily infectable by both HIV-1 clones and viral growth could be detected already at day 3 by CAT activity. The viral replication was several fold higher with the NRE$^-$ virus. Surprisingly, however, the non-T cell subset supported viral growth strikingly well. This was even more vigorous in the leukocyte subset depleted of T cells and macrophages but enriched in dendritic cells. In contrast, the macrophage cultures had little or no viral production although infected as shown by PCR. Proviral clones with different combinations of the accessory regulatory genes are currently being examined.
Conclusion: We conclude that both viral elements as well as the composition of the cellular subsets determine the viral in vitro growth in primary human leukocytes.

F.A.255 THE REPLICATION OF HIV IN NATURALLY INFECTED CD4$^+$ T CELLS IS INHIBITED BY rIFNα_2 AND A SOLUBLE FACTOR SECRETED BY CD8$^+$ T CELLS, BUT NOT BY rIFNβ, rIFNγ OR rTNFα.

Brinchmann Jan E, Gaudernack G, Vartdal F. Institute of Transplantation Immunology, The National Hospital, Oslo, Norway.

Objective: To examine the effect of rIFNs α, β, γ and rTNFα on the replication of HIV in naturally infected CD4$^+$ T cells, and to determine if any of these could be the HIV-inhibitory factor previously found to be secreted by activated CD8$^+$ T cells.
Methods: CD4$^+$ T cells were obtained from the blood of asymptomatic HIV seropositive individuals by positive immunomagnetic selection. Cultures were established containing 2 x 10^5 CD4$^+$ T cells per well. These were activated with anti-TCR antibody-coated beads in the presence of IL2. The concentration of HIV p24 in the supernatants was used as a measure of HIV replication.
Results: rIFNα_2 inhibited the replication of HIV in a dose dependent manner. 90% inhibition required 13-14 U/ml rIFNα_2. rIFNα 100 U/ml was highly inhibitory when added as the CD4$^+$ T cells were being activated, and moderately inhibitory when added at any time after this. rIFNβ, rIFNγ or rTNFα had no effect on the replication of HIV. A rIFNα_2-neutralizing antibody could not neutralize the HIV-inhibitory effect of autologous or allogeneic CD8$^+$ T cells or the cell-free supernatant from activated CD8$^+$ T cells.
Conclusions: rIFNα_2 inhibited the replication of HIV at concentrations which can be obtained in vivo. The HIV-inhibitory factor secreted by CD8$^+$ T cells may be a novel lymphokine.

493

HIV Receptors and Tropism

F.A.256 SUPERINFECTION OF HIV-2 INECTED CELLS BY HIV-1 AND HIV-2 STRAINS

Le Guern, Muriel; Evans, L.A.; Canivet, M.; Levy, J.A. University of California, School of Medicine, San Francisco, California, USA

Objective: To investigate the capacity of clonal cell lines infected by HIV-1 or HIV-2 to be superinfected by strains of HIV-1 or HIV-2 showing different biological properties.
Methods: Clonal HUT 78 and SupT-1 cell lines infected with HIV-1_{SF2} or HIV-2_{UC1} were derived and characterized by IFA, p25 antigen, and FACS analysis. The UC-1 infected line continued to express the CD4 protein. Superinfection of these cell lines with HIV-1_{SF33} and HIV-2_{UC3}, both highly cytopathic viruses was conducted. The superinfecting strains were monitored by reverse transcriptase assay, plaque formation and Western blot procedures. Effect on CD4 expression was followed by FACS analysis.
Results: After superinfection of the HIV-1_{SF2} infected HUT cell line, no HIV-1_{SF33} or HIV-2_{UC3} production could be detected. There was no plaque forming virus nor presence of HIV-2 antigens. In contrast, superinfection of the HIV-2_{UC1} Sup T cell line was readily achieved using both HIV-1_{SF33} and HIV-2_{UC3} strains. Following infection, enhanced reverse transcriptase activity was noted as well as a high degree of syncytia formation and balloon degeneration of the cells. Moreover, the CD4 antigen that is not downmodulated in the HIV-2_{UC1} infected cells was downmodulated after superinfection.
Conclusion: Results strongly suggest that HIV-infected cells that still express the CD4 protein, can be superinfected by other HIV-1 or HIV-2 strains. A classic virus interference occurs only when the HIV-infected cells lack expression of the CD4 molecule as observed with the HIV-1_{SF2} infected HUT 78 cells.

F.A.257 EXPANDED HOST RANGE OF HIV-1 ACQUIRED THROUGH MODIFICATION OF GP120

Seto, Deborah; Levy, J.A.; Cheng-Mayer, C. University of California, School of Medicine, San Francisco, California, USA

Objective: To examine the role of gp120 modification in determining cellular tropism of HIV-1.
Methods: The host range of HIV-1 obtained following passage through different cell types was determined by infectivity studies. Modification of gp120 was examined by tunicamycin and endoglycosidase treatment.
Results: Our previous studies showed that HIV-1 isolates that have been passaged through one cell line, e.g. HUT 78, adapted to faster growth in the same cell line and acquired an expanded host range. To rule out the possibility of selection of a biologic variant in the different cell types, studies were conducted with a molecular clone of HIV-1_{SF2} (HIV-1_{SF2mc}). Differences in size of gp120 were observed for HIV-1_{SF2mc} recovered after growth in different cell types. Furthermore, the viruses showed different host range tropisms. Tunicamycin and glycosidase studies indicate that patterns of glycosylation of gp120 in the different cell types are responsible for differences in the size of gp120. Experiments are in progress to examine the effects of passage of HIV-1_{SF2mc} through different human peripheral mononuclear cells on host range properties.
Conclusion: Changes in glycosylation of HIV-1 gp120 after passage through different cells are associated with modification of the cellular host range. This observation could have clinical significance for transmission of the same virus through different hosts.

F.A.258 IN-VITRO INFECTION OF NATURAL KILLER CELLS (NK) WITH DIFFERENT HIV ISOLATES

CHEHIMI, Jihed[1]; Bandyopadhyay, S[1]; Prakash, K[1]; Kawashima, H[1]; Perussia, B.[2]; Starr, SE[1]. [1]Children's Hospital of Philadelphia, Philadelphia, PA, 19104; [2]The Wistar Institute of Anatomy and Biology, Philadelphia, PA. 19104.

Objective: To determine the ability of different HIV isolates to replicate in human NK cells, and to investigate their effects on NK function.
Methods: Purified NK cells from peripheral blood of normal donors and cloned NK cells (clone 3.3), neither of which expressed either CD4 on their surface or CD4 mRNA, were cultured in IL-2 containing media, and infected with 9 different HIV isolates (IIIB, SF162, WMJ1, ARV2, and 5 isolates from children with AIDS: M1, M2, M3, 43NA, 44NA). Replication of M1, M2 and M3 was 100 fold greater in M-CSF-treated monocytes than in T cells, 43NA and 44NA grew only in T cells. HIV replication was monitored by p24 antigen detection in cells and supernatants, by immunofluorescence using anti-p24 and anti-gp120 MoAbs, and AIDS serum, and by detection of HIV DNA using Southern analysis. MoAbs 3G8 (anti-FcRIII) and Leu3a (anti-CD4) were used in blocking experiments. NK cell function was assayed using K562 and cytomegalovirus-infected fibroblasts (CMV-FS4).
Results: All adapted strains replicated in NK cells. The monocyte-tropic isolates M1, M2 and M3 failed to replicate, while lymphocyte-tropic isolates 43NA and 44NA replicate. Preincubation of NK cells with 3G8 or Leu3A failed to block HIV replication. HIV DNA was detected in infected cells, and 15-20% of infected cells expressed p24 antigen by immunofluorescence. CPE was not detected and cytotoxic activity was not altered when K562 and CMV-FS4 were used as targets in chromium release assays.
Conclusion: Lymphocyte-tropic and bitropic strains of HIV replicate in NK cells cultured with IL2. Cytopathicity is not seen and infection has no effect on cytotoxic activity. Viral entry may occur via receptors other than CD4 and FcRIII.

F.A.259 HIV INFECTION OF GASTROINTESTINAL (GI) CELL CULTURES.

Moyer, Mary Pat*; Ramirez, A. Jr.*; McKee-Suarez, M.S.*; Gendelman, H.E.**
*The Center for Human Cell Biotechnology, Department of Surgery, The University of Texas Health Science Center at San Antonio, TX, USA, **Walter Reed Army Institute of Research, Wash., D.C., USA.

Objective: These studies were done to directly test infectivity of HIV for primary, early passage, and established lines of human GI cell cultures.
Methods: Normal and malignant GI epithelial and submucosal mesenchymal (SM) cells from the human colon and small intestine were cultured in vitro, phenotypically characterized, and infected with various strains of HIV-1.
Results: Virus replication and cytopathology assays for reverse transcriptase, synthesis and release of the viral p24 antigen, in situ hybridization, syncytium formation and electron microscopy showed that HIV could replicate in GI cultures. Higher titers and longer-term persistent release of virus were seen with monocyte-derived HIV strains compared to HTLVIIIB, and HIV susceptibility varied for the different GI cells tested. DNA copies of the viral genome and persistent virus release for weeks to months after infection were seen in some of the cultures. HIV-infected SM cells showed altered growth, changes in morphology, and release of angiogenic and other factors, suggesting mimicry of Kaposi's sarcoma.
Conclusion: The data show that HIV can replicate in the GI tract and establish virus latency with persistent release from an epithelial cell reservoir. Furthermore, HIV infection of SM cells from the GI tract may provide a model of Kaposi's sarcoma. These observations have major implications for HIV pathogenesis and for treatment of HIV-infected individuals. Partially supported by NIH-RO1-DK40625.

F.A.260 INFECTION OF COLON EPITHELIAL CELLS BY HIV-1

Louise Evans, Corbeil, J., Edwards, P.D., Vasak, E., Penny, R., *Cooper, D.A.
Centre for Immunology, St. Vincent's Hospital, Sydney, Australia
*National Centre for HIV Epidemiology and Clinical Research, University of New South Wales, Sydney, Australia.

OBJECTIVE: To assess the ability of HIV to infect colon carcinoma cell lines and colonic mucosal cells.
RESULTS: Four colon carcinoma cell lines (HT29, SW480, SKCO-1 and CaCO2) were inoculated with a number of strains of HIV and monitored for productive HIV infection. HIV-1 productively infected all of the colon carcinoma cell lines, releasing low levels of p25 core antigen into the culture supernatant (up to 230 pg/ml). When the inoculated cell lines were co-cultivation with PHA-stimulated peripheral mononuclear cells, high levels of p25 were detected (>500 pg/ml). A reduced rate of cell division was observed in the HIV inoculated lines compared to those treated with supernatants from uninfected cultures (3H-thymidine uptake). Reduced protein turnover was also observed when 35S-methionine labelled proteins were analyzed by polyacrylamide gel electrophoresis. This effect could be mimicked by treatment of the cell lines with TNF-α. Neither HIV infection of the cell lines nor the reduced rate of proliferation could be blocked with anti-CD4a monoclonal antibody. Immunoperoxidase staining using monoclonal antibodies directed against p18 and gp41 and *in situ* hybridization has also detected HIV protein and nucleic acid in epithelial cells of large bowel biopsies from three HIV seropositive patients with diarrhoea, wasting and a non-specific histologic colitis.
CONCLUSION: HIV can directly infect colonic epithelial cells and this infection may mediate some of the gastrointestinal abnormalities frequently observed in HIV infected individuals.

F.A.261 HUMAN IMMATURE EOSINOPHLIS ARE HIGHLY SUSCEPTIBLE TO HIV INFECTION

Cornuet, P.*,Georgoulias V. **, Bréard Jacqueline ***INSERM U268 and **CNRS URA 192, Hôpital Paul-Brousse, 94800 Villejuif, France.

Two recently established immature eosinophilic cell lines were used in this study. These EoL lines, derived from an eosinophilic leukemia (Blood 66:1233, 1985), are commited to the eosinophilic lineage as shown by their development of typical eosinophilic features under the influence of differentiative agents. They express surface Ia antige, myeloid antigens (CD33) and the CD4 molecule. The possible infectivity of the lines by the HIV virus was therefore tested. After in vitro co-culture with the BRU strain of HIV, reverse transcriptase (RT) activity was measured in the supernatants. RT was detectable at day :7 after infection and incresed sharply over the following two weeks of testing. The p24 protein level was superior to 1µg/ml in the two weed culture supernatant. Moreover, in contrast to what has been described fro t cell lines such as CEM, the eosinophilic cells did not die after beeing infected. These relults, which show that immature eosinophils are highly susceptible to HIV infection and survive while replicating the virus, points to the eosinophil as a potential additonal reservoir for HIV

F.A.262 THE RAPID CHANGES IN THE LIPID STRUCTURE OF NEUROBLASTOMA CELLS AFTER INFECTION WITH HIV

Klein, Ami*;Malkin, A.*;Bruser, B.*;Li, G.**;Volsky, DJ.**;Mizrachi,Y.**
Dept. of Biochemistry*, Sunnybrook Med. Ctr., University of Toronto, Toronto, Canada, and St Luke's /Roosvelt Hosp.**, Columbia University, New York, NY, USA.

Objectives: High content of unsaturated fatty acids (FA) accompanied by low content of saturated FAs lead to increase in cell membrane fluidity and can explain cell fusion and death through the loss of membrane integrity. It has been demonstrated that neural cells are susceptible to HIV infection. The aim of the present work was to test whether HIV infection leads to changes in the content of FAs in membrane of neuroblastoma cells.
Methods: Two neuroblastoma cell lines were used, one (SKNMC), susceptible to HIV infection and the other (2L1) not susceptible. They were grown in DMEM supplemented with 15% FCS. Cells were harvested and resuspended at $20x10^6$ and infected with 100x concentrated virus diluted 1/10 for each time point. Cells were incubated for 0, 15, 30, and 60 min., washed and extracted according to the Folch method. The lipids were hydrolysed and transmethylated to produce FA methyl esters and analysed by gas chromatography. The contents of the following FAs were measured: Palmitic (16:0), 2. Stearic (18:0), 3. Oleic (18:1), 4. Linoleic (18:2), 5. Arachidonic (20:4), and 6. Docosahexaenoic (22:6).
Results: The comparison of FA contents in cell membrane of the two cell lines showed no difference among the corresponding FAs at the intervals of 0 - 30 min. However, 60 min after infection, the content of arachidonate increased 170% ($p<0.01$) and the content of stearate decreased to 77% ($p<0.05$) in SKNMC cell. No similar changes were observed with 2L1 cells.
Conclusion: The present results suggest that HIV infection leads to changes in the saturated / unsaturated FAs ratio which may increase the fluidity of the membrane and cause alteration in the neural cell membrane function.

F.A.263 A SMALL SUBPOPULATION AMONG THYMIC CELLS IS SENSITIVE TO HIV_1 INFECTION.

Pereira, Rosemarie A.*; Nugeyre, M.-T.**; Grangette, C.***; Vuillier, F.**, Barré-Sinoussi, F.**
*Institute of Medical and Veterinary Science, Adelaïde, Australia, **Institut Pasteur, Paris, France, ***Institut Pasteur, Lille, France.

Objective: In order to determine at which stage along the differentiation pathway, the precursor cells of the immune system become permissive to infection, we have investigated the susceptibility of thymic cells to HIV_1 infection.
Methods: Thymuses were obtained from seronegative infants undergoing cardiac surgery. Immature thymocyte populations were prepared by depletion using relevant monoclonal antibodies against specific cell surface markers and magnetic beads selection. The enriched subset of thymocytes was infected *in vitro*, cultured in IL2 containing medium and followed throughout the culture period for its phenotype by FACS analysis, for HIV_1 expression by *in situ* hybridization and by measuring RT activity and/or viral antigen in cell free supernatant. CD_4 mRNA expression was also analysed by using the PCR technology.
Results: Among a CD_7^+ $CD_2^{+/-}$ CD_1^+ CD_3^- CD_4^- CD_8^- thymocyte subset, a small percentage (0.3-0.5%) of cells was repetitively found to express HIV_1 at different times after infection *in vitro*. Such cells do not appear to be a few contaminating CD4+ cells or remaining CD_4^+ CD_8^+ thymocytes, since no CD_4 mRNA expression was detected by PCR. However, in parallel experiments, we have shown that double positive thymocytes are able to bind HIV_1 ; a cell line phenotypically ressembling CD_4^+ CD_8^+ thymocytes was found to actively replicate HIV_1 *in vitro*.
Conclusion: Our data indicate that :
- CD_4^+ CD_8^+ thymocytes are susceptible to HIV_1 infection.
- A small percentage of CD_3^- CD_4^- CD_8^- cells is also sensitive to viral infection ; such cells may represent a contaminating population of dendritic cells or a small subset of immature thymocytes.
This work was supported by the French National Agency for AIDS Research.

F.A.264 MONOCYTOTROPISM OF HIV-1 VARIANTS CORRELATES WITH A LOW-VIRULENT BIOLOGICAL PHENOTYPE

Schuitemaker, Johanna; Kootstra,N.; Miedema,F.; Tersmette,M.
Central Lab. Neth. Red Cross Blood Transf. Serv. and Lab. Of Exp. and Clin. Immunology of the Univ. of Amsterdam, Amsterdam, The Netherlands.

Objective: To study the monocytotropism of non-syncytium-inducing (NSI) and syncytium-inducing (SI) HIV-1 variants.
Methods: 16 NSI and 12 SI isolates, established by cocultivation with PBL were tested for their ability to infect elutriator-purified peripheral blood monocytes from 8 blood donors. Also, primary virus isolates were recovered from sequential PBL samples of 4 seropositive asymptomatic individuals by cocultivation in parallel with either monocytes or PBL as target cells. The obtained isolates were compared for their biological phenotype.
Results: 12/16 NSI variants were able to replicate in monocytes from 3 out of 8 donors (median). In contrast, only 4/13 SI variants were able to infect monocytes of a limited number of donors (median 1/8 donors). In the primary isolation studies using monocytes or PBL as target cells, virus was obtained from all cultures. Although in the PBL coculture both NSI and SI variants were obtained, all the isolates recovered by monocyte co-culture appeared to be of the NSI phenotype upon cell free passage to PBL and could not be transmitted to T-cell lines.
Conclusions: NSI variants, present early after seroconversion, are more monocytotropic than SI variants, associated with progression of disease. When monocytes are used for primary isolation from patient PBL a selection for NSI variants occurs. These data demonstrate the presence of monocytotropic HIV-1 variants in the peripheral blood, and underscore the important role of the monocyte reservoir in the maintainance of HIV infection.

F.A.265 EFFICIENT AND SPECIFIC HIV-1 ENTRY INTO NEURAL CELLS.

Mizrachi Yaffa, Shahabuddin M., Volsky D.J.
St. Lukes/Rsvlt. Hosp. Columbia Univ. New York, NY.

Objectives: We studied the mechanisms of HIV-1 binding and entry, and initial steps of virus replication in neural cells.
Methods: Tumor neural cell lines of neuronal (SKNMC) glial (U251) or of muscle (TE 671) origin were used. ^{125}I labeled gp120 was used to determine the specificity of HIV-1 env binding to neural cells. Fluorescently labeled HIV-1 and the fluorescence dequenching (DQ) technique were used to determine the conditions for HIV-target cell fusion. PCR was utilized to study the kinetics of HIV-1 transcription. HIV-1 expression was determined by testing CAT activity after infection with a recombinant HIV-1 virus carying cat gene in place of nef.
Results: ^{125}I-gp120 binding to neural cells could be specifically competed with unlabeled gp120. HIV-1 fusion with neural cells as determined by the DQ technique was as efficient as HIV 1 fusion with CD4 bearing cells. sCD4 did not affect HIV-1-neural cells fusion in contrast to CD4 bearing lymphocytes. Viral DNA could be detected by PCR in neural cells 30 minutes following infection, it persisted up to 4 weeks at the time when no p24 antigen could be detected. Studies with HIV1-CAT virus, CAT activity demonstrated increased in these cells 6h p.i.
Conclusion: The results show specific binding and efficient entry of HIV-1 into neural cells. Furthermore, transcription and expression of HIV-1 occurs soon after entry. The observed restriction in HIV-1 replication in neural cells is probably a result of post entry cellular mechanisms.

F.A.266 EFFICIENT HIV-1 ENTRY INTO GLIAL CELLS IS NOT MEDIATED BY CD4.

Harouse, Janet M., M.A. Laughlin,B.Godfrey, H.Friedman,F.Gonzalez-Scarano
University of Pennsylvania School of Medicine, Philadelphia, PA

Objective: Several CD4 negative glial cell lines can be infected with HIV-1 in culture. To determine whether this infection proceeds by an alternate entry pathway we have used a viral internalization assay based on the detection of $p24^{gag}$ in cellular lysates. *Methods:* Cells and virus were incubated for a short period at 4°C, then placed at 37°C, to allow internalization, and lightly trypsinized, to remove residual inoculum. We attempted to block internalization by pre-treatment with OKT4A, rsCD4 and antibodies prepared against two glial lines. Furthermore, we pre-treated the cells with trypsin and neuraminidase, to determine if internalization was susceptible to enzymatic digestion. *Results:* We have detected significant viral uptake into U373-MG cells when they are incubated with virus at 36°, but not at 0°, indicating viral uptake into intracellular compartments. This internalization was not detected in HeLa cells or non-infectable glial lines (HTB-138). In contrast with results using HeLa T4, uptake was not blocked with either monoclonal antibodies directed against CD4 (OKT4a) or recombinant, soluble CD4 (rsCD4, SKF, courtesy of R.Sweet). *Conclusion:* These results suggest that entry into glial cells is mediated by an alternate receptor and is relatively efficient.

F.A.267 T-CELL AND MACROPHAGE TROPISM OF HIV-1 IS LINKED TO THE ENVELOPE GP120

Shioda, Tatsuo; Levy, J.A. and Cheng-Mayer, C. University of California, School of Medicine, San Francisco, California, USA

Objective: To map the viral genome determinant(s) of T-cell and macrophage tropism of HIV-1.
Methods: Recombinant viruses were generated between biologically active molecular clones of HIV-1 isolates that show different biologic properties. The isolates studied were: HIV-1_{SF2}, a T cell-tropic strain that down-modulates the CD4 molecule in the infected cells, and HIV-1_{SF162}, a macrophage-tropic strain that does not down-modulate the CD4 molecule. The biologic properties of the recombinant viruses were examined.
Results: A recombinant virus carrying a 1.8kb EcoRI-SspI fragment of the envelope region of HIV-1_{SF2} replicated in a T cell line (HUT 78) but not in primary human macrophages, and it down-modulated the CD4 molecule. A recombinant virus carrying the corresponding fragment of HIV-1_{SF162} replicated in primary macrophages but not in HUT 78 cells, and did not down-modulate the CD4 protein. This fragment is composed of 455 amino acid residues of the N-terminus of gp120 as well as the vpu gene, and the second exon of the tat and rev genes.
Conclusion: The results suggest that a region on gp120 is a major determinant of T-cell and macrophage tropism. Further fine structure mappings are in progress to identify amino acid changes that specifically affect these HIV-1 biologic properties.

F.A.268 HIV-1 INFECTION OF HUMAN MONOCYTE CULTURES: EFFECTS OF CYTOKINES ON HIV REPLICATION

Jendis, Jorg; Bron, C.; Schuepbach, J.
Swiss National Center for Retroviruses, Institute for Immunology and Virology, University of Zuerich, Zuerich, Switzerland.

Objective: To study the effects of cytokines on the susceptibility of target cell monocyte cultures to infection with HIV isolated from seropositive individuals at various stages of HIV infection.
Methods: Virus was transmitted to monocyte cultures by cocultivation. Virus donor cells consisted of PBMC of HIV seropositive individuals at CDC stages II, III, and IV. Normal peripheral blood derived monocyte cultures served as target cells and were grown under varying conditions using colony stimulating factors (CSF) as media additives. Media variations included: No additive, GM-CSF, M-CSF, GM- + M-CSF, and some PHA + IL-2. Virus isolation was monitored by the presence of viral antigen (p24) and in some cases by RT-activity in the culture medium.
Results: In cocultures from HIV infection stage II and III replication of HIV was strongly affected by added CSF. Preference for one or the other cytokine or no additive was different for each individual. In cocultures obtained from individuals in stage IV of HIV infection, virus isolation was in 4 out of 6 cases not affected by cytokines. Virus isolation was successful on all macrophage cultures independent of the growth media used.
Conclusion: In later stages of HIV infection virus variants are formed that have acquired the capability to replicate in macrophages of different stages of cellular differentiation.

F.A.269 HIV INFECTION OF HUMAN MEGAKARYOCYTIC CELLS

Sakaguchi, Mamoru; Groopman, J.
Division of Hematology/Oncology, New England Deaconess Hospital, Harvard Medical School, Boston, Massachusetts, USA.

Objective: To study the susceptibility of cells of megakaryocytic lineage to HIV infection.
Methods: The human megakaryocytic cell line CMK was provided by Dr. Sato (Chiba Univ., Japan). Three HIV-1 isolates (IIIB, Bal, 9533) and 1 HIV-2 isolate (LAV-2) were used to challenge CMK cells. Productive infection was monitored by IFA, RT, and p24 antigen in the supernatant. In some experiments, CMK cells challenged with HIV-1 IIIB were later cocultivated with uninfected H9 T cells to enhance virus recovery. Monoclonal antibody Leu3a and recombinant CD4 (Genentech) were used to block HIV infection.
Results: The CD4 surface molecule was found on the CMK cells. CMK cells were highly susceptible to HIV-2 infection, but no productive infection was clearly detected using the HIV-1 isolates by IFA and RT. Low levels (100-200 pg/ml) of p24 antigen was found in the supernatant following HIV-1 IIIB challenge. Cocultivation of HIV-1 IIIB exposed CMK cells with H9 T cells resulted in detectable virus. Leu3a or recombinant CD4 completely blocked HIV-2 infection. The CD4 and HLA-DR antigens, but not megakaryocytic markers gpIb or gpIIb/IIIa, were downregulated after HIV-2 infection of CMK cells.
Conclusion: The megakaryocytic cell line CMK expressed the CD4 surface molecule and was readily infected with HIV-2 (LAV-2), but difficult to productively infect with HIV-1 isolates. Infection was mediated by the CD4 molecule. Megakaryocytic cells may be infected in vivo and contribute to thrombocytopenia. The CMK cell line provides a model to study HIV infection of this cell type, a new target of HIV.

F.A.270 CHARACTERIZATION OF THE INTERACTION OF ENVELOPE GLYCOPROTEINS OF HIV-1 AND HIV-2 WITH CD4 RECEPTOR : ROLE OF N-GLYCANS IN THESE INTERACTIONS.

Bahraoui* Elmostafa, Benjouad** A., Fenouillet** E., Kolbe*** H., Gluckman** J.C., Montagnier**** L.
* CNRS UA 1179 Marseille.
** CERVI Pitié-Salpêtrière Medical School, Paris.
*** Transgène Strasbourg.
**** Unité d'oncologie virale. Institut Pasteur, Paris, France.

Objective : To investigate the affinity for CD4 of recombinant soluble gp140 of HIV-2 and gp160 of HIV-1 and to study the role of carbohydrate moieties in these interactions.
Methods : Inhibition of the binding of 125 Igp140 to CD4+ cells using native and enzymatically deglycosylated gp140. Native and deglycosylated gp140 were used to inhibit syncitia formation mediated by HIV-1 and HIV-2.
Results : Binding inhibition experiments of radiolabeled gp140 to CD4 positive cells by various concentrations of unlabeled gp160 of HIV-1 and gp140 of HIV 2 allowed to demonstrate the high affinity of this interaction (K 0.5 HIV-1 = 9.10^{-9} M, K 0.5 HIV-2 = 7.10^{-8} M). These results showed that gp140 of HIV-2 bound to CD4 with an affinity ten times lower than that obtained for gp160 of HIV-1. Endo-F treatment of recombinant gp140 of HIV-2, in non denaturing conditions, led to its complete deglycosylation. Removal of glycans moieties in these conditions did not modify its capacity to bind CD4 or to inhibit fusion of Molt T4 cells with HIV-1 or HIV-2 infected CEM cells.
Conclusion : These results indicate that gp140 binds to CD4 receptor with a high affinity (K 0.5 = 7.10^{-8} M) and that carbohydrate moieties do not play a significant role in the gp-CD4 interaction.

F.A.271 The N-TERMINAL REGION OF HIV GP120 CONTAINS POTENTIAL CD4-RECEPTOR BINDING SITES

Syu, W.J.; Huang, J.H.*; Essex, M.; Lee, Tun-Hou
Department of Cancer Biology, Harvard University School of Public Health, Boston, MA, USA; *Case Western Reserve University School of Medicine, Cleveland, OH, USA

Objective: Previous studies have mapped the receptor-binding sites of HIV-1 to the C-terminal region of gp120. However, approaches taken in those studies could not exclude the possibility that other regions of gp120 were involved in receptor binding as well. The objective of this study is to explore if CD4 receptor-binding domain may also be present in other regions of gp120.
Methods: The receptor-binding ability of wild type gp120 was compared to that of gp120 mutants, which have deletions of 7-9 amino acid residues or point mutations in the N-terminal conserved region. In addition, the ability of polyclonal antisera, which have binding specificity to recombinant envelope peptides corresponding to a N-terminal conserved region of gp120, to block virus-receptor interactions was investigated.
Results: The N-terminal region of gp120 contains conserved protein sequences critical for CD4-receptor binding, as mutant gp120 failed to bind CD4 molecules. The gp120-CD4 interactions was also blocked by an antiserum directed to the first conserved region of gp120.
Conclusion: These results suggest that not all potential receptor-binding sites are present in the C-terminal region of gp120 and that an alternative vaccine development strategy may have to include the N-terminal gp120 region as a component in order to raise effective CD4-blocking antibodies.

F.A.272

SEVERAL CD4 DOMAINS PLAY A ROLE IN HIV ENTRY INTO CELLS

Poulin, Louise; Evans, L.A.; Barboza, A.; Legg, H.; Littman, D.R.; Levy, J.A. University of California, School of Medicine, San Francisco, California, USA

Objective: To assess the function of the CD4 receptor during HIV infection.
Methods: A series of mutated forms of the human CD4 gene expressed into a CD4 negative T cell line were examined for susceptibility to HIV-1 and HIV2. These CD4 mutants included a CD4 containing the change of the serine 415 corresponding to a phosphorylation site of the cytoplasmic domain (CD4.415), a CD4 lacking the whole cytoplasmic domain (CD4.403, CD4.401), and finally a CD4 molecule containing sequences corresponding to the known HIV binding domain (177 first amino acid of the CD4) fused to CD8 sequences encoding the hinge, transmembrane, and cytoplasmic domain of human CD8. The presence of CD4 at the surface of the cells was detected by cytofluorometry and the viral expression was monitored by RT, IFA, p25 gag ELISA and by in situ hybridization.
Results: Cells expressing mutated forms of CD4 have shown a variability in their replication of 3 HIV-2 and 3 HIV-1 strains. One of these strains was selected for future study. When virus production was examined by RT and IFA, consistent delay was observed in all cell containing CD4 mutants as compared to those with intact full length CD4. The latest to produce virus were cells expressing the CD4.CD8 hybrid, preceded by cells containing CD4.403 or CD4.401 and the closest to the wild type CD4 were cells with CD4.415. A correlation between the down-regulation of surface CD4 and HIV expression was observed. In addition, for each CD4 mutant, the time required for virus entry (detected by in situ hybridization) corresponded to the time for CD4 modulation. However, the CD4 down-modulation was persistent after a long term culture even in the absence of virus production but presence of viral nucleic acid. Moreover, syncytium formation was not observed for the cells containing the CD4.CD8 hybrid.
Conclusion: These observations suggest that in addition to the known binding region, other domains of CD4 could play an important role in regulating viral entry of cells. Furthermore, the down-regulation of CD4 from the surface of the cell can occur in the absence of virus production. This observation may have relevance to viral latency.

F.A.273

CD4 IS THE MACROPHAGE RECEPTOR FOR HIV-1

Collman, Ronald. B. Godfrey, S. Douglas, H. Friedman, N. Nathanson, F. Gonzalez-Scarano University of Pennsylvania Medical Center, Philadelphia, PA 19104-6076

Objective: HIV-1 isolates vary in their ability to infect and replicate in macrophages, and it is possible that the macrophage entry pathway may play a role in this selective tropism. We sought to determine whether macrophage-tropic HIV-1 strains utilize the CD4 molecule as their entry pathway.

Methods: Primary monocyte-derived macrophages (MDM) and peripheral blood lymphocytes (PBL) were infected with three HIV-1 strains (SF162, 89.6, and DV) which replicate in both cell types, and the effects of recombinant soluble CD4 (rsCD4; SKF, courtesy of R. Sweet) and monoclonal antibodies were studied. In addition, we examined the expression of CD4 by monocytes, MDM and PBL by flow cytometry, fluorescence microscopy and Western blot.

Results: Freshly isolated monocytes express surface CD4 at levels approximately 10% that of T4 lymphocytes, and after 2 weeks in culture 30% of adherent MDM express detectable CD4 both at the cell membrane and internally. Western blot demonstrated that total cellular levels remained constant over 2 weeks in culture, and that MDM CD4 was the same size as in PBL. rsCD4 inhibited infection of MDM by all 3 isolates, with 20 ug/ml completely blocking infection by 10^3 TCID50 (MOI=0.005). Using strain SF162 as a prototype, we found that rsCD4 blocked MDM infection more efficiently than infection of PBL. MAb Leu3A also completely blocked infection by all 3 isolates, and cytopathic effects of HIV-1 infection were similarly prevented by both agents.

Conclusion: CD4 functions as the receptor for macrophage infection by macrophage-tropic strains of HIV-1. Therefore, selective tropism does not result from virus entry through an alternative non-CD4 pathway, although binding and entry factors in addition to CD4 may play a role in tropism. Furthermore, rsCD4 efficiently blocks MDM infection, and these results support its use as a therapeutic agent in macrophage-mediated aspects of HIV disease.

F.A.274

ROLE OF CD4 IN FCR-MEDIATED INFECTION OF MONOCYTIC CELLS.

Jouault Thierry, Chapuis F., Gluckman J.C.
CERVI. Pitié-Salpétrière Medical School, Paris, France.

Objective: To determine whether HIV FcR-mediated infection of monocytic cells is separable from the conventional CD4-dependent mechanism of HIV entry.
Methods: The HIV-1 BRU strain of HIV was used throughout the study. Two cell lines were used as targets for infection with either free or anti-HIV Ab-complexed HIV (Ab-HIV). (1) The U937 cell line that expresses both CD4 and FcR I and II was transiently treated with phorbol 12,13-dibutyrate (PDB) to temporarily obtain CD4 down regulation from the membrane of the cells at the time of infection. (2) The Mono Mac 6-II cell line presents FcR I and II but does not express CD4 as determined with Leu3a mAb by FACS or mRNA detection.
Results: (1) Treatment of U937 cells with 1µM PDB for 5h induced the temporary reduction of membrane CD4 expression to apparently undetectable levels in the FACS and the loss of HIV binding capacity, which resulted in inhibition of HIV infection, as compared with untreated CD4+ U937 cells. In contrast, Ab-HIV could still bind at the membrane via FcR. Contrasting with the productive infection noted when untreated CD4+ FcR+ U937 cells were mixed with Ab-HIV, FcR-mediated binding to PDB-treated CD4- FcR+ cells corresponded to inhibition of virus infectivity that was Ab dose-dependent. (2) HIV particles did not bind to Mono-Mac 6-II cells as determined by anti-HIV F(ab)'2 by FACS analysis, whereas Ab-HIV bound through FcR could readily be detected at the membrane. With these cells, incubation with both free HIV and Ab-HIV, complexed with different doses of anti-HIV Ab, did not lead to viral production even after ≥6 weeks in culture.
Conclusion: This relationship between susceptibility to FcR-mediated infection and level of CD4 expression indicates that even when HIV attach to the cells by means of FcR, CD4 is still necessary for infection. Thus, productive infection of monocytic cells requires the interaction of gp120 with its CD4 receptor.

F.A.275

INHIBITORS OF GP120-CD4 BINDING BLOCK HIV INFECTION OF MONOCYTE/MACROPHAGES, EVEN IN THE PRESENCE OF ENHANCING ANTIBODIES

Perno, Carlo-Federico*§; Baseler, M.W. **; Broder, S.*; Yarchoan, R.* *National Cancer Institute, Bethesda, MD, USA, ** PRI, Frederick, MD, USA, §II University of Rome, Italy

Objective: To evaluate the ability of anti-HIV antibodies (Ab) to enhance HIV replication in peripheral blood monocyte/macrophages (M/M), and to evaluate the ability of inhibitors of gp120-CD4 binding to block HIV replication in M/M in the presence of such enhancing Ab.
Methods: Fresh or cultured peripheral blood M/M were exposed to a low multiplicity of infection of HIV-1_{Ba-L}, a monocytotropic strain of HIV, with very low concentrations of anti-HIV IgG Ab. In some experiments, either soluble CD4 (sCD4) or OKT4A Ab were added. M/M were cultured for 21 days, and HIV replication was assessed by p24 Ag production.
Results: Preliminary experiments showed that M/M bear surface CD4, albeit at a lower density than T cells or the U937 monocytoid line. Infection of fresh or cultured M/M by HIV was substantially inhibited by ≥1 µg/ml sCD4 or ≥0.06 µg/ml of OKT4A (IgG_{2a}) Ab. Very low concentrations (0.005 - 0.0005 µg/ml) of anti-HIV IgG Ab enhanced HIV replication by up to 5X. In some cases, infection was only attained in the presence of these enhancing Ab. In each of several experiments, sCD4 (5 µg/ml) or OKT4A (1 µg/ml) completely inhibited infection of the M/M under conditions of enhancement by these anti-HIV Ab. An irrelevant IgG_{2a} murine control Ab had no such inhibitory effect.
Conclusions: Infection of M/M by HIV can be modestly enhanced by very low concentrations of anti-HIV Ab. Even under these conditions, infection is blocked by inhibitors of gp120-CD4 binding. Enhancing Ab may serve to concentrate gp120 onto surface CD4, rather than acting as a CD4-independent entrance mechanism for HIV.

F.A.276 Fc RECEPTOR AND CD4 MOLECULE ARE REQUIRED FOR ANTIBODY-DEPENDENT ENHANCEMENT OF HIV-1 INFECTION.

Takeda, Akira,* Sweet, R.W.,** Ennis, F.A.*
*University of Massachusetts, Worcester, MA. USA; **Smith Kline and Beecham Laboratories, Philadelphia, PA. USA

Objective: We have previously shown evidence that antibody-dependent enhancement of HIV-1 infection is mediated by Fc receptor (FcR) for IgG. While HIV-1 infection is initiated by an interaction with cell surface receptor CD4, a CD4-independent entry of the virus has also been suggested. In this study, we investigated the molecules which are responsible for mediating antibody-dependent enhancement of HIV-1 infection via FcR.
Methods: The purified IgG from an HIV-1 antibody positive serum was serially diluted in phosphate buffered saline and mixed with HIV-1 (HTLV IIIB). These mixtures were incubated for 30 min at 4°C and treated with soluble CD4 (sCD4) before being incubated with U937 cells for 2 hours at 37°C at a low multiplicity of infection. Alternatively, an anti Leu3a antibody was used for blocking CD4 on the cells. Infection of cells was monitored by p24 antigen content in culture supernatants and by cytoplasmic HIV-1 antigens in an immunofluorescence assay. To characterize the FcR involved we tested a monoclonal antibody (mAb) 197 to FcRI and mAb IV-3 to FcR II. In the experiment with anti Leu3a antibody, cultured macrophages were also used.
Results: Enhancement of infection was blocked by sCD4 regardless of whether IgG was added before or after treatment with sCD4. An anti-Leu3a antibody also inhibited enhancement of infection. Treatment with a mAb 197 blocked enhancement of infection, whereas a mAbIV-3 had no blocking effect.
Conclusion: Antibody-dependent enhancement of HIV-1 infection requires FcRI for IgG as well as CD4 molecules on monocytic target cells.

F.A.277 INHIBITION AND ENHANCEMENT OF HIV-1 INFECTIVITY BY LIPOSOMES.

Konopka, Krystyna*; Davis, B.R.***; Larsen, C.E.*; Alford, D.R.*; Debs, R.J.*; Düzgüneş, N.*,**
*Cancer Res. Inst. and **Dept. of Pharm. Chem., University of California, San Francisco; and ***Medical Res. Inst., Pacific Presbyterian Medical Center, San Francisco, California.

Objective: Since HIV fuses rapidly with liposomes composed of either anionic cardiolipin (CL) or cationic dioleoylpropyltrimethylammonium (DOTMA), we investigated the infectivity of the fusion products and the effect of liposomes on HIV-1 infectivity.
Methods: CD4+ A3.01 and H9 cells, and CD4- HUT-78/BD and K562 cells were exposed to HIV-1-LAV pre-incubated with CL, DOTMA or dioleoylphosphatidylcholine (DOPC) liposomes for 2h at 37°C. Cells were also exposed to virus in the presence of liposomes. Infection was monitored by p24 levels in the supernatant and in situ. Proviral HIV DNA was detected by PCR.
Results: Pre-incubation of HIV-1 with CL liposomes caused dose-dependent inhibition of viral replication in A3.01 cells. Pre-incubation of HIV-1 with CL liposomes containing anti-*rev* oligodeoxynucleotides resulted in increased protection of these cells from infection. In contrast, pre-incubation of the virus with 10 µM DOTMA liposomes enhanced virus infectivity in A3.01 cells by 46 fold after 7 days of culture. When DOTMA liposomes were present during exposure to virus, a 90-fold stimulation of infectivity was observed. Enhancement of infectivity correlated with the expression of cell surface CD4 in various cell lines. These liposomes also stimulated viral replication in HUT-78/BD cells, a variant of HUT-78 cells that do not express detectable CD4. Very low amounts of proviral HIV-1 DNA were detected by PCR in K562 cells exposed to DOTMA-pretreated virus. Pre-incubation of HIV-1 with DOPC liposomes, which do not fuse with the virus, did not affect p24 production in A3.01 cells.
Conclusion: The fusion product of HIV with DOTMA liposomes stimulates the infectivity of the virus, while the fusion product with CL liposomes inhibits it. DOPC liposomes that do not fuse with the virus do not affect infectivity.

F.A.278 THE MECHANISM OF COMPLEMENT ENHANCED HIV-1 INFECTION

June, Robert A.*; Schade, S.*; Bankowski, M.*; Kuhns, M.**; McNamara, A.**; Lint, T.*; Landay, A.*; Spear, G.*
*Rush Presbyterian St. Luke's Medical Center, Chicago, Illinois, USA, **Abbott Laboratories, North Chicago, Illinois, USA.

Objective: This in vitro study was designed to determine if complement (C) mediated enhancement of HIV-1 antigen (Ag) production was due to increased infection as assessed by monitoring provirus and virus binding.
Methods: Supernatants containing HIV/RF were incubated with anti-HIV antibody (Ab) and/or C for 1 hr. at 37°C. Cells (MT2) were then added, to give a mutliplicity of infection (MOI) of 1, and incubated a further 4 hr. The cells were washed, cultured for 3 days and evaluated for Ag, reverse transcriptase (RT) activity, or provirus by polymerase chain reaction. To assess virion binding, Ab and C treated virus was incubated with cells (MOI of .15) on ice for 1 hr, followed by immediate cell lysis to evaluate Ag.
Results: HIV-Ag production and RT activity of cells infected with virus pre-treated with Ab and C was significantly greater than that of cells infected with virus alone, or virus treated with Ab or C separately. This increased Ag and RT production correlated with provirus and HIV binding. Increases in binding, provirus, and Ag production were abrogated by heat inactivation of the C source or by EDTA treatment. In H9 cells (C receptor negative), no enhancement of infection by C and/or Ab treatment was observed. The enhanced binding occurred in 5/5 complement receptor 2 (CR2) positive cell lines tested, including CD4 negative lines. The enhancement of Ag production occurred with C5 and C8 deficient sera, but not with C2 deficient sera.
Conclusions: We have directly shown that the increased Ag production seen in C mediated enhancement of HIV infection is due to increased binding of virus to cell surfaces and increased infection as determined by provirus. The enhancement occured via the classical pathway and the terminal attack components were not necessary.

F.A.279 THE ROLE OF COMPLEMENT IN HIV-1-INFECTION OF THE MYELOBLASTOID CELL LINE U937.

E.C.REISINGER *, W. VOGETSEDER *, B.M. SÖLDER *, D. KÖFLER *, G. BITTERLICH *, D. BERZOW ***, H.A. LEHR ***, H.WACHTER **, M.P.DIERICH *.
* Institute for Hygiene and ** Ludwig Boltzmann Institute, University of Innsbruck, Austria. *** Bernhard-Nocht-Institute for Tropical Diseases, Department for Virology, Hamburg, FRG.

To assess the role of complement and of complement receptors (CR) in HIV-1 infection of monocytes and macrophages, we studied the infectivity of HIV-1, isolated from the peripheral blood of a patient with subacute AIDS-related encephalopathy, on the human monoblastoid cell line U937.
HIV-1 as well as HIV-1 infected cells are capable of activating the complement system via the classical and the alternative pathway of complement activation, respectively. HIV-1 in low concentrations coated with complement was able to infect U937 cells more easily than non-opsonized virus. When fivefold higher concentrations of the virus were used, the infectivity was not facilitated by coating with complement anymore.
Infection of U937 could be reduced markedly in the presence of one of the monoclonal antibodies (mabs) OKT4a (anti CD4), OKM1 (anti CR3) or M522 (anti CR3) and totally blocked by a pool consisting of all three mabs. Therefore we conclude that complement receptors may represent a port of entry for HIV-1 coated with complement.

F.A.284 INTERACTION OF HIV GP41 SYNTHETIC N-TERMINAL FRAGMENTS WITH NATURAL AND ARTIFICIAL MEMBRANES

Andreev S.M.*,Slepushkin V.A.**,Sidorova M.V.*,Melikjan G.B.**, Kornilaeva G.V.**,Tshumakov V.M.**,Azmuko A.A.*,Kalmanson A.E.**, and Karamov E.V.**
* Institute of Immunology, USSR Ministry of Public Health,Moscow
** Institute of Virology, Acad.Med.Sci.USSR,Moscow

N-terminal segment of HIV transmembrane gp41(fusion domain) play important role during virus penetration into the cell by direct fusion between HIV and cellular membranes.In order to study some features of the HIV-induced fusion mechanism we have examined the ability of nine synthetic peptide fragments of fusion domain(6-22 a.a.residues) to influence the conductivity of artificial bilayer membranes,lysis and fusion of spin-labeled liposomes and to inhibit the HIV infection in CEM cells(sincytium-formation).We have compared also the activity of these peptides (all mentioned parameters)to that of influenza virus HA2 fusion peptide(12 a.a.).The fragment 517-538(LAV-isolate sequence) at the pH 7.4 possessed maximum activity whereas the fragment 523-532 had the critical length and conserved some activity.Thus our data provides experimental evidences to a crucial role of this region in the HIV-cell membrane fusion.

F.A.285 DELINEATING REGIONS OF THE CD4 MOLECULE FUNCTIONALLY IMPORTANT FOR HIV INFECTION & HIV-INDUCED CELL FUSION WITH SYNTHETIC PEPTIDES AND NEUTRALIZING ANTIBODIES.

D.M. Rausch*, F. Celada**, M.Padgett*, Lee. E. Eiden*, B. Chandrasekhar*, V.S. Kalyanaraman***, K.M. Hwang# and J.D. Lifson#.
*National Institute of Mental Health, Bethesda, Maryland, USA, **Hospital for Joint Diseases, Orthopaedic Institute, 301 E. 17th St., New York, New York, USA, ***Bionetics Research Inst., Rockville, Maryland, USA, #Genelabs Incorporated, Redwood City, California, USA.

Objective: Inhibition of HIV-induced cell fusion, HIV infection, and direct binding of gp120 to CD4 by anti-CD4 monoclonal antibodies (CD4 Mabs) and CD4-derived synthetic peptides was compared directly and in cross-blocking studies to define *structural* as well as *functional* epitopes for anti-CD4 antibodies.
Methods: CD4-derived peptides from the V1J1 portion of the CD4 molecule and CD4 Mabs were tested at 0.1-500 µg/ml, alone and in combination, for inhibition of HIV-induced cell fusion, HIV infection of CD4 positive cells, and binding of purified HIV-1 gp120 to CD4-positive cells and CD4 solubilized from these cells.
Results: CD4 peptides containing sequences within the CDR-3-homologous domain of CD4 inhibited fusion, infection and binding in parallel, while peptides derived from the CDR1 and CDR2-homologous domains as well as intervening sequences were without effect. Several putative CDR2 and CDR3-directed Mabs blocked fusion, infection, and binding. Functional CD4 binding domains of various antibodies could be mapped by synthetic peptide inhibition of antibody/CD4 binding or peptide reversal of antibody blockade of CD4/gp120 binding.
Conclusions: The *functional* epitopes on the CD4 molecule mediating neutralization of gp120 binding, HIV infection and cell fusion by anti-CD4 monoclonal antibodies, and the *structural* epitopes on the CD4 molecule to which these antibodies directly bind can in principle be independently measured, providing new insights into the role of the CDR2 and CDR3-homologous domains of CD4 in HIV receptor function.

F.A.286 ROLES OF CDR2- AND CDR3-LIKE DOMAINS OF CD4 IN FUNCTIONAL INTERACTIONS WITH HIV ENVELOPE GLYCOPROTEINS AND IMMUNE FUNCTION AS DEFINED BY MONOCLONAL ANTIBODIES AND SYNTHETIC PEPTIDES

Lifson, Jeffrey D.*, K.M. Hwang*, D.M. Rausch**, P. Wu*, A. Rivas***, E.G. Engleman***, P. Estess****, D. Buck****, and L.E. Eiden**
*Genelabs Incorporated, Redwood City, California, USA, **National Institute of Mental Health, Bethesda, Maryland, USA, ***Stanford Medical School Blood Center, Palo Alto, California, USA, and ****Becton Dickinson Monoclonal Center, Mountain View, California, USA.

Objective: We have used both modified CD4-derived synthetic peptides and CD4-reactive murine monoclonal antibodies as probes to assess the contributions of the CDR2-like and CDR3-like domains of CD4 to functional interactions with HIV envelope glycoproteins and molecular interactions involved in CD4-dependent immune functions.
Methods: Binding domains of CD4-reactive murine monoclonal antibodies were mapped based on reactivity with mutant recombinant forms of CD4. Modified CD4-derived synthetic peptides and antibodies mapped to different domains of CD4 were tested in assays of HIV infectivity, CD4-dependent HIV envelope glycoprotein induced cell fusion, and in assays of CD4-dependent immune function.
Results: Modified synthetic peptides containing a portion of the CDR3-like domain of CD4 blocked HIV infectivity and HIV-induced cell fusion in a concentration dependent manner. CD4-reactive monoclonal antibodies mapped to the CDR2-like domain of CD4 and antibodies mapped to the CDR3-like domain inhibited HIV infectivity and HIV induced cell fusion, while CD4-dependent immune functions were blocked by some of the antibodies and not by others.
Conclusions: Point mutations affecting residues in the CDR2-like domain of CD4 can abolish high affinity binding of HIV gp120; antibodies reactive with this domain block HIV infection and virus-induced cell fusion. We have shown that modified synthetic peptides containing a portion of the CDR3-like domain of CD4, as well as some antibodies mapped to the CDR3-like domain also block HIV infection and virus-induced cell fusion. These results, along with the effects of these reagents on CD4-dependent immune functions, suggest that the functional properties of structural domains of CD4 may be more complicated than has been proposed.

F.A.287 FUSION OF HIV-1 WITH LIPOSOMES.

Larsen, Charles*; Alford, D.R.*; Jennings, M.**; Debs, R.*; and Düzgünes, N.*. University of California, *San Francisco; and **Davis, CA, USA.

Objective: We investigated the kinetics of membrane fusion between HIV-1 and phospholipid vesicles and the effects of pH, divalent cation, and target membrane composition on this process.
Methods: Sucrose gradient purified HIV-1 was labeled with octadecyl rhodamine B chloride (R_{18}), and fusion was monitored continuously as the dilution of probe into target membranes.
Results: HIV-1 fusion is strongly dependent upon the lipid composition of target membranes. Fusion with pure cardiolipin (CL) liposomes is significantly faster than with CL/dioleoylphosphatidylcholine (DOPC) (3:7), phosphatidylserine (PS) or disialoganglioside (G_{D1a})/DOPC (1.5:8.5) vesicles. HIV-1 does not fuse appreciably with pure DOPC liposomes. Fusion with cationic dioleoylpropyltrimethylammonium (DOTMA)/cholesterol (Chl) (3:1) liposomes occurs rapidly, but, unlike anionic liposomes, the rate is linear over an extended time period. Reduction of pH from 7.5 to 4.5 greatly enhances the rate of HIV-1 fusion with CL, CL/DOPC (3:7) and PS membranes but does not affect fusion with pure DOPC, G_{D1a}/DOPC (1.5:8.5) or DOTMA/Chl (3:1) liposomes. Recombinant soluble CD4 (rCD4) and bovine serum albumin (BSA) inhibit HIV fusion to the same extent over a broad concentration range. Calcium stimulates HIV fusion with pure CL liposomes only.
Conclusions: HIV-1 can fuse with model membranes lacking the known viral receptor, CD4, or any other protein, and rCD4 does not specifically inhibit fusion. HIV-1 fusion with model membranes shares similarities (but also distinct differences) with other lipid enveloped viruses such as Sendai and influenza. CL and DOTMA liposomes should prove useful as modifiers of HIV-1 infectivity.

F.A.288

MONOCLONAL ANTIBODIES TO CD4 CAN DIFFERENTIATE BETWEEN THE PROCESSES OF CD4/VIRUS BINDING AND SUBSEQUENT INFECTION

Healey, Donald*; Buck, D.**; Moore, J.***; Dianda, L.*; Beverley, P.*; Sattentau, Q.*
*University College, London U.K., **Becton Dickenson, La Jolla, California, USA. ***Institute for Cancer, London, U.K.

Objective: An investigation of a panel of monoclonal antibodies to CD4 revealed that not all reagents which blocked infection could inhibit the binding of gp120.
Methods: Therefore, these reagents have been mapped to their respective binding sites using site directed mutant CD4 molecules, or anti CD4 cross-competition assays. Their ability to block infection was determined using persistently infected cell lines or cell free virus supernatants incubated with c8166 cells. gp120 inhibition was investigated by blocking the interaction of recombinant gp120 with CD4 positive HPB-ALL cells in ELISA.
Results:

	BINDING SITES		gp120 BINDING INHIBITION			INFECTION INHIBITION		
ANTIBODY	CD4 DOMAIN	CRITICAL RESIDUES	100 ug/ml	1 ug/ml	0.1 ug/ml	100 ug/ml	1 ug/ml	0.1 ug/ml
LEU 3A	V1	27,42,43	+++	+++	++	---	+++	+++
L71	V1	68-94	+++	++	---	+++	+++	+++
P91/55/T1	(V1)V3	ND	ND	---	---	+++	+	---
Q426	V3	ND	---	---	---	+++	+	---
Q425	V3	180-194	---	---	---	+++	++	---
MT429	V3	ND	---	---	---	---	---	---
			INHIBITION SCORE			+++ (100%)	++ (50%)	+ (10%)

Conclusions: Antibody L71 preferrentially blocks infection. L71 maps to the CDR3 loop of the V1 domain of CD4. This area, when expressed as a peptide, has also been shown to inhibit infection. Monoclonal antibodies which react with the V3 domain of CD4 can inhibit infection but not binding. As these reagents may define a hinge region in the CD4 molecule, steric hinderance of this site, by selected monoclonal antibodies, may be inhibitory by holding the CD4 molecule in a confirmation unsuitable for productive infection.

F.A.290

INHIBITION OF CHYMOTRYPSIN ACTIVITY BY A MAJOR NEUTRALIZING EPITOPE OF HIV-1

Hattori, Toshio; Murakami, T.; Takatsuki, K.
Second Department of Internal Medicine, Kumamoto University Medical School, Kumamoto, Japan 860.

Objective: The biochemical activity of a major neutralizing epitope of gp120 of HIV-1 was studied, in order to clarify a role of the epitope in infection and to assess a pathological role of the epitope. The middle of the portion (GPGR) is highly conserved, whereas the amino acid sequences flanking this portion is hypervariable. The conserved sequences have homologous amino acid sequences with the reactive sites of Kunitz-type protease inhibitor(s).
Methods: Two peptides corresponding to the epitope of gp120 of -IIIB (308-331;24 mer) and -MN (23 mer) strains of HIV-1 were synthesized. In addition, sequential short peptides corresponding to the -IIIB epitope were also synthesized. Protease activities were measured by the use of purified enzymes and fluorogenic substrates.
Results: 24 mer -IIIB peptide specifically inhibited trypsin and chymotrypsin activities, whereas inhibitory effects of the peptide on five other different proteases were not observed. The kinetic studies showed that the inhibition on trypsin was competitive but that on chymotrypsin was noncompetitive. By the use of sequential short peptides, it was found that the peptide consisting of at least 12 amino acids containing GPGR sequence, was necessary for the inhibition of chymotrypsin. 23 mer -MN peptide also inhibited chymotrypsin activity.
Conclusion: A major neutralizing epitope of gp120 of at least two different strains of HIV-1 inhibited chymotrypsin activities. It was speculated that this inhibition is dependent on the conformation, because the inhibitory manner is noncompetitive, and also because at least 12 amino acids sequences are necessary for the inhibition. These results indicate that the domain plays a key role for infection of HIV-1 as well as for pathophysiology of HIV-1 infected individuals by interacting with cellular protease(s).

F.A.289

EFFECT OF AFFINITY ON FUNCTION OF ANTI-CD4 MONOCLONAL ANTIBODIES (Mabs)

Habeshaw J, Wilks D, Walker L, Burchnell-Smith C, Dalgleish A G RETROVIRUS RESEARCH GROUP, HARROW UK

OBJECTIVE: i) To measure the affinity of a panel of anti-CD4 Mabs for recombinant CD4 (sCD4). ii) To compare the ability of Mabs to inhibit syncytium induction by HIV, and prevent binding of recombinant gp120 (rgp120) to CD4+ cells. iii) to determine the effect of i) on ii) iv) To assess differences between sCD4 preparations and determine the effect of HIV positive sera on the ability of these preparations to neutralise HIV.
METHODS: i) Relative functional affinity (RFA) was assessed by a competition RIA[1]. Mabs were incubated with plates coated with sCD4 (50ng/well) with increasing conc. of sCD4. RFA is inversely proportional to the conc. of soluble sCD4 needed to inhibit binding by 50% (IC_{50})[1]. ii) The conc. of Mab needed to completely inhibit syncytia was measured by usual methods. iii) I^{125} - rgp120 was incubated with CD4+ cells with Mab at 0-50ug/ml and the IC_{50} determined. iv) The affinity of some Mabs was also determined by direct RIA with CD4+ cells. RESULTS: i) the affinity of anti-CD4 Mabs lay between approx. 10^{8} and 10^{10} M^{-1}. ii) Higher affinity correlated well with ability to inhibit syncytium at low conc. iii) One sCD4 construct completely lacked the epitope for MT151. iv) Some Mabs have a higher affinity ranking for native CD4 than for sCD4. Log differences in efficiency between different CD4 preparations were detected, and positive sera enchanced the neutralisation of HIV by sCD4.
CONCLUSION: High affinity is required for syncytium inhibition, regardless of epitope location on CD4. Different forms of sCD4 resemble native CD4 to different degrees in terms of epitope preservation; this has implications for therapeutic use. [1] Reference: Rath S *et al*, J. Imm. Meth 1988; 106: 245-249.

Viral Pathogenesis

F.A.291

ROLE OF N-LINKED GLYCANS OF THE ENVELOPE GLYCOPROTEINS IN THE INFECTIVITY OF HIV-1.

Fenouillet*, Emmanuel; Gluckman* J.C.; Bahraoui** E.
* CERVI, Pitié-Salpétrière Medical School, Paris.
** Unité d'oncologie virale, Institut Pasteur, Paris, France.

Objective: Recombinant glycoproteins may be differently glycosylated than, and behave differently from, native proteins. Therefore, we compared the composition of N-linked glycans (CHO) of recombinant and native HIV-1 env glycoproteins (gp) and investigated their role in situ on viral particles in the binding to, and virus infectivity of CD4+ cells.
Methods: (1) Endoglycosidases (Endo H, Endo F, N glycanase) were used to determine the glycosylation pattern of immunopurified viral gp120 (vgp120) and of recombinant gp120 (rgp120) from vaccinia virus infected BHK21 cells. (2) The effects of complete deglycosylation by N glycanase of either purified gp120 or gp120 and gp41 present in situ on viral particles on the binding to CD4 and virus infectivity were examined respectively by indirect immunofluorescence with specific mAbs and by a quantitative infection assay.
Results: (1) rgp120 and vgp120 presented the same glycosylation pattern by endoglycosidase analysis: for both, CHO represented 50% of the MW, approximately half as high manose type and half as fucosylated biantennary or multiantennary species. (2) Immunoreactive conformation of vgp120 and of gp120 and gp41 present on viral particles remained unaltered after complete deglycosylation as determined with polyclonal Abs or mAbs. (3) Complete deglycosylation of purified gp120 and of in situ gp120 diminished but did not abolish the binding to soluble CD4 or to CD4+ cells (4) Deglycosylation of viral particles by N glycanase led to complete deglycosylation of either gp120 and gp41 : enzyme-treated virus was still infectious for CD4+ cells, albeit to a lesser extent (10-fold less) than its glycosylated counterpart.
Conclusion: CHO present on mature envelope glycoproteins of HIV-1 do not play a determining role in virus binding to CD4 nor in the subsequent steps that lead to virus entry into the cells and infection.

F.A.292 DOWNREGULATION OF HIV-1 REPLICATION, PROVIRUS EXPRESSION AND LTR TRANSCRIPTION BY NEF EXPRESSIING CELL LINES.

Ratan Maitra*; McCoy, S.**; Ahmad, N.*; Holland, S. M.*; Lane, C. H.**; Venkatesan, S.*. *Laboratory of Molecular Microbiology and **Laboratory of Immunoregulation, National Institute of Allergy and Infectious Diseases, Bethesda, MD USA

Objective:. To investigate the efffects of HIV-1 Nef protein on the HIV-1 expression and LTR transcription.

Methods: 1) A series of Nef + Jurkat lymphoid, HeLa and 3T3 cell lines expressing HIV-1 Nef from the HIV-1 LTR or from a constituitive CMV promoter or an inducible MMTV LTR were constructed; 2) Nef cell lines were selected by neomycin resistance; 3) plasmids containing Nef ORF in the anti-sense orientation or carrying a frame-shift termination served as negative controls; 3) virus production from a Nef+ and Nef- provirus was evaaluated by DNA transfection of individual cell lines; 4) virus infectability of individual clones was monitored using either viruses derived from cloned proviruses or sequential isolates from AIDS patients; 5) LTR transcription was evaluated by using CAT expression plasmids linked to wt or deletion mutants of HIV-1 LTR

Results : Nef+ Jurkat cell lines were at least five-fold less efficient than Nef- counterparts in transient production of virus from several proviruses. Provirus expression was also repressed in the Nef+ HeLa cell lines. Replication of HIV-1 strains derived from cloned proviruses and sequential virus isolates from AIDS patients was also severely restricted. Virus production was delayed by 10-15 days and the magnitude of virus titers were only about 20% of of the Nef- controls. Transcription from a complete HIV-1 LTR was repressed 5-10 fold in the Nef+ cell lines,whereas transcription from an LTR lacking NRE was not affected.

Conclusion : Nef expressing cell lines down regulate HIV-1 replication, provirus expression and HIV-1 LTR transcription.

F.A.293 SIGNIFICANCE OF ANTIBODY RESPONSE TO THE VIRAL NEGATIVE FACTOR (NEF) FOR DIAGNOSTICS OF HIV-1 INFECTION

N.D.Kolomeetz, A.F.Bobkov, B.S.Erjomin, M.M.Garaev
The D.I.Ivanovsky Institute of Virology, Moscow, USSR

*Objective:*To estimate prognostic value of the nef-specific antibody response prior to seroconversion for antibodies to the HIV-1 structural proteins.
*Methods:*Serum samples were tested by Western blot using recombinant gag (p17/p24), env (gp120/gp41), pol (p66/p51/p34) proteins and a detergent disrupted HIV-1 virus suspension as antigen. The HIV-1 nef gene product (p27) was expressed as protein fused to E. coli beta-galactosidase. Virus isolation procedure included the cocultivation of PHA-stimulated lymphocytes from a patient with PBLs of healthy donor.
*Results:*Nef-specific antibodies were detected in serum samples from three out of 35 (9%) asymptomatic HIV-1 seronegative individuals having sexual relationships with HIV-1 infected subjects. HIV was isolated in 1/3 nef-positive cases. Virus production was monitored by molecular hybridization, electronic microscopy ana assaying the supernatant for RT activity and p24 antigen.
*Conclusion:*The present results demonstrate the early detection of nef-specific antibodies before seroconversion. The anti-nef assay may be useful for screening of individuals from high risk groupes.

F.A.294 CYTOPATHIC EFFECTS LINKED TO EARLY INTERACTIONS OF HIV WITH THE CELL SURFACE

Fermin, Cesar D.; Garry, Robert F.
Tulane School of Medicine, New Orleans, Louisiana, USA.

Objective: To elucidate cell surface events during HIV attachment and penetration which may result in cytopathology.
Methods: Cells of the RH9 subclone of the $CD4^+$ HuT 78 line were exposed for 1 hr to 5 infectious units HIV/cell prior to fixation and preparation for electron microscopy. Freshly prepared stocks of a high-titered strain of HIV-1 designated LA1 (formerly HITI) which produces 10^7 infectious units of HIV/ml of 24 hr culture fluid with a particle to infectious unit ratio of approximately 10^3 were utilized.
Results: HIV attachment to RH9 cells was a nonrandom process resulting either in cells with more than 9 bound virions/cell thin section or fewer than 4 virions/cell section. Only the former cells displayed cytoplasmic vacuolization resulting from distension of the endoplasmic reticulum. Attachment and penetration of HIV was usually associated with the formation of an electron dense plasma membrane patch with aggregated material above and below the lipid bilayers. Splitting of the lipid bilayers or the formation of distinct pores was observed to either side of the modified area. In other cases the area of membrane including the original virion envelope was observed to be "ballooning". These membrane alterations were not observed in RH9 cells persistently-infected with HIV. Another modification, appearance of a layer of amorphous material at the plasma membrane, was correlated with HIV-induced cell-cell fusion in acutely- and persistently-infected cells.
Conclusions: HIV virion components may directly initiate several cell surface processes which disrupt membrane integrity and culminate in the death of a subset of infected cells. Following infection at low multiplicity *de novo* synthesis and accumulation of HIV products at the plasma membrane may also be involved in cell killing.

F.A.295 MOLECULAR DETERMINANTS OF HIV-2 PATHOGENICITY

Kumar, P.[1], Kappes, J.C.[1], Jin, J.M.[1], Conway, J.A.[1], Mixon, M.L.[1], Taylor, M.S.[1], Haggerty, B.[2], Hoxie, J.A.[2], Shaw, G.M.[1], and Hahn, Beatrice H.[1] [1]University of Alabama at Birmingham, Birmingham, Alabama, [2]University of Pennsylvania, Philadelphia, Pennsylvania.

Naturally-occurring strains of human immunodeficiency virus (HIV) can vary considerably in their *in vitro* biological properties, and such differences may also be reflected in their *in vivo* pathogenesis. In an attempt to define genetic determinants of viral pathogenicity, we have molecularly cloned, sequenced and characterized an attenuated isolate of HIV-2 (HIV-2/ST) that differs from prototype HIV-2 strains in its inability to fuse with and kill susceptible CD4-bearing target cells. A proviral clone, termed JSP4-27, was identified to be transfection-competent and to fully exhibit the noncytopathic and nonfusogenic properties of its parental isolate. Nucleotide sequence analysis of JSP4-27 revealed a genomic organization very similar to that of cytopathic HIV-2 strains and amino acid sequence comparison confirmed the integrity of all major viral gene products. Since inspection and comparative analysis of the JSP4-27 sequence failed to identify genetic changes likely to be responsible for its attenuated phenotype, we molecularly analyzed two additional strains of HIV-2/ST which represented *in vitro* generated fusogenic and cytopathic variants of this virus. Both fusogenic strains, termed ST/24.1C and ST/24.2C, were originally derived from a biologically-cloned subculture of HIV-2/ST (ST/24), that produced noncytopathic and nonfusogenic virions biologically indistinguishable from the parental isolate. After serial cell-free transmissions of ST/24 supernatant to uninfected SupT1 cells, large and numerous syncytia were observed on two independent occasions, which indicated the emergence of fusogenic progeny virus in the culture. To determine whether the phenotypical differences of those fusogenic variants were the result of alterations in their envelope fusion region, we PCR amplified, cloned and sequenced this envelope domain from genomic DNA of ST/24.1C, ST/24.2C as well as ST/24, and compared the results with JSP4-27. The analysis failed to reveal significant changes in the envelope fusion domain of, but identified the presence of genotypic variants in the ST/24.1C and ST/24.2C cultures. We therefore molecularly cloned ST/24.1C and ST/24.2C as well as their parental strain ST/24, and isolated 19, 13 and 12 full-length recombinant proviral clones, respectively. Transfection experiments have identified several clones derived from ST/24.1C and ST/24.2C to be replication competent as well as cytopathic and fusogenic. Comparative sequence analysis as well as the construction of chimeric viruses are underway to further map the genetic regions and changes responsible for the phenotypical differences observed among cytopathic and noncytopathic HIV-2 viruses.

F.A.296 BIOLOGICAL HETEROGENEITY OF HIV-2 STRAINS

Castro, Blesila A.; Barnett, S.W.; Evans, L.A.; Moreau, J.*; Odehouri, K.*; Levy, J.A. University of California, School of Medicine, San Francisco, California, USA, *Treichville Hospital, Department of Infectious Diseases, Abidjan, Ivory Coast.

Objective: Biological characterization of HIV-2 strains from peripheral blood mononuclear cells (PBMC) of patients from the Ivory Coast.
Methods: The host range of 7 different HIV-2 strains was determined by culturing them in PBMC from humans and non-human primates and in established T, B, and monocyte cell lines. Infectivity and cytopathicity were monitored by reverse transcriptase (RT) assay, indirect immunofluorescence, syncytium and plaque formation, changes in cell viability, and downregulation of surface CD4 expression.
Results: All strains grew well in human lymphocytes and macrophages, but not in chimpanzee cells, and showed differences in infectivity and replicating ability in rhesus macaque and baboon PBMC. Most of the strains replicated to high titers in established human T cell lines, but not in the monocyte line U937. Four strains (UC2, UC3, UC7 and UC8) were highly cytopathic and caused extensive surface CD4 depletion in acutely infected human PBMC and SupT1 cells. Two other strains (UC1 and UC6) showed minimal or no cytopathicity, no CD4 downregulation, and low levels of virus protein expression. Growth of at least three strains in human PBMC from 13 different donors showed a heterogeneity of virus replication and cytopathology.
Conclusion: Our findings indicate the heterogeneity of several HIV-2 strains, two of which are non-cytopathic and do not affect CD4 expression. The data suggest a relation between cytopathicity, ability to cause CD4 downregulation, and extent of viral protein expression. These biologic properties could be linked to pathogenesis in the host.

F.A.297 PRODUCTIVE AND PERSISTENT INFECTION OF MT-4 CELLS WITH HIV-1 vif MUTANT

Ikuta,Kazuyoshi*; Watanabe,M.**; Ogawa,K.***; Kishi,M.*; Adachi,A.***; Kato,S.**; Ueda,S.**
*Inst. Immunol. Sci., Hokkaido Univ., Sapporo, **Res. Inst. Microb. Dis., Osaka Univ., Suita, ***Inst. Virus Res., Kyoto Univ., Kyoto, Japan

Objective: We previously reported the isolation of persistently infected MT-4 cells after drastic cytolysis by HIV-1-infection. Molecular-biological analyses indicated that MT-4 cells primarily infected with genomically defective HIV-1 were survived the infection. To examine the possible identification of HIV-1 gene(s) involved in the cytopathogenicity.
Methods: A series of HIV-1 mutants in vif, vpr, vpu, and nef was constructed from an infectious pNL432 plasmid by frameshift mutations. A clonal MT-4 cell line, termed M10, was infected with these mutants. The capacity for replication and cytopathogenicity of the mutants were examined in M10 cells.
Results: All mutants examined could replicate and express HIV-1 antigens. However, the M10 cells were found to survive infection with vif mutant and to become persistently HIV-1-infected cells, although no cells survived infection with vpr, vpu, or nef mutant as well as wild-type virus.
Conclusion: The results suggest that the vif gene product might play a role in cytopathogenicty.

F.A.298 GENES IN THE 3' END OF THE HIV-1 GENOME CONTROL HIV REPLICATION AND CYTOPATHOLOGY

Quiroga, M.; Cheng-Mayer, C.*; York-Higgins, D.; Levy, J.A.* and Dina, D. Chiron Corporation, Emeryville, CA; *Cancer Research Institute, University of California, San Francisco, California.

Objective. HIV-1 isolates, besides extensive sequence variation, exhibit differences in their host cell range and vary in their ability to cause cytopathic effects in their host cells, form plaques in the MT-4 cell line and down modulate the CD4 receptor molecule. Some of these properties have been correlated with pathogenicity of the virus. In the present study, we examine the structure/function relationship between HIV-1 isolates with distinct biological properties, using the recombinant virus approach, to identify the gene(s) that control such biological characteristics.
Methods. Biologically active recombinant viruses were generated between our prototype HIV-1 $_{SF2}$, a T-cell tropic isolate and HIV-1 $_{SF33}$, a T-cell tropic isolate which is more cytopathic that HIV-1 $_{SF2}$ and forms plaques in MT-4 cells; and also between the prototype HIV-1 $_{SF2}$ and two macrophage tropic isolates, HIV-1 $_{SF162}$ and HIV-1 $_{SF170}$. The biological properties of the resulting recombinant viruses were examined by host range and cytopathology studies.
Results. Biologic assays performed on the viruses show that cytopathology, MT-4 plaquing, host range and CD4 modulation segregate with the 3' half of the HIV-1 genome. Recombinant viruses exchanging more specific regions of the viral genome demonstrate that the biological characteristics further segregate with the env gene.
Conclusion. We show that the 3' end of the HIV-1 genome controls most of the biological differences between isolates. Furthermore, the env gene is the major determinant of host cell range, cytopathology, MT-4 plaquing, and CD4 down modulation.

F.A.299 INFECTION OF HEMOPOETIC PROGENITOR CELLS WITH HIV1

Kojouharoff,Georgi, Ottmann,O.G., van Briesen,H.§, Ganser,A., Hoelzer,D.; Dept.Hematol.,Univ. Clinic, §Georg-Speyer-Haus, Frankfurt, F.R.Germany

OBJECTIVE: To study direct infection of hemopoetic progenitor cells in vitro as a possible mechanism of suppression of hemopoesis in ARC and AIDS.
METHODS: Highly purified CD34+ hemopoetic progenitor cells from normal donors were cocultured with HIV or HIV-infected macrophages in serum-free low density suspension culture in the presence of saturating amounts of IL-3 and GM-CSF for 24-72hrs. Cells were washed and seeded into serum-free methylcellulose cultures for clonogenic assay. On day 14, colonies were counted and single colonies washed and cultured in 96w-plates for 24-48hrs. Supernatants were tested for activity of reverse transcritase (RT) and p24 antigen. Cells were spun onto glass slides and fixed for in-situ-hybridization for HIV mRNA.
RESULTS: Incidence of CFU-GEMM, CFU-GM and BFU-E was not reduced by coculture with HIV in comparison to control cultures. However, 5 - 10% of colonies were positive for RT and p24. in-situ-hybridization demonstrated mRNA for HIV in myelocytes, monocytes and macrophages but not in colonies of erythroid lineage.
CONCLUSIONS: Our experiments show that hemopoetic progenitor cells can be infected with HIV, that infection is not cytopathic and that cells of myelomonocytic lineage express HIV mRNA. We will report on clonogenic assays with patients samples

F.A.300 CD34+ BONE MARROW PROGENITOR CELLS NOT A MAJOR RESERVOIR OF HIV-1

von Laer, Dorothee*; Hufert, F.+; Kern,P.*; Schwander,St.*; Fenner, Th.+; Dietrich,M.*; Schmitz, H.+.
Bernhard-Nocht-Institute of Tropical Medicine, Clinical* and Virological+ Department, Hamburg, F.R.G.

Objective: HIV-1 infection is frequently associated with Anemia and leukopenia. The replication of HIV in bone marrow stem cells has been proposed as a potential explanation.
Methods: To study this hypothesis we purified CD34+ cells (which are highly enriched in hematopoietic progenitors) from the bone marrows of 14 HIV-infected individuals (12 patients with AIDS and 2 with ARC, 10 with blood cytopenias) using a Fluorescence Activated Cell Sorter (FACS). As internal controls CD4+ lymphocytes, monocytes (CD14), granulocytes and CD4- lymphocytes were sorted. A polymerase chain reaction (PCR) was then performed using 2 different primer pairs (env and gag region) to detect HIV in the purified cell populations.
Results: HIV genome was only detected in the CD34+ cells of one bone marrow sample. The CD4+ lymphocytes of all samples were infected with HIV, while only few individuals carried the virus in the bone marrow monocytes.
Conclusion: These studies show that the blood cytopenias observed in HIV infection cannot simply be explained by the infection of hematopoietic progenitor cells.

F.A.301 INVESTIGATION OF HIV INFECTION IN BONE MARROW HEMOPOIETIC STEM/PROGENITOR CELLS.

Davis, Brian R.*; Marx, J.*; Johnson, C.*; Berry, M.**; Schwartz, D.*,***. *Medical Research Institute, San Francisco, CA, USA; **Pacific Presbyterian Medical Center, San Francisco, CA, USA; ***Stanford University Medical School, Palo Alto, CA, USA.

Objectives: 1) To establish the presence or absence of HIV provirus in CD34+ bone marrow stem/progenitor cells isolated from HIV+ individuals. 2) To determine whether the suppression of hemopoiesis frequently seen in ARC/AIDS is due to stem/progenitor cell infection.
Methods: CD34+ cells were immunomagnetically purified from the marrow of HIV+ individuals. CD34+ purified cells were either directly analyzed for HIV proviral DNA by Polymerase Chain Reaction (PCR) DNA amplification, or plated in hemopoietic colony assays. Colony Forming Unit - Granulocyte/Macrophage (CFU-GM) derived colonies were then analyzed for HIV by PCR.
Results: No HIV DNA was detected in pooled CFU-GM colonies from 3/3 asymptomatic HIV+ or 4/4 ARC/AIDS patients. Furthermore, with a sensitivity of 1-2 HIV proviral copies per 10^3 cells, we found no virus in CD34+ enriched cells from 6/7 asymptomatic and 4/5 ARC/AIDS samples, each containing 2-5 X 10^3 cells. Efficiency of CFU-GM colony formation by CD34+ purified cells from 9 HIV+ asymptomatic individuals did not significantly differ from that of 5 seronegative normal controls, whereas CD34+ cells from 7 symptomatic patients generated colonies with a significantly lower frequency ($p<.01$).
Conclusions: Infection of bone marrow stem/progenitor cells with HIV provirus is a rare event ($<1/10^3$ CD34+ cells) and does not appear to account for hemopoietic suppression.

F.A.302 EXPRESSION OF HIV-1 IN GLIAL CELLS

Herrmann, Reiner*; Ludwigsen, A.**, Chuah, M***., Brack-Werner, R.*, Kohleisen, B.**, Kleinschmidt, A.** and Erfle, V.*
*GSF-Abt. Mol. Zellpath. Neuherberg, FRG, **Universität München, FRG, ***Universite Libre de Bruxelles, Belgium.

Objective: Analysis of HIV-1 expression using a persistently infected glial cell line as a model system for virus latency.
Methods: a) A glial cell line persistently infected with HIV-1 (TH4-7-5) was analysed for expression of HIV-1 antigens by immunoperoxidase staining and/or Western blotting using mabs against structural and regulatory proteins of HIV-1. b) TH4-7-5 cells were transfected with CAT-reporter vectors containing either the complete LTR of HIV-1 or a deleted HIV-1 LTR lacking the NRE region (-153 to -452) by electroporation
Results: a) Persistently HIV-infected glial cells containing the entire HIV genome express the major structural proteins of HIV-1 but do not release free infectious virus. These cells also express low quantities of *tat* and *vif* and much higher quantities of *nef*. b) Transfection of TH4-7-5 cells with an HIV-ΔLTR-CAT plasmid lacking the NRE region yields an increased level of CAT activity as compared to use of the complete HIV-LTR.
Conclusion: These results suggest that expression of *nef* is involved in repression of virus replication in TH4-7-5 cells. Furthermore, removal of the NRE region from the HIV-1 LTR leads to elevated transcriptional activity of the HIV-1 LTR in TH4-7-5 cells.

F.A.303 HIV-INFECTED MACROPHAGE SOLUBLE FACTORS BRAIN HUMAN BRAIN TISSUE

Pulliam, Lynn; Tang, N.; Herndier, B.; McGrath, M.
University of California, San Francisco, California, USA.

Objective: We wished to establish a human model for AIDS dementia and pursue the hypothesis that this dementia may be a result of an indirect mechanism produced by HIV-infected macrophages.
Methods: Human brain cell aggregtes were prepared from 7 different specimens. Aggregates were treated with HIV-infected macrophage supernatant, uninfected macrophage supernatant or T cell-infected supernatant. Samples were taken after 1 week exposure and in 3 cases after 3 weeks exposure for histology, immunocytochemistry, enzyme assay for 2',3' cyclic nucleotide 3'-phosphohydrolase (CNP, a myelin marker), electron microscopy, HPLC separation and quantitation of the neurotransmitter amino acids (NAA) aspartate, glutamate, GABA, glycine, taurine and the structural amino acid leucine.
Results: None of the treated brains showed decreases in CNP activity as compared to uninfected macrophage supernatant treatment. Two of three brains treated for 3 weeks showed significant decreases in brain aggregate size. Five of seven treated brains showed peripheral rarefaction after 1 week of incubation that by ultrastructure showed cytoplasmic vacuolation (mainly in neurons) and cellular debris. These alterations were not observed in brains treated with T cell supernatants. The levels of 5 NAA's measured in 4 experiments appeared to be decreased relative to the structural amino acid leucine.
Conclusion: HIV-infected macrophages produce a soluble factor(s) that causes changes consistent with those observed in patients with AIDS dementia including vacuolation and cerebral atrophy. The decrease in NAA levels may be reflective of neuronal damage. We suggest that the pathogenesis of AIDS dementia may be mediated by a soluble factor rather than the result of direct infection of neural cells.

F.A.304 HIV-1_{BR} DIRECTLY INFECTS AND IS CYTOPATHIC TO RAT CEREBELLAR CELLS IN PRIMARY CULTURES.

Anand, Rita*; Hough, C.**;Gao, X.M.** and Chuang, D.M.**
Food and Drug Administration, Bethesda, Maryland, USA,Saint Elizabeths Hospital, Washington, DC, USA.

Objective: Interaction between HIV-1 and rat cerebellar cells (RCC) was examined to understand HIV-associated neuropathogenesis and to determine if brain HIV isolates are specifically neuropathic.
Methods: RCC cultures consisting of neurons, astrocytes and glial cells from 8-day-old rats were enriched for neurons by the addition of cytosine arabinoside. Two HIV-1 isolates (HIV-1_{BR} and NA-4) were from HIV-1 infected individuals with overt neurological disease. HIV-1_{BRU} (LAV-1) and HIV-1_{451} isolates were from patients with immunological disease. Cultures were exposed to equal amounts of virus inocula and markers of infection and cytopathology were studied.
Results: Remarkable cytopathic effects were observed with evidence of cell death, ballooning, granulation, loss of neural fibers and cellular architecture and syncytia formation. The cytopathic effects were quantifiable and increased with the virus dose and postexposure time. HIV-1 specific DNA was detected by PCR using multiple primers. The presence of HIV-1 transcripts was determined by the northern blot method. Cultures were also positive for viral proteins. HIV-1_{BR} and NA-4 consistently showed higher levels of cytopathology and infection than HIV-1_{BRU} and HIV-1_{451}.
Conclusion: Our studies demonstrate that HIV-1 can infect and has cytopathic effects on cross-species rat brain cells, and that HIV-1_{BR} from the brain of an AIDS dementia patient is more potent than HIV-1_{BRU} and HIV-1_{451}. Further, these results indicate that rat brain cultures can be used as a facile model system to study HIV-mediated neuropathogenesis.

F.A.305 ANALYSIS OF HIV-1 GENOMIC EXPRESSION DURING INFECTION OF THE DEVELOPING HUMAN NERVOUS SYSTEM IN VITRO.

Kunsch, Charles and Wigdahl, B.
Department of Microbiology and Immunology, The Pennsylvania State University College of Medicine, Hershey, PA 17033 USA

Objective. To examine the expression of the HIV-1 genome during an abortive HIV-1 infection of primary neural cell populations isolated from the human fetal peripheral nervous system.
Methods. Neural cell populations derived from the dorsal root ganglia (DRG) were infected with HIV-1 and examined for the production of HIV-1-specific protein and nucleic acid utilizing immunohistochemistry, immunoblot analysis and nucleic acid hybridization techniques.
Results. Following infection of primary human fetal DRG neural cell populations with HIV-1, gag antigens have previously been shown to accumulate in cytoplasmic inclusions in approximately 70% of the DRG glial cell subpopulation. The expression of HIV-1 gag antigens and viral mRNA reached maximal levels by 2-3 days postinfection and declined to minimally detectable levels by 14 days postinfection. In addition, PCR analysis has demonstrated the retention of HIV-1 proviral DNA in the infected cell population. However, infection of the fetal DRG neural cells by HIV-1 appeared to be abortive or nonproductive with little, if any, infectious progeny virus production. Although there is no morphologic alteration in the infected DRG neural cells, TEM analysis has indicated the presence of highly electron-dense cytoplasmic inclusions which appear similar in nature to the gag-reactive inclusions seen by immunofluorescence analysis. In addition, protein immunoblot analysis demonstrated that although considerable quantities of gag antigens (both precursor and processed forms) were expressed in HIV-1-infected neural cell extracts, no env gene products (gp41 and gp120) were detected, implying selective genomic expression in the DRG neural cell population.
Conclusions. These results suggest that incomplete or selective genomic expression may account for the accumulation of HIV-1 gag proteins without assembly and release of mature virus. The mechanisms operative during nonproductive HIV-1 infection of human fetal DRG glial cells is under further investigation.

F.A.306 DETECTION OF HIV-1 IN THE LIVER OF AIDS PATIENTS

Cao, Yunzhen; Huang, Y.X.; Moudgil, T.*; Friedman-Kien, A.E.; Mirabile, M.; Dietrich, D.; Thomas, P.A.; Ho, D.D.*
New York University Medical Center, New York, NY; *UCLA School of Medicine and Cedars-Sinai Medical Center, Los Angeles, CA, USA.

Objective: To detect HIV-1 DNA in the liver of AIDS patients by PCR and to determine the cell type(s) involved by the virus using in situ studies.
Methods: Liver samples and blood lymphocytes and monocytes from 14 patients with AIDS were examined for HIV-1 DNA by quantitative PCR using LTR-gag oligonucleotide primers that were end-labelled with ^{32}P. Nine liver specimens were also examined for intracellular HIV-1 p24 antigen and mRNA expression by immunoperoxidase and in situ hybridization assays. Samples from 9 non-HIV patients served as controls.
Results: Nine of 14 liver samples from AIDS patients were positive for HIV-1 DNA by PCR, whereas all control samples were negative. In the positive samples, the amount of DNA ranged from 85 to 2700 copies/10^5 cells, with mean and median values of 815 and 350 copies/10^5 cells, respectively. In general, the HIV-1 DNA copy numbers in liver correlated with viral burden in circulating mononuclear cells as measured by PCR. HIV-1 was also detected, in both Kupffer cells and hepatocytes, in 8 of 9 and 4 of 9 liver specimens by immunoperoxidase and in situ hybridization studies, respectively.
Conclusion: HIV-1 DNA was detected in the liver of a majority of AIDS patients and the virus may be harbored in Kupffer cells and hepatocytes. Data on coinfection by hepatitis B virus, as well as correlations with clinical and pathological findings, will be presented and discussed.

F.A.307 GASTROINTESTINAL TISSUE CULTURES FOR HUMAN IMMUNODEFICIENCY VIRUS IN HIV INFECTED/AIDS PATIENTS

Church, Deirdre L.; Wright, J.; den hollender, C.; Lefevbre, K.; Sutherland, L.; Gill, M.J.; and the GI/HIV Study Group at the University of Calgary, Calgary, Alberta, Canada

Objective: A comprehensive pilot study of gastrointestinal dysfunction in homosexual/bisexual men infected with the human immunodeficiency virus (HIV) or having AIDS is ongoing at the University of Calgary.
Methods: As part of these investigations, patients undergo upper and lower endoscopy and have multiple gut biopsies harvested from 4 levels of the gastrointestinal tract using an Olympus jumbo endoscope and biopsy forceps. Gastrointestinal tissue from the esophagus, stomach, duodenum and colon were cultured using standard techniques for the presence of HIV.
Results: Patients throughout the spectrum of HIV infection/AIDS have been enrolled in this study; 5/23 were CDC stage II, 2/23 were CDC stage III, and 14/23 were CDC stage IV. Only 3 patients were taking Zidovudine. HIV seronegative homosexual/bisexual men were similarly studied as controls (3 patients). The mean T4-lymphocyte count was 483 with a range between 10 to 1160. Most of the HIV infected/AIDS subjects had symptoms of gastrointestinal disease at the time they were studied. The majority of patients (18/23) (78%) had at least one gut site that was HIV culture positive. Esophageal biopsies were culture positive in 9/22 (41%) patients with p24 values ranging from 0.021-0.852 ng/ml. Stomach biopsies were culture positive in 5/22 (23%) with p24 values ranging from 0.086-0.778 ng/ml. Duodenal biopsies were culture positive in 9/22 (41%) with p24 values ranging from 0.016-0.778 ng/ml. Colonic biopsies were culture positive in 9/23 patients with p24 values ranging from 0.016-0.778 ng/ml. No culture results are available from 1 patient because of culture contamination.
Conclusion: The high rate of culture positivity at all gut levels suggests that the gastrointestinal tract is indeed a target site for HIV, and that the virus is present in high numbers at all sites.

F.A.308 CHARACTERISTICS OF HUMAN IMMUNODEFICIENCY VIRUS TYPE-1 INSIDE THE INFECTED MONOCYTOID CELLS.

Matsuda, Shunji; Gidlund, M.; Jansson, M.; Fenyö, E.M.; Wigzell, H. Karolinska Institute, Stockholm, Sweden.

Objective: Macrophage-monocytes have been suggested to play an important role in maintaining and dissemination of HIV-1 after infection, and to produce HIV-1 that has different tropism from T cells. In present study, infectious virus inside the cells and their characteristics were compared between different monocytoid lines and T cell lines.
Methods: HTLV-IIIB inside infected monocytoid cells (U937, THP-1) and T cells (HUT-78, CEM, Molt-4, Jurkat) was isolated by rapid freezing and thawing of the cells. The presence of infectious virus was determined by measuring RT activity and the amount of p24 by ELISA. TCID50 assay was carried out with MT-2 cells. Effect of trypsin treatment on surface-bound virus was also examined. The localization of the virus inside the cells was determined by electron microscopy and molecular weight of the viral components was determined by RIPA, SDS-PAGE.
Results: Monocytoid cells have more infectious virus inside the cells compared to T cells. The release of virus from the cell surface due to trypsinization is more apparent in T cells than monocytoid cells. Electron microscopy showed that the virus was localized in cytoplasmic vacuoles in monocytoid cells. Molecular weight of envelope glycoproteins of the virus inside monocytoid cells was different from that produced by T cells.
Conclusion: Monocytoid cells harbour infectious HIV-1 in cytoplasmic vacuoles and the virus has different characteristics from that produced by T cells .

F.A.309 MACROPHAGES PRODUCTIVELY INFECTED WITH HIV RESIST SUPERINFECTION BY VESICULAR STOMATITIS VIRUS (VSV).

Kornbluth, Richard S. and Richman, D.D. Infectious Diseases, Univ. Calif. San Diego and the V. A. Medical Center, San Diego, CA, USA.

Objective: To determine if HIV-infected macrophages infected by HIV behave abnormally.
Methods: Monocyte-derived macrophages (MDM) were infected with HTLV-III-BaL/85 and later superinfected with VSV Indiana purified by banding in sucrose gradients.
Results: MDM are not rapidly killed by HIV infection and we have previously shown that the regulation of TNF gene expression is not altered in infected MDM. We have also found that interferons (IFNs) can protect MDM from HIV and also VSV. During the course of studies on the IFN-responsiveness of HIV-infected MDM, we were surprised to find that these cells are completely resistant to VSV-induced lysis (even in the absence of exogenous IFN). Furthermore, in virus yield assays, VSV production was reduced more than 1,000-fold (compared to non-HIV-infected MDM). This effect does not appear to be due to HIV-induced IFN production since (1) IFN could not be detected in the supernatants of the HIV-infected MDM; (2) oligo-2,5A synthetase activity was not elevated in HIV-infected MDM; and (3) uninfected MDM were not protected by co-culture with HIV-infected MDM (in Millicell-CM cups). As further evidence against a diffusible factor, MDM required more than 3 days of HIV infection to become resistant to VSV.
This effect was not detected in HIV-infected T cell lines, in CD4-expressing HeLa cells, or in HeLa cells transfected with a tat expression vector.
Conclusion: HIV-infected MDM resist superinfection with VSV. This effect does not appear to be due to HIV-induced IFN production. Ongoing HIV replication in MDM is required and protection is not transferred by a diffusible factor. Taken together, these data suggest that HIV replication subtly alters MDM metabolism to interfere with some step in the VSV life-cycle.
(Supported by grants from the NIH (AI-25316, HL-43523, AI-52578, AI-62548, AI-07036, HL-67019), the Veterans Administration, and Triton Biosciences, Inc.)

F.A.310 RECOMBINANT GP120 OF HIV-1 DIFFERS FROM NATURALLY DERIVED GP120 IN ITS ABILITY TO STIMULATE HUMAN MACROPHAGES.

Clouse, Kathleen A.*; Farrar, W.L.**; Cosentino, L.M.***; Pyle, S.W.**; Robbins, P.B.***, Weih, K.A.*, Fauci, A.S****. *CBER, FDA, Bethesda. MD; ***Georgetown University, Washington, D.C.; **BRMP, NCI, NIH, Frederick, MD; ****NIAID, NIH, Bethesda, MD, USA.

Objective: We have previously shown that select viral antigens, including HIV itself, can stimulate human macrophages (MO) to secrete monokines capable of upregulating HIV expression in chronically infected human cells. Our current objective was to determine whether monokine production caused by HIV is due only to gp120.
Methods: Chronically HIV-infected T cells (ACH2) or promonocytes (U1) were tested for inducibility with monokine-enriched supernatants obtained following stimulation of elutriated human MO with inactivated HIV, purified natural or recombinant HIV proteins, or control bacterial LPS. Induction of HIV expression was monitored by reverse transcriptase activity. Specific monokine concentrations were determined by ELISA assays.
Results: We found that the natural product gp120 envelope protein is capable of stimulating monokine secretion, whereas the p24 core protein is not. When recombinant HIV proteins were tested, we found that preparations of gp160, gp120, and p55 (RT) proteins expressed in Baculovirus were not capable of stimulating human MO. Similarly, recombinant gp120 expressed in CHO cells was unable to induce monokine production. Monokine secretion mediated by natural gp120 was not attributable to contaminating endotoxin. Furthermore, the monokine secretion caused by natural gp120 could be blocked using either soluble CD4 or recombinant gp120.
Conclusion: These studies provide a model to ascertain subtle differences that might exist in preparations of HIV proteins, which would influence cytokine secretion by MO.

F.A.311 UPTAKE OF FLUORESCEIN-LABELED HIV-1 BY HUMAN MONOCYTES IS ENHANCED BY ANTIBODIES AND COMPLEMENT

Bakker, Leendert J; Nottet, HS; de Vos, NM; Van Strijp, JAG; Visser, MR; Verhoef, J.
Eijkman-Winkler Laboratory for Medical Microbiology, University Hospital Utrecht, Utrecht, The Netherlands.

Objective: To characterize antibody and complement-mediated uptake of HIV-1 by human monocytes and neutrophils.
Methods: Human monocytes and neutrophils were incubated with fluorescein-labeled purified HTLV-IIIb virions and human sera with high titer anti-HIV antibodies and/or complement. The CD4-positive human cell-line SupT1 was incubated with HTLV-IIIb only. Binding and uptake of virus was measured as fluorescence per cell by flow-cytometry.
Results: Without antibodies or complement, HIV-1 failed to bind to neutrophils, but did associate with monocytes and SupT1-cells. This binding could be blocked by monoclonal antibodies against CD4. Incubation of monocytes with HIV-1 plus anti-HIV antibodies and complement resulted in a ten-fold increase of cell-associated virus. Uptake in neutrophils was as high as in monocytes. In monocytes incubation with HIV-1 plus complement alone or antibodies alone was two-fold, respectively five-fold less effective as antibodies and complement combined. In neutrophils cell-associated fluorescence with HIV-1 plus antibodies alone was similar to that with monocytes; HIV-1 plus complement alone resulted in much lower values as with monocytes.
Conclusion: Complement and specific antibodies play a major role in binding and uptake of HIV-1 by human monocytes and neutrophils. This mechanism can contribute to enhancement of infection on the one hand and antiviral defense on the other.

TRACK A: BASIC SCIENCE
POSTER SESSION

F.A.312 IDENTIFICATION OF HIV-1 PROVIRUS IN DIFFERENT MONONUCLEAR CELL POPULATIONS USING THE PCR-TECHNIQUE FOR DNA AMPLIFICATION.

Hufert, Frank T.*; v. Laer, D.**; Fenner, T.E.*; Schwander, S.**; Kern, P.**; Schmitz, H.*
Bernhard-Nocht-Institute for Tropical Medicine, Department of Virology* and Department of Clinical Medicine**, Hamburg, Federal Republic of Germany.

Objective: In this study we present data on the distribution of HIV-1 proviral DNA in different subpopulations of peripheral blood mononuclear cells (PBMCs) in an 8 month longitudinal study. These data are compared with the clinical status of the patients.
Methods: PBMCs from 17 patients infected with HIV-1 were obtained and highly purified by fluorescence-activated cell sorting (FACS). Using the polymerase chain reaction (PCR) the presence of HIV-1 proviral DNA was determined in $CD4^+$-cells, $CD8^+$- cells and the peripheral monocytes from patients with different clinical status during a period of 8 months.
Results: We were able to detect proviral DNA in 1/10.000-1/1000 of $CD4^+$-T-lymphocytes from patients with HIV-1 infection CDC stages II and III. At CDC stage IV, patients harbored HIV-1 DNA in 1/1000-1/100 of their $CD4^+$-T-lymphocytes. - The $CD8^+$ cells did not incorporate detectable amounts of proviral DNA. - In only 29% of our patients HIV-1 DNA was found in peripheral monocytes. After an 8 month interval the same patients showed a reduction in the number of peripheral monocytes containing HIV-1 DNA (~6%). In contrast, the number of infected $CD4^+$-T-lymphocytes increased in 30% of our patients during the course of disease, while in 70% of the patients these data remained unchanged.
Conclusion: During the course of the disease the percentage of $CD4^+$- cells haboring the viral genome increases. This may be one reason for the progressive decrease of the $CD4^+$-cell population. In the peripheral blood the $CD4^+$-T-lymphocytes are the main reservoir of HIV-1 while only a minority of individuals shows detectable amounts of viral DNA in the peripheral monocytes. Further experiments will show whether juvenile blood monocytes are less susceptable to HIV-1 infection than tissue macrophages.

F.A.313 HEMATOPOIETIC GROWTH FACTOR AND CYTOKINE PRODUCTION BY MONOCYTES ISOLATED FROM HIV-INFECTED PATIENTS

Emanuel, Peter D.; Robinson, S.; Saag, M.; Zuckerman, K.S.
Divisions of Hematology/Oncology and Infectious Diseases, Comprehensive Cancer Center, and Center for AIDS Research, University of Alabama at Birmingham, Birmingham, Alabama, USA.

Objectives: Although direct infection of monocytes by HIV may affect monocyte function, only a small proportion of circulating monocytes are infected in vivo. Secondary effects of HIV infection also may affect monocyte function. One hypothesis to explain the cytopenias in HIV-infected patients is dysregulated production of growth factors and cytokines by the monocytes. Thus, we examined growth factor and cytokine levels in monocyte conditioned medium (MCM) from 12 normal donors and 24 HIV patients (17 AIDS, 7 ARC).
Methods: We have developed an adherence procedure in which we routinely obtain cell populations from peripheral blood mononuclear cells which are >95% monocytes, <2% lymphocytes, and have >95% viability. Peripheral blood monocytes ($2x10^5$/ml) were cultured in serum-free medium with 10% albumin for 72-96 hours, and the MCM was collected, filtered and stored at -70°C. We used commercial ELISA kits to measure levels of granulocyte/macrophage-colony stimulating factor (GM-CSF), granulocyte (G)-CSF, interleukin (IL)-1α, IL-1β, IL-4, and tumor necrosis factor (TNF)α in the various MCM samples.
Results: Twelve normal donor MCM contained GM-CSF (0-200 pg/ml), G-CSF (0-1900 pg/ml), IL-1α (0-90 pg/ml), IL-1β (0-330 pg/ml), IL-4 (0-170 pg/ml), and TNFα (52->2000 pg/ml). IL-4 levels in MCM from the HIV-infected patients were nearly undetectable (0-35 pg/ml) for all patients. Four patients had elevated G-CSF levels, but no pattern of treatment regimen or disease severity (clinical stage, T4 cell numbers, infections, or Kaposi's sarcoma) could be discerned. Five other patients had elevated GM-CSF levels. All 4 patients had AIDS (rather than ARC), but no other correlation could be made in examining neutrophil counts, T4 levels, or treatment with AZT. TNFα levels were 220-2000 pg/ml in 12 patients and >2000 pg/ml in 12 patients, although there was no correlation between stage of disease or treatment and TNFα production. IL-1α levels were all <50 pg/ml. IL-1β levels were generally within the normal range, but appeared to be lower in the 17 AIDS patients as compared to the 7 ARC patients.
Conclusions: We found no discernable pattern of defective production of monokines by HIV-infected patients. However the finding of increased G-CSF or GM-CSF production in 9 of 24 patients, as well as the possible impairment of IL-1β production by the most advanced patients, warrants further investigation.

F.A.314 HEAT SHOCK INDUCES PRODUCTION OF HIV FROM CHRONICALLY INFECTED PROMONOCYTIC AND T CELL LINES

Stanley, Sharilyn; Bressler, P.; Poli, G.; Fauci, A.S. NIAID, NIH, Bethesda, Maryland, USA.

Objective: To evaluate the ability of elevated temperatures to modulate HIV expression in chronically infected cells.
Methods: The chronically infected U1 (promonocytic) and ACH-2 (T lymphocytic) cell clones constitutively express low to undetectable levels of HIV, but are both inducible by phorbol esters (PMA), and tumor necrosis factor (TNF)-α. In contrast, only U1 is inducible also by interleukin (IL)-6 and granulocyte-macrophage colony stimulating factor (GM-CSF). Cells were heated in a circulating water bath for varying amounts of time and culture supernatants tested for the presence of reverse transcriptase (RT) and p24 antigen. HIV expression was also investigated by Northern and Western blot analysis. U937 cells were transiently transfected with LTR-CAT constructs using either wild type (WT) or NFkB deleted (dNF) LTRs, heated, harvested and tested for induction of CAT activity.
Results: Temperatures of 41.7-42.8°C induced HIV expression in U1 and ACH-2 cells (RT levels 3-fold above untreated cells) in association with increased viral RNA and proteins. Lower temperatures of 40.5°C alone did not induce virus expression. However, when U1 cells were cotreated at this lower temperature with IL-6 or GM-CSF synergistic increases in viral RNA, protein, and supernatant RT levels were seen. In U937 cells transfected with WT LTR-CAT, temperatures of 40.5-42°C caused up to 12 fold specific increases in CAT activity. Induction was markedly decreased when the (dNF) LTR-CAT was transfected.
Conclusion: Heat shock induces production of HIV from chronically infected cells. Induction occurs at the transcriptional level and the NFkB binding sequences are necessary for maximal response. Furthermore, physiologic heat (40.5°C) synergizes with IL-6 and GM-CSF in viral production, suggesting a potential contribution of fever in the pathogenesis of HIV infection.

F.A.315 HIV-1 IN MALE REPRODUCTIVE TISSUES

Pudney, Jeffrey and Anderson, D.
Harvard Medical School, Boston, Massachusetts, USA.

Objective: To detect HIV host cells in the reproductive tissues and identify sites of their migration across these tissues into semen.
Methods: Formaldehyde-fixed paraffin-embedded reproductive tissues (testis, efferent ducts, epididymis, vas deferens, prostate) were obtained from autopsies of 43 AIDS patients and analyzed by light microscopy and immunocytochemistry using monoclonal antibodies specific for leukocyte-common antigen (Dako LC), B lymphocytes (Dako L26) and HIV p24 antigen.
Results: The testes displayed azoospermia and hyalinization of seminiferous tubules. LC+ cells were abundant in the interstitium of the testis and connective tissue of the excurrent ducts and prostate. The LC+ cells resembled lymphocytes, and few reacted with the B lymphocyte marker. LC+ cells were detected within the boundary wall, seminiferous epithelium and lumen of hyalinized seminiferous tubules. P24+ cells, also of lymphoid appearance, were detected infrequently in the interstitium of the testis, and connective tissue of the excurrent ducts and prostate.
Conclusion: Abundant white blood cells (probably T-lymphocytes, known HIV host cells) were detected in reproductive tissues of AIDS patients. These cells were seen to migrate across hyalinized seminiferous tubules, and may subsequently appear in semen. In a study of 17 semen samples from vasectomized men, all but one had markedly reduced white blood cell numbers, indicating that these cells in semen originate in the testicular/epididymal region of the reproductive tract. A few P24+ cells, all resembling lymphocytes, were detected. This evidence indicates that HIV-producing cells are not numerous in the male reproductive organs, and that virus is not abundantly produced by other cell types in these tissues.

F.A.316 IMMUNOHISTOCHEMICAL MARKER PROFILES OF PLACENTAE OF HIV-EXPOSED PREGNANCIES

Jimenez, Etha*; Backé, E.*; Unger, M.*; Vogel, M.*; Schäfer, A.**; Grosch-Wörner,I.***
Freie Universität Berlin, Universitätsklinikum Rudolf Virchow, Federal Republic of Germany
* Institute of Pathology, Dept. of Pediatric Pathology ** Clinic of Obstetrics *** Clinic of Pediatrics

Objective: The examination of formalin-fixed placentae of HIV-exposed pregnancies to detect expression of HIV-associated antigens, macrophage markers and lymphocyte subpopulations in relation to maternal disease symptoms.

Methods: a) Material: 1. 62 birth placentae of HIV-exposed pregnancies; 2. 20 placentae of routine pregnancies as normal controls. b) Methods: Immuno-histochemical examination (APAAP) for the detection of 1. HIV-associated antigens P24, P18, P17; 2. Lymphocyte subpopulations: IOT 10 (Leu 7 pos. NK cells), βF1 (T-cells), 4KB5 (B-cells, CD45R); 3. Macrophage subgroups: KP 1 (CD 68), MAC 387, α1-antitrypsin, lysozyme.

Results: 1. HIV-associated antigens were found in Hofbauer cells (placental macrophages): 13/62 contained P24, 2/62 P17 and 1/10 P18; signs of infection were only found in 5 children of the examination group. **2.** Approximately 1/3rd of the placentae showed in the fetal compartment a 10-20 fold increase in B- *or* T-lymphocytes, 8 placentae in *both* cell types. Of these 8 cases 2 patients seroconverted during pregnancy, a third patient with seroconversion during pregnancy had a significant increase in B-cells. **3.** Increase in intervillous (maternal) natural killer cells in 8/62 cases. All of the patients were CDC stage III. **4.** No significant change in macrophage subgroups.

Conclusions: 1. HIV-associated antigens can be demonstrated in placental macrophages. They are no proof of infection of the fetus itself. **2.** There are increases in fetal B- and T-lymphocyte subpopulations correlating to seroconversion during pregnancy. **3.** High numbers of natural killer cells in the intervillous space are associated with more advanced stages of disease.

Supported by the BMFT (No. II-098-89)

HIV Isolation and Detection

F.A.318 EFFECTS OF PRIMER-TEMPLATE MISMATCHES ON THE POLYMERASE CHAIN REACTION: HIV-1 MODEL STUDIES

Kwok, Shirley; Kellogg D.E., McKinney N., Sninsky J.J.

Department of Infectious Diseases, Cetus Corporation, Emeryville, California, USA

Objective. To determine the effect of various primer-template mismatches on the amplification of a region of gag of HIV-1 by the polymerase chain reaction (PCR).
Method. A 142 bp region of HIV-1 gag was amplified by the PCR. For this study, only the upstream primer was varied. By combining primers and templates of various sequences, we examined the effects on PCR of a) all possible 3'-terminal base mismatches, b) internal mismatches either 1, 2, or 3 nucleotides from the 3'-terminal base as well as c) double mismatches.
Results. Single internal mismatches had no significant effect on PCR product yield while those at the 3'-terminal base had varied effects. A:G, G:A, and C:C mismatches reduced overall PCR product yield about 100-fold, A:A mismatches about 20-fold. All other 3'-terminal mismatches were efficiently amplified, although G:G mismatches appeared to be more sensitive to sequence context and dNTP concentrations than other mismatches. Of particular note, mismatches of T with either G, C or T had a minimal effect on PCR product yield. At lower dNTP concentrations (6μM) only perfectly matched primer-template duplexes were amplified, with the exception of G:T mismatch. The effects of double mismatches on PCR will be discussed.
Conclusion. The observations noted in this study should contribute to the design of primers for the sensitive detection of variable pathogenic viruses. These primers should not only have the desired sensitivity and specificity on contemporary isolates but should also be engineered to accommodate a degree of divergence expected in future isolates. The presence of a T at the 3'-terminus, in particular, should allow amplification even if the 3'-terminal base was mismatched.

F.A.317 GP120 COOPERATIVITY: A NEW FINDING THAT PERTAINS TO VACCINE DEVELOPMENT AND RECEPTOR / ANTI-RECEPTOR THERAPIES

Layne, Scott *; Merges, M.**; Dembo, M.*; Spouge, J.***; Narr, P.**
*Los Alamos National Laboratory, Los Alamos, NM, USA, **National Cancer Institute, Frederick, MD, USA, ***National Library of Medicine, Bethesda, MD, USA

Objective: To determine the average association constant and the concentration of monovalent and bivalent blockers — e.g., soluble CD4 (sCD4) and immunoglobulin — required to reduce viral infectivity by a specific factor during the binding, adsorption and penetration phases of infection.
Methods: We have measured the gp120-sCD4 association constant (Kassoc) directly from quantitative syncytium-forming infectivity assays. We investigated two strains of HIV-1 (HXB3 and MN) and one strain of HIV-2 (NIHZ). sCD4 was used as the monovalent blocker. Monoclonal antibodies (MoAb) against the principle neutralizing epitope on gp120 (V3 loop) were used as the bivalent blockers. Because our experiments required a statistically reproducible assay measuring HIV infectivity, only one cell line (CEM-SS) was used in these studies. The experimental method is based on a kinetic model of HIV infection (which has been refined by conducting rigorous experimental tests of its validity for lymphocytes). The experiments began with the investigation of monovalent blockers (sCD4) and then progressed to the more complicated investigation of bivalent blockers (MoAb). The approach assumes that monovalent and bivalent blockers act by steric hinderance only — facilitation of neutralization by serum proteins (complement) and cell-mediated mechanisms is not considered.
Results: The Kassoc for HIV-2NIHZ is $(8.5 \pm 0.5)\times10^{7}$ M^{-1}, whereas the Kassoc for HIV-1HXB3 (1.4 ± 0.2) and HIV-1MN $(1.7 \pm 0.1)\times10^{9}$ M^{-1} are some fifteen to twenty-fold larger (Mean ± 1 SD). This demonstrates, for the first time, that the biological Kassoc from infectivity assays and the chemical Kassoc are comparable. At concentrations of sCD4 less than 1/Kassoc, simple proportionality with blocking of gp120 provides a complete explanation of the inhibition observed. At higher concentrations, simple proportionality with blocking of gp120 is an insufficient explanation of all the inhibition observed. Synergistic blocking is only seen after about half the viral gp120s are occupied and is identical for all three viral strains, despite large differences in Kassoc.
Conclusion: Our results suggest that multiple cooperative interactions between viral gp120 and cell-surface CD4 are required for successful infection of lymphocytes. The cooperativity between gp120s during infection is a new observation and, unlike other viruses (e.g., polio and influenza), suggests that multiple gp120-CD4 interactions must be blocked to reduce viral infectivity. The cooperativity is consistent with previous observations of a prolonged post-CD4 binding neutralization-sensitive window. Furthermore, since reduction of HIV infectivity is not proportional to blocker concentration (synergism), extremely high concentrations of monovalent or bivalent blockers may not be required to abrogate viral infectivity.

F.A.319 DEVELOPMENT OF A PRACTICAL CLINICAL ASSAY FOR HIV INFECTION EMPLOYING TARGET AMPLIFICATION AND HOMOGENEOUS DETECTION OF QUANTITATIVE NUCLEIC ACID HYBRIDIZATION

Ryder, Thomas B., Fletcher, H.R., Cabañas, D.K., McDonough, S.H., Billyard, E.R., Fultz, T.J., Chandler, S., Nunomura, K., Harper, M.E. and Kacian, D.L. Gen-Probe, Inc. San Diego, CA. USA.

Objective: We have developed a sensitive, homogeneous hybridization protection assay (HPA) which, when used in conjunction with recently developed nucleic acid target amplification methods, affords a simple and highly effective method for identifying HIV infection.
Methods: HIV genetic information was amplified using standard PCR or a proprietary amplification method which does not require repetitive temperature cycling. The amplification reactions were analyzed by HPA which involves a 15 min solution hybridization, a 6 min chemical selection against label attached to unhybridized probe, and chemiluminescent quantitation of hybridized label in a luminometer.
Results: Several sets of amplification primers were identified which can direct amplification effectively enough to permit detection of ≤ 10 HIV genomes in the presence of 10-15 μg human DNA. A good proportional relationship was observed between the HPA signal obtained and HIV genomic concentration over about 2-3 orders of magnitude. When known seropositive and seronegative patient specimens were tested, frequency distributions of the HPA signals showed excellent discrimination between positive and negative populations.
Conclusion: HPA is a valuable complement to target amplification methods for detecting low titer infectious agents. The solution hybridization method is easier and inherently more reproducible than blot hybridization methods, and the numerical result obtained allows more reliable quantitation than the results of more subjective analytical methods such as exposure density.

TRACK A: BASIC SCIENCE
POSTER SESSION

F.A.320 QUANTIFICATION AND CLINICAL CORRELATION OF THE HIV PROVIRAL DNA OBTAINED AFTER PCR AMPLIFICATION

Wang, Richard*; Shih, J.**; Alter, H.**; Genesca, J.**
* American Registry of Pathology, Armed Forces Institute of Pathology. Washington, DC. **Department of Transfusion Medicine, NIH, Bethesda, Maryland, USA.

Objective: To assess the correlation between the clinical stage of HIV infection and the amount of HIV DNA by quantification of the PCR product.
Methods: DNA from PBMC of 25 seropositve patients (19 in CDC class II/III and 6 in CDC class IV) & 12 seronegative subjects were amplified with one primer pair to the env gene; the expected product (2.2-kb) corresponded to 85% of the gene. After 35 cycles, samples were analyzed by Southern Blot and dot blot with a 32p labelled probe. To quantify the PCR signal the cpm of each dot was assessed. Serial dilutions of an HIV plasmid were also amplified, and the input-DNA and cpm were then plotted and and linearity of the relationship determined.
Results: 24 of the patients (96%) were Southern blot positive; the controls were negative. A linear relation was established between the input - HIV DNA and the cpm with detection limit of 7.5 copies of HIV DNA. A significant difference in the amount of HIV DNA between the CDC class IV (mean, 802 HIV DNA copies) and CDC class II/III patients (mean, 67 copies) was observed ($p<0.01$). A similar difference was obtained when patients with low T4 counts (<500/mm3) were compared with patients with normal T4 counts. When limited to the CDC class II/III group, the statistical difference between those with low and normal T4 counts was not observed ($p>0.05$).
Conclusion: There is a clear correlation between the appearance of clinical symptoms in HIV infection and high levels of HIV proviral DNA as evidenced by quantitative analysis of the PCR product.

F.A.321 RAPID AND QUANTITATIVE DETECTION BY PCR OF HIV-1 SPECIFIC DNA AND RNA IN SERUM AND IN CULTURE SUPERNATANTS OF INFECTED CELLS

Hewlett, I.K.; Pollock, Laurie A.; Mayner, R.; Epstein, J.S.; DBBP, FDA, Bethesda, MD.

Objective: To develop a specific, sensitive and quantitative PCR assay for detection of HIV-1 specific DNA and RNA in serum and culture supernatants.
Methods: Normal serum spiked with various amounts of HIV-1 containing plasmid BH10 or supernatant from infected cells was analyzed. After addition of 0.5% NP40 and heating at 75 C for 5-10 minutes samples were centrifuged at 10K rpm for 5-10 min. to remove cellular debris. An aliquot was amplified by PCR using primers to the gag, env and nef regions of the viral genome in a co-amplification reaction. For detection of RNA, samples were reverse transcribed (AMV RT) in the absence of DNase treatment (DNA and RNA) or after treatment with DNase I (only RNA). PCR-products were analyzed by slot blots or by liquid hybridization with radiolabeled oligonucleotide probes followed by PAGE and autoradiography.
Results: By this method, 1-5 copies of plasmid BH10 DNA could be directly detected in spiked serum. We observed a 20-fold increase in sensitivity over the organic extraction method. Viral DNA or RNA present in as little as 10 ul of serum from an AIDS patient or less than 0.1 ul of culture supernatant from infected H9 cells was detected by this method. No reactivity was observed in unspiked control samples of serum or uninfected H9 cell culture fluid.
Conclusions: A simple PCR assay performed on serum or culture fluid without extraction can be used at high sensitivity to quantitate HIV. This assay may be useful in assessing plasma viremia and in in vitro studies.

F.A.322 THE USE OF PCR AND A COLORIMETRIC MICROTITRE PLATE ASSAY FORMAT FOR THE DETECTION AND DIFFERENTIATION OF HTLV 1 AND 2 DNA.

Longiaru, Mathew, Silver, S., Barone, A.D., Pawlyk, D. and Sulzinski, M.
Roche Diagnostic Systems, Inc., Nutley, NJ, USA.

Objective: To develop a rapid, non-isotopic method for the detection of PCR amplified products which is highly sensitive and specific.
Methods: PCR primers were biotinylated at their 5' ends by a covalently coupled linker arm. Target specific oligonucleotides were immobilized onto the wells of a microtitre plate and were used to capture biotinylated amplified products via hybridization. After washing and reacting with avidin-HRP and TMB/H_2O_2, OD/450 was determined.
Results: This amplification/detection format can be accomplished in four hours and enables the specific detection of 10-20 copies of HTLV 1 plasmid DNA. Using the same set of PCR primers and probe, results of plate capture assay were comparable with oligomer hybridization which involves solution hybridization of ^{32}P-labeled probes to amplified DNA, gel electrophoresis and autoradiography. This microtitre plate format was also used for differentiating HTLV 1 from HTLV 2 DNA. Both viral DNA's were amplified by a single PCR primer pair and subsequently captured with either an HTLV 1 or an HTLV 2 specific capture probe. Results indicate that HTLV 1 specific capture probe only detects HTLV 1 amplified DNA and not HTLV 2, while the HTLV 2 specific probe only captures amplified products from HTLV 2 template DNA.
Conclusions: A high throughput, non-isotopic microtitre plate detection format has been developed which is as sensitive as radiolabeled probes and was shown to be a specific, rapid assay for the detection and differentiation of PCR amplified HTLV 1/2 DNA.

F.A.323 A SIMPLE REVERSE TRANSCRIPTASE (RT) INHIBITING TEST TO DIFFERENTIATE HIV-1 AND HIV-2

Sano, Kouichi*; Morita,C.*; Ishikawa,K.**; Kawamura,M.***; Takasaki,T.*;Lee, M.****; Imagawa,D.****; Nakai,M.*
*Osaka Medical College, Takatsuki, Osaka, Japan. **Yamanashi Institute for Public Health, Yamanashi, Japan. ***Kyoto University, Kyoto, Japan. ****Harbor-UCLA Medical Center, Torrance, California, USA.

Objective: A simple method to differentiate HIV-1 and HIV-2 isolates, and infections caused by HIV-1 or HIV-2 are reported.
Methods: Partialy purified human immune serum to either HIV-1 or HIV-2 was mixed with each solubilized virus and assayed for residual RT activity.
Results: HIV-1 seropositive human sera that inhibit HIV-1 RT activity did not inhibit the RT of HIV-2. Similarly, HIV-2 RT immune sera did not inhibit the RT of HIV-1. The specificity of this inhibition was shown by testing with various different isolates of HIV-1 and HIV-2.
Conclusion: The epitope(s) on the RT that elicits antibody which inhibits enzyme activity is distinct and can be used to differentiate HIV-1 from HIV-2. Likewise, infections caused by HIV-1 or HIV-2 can be differentiated by the RT inhibiting test.

F.A.324

USE OF THE POLYMERASE CHAIN REACTION (PCR) TO DETECT HIV-2 DNA AND mRNA IN BRAIN TISSUE.

Dwyer Dominic E., Vazeux R., Bechet JM., Montagnier L.
Unitè d'Oncologie Virale, Institut Pasteur, Paris. France.

We have used PCR to detect HIV-2 DNA and messenger RNA (mRNA) in post-mortem brain tissue of two HIV-2 infected patients. Standard DNA PCR techniqes with 3 primer pairs in the LTR, GAG and ENV regions were used to detect HIV-2 DNA. HIV-2 mRNA PCR (after a reverse transcription step on the extracted RNA) was performed using a primer pair spanning the second intron of the TAT/REV coding sequence. All amplified bands were confirmed with radiolabelled oligonucleotide probes, and negative controls included uninfected and HIV-1 infected brain tissue.

The first patient died of HIV-2 induced AIDS, and HIV-2 antigens were detected in post-mortem brain tissue by immunohistochemistry. HIV-2 DNA was detected by PCR with all three primer pairs (a further 2 samples from different sites tested positive using only the ENV primers). PCR for mRNA was also positive, demonstating viral transcription. The second patient was found to be HIV-2 antibody positive during investigation of dementia, but no evidence of encephalitis was seen on histology and HIV-2 antigens were not seen in the brain using immunomarkers. PCR amplified HIV-2 DNA with 3 primer pairs in 2 different brain samples (and 2 of a further 4 samples using only ENV primers). All samples were negative for mRNA, suggesting minimal viral transcription.

These findings suggest that HIV-2 DNA can be detected easily by PCR on multiple brain tissue sites from infected patients, and that the use of both DNA and mRNA PCR may be a useful tool in assessing the role of HIV-2 in encephalitis.

F.A.325

NOVEL RECOMBINANT ANTIGENS OF HUMAN IMMUNODEFICIENCY VIRUS(HIV)

Chang, S.Y.; Casipit, C.; Hurt, C.M.; McCary, E.C.; Shih, Yihshing.
Cetus Corporation, Emeryville, California, USA

Objective We describe a method of producing a novel chimeric protein which contains an immunodominant epitope of HIV fused to bacterial alkaline phosphatase(AP). The recombinant antigen was reactive both immunochemically as well as enzymatically.

Methods The DNA encoding the immunodominant epitopes of the envelope glycoprotein(aa593-604 and aa474-514) of HIV were synthesized and cloned. Two recombinant proteins, each containing a specific HIV epitope, were expressed in Escherichia coli as chimeric proteins fused to the E. coli alkaline phosphatase. Proteins in the cellular extract were analyzed by SDS-PAGE. Immunoreactivity of the expressed proteins was detected by Western blot(WB) analysis. HIV specific epitopes were detected by reacting with known monoclonal antibodies specific to the HIV envelope glycoprotein. The clinical utility in HIV antibody testing was evaluated using a panel of 21 known seropositive human sera/plasma. Enzyme activity was determined by monitoring the phosphatase activity.

Results SDS-PAGE analysis demonstrated that the expressed protein was the major protein expressed by E. coli. Significant AP activity was measured for the fusion protein. The fusion protein containing aa474-514 of gp160 was identified by a murine Mab specific to gp120 and the other containing aa593-604 was identified by a human Mab specific to gp41. The first fusion protein(aa474-514) was recognized by 81% of the human seropositive sera/plasma and the other(aa593-604) was recognized by all seropositive sera/plasma.

Conclusion This method successfully produced two chimeric proteins containing immunodominant epitope of HIV and reactive alkaline phosphatase. The efficient recognition by the human seropositive sera suggests its utility in HIV antibody testing. With the growing need for antibody testing, this method not only offers a safe way to manufacture antigens but also offers a novel detection method. It may be usefully employed in diagnostics assays.

F.A.326

QUANTITATION OF HIV-1 PROVIRAL LOAD USING LIMITING DILUTION METHODS AND COAMPLIFICATION OF HIV-1 GAG AND HLA-DQ GENES

Lee, Tzong-Hae*; Sunzeri, F*; Reis, M*; Eble, B**,Vyas, G**, and Busch, M*,**
*Irwin Memorial Blood Centers, and **University of California, San Francisco, California, USA

Objective: Develop and validate PCR-based method for quantifying viral load in cultured cells and peripheral blood mononuclear cells (PBMC) from HIV-1 infected persons.

Methods: Conditions were optimized for simultaneous HIV-1 gag and HLA-DQ gene amplification using the U1 monocytic cell line containing 2 HIV-1 proviruses per cell. Infected cells and lysates from infected cells were serially diluted and subjected to coamplification. PBMC from infected persons were studied before and after in vitro stimulation by PHA and allogeneic cells. Serial specimens from clinically stable infected persons were also studied.

Results: The coamplification technique's end-point sensitivity was 2-10 genome equivalents for both HIV-1 gag and HLA-DQ genes. Coamplification was as sensitive as discrete PCR for detection of HIV-1 target sequences. PCR-band intensity was proportional to HIV-1 and HLA-DQ target gene copy number over greater than 3 $\log_{10}$ concentrations. The proviral load in asymptomatic infected persons ranged from 1 copy in 10^3 to 1 in 10^6 PBMC; load in individual patients was remarkably stable over short time periods (months). The coamplification technique also characterized the in vitro kinetics of HIV-1 infection, reactivation and dissemination.

Conclusion: The coamplification technique allows for calibration of HIV-1-DNA load relative to HLA target DNA. It should be useful both for analysis of in vitro viral replication and for quantifying viral load changes for prognosis and therapeutic monitoring.

Supported by NHLBI Grant PO1-HL36589

F.A.327

DETECTION OF HIV1 PROVIRAL DNA BY PCR AND HIBRIDIZATION WITH DIGOXIGENIN LABELLED PROBES

Costa Taveira Nuno*, Santos Ferreira M O *, Moniz Pereira J *
* Faculdade de Farmácia da Universidade de Lisboa Portugal

Objectives One of the main problem in the use of PCR method to routine diagnostic laboratories is the use of radiolabelled oligodeoxinucleotides probes in the detection of the amplified product. We apllied the digoxigenin labelled probes in the diagnostic dectetion of HIV 1 proviral sequences in peripheral blood mononuclear cells

Methods PCR analysis was performed on 10 samples of peripheral blood mononuclear cells (PBMCs) extracted DNA from HIV 1 seropositive subjects Taq polymerase and two primer pairs gag (764-786/1041-10660) and pol (2356-2381/2637-2663) (from Lav isolate) were used to amplify respectivily 302 and 307 base fragments over 40 cycles Cycle time and temperatures were as follows denaturation 2 minutes at 95°C reannealing at 55°C chain elongation 2 minutes at 72°C Amplified products were detected by digoxigenin and radiolabelled probes after being separated by agarose gel electrophoresis and transfered to nylon membranes Labelling of digoxigenin probes were made by PCR incorporation of digoxigenin-11-dUTP Hybridization was revealed by immunoenzimatic reaction as recomended by the manufacturer (Boehringer Mannhein)

Results we detected hybridization of the amplified products of the 10 samples by auradiography and immunoenzimatic reaction By comparing the results we found that both procedures had the same specificity and sensibility

Conclusion The results presented here demonstrate that digoxigenin labelled probes can be used inthe detection of HIV1 provirus sequences in routine diagnostic laboratories

TRACK A: BASIC SCIENCE
POSTER SESSION

F.A.328 ANTI-PEPTIDE ANTIBODIES SHOW COMIGRATION OF MATRIX PROTEIN AND A POTENTIAL p17 PRECURSOR OF p7 NUCLEOCAPSID PROTEIN IN HIV-1 WESTERN BLOTS

Henry, Sally; Epstein, J. S.; Liang, C.-M. Center for Biologics Evaluation and Research, FDA, Bethesda, Maryland, USA.

Objective: To identify the potential precursor(s) of HIV-1 nucleocapsid protein (NC; p7) and matrix protein (MA; p17).
Methods: Peptides FNCGKEGHTARNC, deduced from a conserved region of NC, and GHSNQVSQNY from C-terminal MA were conjugated to keyhole limpet hemocyanin and inoculated into New Zealand white rabbits to produce anti-peptide antibodies. The specificity of the antibodies was determined by enzyme linked immunosorbent assay (ELISA) and Western blot.
Results: ELISA showed that anti-MA and anti-NC peptide antibodies reacted with MA and NC peptides respectively. They recognized recombinant DNA derived HIV-1 proteins which contain the sequences of these peptides, but did not react with other proteins such as bovine serum albumin. Treatment of commercial HIV-1 Western blot strips (Biotech/Du pont and Bio-Rad) with the antibodies showed that anti-MA and anti-NC peptide antibodies recognized different proteins at p17. In Western blot assays, the binding of anti-MA was blocked by an excess amount of MA but not NC peptide, while the binding of anti-NC peptide antibodies was selectively inhibited by NC peptide.
Conclusion: These results suggest that there is a potential p17 precursor of NC which comigrates with MA in HIV-1 Western blots.

F.A.329 AN ELISA ASSAY FOR THE MEASUREMENT OF HIV1 RT ANTIGEN

Clive Loveday, Williams, H., and R.S.Tedder.
University College and Middlesex School of Medicine, London, UK.

Objective. To evaluate an ELISA assay for the measurement of RT Antigen in serum of HIV1-infected patients and viral culture supernatants.
Methods. Test and control sera were incubated overnight at 37°C in 96 well microtitre plates coated with gamma-globulin fraction of a high titre anti-RT-positive human serum. After washing, wells were incubated with rabbit hyperimmune antisera to a recombinant RT antigen (Wellcome Research Laboratories) at 37°C for 3 hours. Bound rabbit antibody was detected using alkaline phosphatase-conjugated goat anti-rabbit IgG and demonstrated using an enzyme amplification method. Standard dilutions of RT antigen allowed quantification of results and specificity was confirmed by neutralization.
Results. All blood donor controls (772) were unreactive in the assay, and using standard RT antigen diluted in NHS a concentration/response curve was constructed between 400ng/ml and 6pg/ml, assays usually detected down to a level of 5-15pg/ml.
Sera from 57 of 177 known HIV1-antibody-positive patients (CDCII and III) contained low levels of circulating RT antigen (range 14-401pg/ml). There was no significant increase in RT antigen in sera from a population of patients with CDCIV disease. In serial samples from 24 patients during seroconversion 12 patients had detectable RT antigen and in 11 it was the first serological marker of HIV infection. Nine patients had p24 antigenaemia and in 3 p24 was the first marker of HIV infection.
Preliminary data show detectable RT antigen in viral culture supernatants (H9) following direct inoculation and after patient lymphocyte co-culture.
Conclusions. An ELISA assay with high specificity and sensitivity is described for determination of RT antigen during seroconversion, throughout HIV disease and in viral culture supernatants.

F.A.330 PREVALENCE OF HIV REVERSE TRANSCRIPTASE BLOCKING ANTIBODIES DETECTED BY A NEW TECHNIQUE, AND THEIR RELATION TO P24 AND gp41 ANTIBODIES.

Neumuller,M., Karlsson,A*, Lennerstrand,J. Hallander,C.F.R., Holmberg,V*, Langstrom-Persson,U. Sandstrom,E* and Gronowitz,J.S.
Research Unit of Replication Enzymology, Univ. of Uppsala and Dept* of Dermato-venereology, Sodersjukhuset, Stockholm,SWEDEN.

RT BLABA, a new assay for reverse transcriptase blocking antibodies in serum samples, is presented. The capacity of serum samples in a single dilution to inhibit the activity of highly purified gene-cloned HIV reverse transcriptase is assayed. The technique is based on the use of a template coupled to a solid phase (Abstract Gronowitz et al.) and (^{125}I)dUTP as tracer-substrate. RT BLABA was used to study the pressence of HIV reverse transcriptase blocking antibodies in a collection of longitudinally collected serum samples from 187 individuals seropositive for HIV either from the start or during the period of sampling. Of the 815 samples positive for HIV in western blot assay 811 were also positive in RT BLABA, giving a sensitivity of 99.5%. Thus, by use of this highly sensitive assay anti-RT Ab's can be detected in almost all serum samples from HIV positive individuals. This finding places anti-RT Ab's among the most frequently detectable anti-HIV Ab's. The specificity of the RT BLABA was 100% when assaying 200 serum samples from HIV negative blooddonors.
Comparison of the results falling within the resolving range of the RT BLABA with results falling within the resolving range of assays for anti-gp41 Ab's and anti-core Ab's gave only poor correlation. However, titration of RT blocking antibodies by use of RT BLABA will be performed and may reveal closer correlations.

F.A.331 CHARACTERIZATION OF A MACROPHAGE DERIVED INHIBITOR OF THE REVERSE TRANSCRIPTASE (RT) ASSAY

Recker, David*; Kulaga, H**; Folks, T***; Kindt, T*
*Laboratory of Immunogenetics, National Institute of Allergy and Infectious Diseases, Bethesda, Maryland, USA., **Neuropsychiatry Branch, National Institute of Mental Health, Washington, D.C., *** Retrovirus Disease Branch, Center for Disease Control, Atlanta, Georgia, USA.

Objective: To define and characterize a substance produced by macrophages which interferes with the assay for RT.
Methods: RT was measured by previously described methods (J. Virol. 1981 38:239). Uninfected supernatant from several macrophage cell lines and from isolated monocytes was added to the RT assay to demonstrate the existence of a substance which interferes with the standard RT assay. Uninfected supernatant was incubated with substrates and products of the RT assay to determine the level at which it interferes with activity. Gel filtration chromatography with molecular weight standards was performed to determine the approximate size of the inhibitor. Potential inhibitors of the interfering activity were assessed for their ability to block this inhibitory activity.
Results: The RT assay inhibitor was found to act at the level of both substrates and products of the RT assay. Further analysis showed it to be a nuclease and was common to both rabbit and human macrophage cultures as well as freshly isolated peripheral human monocytes. The expression of this nuclease could not be induced by co-cultivation with TNF, PMA, IL-6, or GM-CSF. The nuclease was found to be heat labile and have an approximate MW of 40 kD. The thioated oligonucleotide SdG_{30} was found to inhibit the nuclease but also inhibited RT activity as well. Vanadyl ribonucleoside complex and RNA'sin did not inhibit the nuclease.
Conclusion: Macrophages produce a heat labile nuclease which interferes with a standard assay for RT. Measurement of RT levels alone, therefore, may not give an adequate assessment of HIV-1 infection. Studies to selectively inhibit this nuclease activity are under way.

F.A.332 DETECTION OF REVERSE TRANSCRIPTASE ACTIVITY IN LYMPHOCYTES FROM HIV INFECTED INDIVIDUALS AND OTHER BIOLOGICAL SAMPLES BY USE OF SOLID PHASE COUPLED TEMPLATES.

Gronowitz,J.S., Neumuller,M., Lennerstrand,J. Bhilhabhai,R*., Unge,T*. Weltman,H. & Hallander,C.F.O. Research Unit of Replication Enzymology and Dept. Molecular Biology (*), University of Uppsala, Sweden.

Reverse transcriptase can be purified on basis of its affinity to polyriboadenylic acid p(rA). We present the synthesis and use of different matrices, such as Sepharose and plastic beads, to which p(rA) has been covalently coupled and show and discuss their use for the purification of RT from various biological samples. This rapid and simple step of purification allows the assay of the activity of RT from samples where various disturbing factors make direct RT assays unreliable or even impossible. Binding of the enzyme to the affinity matrices is followed by detection of the RT activity, using the p(rA) of the matrix as template. The assay is based on the detection of the incorporation of (125I)dUTP into DNA (Neumuller et al. 1990, to be published in. Biotechn.Appl.Biochem.). By use of (125I)dUTP, quenching of the radioactivity by the solid-phase template is avoided and a high sensitivity is obtained.

The technique described allows detection of RT activity in lymphocyte samples from HIV infected patients. The relation of these RT estimates to the disease progression is showed and examples of the use of such assays for direct assaying of the sensitivity of the RT in the lymphocytes to various antiviral nucleotides is presented.

F.A.333 USE OF CHEMILUMINESCENT PROBES AND A RAPID HOMOGENEOUS HYBRIDIZATION METHOD FOR DETECTION OF ENZYMATICALLY AMPLIFIED HIV DNA IN PATIENT SAMPLES

Dondero, Dale*; Sheppard, H.W. *; McDonough, S.** *California Dept. of Health Services(VRDL),Berkeley,CA,USA, **Gen-Probe Inc.,San Diego,CA,USA.

Objective: To compare a new chemiluminescent DNA probe system to ^{32}P-probe hybridization for detecting amplified HIV DNA.
Methods: Lymphocyte DNA from seropositive and seronegative persons were subjected to enzymatic gene amplification (PCR) using the gag region primer pair (SK38/39). Amplified HIV DNA was detected using acridinium ester labeled probes in a 30 min homogeneous assay format (HPA) or by hybridization with a ^{32}P labeled oligonucleotide probe, gel electrophoresis, and autoradiography (OH), a 24 hr procedure.
Results: Using aliquots from the same PCR reactions, all OH positive specimens were detectable by HPA, one OH negative specimen was correctly identified as positive by HPA, and there was excellent agreement between the signal intensity of the two assay methods.

N	VISUAL OH	HPA UNITS	% MATCHING INTENSITY
16	-	2,000-23,000	94%
21	+	64,000-200,000	81%
18	++	200,000-600,000	78%
29	+++	600,000-1,000,000	83%

Conclusions: Chemiluminescent probes, in the HPA format, have sensitivity and specificity comparable to standard OH methods for the detection of amplified HIV DNA. The HPA assay is faster and less labor intensive, allowing more tests and earlier results. The wider dynamic range of HPA may also facilitate the quantitation of HIV DNA.

F.A.334 COMPARISON OF MICROTITER PLATE AND SPOT BLOT METHODS FOR THE DETECTION OF HIV-1 PCR PRODUCTS.

Conway, Brian*; Bechtel, LJ*; Adler, KA**; Kaplan, JC*; Hirsch, MS*; *Massachusetts General Hospital, Boston, MA; **DuPont Medical Products, Boston, MA.

Objective: To compare the sensitivity and specificity of two different methods of detecting HIV-1 proviral sequences from cell lysates amplified using PCR.
Methods: Peripheral blood mononuclear cells (PBMCs) were obtained from 82 HIV-1 seropositive individuals (total 127 samples). These were lysed in 1% Triton-X-100 in 10 mM Tris (pH 7), 1 mM EDTA, then amplified for 40 cycles with primers flanking a conserved region of the HIV-1 BRU isolate (1889-2212). Products were detected by spot blot (SB) hybridization using an alkaline phosphatase (AP) linked oligonucleotide probe. A portion of the same product was evaluated using a microtiter plate (MTP) sandwich hybridization assay. Colorimetric or chemiluminescent AP substrates were used for detection of specifically-bound probes. The limit of detection of both assays was 10 plasmid copies.
Results: A total of 119/127 (93.7%) samples were PCR-positive by one or both detection methods. After reamplification with SK 38-39 gag primers (1551-1665), only 5 samples remain negative. Overall, 4 samples were SB+/MTP- while 8 samples were SB-/MTP+. Discordant samples were likely near the limit of detection of the assay. All other samples were concordant.
Conclusion: Detection of PCR products using an MTP system with a non-radioactive probe is an equally sensitive alternative to SB methodology. It may also yield results more amenable to quantitative analysis.

F.A.335 EVALUATION OF CAPILLARY CHROMATOGRAPHY FOR DETECTION OF POLYMERASE CHAIN REACTION AMPLIFIED RETROVIRAL DNA

Sunzeri, Franklin*; Brownlee, R**; Lee, T-H*; Busch, M*
*Irwin Memorial Blood Centers, San Francisco, California USA, and **Microphoretic Systems, Sunnyvale, California, USA

Objective: Evaluate capillary-based separations as an alternative to gel electrophoresis and autoradiography for detecting polymerase chain reaction (PCR) amplified viral DNA.
Methods: Cells were prepared for PCR from 1) peripheral blood mononuclear cells (PBMC) of individuals infected with either HIV-1 or HTLV-I; 2) the U1 monocytic cell line containing HIV-1 proviral elements; 3) the C91 cell line containing HTLV-I; 4) the promonocyte cell line U937 negative for both HIV-1 and HTLV-I. All samples were primed and amplified for HLA-DQ, HIV-1, and HTLV-I. Each sample and mixture of U1 and C91 was probed with a cocktail of Texas Red-labeled HLA-DQ, FITC-labeled HIV-1, and rhodamine-labeled HTLV-I. After hybridization, each sample was subjected to automated capillary-based separations.
Results: Very rapid separation and detection of PCR-amplified viral DNA was achieved using automated capillary chromatography. Amplified DNA peaks were initially identified by scanning the capillary effluent at ultraviolet wavelengths, while discrimination of HLA-DQ, HIV-1, and HTLV-I PCR-amplified DNA was accomplished through use of virus-specific fluorescently-labeled primers and probes using the fluorescence detector.
Conclusions: These results indicate that an automated system for screening the blood supply for nucleic acid sequences of multiple pathogens may become a reality in the not too distant future.

Supported by NHLBI Grant P01-HL36589

F.A.336 AZT-RESISTANT HIV DETECTION BY RNA-RNA HYBRIDIZATION

Japour, Anthony; Eigenrauch, H.; Chatis, P.; Crumpacker, C.
Beth Israel Hospital, Harvard Medical School, Boston, MA, USA

Objective: To develop a sensitive and specific in-vitro assay which reliably detects HIV strains resistant to antiviral agents.
Methods: PHA-stimulated PBMC's and MT-2 cells were acutely infected with viral supernatants from: 1) wild-type laboratory HIV strain, H9/HTLV-IIIB, 2) HIV co-culture with PBMC's from an HIV-infected individual (EP113089) who had been taking AZT for greater than one year and had clinical deterioration. After a two hour acute infection, cells were washed twice and grown in culture for three days (MT-2) or seven days (PBMC) in the presence of increasing concentrations of AZT or ddI. At harvesting, cells were counted and standardized, RNA was solubilized in guanidine thiocyanate and placed in -20C for storage. RNA from 200,000 cells was subjected to RNA-RNA hybridization (Gillespie et al. Molecular and Cellular Probes 1989: 3;73-86). Beads were placed on a nitrocellulose membrane and subjected to autoradiography at -70C for twenty-four hours. Autoradiographs were quantified by densitometry.
Results:

	ID_{50} (uM AZT)		ID_{50} (uM ddI)		
	PBMC	MT-2	PBMC	MT-2	
H9/HTLV-IIIB	0.01	0.05	2.2	20.0	
EP113089	0.30	p	11.0	p	p=pending

Conclusions: 1) Compared to wild type H9/HIV IIIB, patient HIV strain EP113089 appears to be thirty-fold resistant to AZT and cross resistant by five-fold to ddI. 2) Laboratory evidence of HIV resistance may correlate with disease progression. 3) Our results with RNA-RNA hybridization compare favorably with data reported by Larder et al. (Science 1989: 243:1731). 4) MT-2 cell line has the advantages of eliminating the need for PBMC's and requiring a shorter incubation to produce quantifiable HIV RNA.

F.A.337 QUANTITATION OF HIV-1 RNA IN THE SERUM OF ARC AND AIDS PATIENTS USING THE POLYMERASE CHAIN REACTION (PCR)

Holodniy, Mark*; Katzenstein, D.A.*; Sengupta, S.*; Wang A.**; Casipit, C.**; Schwartz, DH.*; Konrad, M.**; Groves, E.**; Merigan, T.C.* *Division of Infectious Diseases, Stanford University School of Medicine, Stanford, CA. 94305,**Cetus Corporation, Emeryville, CA 94608.

Objective: The amount of infectious HIV-1 present in serum may be a potential marker in HIV related disease. A method that detects and quantifies HIV-1 viral RNA in serum is presented.
Methods: To detect HIV-1 RNA, sera was extracted by a guanadinium thiocyanate method, reverse transcribed with MLV reverse transcriptase and amplified by the polymerase chain reaction using a gag gene primer pair(SK38/39) including a biotin labelled upstream primer. The biotinylated PCR product was liquid hybridized to a horseradish peroxidase conjugated probe, bound to avidin, and quantitated from the optical density of a colorimetric reaction.
Results: Reverse transcription and amplification of known amounts of gag gene RNA and infectious HIV_{IIIB} virus RNA alone yielded a log-linear relationship between optical density and 10^2 and 10^5 copies of gag RNA and 10^1 and 10^4 $TCID_{50}$ of virus respectively. In HIV infected patients who were not receiving therapy, serum HIV-1 RNA was detected in 0/5 asymptomatic, 4/5 ARC and 4/5 AIDS patients with copy numbers ranging from 10^2-10^5/200ul of serum. In a small number of AIDS patient sera, co-cultivation with donor lymphocytes demonstrated a correlation between infectious titer and copy number by PCR. Ultracentrifugation of patient sera revealed detectable signal in pellets, but not supernatant. Similarly, signal from sera could be adsorbed to rCD4 bound to sepharose beads, indicating that signal is attributable to viral RNA in intact viral particles. In addition, extracted material was directly amplified for the presence of viral DNA and gave no detectable signal.
Conclusions: We have demonstrated that HIV-1 viral RNA can be detected and quantitated in patient serum over a four log range by a nonisotopic enzyme-linked affinity assay. The RNA detected in patient sera is from infectious viral particles as evidenced by CD4 binding, sedimentation and culture. Quantitation of HIV-1 viral RNA in serum by PCR may be a useful marker for disease progression or monitoring antiviral therapy.

F.A.338 SENSITIVE DETECTION OF HIV DNA IN T4 LYMPHOCYTES OF INFECTED INDIVIDUALS BY POLYMERASE CHAIN REACTION

Hsia, Karen; Spector, S.A.
University of California, San Diego, California, USA.

Objective: To determine the percentage of T4 lymphocytes containing HIV DNA in infected individuals.
Methods: Peripheral blood lymphocytes (PBL) isolated by Ficoll-Hypaque gradient centrifugation were sorted into T4 cells by fluorescence-activated cell sorting (FACS) with Mab anti-Leu-3A. Crude cell lysates of 10^3, 10^2, and 10^1 T4 cells and of HIV-infected cell lines (ACH2, 8E5) were subjected to standard and booster polymerase chain reaction (PCR) with SK38 and SK39 primers. The specific HIV sequences amplified were analyzed by polyacrylamide gel electrophoresis after hybridization with ^{32}P-end-labeled SK19 probe.
Results: With standard PCR (35 cycles) using 0.5uM primers, HIV DNA was detected in 10 ACH2 or 8E5 cells and in 10^2-10^4 T cells. Sensitivity was increased 10-100 fold by booster PCR (15 cycles with 10nM primers) preceding the standard PCR. With the booster PCR, HIV DNA could be detected in as low as 1 ACH2 (or 8E5) cell and in 10 T4 lymphocytes of patients at different stages of disease progression.
Conclusion: 1) The amount of proviral DNA contained in certain T4 cell populations may be quantitated by standard PCR with control cell lines containing 1 copy of viral genome per cell (such as 8E5 and ACH2). 2) The detection of HIV DNA in 10 T4 cells with booster PCR, suggests that at least 10% of circulating T4 cells were infected with HIV in some infected individuals at all stages of HIV-related diseases. 3) These data suggest that a high percentage of T4 cells are infected with HIV and that T4 cell abnormalities observed in AIDS patients is related to direct HIV infection.

F.A.339 COMPARISON OF MARKERS FOR EARLY DETECTION OF HIV-1 REPLICATION IN T-CELL CULTURES.

Geyer, Sharon J.;Hewlett, I.;Simms, T.;Lee, S.; Epstein, J. Food and Drug Administration, Bethesda, MD, USA.

Objective: To compare the relative sensitivity and range of signal strength of HIV-1 markers used to detect early virus replication in T-cell cultures.
Methods: H9 cells were exposed to cell-free $HTLV-III_B$ ($5x10^3$ TCIU/$4x10^6$ cells) for 1h, washed, and cultured for 19d. H9 cells and culture fluids were cryopreserved at various times after infection. Samples were tested for infectivity and TAT expression in a 3 day culture assay using an HIV-1 LTR-CAT transfected T-cell line (H938, Science 239:184, 1988). DNA from lysed cells was analyzed by PCR for HIV-1 gag and env sequences. Supernatants and cell lysates were tested for p24 antigen expression by capture immunoassay (Coulter) and reverse transcriptase (RT) activity by a rapid microassay.
Results: Data showed that from 2h through 24h, HIV-1 infection of H9 cells could only be detected by PCR for gag sequences. All markers significantly increased 2-5d after infection and followed nearly parallel changes throughout the study, except that infectivity was not detected in supernatants by 3 day assay. Marker signals increased 2-500-fold over uninfected controls.
Conclusions: Among the markers studied, HIV infected H9 cells were detected first by DNA PCR. However, after 24h, virus replication was signalled comparably by DNA PCR, antigen expression, RT activity and infectivity of cell lysates. These results suggest possible quantitative interpretation of the markers.

F.A.340 ISOLATION OF HIV-1 FROM MICROLITER QUANTITIES OF WHOLE BLOOD

Dilworth, Sonya*; Fowler, Arnold, K.* ; Watkins, M.E.*; Redfield, R.R.**; Oster, C.**; Burke, D.S.**
*SRA Technologies, Inc., Rockville, Maryland, USA; **Walter Reed Retrovirus Research Group, Walter Reed Army Institute of Research, Washington, DC, USA.

Objective: Evaluation of HIV-1 isolation using unfractionated heparinized whole blood.
Methods: Blood samples from 31 Walter Reed (WR) staged patients (11 Stages 1 & 2; 10 Stages 3 & 4; 10 Stages 5 & 6) and two blind negative control subjects were used. Whole blood was diluted in medium and dispensed in varying volumes (25, 8.3, 2.5, 0.83, and 0.083 µl per well) into 96-well polystyrene round-bottom microtiter plates adjusted to a final volume of 250 µl per culture. Co-cultures were established using 0.25 x 10^6 PHA-stimulated normal donor target peripheral blood mononuclear leukocytes (PBMCs) per well. Test results with whole blood cultures were compared with the HIV isolation rates obtained with cultured density gradient fractionated patient PBMCs. All co-cultures were refed fresh medium every 3-4 days and replenished with stimulated target cells at weekly intervals. Culture supernatants were monitored weekly for HIV-1 p24 antigen by Antigen Capture ELISA.
Results: Twenty-four of 31 (77%) whole blood specimens were p24 positive, compared to 29 of 31 (94%) for patient PBMCs. With 14 of 30 specimens < 1.0 µl, whole blood was required to obtain positive cultures. The blood volume required for culture isolation was inversely related to WR stage (50% isolation for WR 1 & 2, ≈10 µl; WR 3 & 4, ≈5 µl; WR 5 & 6, ≈0.5 µl). With 3 patients, < 0.1 µl blood was sufficient for HIV-1 isolation. Mean tissue-culture-infective-dose (smallest volume of blood required to produce a positive culture) was 1600/ml (one infectious unit in ≈0.6 µl whole blood).
Conclusions: Cultures of whole blood may provide a simple, rapid, and relatively inexpensive method for monitoring effectiveness of anti-viral therapies.

F.A.341 T CELL ACTIVATION PATHWAYS THAT RESULT IN RAPID INDUCTION OF HIV-1 IN PBL FROM SEROPOSITIVE HUMANS.

Sias, J.; Moran, Patricia; Zarling, J.; Ledbetter, J.;
Oncogen Corporation, Seattle, Washington, USA

Objective: Rapid induction of high levels of HIV-1 in PBL from seropositive individuals would be advantageous for studying effects of anti-viral agents and immune responses to endogenous HIV-1. Stimulation of seropositive PBL with phytohemagglutinin (PHA) often leads to little if any detectable HIV-1 by day 7 thus, prompting experiments to evaluate the ability of monoclonal antibodies (mAb) which activate CD3, CD2 or CD28 pathways to induce HIV-1 from PBL of HIV-1 infected individuals.
Methods: PBL from HIV-1 seropositive donors were stimulated with PHA or with mAb against CD3, CD2 and/or CD28 antigens. P24 levels were measured in cell supernatants by ELISA and proliferative responses of PBL on day 4 were measured by ^{3}H thymidine incorporation.
Results: In all HIV-1 seropositive donors studied, stimulation of PBL with 1-10 µg/ml anti-CD3 (G19-4, IgG_1) in solution resulted in the highest levels of p24 of up to 300 ng/ml. In all but 1 donor, p24 was detected by day 7. Furthermore, virus was induced from $1X10^5$ PBL or fewer. Immobilized anti-CD3 induced the highest proliferative response in PBL, but induced only 2%-25% as much p24 as did stimulation with soluble anti-CD3. Stimulation with PHA (3 µg/ml) or stimulation of CD2 or CD28 pathways alone or together with immobilized anti-CD3 resulted in little or no detectable p24 by day 7.
Conclusions: We postulate that the difference between stimulation with soluble or immobilized anti-CD3 in inducing high levels of p24 may be due to differential activation of $CD8^+$ cytotoxic T cells. The potent and rapid induction of HIV-1 production by soluble IgG_1 anti-CD3 (G19-4), facilitates the study of anti-viral agents on replication of HIV-1 in PBL from seropositive donors.

F.A.342 QUANTITATION OF HIV DNA IN BLOOD MONONUCLEAR CELLS FROM PERSONS WITH AIDS USING THE POLYMERASE CHAIN REACTION.

Dickover, Ruth E.*; Donovan RM.*; Goldstein E.*; Carlson JR.*; and Bush CE.**
*University of California, Davis, California, **Baxter Healthcare, Sacramento, California, USA.

Objective: Improved methods for quantitation of the amount of HIV DNA in infected persons are needed for the direct assessment of disease, evaluation of antiviral chemotherapy, and testing of the efficacy of vaccines. We report a methodology for estimating the number of copies of HIV DNA in peripheral blood mononuclear cells (PBMs) using the polymerase chain reaction (PCR).
Methods: PBMs were prepared by centrifugation through LymphoPrep, washed, resuspended in water and autoclaved. The samples were treated with RNase A and Proteinase K, then DNA was extracted using phenol and chloroform. Oligonucleotide pairs from the *gag* region of HIV (SK38,39) and the *env* region (SK68,69) were used as primers The PCR mixture consisted of 1x PCR buffer, four dNTPs at 0.2 mM, 1 µM of each primer, and the test sample adjusted to 1 µg DNA. Thirty reaction cycles were performed. Known amounts of HIV DNA were used to generate a standard curve for the PCR assay. For analysis, the resultant reaction mixtures were blotted onto nitrocellulose, then hybridized with a ^{32}P labeled probe. Hybridized probe was measured by liquid scintillation counting and compared with values from the standard curve.
Results: Quantitation of HIV in DNA samples extracted from PBMs from AIDS patients gave a coefficient of variance for the determination of HIV copy number of 14%. Results from 30 patients with AIDS demonstrated that there was a broad range in the number of HIV DNA copies in PBMCs. The number of HIV DNA copies in 1 µg of cellular DNA varied from <1,000 to 145,000. The HIV copy number was usually, but not always, stable over time. Changes in the amount of HIV p24 antigen were positively correlated with changes in the number of copies of HIV DNA.
Conclusion: HIV DNA can be quantified in clinical specimens using the described PCR assay; this test may have clinical use in providing an objective measurement of extent of HIV infection.

F.A.343 ISOLATION OF HIV-1 FROM JAPANESE SEROPOSITIVE HEMOPHILIACS.

Tateno, Yoshiko*; Togashi, T.*; Yoshiki, T.**; Tateno, M.***
*Dept. of Pediatrics and **Dept. of Pathology, Hokkaido University, Sapporo, JAPAN, ***Dept. of Pathology, Sapporo City General Hospital, Sapporo, JAPAN.

Objective; We attempted to isolate and characterize the biological properties of HIV-1 from Japanese seropositive hemophiliacs.
Methods; (1)Patients, 15 Japanese hemophiliacs who showed seroconversion after inoculation of factor VIII products from U.S.A.. One with AIDS and others with asymptomatic. (2)For isolation of HIV-1, CD8 depleted lymphocytes were obtained from peripheral mononuclear cell (PMC) of the patients by panning method, and co-cultured with normal PMC. Every 3 to 4 days, reverse transcriptase (RT) activity and p24 antigen of the culture supernatants were monitored. (3)Host range of the isolated virus was tested for their infectivity to primary macrophages and various cell lines. (4)To evaluate the viral CPE, MT4 plaque assay was used.
Results; (1)We have isolated 12 HIV-1 from 14 seropositive hemophilia A patients. (2)All tweleve isolates infected primary marcophages and only two simultaneously infected human T cell lines. (3)One of the two isolates infected human glial cell lines. (4)All showed weak CPE and none of them formed plaques on MT4 cells.
Conclusion; HIV-1 from Japanese seropositive hemophiliacs showed characteristic feature, e.g. weak CPE, narrow host ranges and tropism to primary macrophages. They may belong to unique subtype of HIV-1.

F.A.344 EFFECT OF RECOMBINANT GROWTH FACTORS ON MULTINUCLEATED GIANT CELLS & HIV ANTIGEN EXPRESSION BY CULTURED MONOCYTES FROM HIV SEROPOSITIVE PATIENTS.

Izaguirre, Carlos*; Shen, Y-N**; Nowak, M.**; Cameron, W.**; Ross, W.M.***; Filion, L**, Aye, M. T.* *Federal Centre for AIDS, **University of Ottawa, ***Defense Research Establishment, Ottawa, Ontario, Canada.

Objective: We studied the effect of recombinant M-CSF, GM-CSF and IL-3 on HIV antigen expression and multinucleated giant cell (MGC) formation by adherent blood monocytes from asymptomatic HIV seropositive patients and normal HIV negative persons.
Methods: Adherent monocytes were isolated using a slide-chamber vessel (LabTek) and cultured in the presence of 50 U/ml of recombinant M-CSF, GM-CSF and IL-3 (Genzyme) for 7 and 14 days. HIV antigens (immuno-peroxidase, p24 antigen ELISA) and MGCs were measured.
Results: We found: 1. HIV antigens were not detected on fresh monocytes from HIV+ patients. 2. HIV antigens were detected after 7 to 14 days in culture with/without growth factors. 3. Growth factors increased the HIV antigen expression per cell and only M-CSF appeared to increased the frequency of HIV+ macrophages ($p<0.002$). 4. The frequency of MGC was increased in HIV infected patients. 5. Growth factors did not affect the number of nuclei per MGC. 6. Growth factors did not affect the frequency of HIV+ MGCs. 7. Of the HIV immuno-peroxidase positive cultures, some were p24 negative (supernatants).
Conclusions: The slide-chamber culture technique permits the rapid preparation and culture of adherent monocytes for the detection of HIV antigen in cells or culture supernatants.

F.A.345 INFECTIOUS FOCUS ASSAY FOR QUANTITATION OF HIV INFECTION IN MONOCYTE-MACROPHAGES.

Sonza, Secondo; Burgess, S; Crowe, S.
Macfarlane Burnet Centre for Medical Research, Fairfield Hospital, Melbourne, Victoria, Australia.

Objective: To develop an assay for the direct quantitation of HIV particles capable of infecting human monocyte-macrophages (mø).
Methods: Donor mø were isolated by Ficoll-Hypaque centrifugation and glass adherence. Following 1 wk in suspension culture, they were seeded into 96-well microtitre plates and allowed to adhere overnight before being infected with serial dilutions of a variety of HIV isolates. The cells were fixed 10-14d later with acetone:methanol (1:1). Infected mø expressing p24 antigen were detected with anti-p24 monoclonal antibody, B-galactosidase-linked sheep anti-mouse $F(ab')_2$ species-specific second antibody and 5-bromo-4-chloro-3-indolyl-B-D-galactopyranoside (BCIG or X-Gal) substrate.
Results: Infected mø were readily distinguishable from uninfected cells by their intense blue staining. Using this B-galactosidase detection system there is no background staining of cells not expressing p24 antigen. When compared with $TCID_{50}$ s in VB cells, HIV-1 stocks routinely gave titres approx. 1 $\log_{10}$ lower in mø.
Conclusion: An infectious focus assay has been developed which will directly quantitate HIV-1 particles infectious for mø within a virus stock. The assay is highly specific and could be used as an alternative to RT, p24 or $TCOD_{50}$ assays for quantitating virus inocula or for detecting isolates capable of growth in mø.

F.A.346 QUANTIFICATION OF PLASMA VIREMIA IN HIV INFECTED CHILDREN AND ADULTS

Saag, Michael; Decker, D; Campbell, S; Crain, M; Leuther, M*; Shaw, G.
Univ. of Alabama at Birmingham, Birmingham, AL, *Abbott Laboratories, Chicago, IL, USA.

Objective: To determine the level of plasma viremia in HIV infected children and adults and correlate the presence of viremia to clinical disease status.
Methods: Sixty-six adult and 11 children infected with HIV were identified and clinically evaluated. Peripheral blood was collected in ACD tubes, centrifuged, and the plasma component passed through a 1.2μ filter, serially diluted, cocultivated with 10^6 PHA stimulated donor lymphocytes for 28 days, and sampled twice weekly for p24 Ag.
Results: Plasma viremia was detected in 19/64 adults and 5/11 children with a mean titer of $10^{-2.8}$ (range 10^0-10^{-6}). Among the adults, 0/17 asymptomatic, 4/33 ARC, and 15/16 AIDS patients were viremic. When examined versus (CD4 count), 0/16 (>600), 1/21 (400-600), 4/13 (200-400), and 14/16 (<200) patients were viremic. Among the children, 0/4 P-O versus 5/7 symptomatic children were viremic. No association between CD4 counts and viremia was noted in children. Evaluation of p24 Ag versus viremia revealed:

p24 Ag\Viremia	+	-
+	17	9
-	4	38

$p<0.0001$

Among viremic patients subsequently treated with AZT, 8/8 demonstrated a decrease in virus titer of 10^{-1} to 10^{-4} from pretreatment titers.
Conclusions: (1) Free HIV may exist in plasma and can be quantified; (2) a striking correlation exists between stage of disease, CD4 count, and viremia in adults; (3) children with symptomatic disease are likely to be viremic regardless of CD4 count; (4) a positive correlation exists between viremia and p24 antigenemia; (5) plasma viremia may be especially useful in the evaluation of antiretroviral compounds.

F.A.347 SYNCITIA INDUCTION BY FRESH HIV ISOLATES: QUANTITATIVE ANALYSIS USING A TRANSACTIVATION ASSAY.

D. Emilie*, M.C.Maillot*, J.F.Nicolas°, O.Devergne*, J.F.Delfraissy* & P.Galanaud*.
* INSERM U131, Clamart, France.° Département de biologie moléculaire du développement, Institut Pasteur, Paris, France.

We used a quantitative bioassay (the HT4LacZ-1 assay) to visualize and quantify syncitia formation induced by fresh HIV isolates. This bioassay is based on the transactivation of a chimeric gene constituted by an HIV LTR linked to the coding sequence of the E.Coli b-galactosidase gene. This allows the enzymatic staining of all nuclei from HIV induced syncitia. Using this assay, we could evidence the syncitia inducing property of fresh HIV isolates after coculturing patient lymphocytes with activated normal lymphocytes for only 4 days. A syncitia inducing strain was detected in 11 out of 40 seropositive patients studied. These syncitia inducing strains were in most cases (8 out of 11) isolated from AIDS patients. However, among the 23 non AIDS patients tested a syncitia inducing strain was isolated in 3 cases. These asymptomatic patients displayed no detectable circulating p24 antigen and a circulating CD4+ cell count >300 cells/ml. When the *in vitro* replication rate of HIV fresh isolates was examined on the basis of sequential p24 antigen measurements in coculture supernatants, the syncitia inducing strains exhibited the highest replication rate. The possibility to detect syncitia inducing strains after only a few day coculture improves the practical determination of this parameter. In addition it may be important in order to minimize the emergence of potential modifications of HIV isolate biological properties during *in vitro* viral cultures.

F.A.348 AMPLIFICATION OF HIV 1 PROVIRUS FROM CSF AND ITS CORRELATION WITH NEUROLOGICAL DISEASE.

Shaunak, Sunil; Albright, RE; Klotman, ME; Henry, SC; Bartlett, JA; Hamilton, JD.
Dept. of Medicine, Duke Univ. Med. Ctr, NC, USA & RPMS, Hammersmith Hosp, London, UK.

Objective: To amplify HIV 1 proviral DNA sequences from nucleated cells in the cerebrospinal fluid (CSF) of HIV 1+ patients using the polymerase chain reaction (PCR). These results were correlated with clinical and radiological evidence of neurological disease.

Methods: Banked CSF with a red cell count of < 5/uL and a white cell count of ≥ 2/uL was available for 31 patients. Cells were pelleted and lysed. Amplifications were performed using standard conditions and the primers SK 38/39 (gag), or SK 68/69 (env), and GH 26/27 (HLA DQ alpha). Specimens were denatured at 94 C, followed by annealing at 53 C, and extension at 67 C (1 minute each) for 40 cycles. Amplified products were subjected to electrotransfer and probed with 32 P end labelled specific probes.

Results: CSF volume 1.2 +/- 0.08 ml; nucleated cell count 12.7 +/- 1.9 /uL. 20 of the 22 patients with neurological abnormalities were PCR positive, 1 was indeterminate, and 1 was PCR negative. The latter had diabetes. 6 of the 9 patients with no neurological abnormalities were PCR negative and 1 was PCR +. Follow up of these 7 patients showed that they remain well 12.8 m later. Two had an indeterminate PCR result. CSF p24 Ag was detectable in only 7 of the 31 all of whom were PCR +. Patients with asymptomatic HIV infection (CDC) were as likely to be PCR + (10/15) as were those with ARC/AIDS (11/16). CSF cell count and % lymphocytes did not correlate with the PCR result.

Conclusion: PCR of CSF nucleated cells from HIV + patients provides early, rapid and direct evidence of neurological disease.

F.A.349 Positive Polymerase Chain Reaction (PCR) is associated with disease progression in a cohort of seropositive homosexual men.

Neumann, P.*; Weaver, M.**; O'Shaughnessy, M.*; Cassol, S.*; Craib, K.**; Le, T.**; Schechter, M.**
* Federal Centre for AIDS, Ottawa, Canada; ** Vancouver Lymphadenopathy-AIDS Study, University of British Columbia and St. Paul's Hospital, Vancouver, Canada

Objective: To conduct a blinded, cross-sectional evaluation of the PCR assay in the Vancouver Lymphadenopathy-AIDS Study cohort in order to characterize seropositive PCR negative men.

Methods: Coded samples obtained from a consecutive series of 247 gay men (134 seropositive) in our cohort during 1989 were tested for HIV-specific DNA by PCR using gag and env region primers and probes. Samples were also independently tested for HIV antibody. Seropositive (S+) men who were PCR positive (P+) versus PCR negative (P-) were compared with regard to laboratory & clinical parameters.

Results: Of 134 seropositive (S+) men, 113 (84%) were PCR positive (P+) and 21 (16%) were PCR negative (P-). The S+/P- men had lower IgG (1513 vs 1769; p=0.068), lower IgA (216 vs 298; p=0.004), lower C1q binding (13% vs 16%; p=0.027), higher CD4 count (671 vs 471; p=0.015), and higher CD4:CD8 ratio (0.91 vs 0.72; p=0.011) than the S+/P+ men. Significantly fewer of the S+/P- men had reached CDC stage IV than the S+/P+ men (5% vs 27%; Fisher p=0.045). In case these results were simply due to longer duration of HIV infection in the S+/P+ group, we restricted the analysis to the subset of 8 S+/P- men and 23 S+/P+ men whose lengths of HIV infection were known (median duration 52 vs 57 mos; p=0.4). In the restricted analysis, the significantly lower immune complexes and IgA levels and higher CD4 counts and CD4:CD8 ratios persisted in the S+/P- subjects.

Conclusion: Single measurements of HIV status by PCR failed to detect HIV infection in all subjects. Seropositive individuals with a negative PCR result tended to have less disease progression both in terms of clinical stage and laboratory parameters including CD4 count. These differences may be due to host factors which control the amount of virus and not duration of infection.

F.A.350 BRONCHOALVEOLAR LAVAGE SPECIMENS CONTAIN HIV-1 PROVIRUS PREDOMINANTLY IN LYMPHOCYTES

Schade, Sylvia*; Spear, G.*; Bankowski, M.*; Takefman, D.*; Kuhns, M.**; McNamara, A.**; Rosen, R.*, Kessler, H.*; Landay, A.*
*Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois, USA, **Abbott Laboratories, North Chicago, Illinois, USA

Objective: To determine the HIV-1 DNA level in cells isolated from bronchoalveolar lavage (BAL) specimens from symptomatic HIV-1 seropositive patients.

Methods: Patients had BAL performed for a variety of opportunistic infections. DNA was isolated from washed unseparated BAL cells and from plastic adherent macrophages and non-adherent cell populations from the same preparation. The DNA from one million cells from each set was amplified by the polymerase chain reaction using primers specific for the HIV-1 gag region. Quantitative detection of product was accomplished by a liquid phase molecular hybridization assay incorporating a single-stranded probe labeled with 125-I. The ACH-2 cell line was used to prepare a standard curve.

Results: Provirus was detected in unseparated BAL cells from 9 of 11 HIV-1 positive patients. Values ranged from 12 to greater than 6000 ACH-2 cell equivalents per million BAL cells. BAL cells from 7 patients were separated into adherent and non-adherent populations. While provirus was found in unseparated BAL cells from all 7 of these patients, little or no provirus was found in adherent macrophages from 5. In the adherent cell population from the other 2 patients, the quantity of provirus was great enough to suggest provirus could also be present in BAL macrophages, but at a level lower than that in the BAL non-adherent cells.

Conclusion: Cells which harbor HIV-1 provirus in the lungs of seropositive patients are predominantly non-adherent, presumably lymphocytes, rather than adherent cells.

F.A.351 PRODUCTIVE HIV INFECTION LEVELS CORRELATE WITH AIDS RELATED MANIFESTATIONS IN THE PATIENTS.

Dominique, Mathez* ; Sultan, Y.** ; De Belilovsky, C.* ; Paul, D.***; Decker, R.*** ; Leibowitch, J.*.
*Hôpital Raymond Poincare, Garches, France, **Hôpital Cochin, Paris, France, ***Abbott Laboratories, North Chicago, Illinois, USA.

Unfrozen mononuclear cells from HIV-1 sero-positive subjects were submitted to lethal gamma-irradiation in vitro and cultured at 10^5 and $5x10^5$ (4 replicates each) with PHA-stimulated normal lymphocytes. Percentages of HIV-positive replicates (R-HEV scores, for Radiation Resistant HIV Expression Ex Vivo) were shown through limiting dilution analysis to estimate HIV expressive cell frequencies. R-HEV scores correlated with the frequencies at which serum HIV antigen was detected in 142 paired cell - serum specimen, ($p < 0.001$). R-HEV was detected in all 72 retrospective specimen from 56 patients with AIDS-related illnesses or lymphopenia at an average HIV expressive cell frequency of 1 in $2x10^5$ mononuclear cells. Serum HIV antigen was not detected in 30% of those patients. R-HEV detection anticipated symptoms over the following 1-3 years in 77% of early specimen from asymptomatic carriers, compared with 33% for serum antigen. On the opposite, in 36 specimen obtained over 2-5 years from 13 asymptomatic HIV-1 carriers with persistently normal CD4+ lymphocyte counts, R-HEV scores remained at low values (less than 1 HIV expressive cell in 10^6). Because R-HEV quantifies a central determinant of AIDS-related morbidity, it should be of use as a surrogate marker for clinical end-points in treatment efficacy trials.

F.A.352 EPISODIC HIV REPLICATION IN CIRCULATING LYMPHOCYTES.

Ohlsson-Wilhelm, Betsy M.*; Cory, J.M.*; Cimoch, P.J.**; Friedberg, G.**; Eyster, M.E.*, Rapp, F.*; and Reiter, W.M.** *The Pennsylvania State University College of Medicine, Hershey, PA, and **Center for Special Immunology, Fort Lauderdale, FL.

Objective: To quantify circulating lymphocytes actively infected with HIV as a function of time and treatment in individuals with late stage HIV disease.
Methods: Circulating lymphocytes with cell-associated HIV p24 antigen (p24+ lymphocytes; determined by the flow cytometric assay lymphocyte p24-FCA), CD4+ lymphocytes and serum p24 antigen were quantified in serial peripheral blood samples from 10 individuals with late stage HIV disease (recent PCP or ARC; <200 CD4+ lymphocytes/mm3) before and during zidovudine (ZDV) therapy (5-15 serial samples; up to 5 mos).
Results: A pattern of episodic appearance of circulating p24+ lymphocytes was observed (10/10 individuals). Serum p24 antigen levels in serum p24 positive individuals also fluctuated with time (5/5). Ratios of circulating p24+ lymphocytes to CD4+ lymphocytes varied with time and decreased in some individuals after initiation of ZDV therapy (5/10).
Conclusions: (1) HIV disease progresses by recurring episodes of HIV replication interspersed with periods of relative quiescence. (2) Numbers of circulating p24+ lymphocytes decline in some individuals after initiation of ZDV but persist in others despite therapy. (3) Individuals can recover from incidents in which nearly all of their CD4+ lymphocytes appear to be infected, i.e., have cell-associated HIV p24 antigen, possibly due to production of a new cohort of uninfected CD4+ lymphocytes. (4) Multiple baseline samples should be taken prior to initiating therapy to avoid miscategorizing a patient who was sampled during a lull in HIV activity. [Supported by US PHS NIH NIHLB Contract N01-HB-67023, Project #221924].

F.A.353 STUDY OF HIV INFECTION BY PCR IN SERONEGATIVE MULTITRANSFUSED ß-THALASSEMIACS PATIENTS.

MARKOULATOS, Panayotis*; FERRIS, Stéphane**; KARAGIORGA-LAGANA, Markissia***; KORDOSSI, Aphroditi*; MONTAGNIER, Luc** and MONCANY, Maurice L.J.**.
* Institut Pasteur Hellenique, Athens, Greece; ** Unité d'Oncologie Virale, Institut Pasteur, Paris, France; *** Thalassemia Unit, Aghia Sophia Children's Hospital, Athens, Greece.

An homogeneous exposed population composed of 38 seronegative ß-thalassemiacs patients who were multiply transfused before 1985 was studied by PCR. We designed a complete set of primers covering the entire genomes of the HIV1 and of the HIV2. They were tested for their specificity and their efficiency and they allow the detection of the *gag, pol, env, nef1, nef2, vif1, vif2, vpr, vpx*,and *vpu* genes (the index *1* corresponding to HIV1 and the index *2* to HIV2).
This population, multitransfused by red blood cells, was mainly composed of adults older than 18 years (72%). The PCR screening performed on the peripheral blood lymphocytes, shows a preferential detection of regulatory genes (*vpr, vpx+vpu* and *nef1+nef2*) and of the *gag* gene with respective percentages of 38%, 62%, 42% and 43%. One should note that 16% of the patients were detected as entirely negative and that the use of classical structural genes (*gag, pol, env*) should have given 36% of PCR-negative patients.
These data have to be compared with the sequence of appearance/disappearance of HIV genes detected during time-course experiments we performed on CEM cells and on fresh lymphocytes after HIV infection.

F.A.354 PCR IN HIV-1 SEROPOSITIVE AND IN SERONEGATIVE AT-RISK INDIVIDUALS.

Mariotti, Martine*; Rouger, P.*; Vittecoq,D.**; Ferrer-le-Cœur,F.*; Noel,B.***; Wattel, E.*; Lefrere,J.J.*
*FNTS, Paris.**Hôpital Necker, Paris.***CTS, Chambéry, France.

Objective: To detect HIV genome sequences in seropositive individuals and to check the absence of HIV infection in seronegative at-risk individuals (homosexuals, hemophiliacs).
Patients: 766 coded samples of 466 individuals were studied (see table).
Methods: PCR was performed with 39 cycles using primer pairs (PP) in GAG, POL and LTR regions. Analysis of results was based on slot-blot and on southern-blot. Samples were assayed in duplicate.

	n	PCR +			PCR -
		3PP	2PP	1PP	
Symptomless seropositive	176	113	42	16	5
AIDS patients	47	47	0	0	0
Seronegative homosexuals	39	0	0	0	39
Seronegative hemophiliacs	89	0	0	0	89
Seronegative low risk subjects	115	0	0	0	115

Results(see table) : PCR was positive (with one or more PP) in 97% of symptomless seropositive individuals. However, it was negative in 3% with the 3 PP used ; 100% of AIDS patients were positive with the 3 PP used. No positive result was observed in seronegative individuals.
Conclusion : In our series, PCR was positive in most seropositive individuals, but did not show the presence of HIV genome in seronegative individuals.

F.A.355 DETECTION OF HIV-I PROVIRAL DNA AND VIRAL RNA IN URINE PELLETS FROM HIV-1 SEROPOSITIVE INDIVIDUALS.

Li Jian Jun, Cao YZ, Mirabile M, Tao P, Huang YQ, Huang YX, and Friedman-Kien AE. New York University Medical Center, NY NY 10016.

Objective: To investigate the HIV-1 related genetic information in fresh urine centrifuged pellets from HIV-1 seropositive individuals using a reverse transcriptase/polymerase chain reaction (RT/PCR)technique.
Methods: 34 patients with AIDS or ARC and 17 asymptomatic HIV-1 seropositive homosexuals were studied and compared with a control group of 24 healthy HIV-1 seronegative persons. All 75 fresh urine and corresponding serum samples were initally tested for antibodies to HIV-1 by ELISA and Western Blot techniques. HIV-1 expression in serum was tested by HIV-1 p24 antigen capture assay. RNA and DNA extracted from peripheral blood mononuclear cells (PBMC) and urine pellets were subjected to PCR for proviral DNA using HIV-1 gag primers. 21/51 urine pellets were also tested for HIV-1 RNA using the RT/PCR method; and cells from 8 urine samples were labelled with anti-p24 and anti-gp120 using the ABC method.
Results: HIV-1 proviral DNA was detected in 38/41 (94%) of the PBMC samples, and 35/51 (69%) of the urine pellets, respectively, but in 0/24 control samples. Only 2 specimens were positive for HIV-1 RNA by the RT/PCR method. Mononuclear cells in 3/8 urine samples tested contained HIV-1 gp120 and p24.
Conclusion: The detection of HIV-1 proviral DNA in urine pellets might be useful as a non-invasive test for comfirming the diagnosis of HIV-1 infection. The fact that HIV-1 RNA can be detected in urine pellets suggests that urine may be an infectious body fluid in seropositive individuals. However, the HIV-1 infected lymphocytes found in urine may possibly be due to secondary contamination from the genito-urinary tract (e.g., prostate, bladder, urethra, or vagina).

F.A.356 HIV-ANTIGEN DETECTION IN IMMUNE COMPLEXES AND ITS RELATION TO THE CLINICAL AND IMMUNOLOGICAL STATUS

Kestens, Luc*; Hoofd, G.*; Gigase, P.*; Goilav, C.; Deleys, R.**; van der Groen, G.*
*Institute of Tropical Medicine; **Innogenetics, Antwerpen, Belgium.

Objective: To evaluate the detectability of HIV-antigen (HIV-Ag) after immune complex (IC) dissociation in relation to the clinical stage and the helper/inducer lymphocyte (T4) subset counts.
Methods: IC were isolated from 107 HIV antibody(+) sera by 2.5% polyethylene glycol (PEG-6000) precipitation. HIV-Ag was released from IC by combined acid (1M Glycine.HCL) and heat (10' at 70°C) treatment of the PEG-precipitates followed by neutralization with 1M Tris.base. HIV-Ag detection in serum before and after IC dissociation was done by total Ag capturing (Innotest-VCA; 10pg/ml sensitivity for p24).
Results: 1. According to the clinical stage: The prevalence of HIV-Ag and HIV-IC in stage CDC-IV (48% and 52% resp.) was significantly higher than in CDC-III (34% and 39% resp.) and CDC-II (18% and 32% resp.) stage. However, the increase of Ag prevalence after IC dissociation was most pronounced (2x) in patients in the asymptomatic CDC stage II.

2. According to the number of T4 cells: In patients with low T4 counts (<200/µl) uncomplexed HIV-Ag was present in 48%, whereas 62% had HIV-IC. HIV-Ag and/or HIV-IC were detected in 72%. In patients with >200/µl T4 cells, the frequency of HIV-IC detection was significantly lower (CHI-2 test). Uncomplexed HIV-Ag was detected in 27%, HIV-IC in 32% ($p<0.01$) and HIV-Ag and/or HIV-IC in 41% ($p<0.01$) of the examined sera.
Conclusion: HIV-Ag detection in serum increases significantly after IC dissociation especially in asymptomatic patients. HIV-IC are closely associated with low T4 figures.

F.A.357 IMPROVED PROGNOSIS OF HIV INFECTION IN NEWBORNS AND CHILDREN BY PCR AMPLIFICATION OF VIRAL RNA

Escaich Sonia*, Wallon M†, Ritter J†, Philippe N§, Sepetjan M†, Trepo C*, et al.
*INSERM U271 Lyon ; †Laboratoire d'Hygiène, Faculté Lyon Nord Lyon ;
§Immunohématologie pédiatrique, Hôpital Debrousse Lyon, France.

Objective : To assess prognosis during the course of HIV infection, it is necessary to demonstrate whether HIV is latent or does replicate. To this end, presence of HIV RNA was monitored in freshly obtained peripheral blood lymphocytes (PBL) by PCR.
Methods : Tweenty newborns and children born from seropositive mothers were followed for one year. RNA were reverse transcribed into cDNA before PCR, which was carried out with GAG primers during 30 cycles.
Results : HIV RNA sequences were detected in 9 cases. All the 6 seropositive children with signs of HIV infection, who later did progress, were shown to have HIV RNA. HIV RNA were also detected in 3 neonates tested at birth, one of them died of AIDS at 6 months of age and another developped polyadenopathy at 10 months. Among these 9 cases, HIV was isolated in 7 cases.
Conclusions : Detection of HIV replicative forms is associated with immunological alterations in children and with rapid clinical progression in neonates. HIV RNA detection appears as an important tool for the prognosis of HIV infection and may serve as a basis for early antiviral therapy.

F.A.358 HIV ANTIGEN EXPRESSION AND VIRAL DNA DETECTION BY PCR IN MONONUCLEAR CELLS OF SERONEGATIVE AT-RISK CHILDREN

Gabiano, Clara; Riva,C.; Palomba,E.; Lombardi,V.*; Valpreda,A.; Moschese,V.*; Musso,A.; Rossi,P.*; Tovo P.A.
Department of Pediatrics, University of Turin, Turin, Italy, *Division of Immunology, Karolinska Institute, Stockholm, Sweden

Objective: To investigate whether perinatally exposed children who lost maternal antibody are unlikely to be infected.
Methods: Expression of p24 and gp120 HIV antigens was repeatedly sought by immunofluorescent test in fixed peripheral blood mononuclear cells of 32 children born to HIV+ mothers prospectively followed up from birth who became seronegative. The specificity and sensitivity of the method had been demonstrated by negative findings in 51 control subjects and positive results in 11/13 seropositive symptomatic children. In at least one occasion PCR analysis with three sets of primers spanning three different genomic regions of the virus was also performed in the group of seronegative at-risk children.
Results: Cells showing viral antigens were identified in 19 seronegative at-risk children. In 10 of these HIV-DNA sequences were also detected. In 3 other children PCR resulted positive whereas antigen positive cells were never found. Among seronegative infected children one developed lymphadenopathy and hepatomegaly, four transitory hematological disorders.
Conclusions: The results obtained indicate that a high proportion of perinatally exposed asymptomatic children who lost maternal antibody are actually infected. Among the HIV+ seronegative children immunological abnormalities were observed only in the symptomatic subject, suggesting that acquired immunodeficiency does not develop in nonresponder host.

F.A.359 THE PRESENCE OF HIV-1 GENOME IN HUMAN COLOSTRUM FROM ASYMPTOMATIC SEROPOSITIVE MOTHERS

Pezzella,Mario°; Caprilli,F.°°; Cordiali Fei,P.°°; Crescimbeni,E.°°; La Rosa,F.°; Castiglione Humani,A.°°°
°Institute Infectious Diseases,Policlinico Umberto I,University "La Sapienza"
°°Dermosyphylopatic Institute S.Gallicano,°°°New Hospital R.Margherita,Rome

Objective: To evaluate the presence of HIV-1 genome in mononuclear cells in colostrum from 2 asymptomatic seropositive mothers by "in situ" hybridization.
Methods: The mononuclear cells obtained by Ficoll-Hypaque gradient centrifugation, were cytocentrifuged and hybridized with 3 probes:1)an SP64 plasmid containing the 9 kb SstI-SstI viral insert from lambda BH 10 recombinant clone 2) the whole HBV (hepatitis B virus) genome cloned in pAO1 plasmid; 3) the pBR322 plasmid lacking viral insert. The probes were tagged by inserting an antigenic sulfone group in cytosine moieties and visualized by the sandwich immunohistochemical reaction. HIV-1 infected and non infected H 9 T cell culture lines, cells from both healthy blood donors and mothers' colostrum have been used as controls.
Results: In each colostrum we found the presence of mononuclear cells showing positive reactions when hybridized with SP64 plasmid containing HIV-1 viral insert. The HIV-1 positive cells exhibited morphological details consistent with that of both lymphocytes and monocytes.
Conclusion: The breast milk-feeding may be a route of HIV-1 transmission. The "in situ" hybridization may be a tool for the screening of the breast milk from seronegative mothers at high risk as well.

TRACK A: BASIC SCIENCE
POSTER SESSION

F.A.360 VIROLOGIC AND SEROLOGIC CHARACTERISTICS OF HIV-1 INFECTION IN CHILDREN.

Kawashima Hisashi, Bandyopadhyay S, Rutstein R, Plotkin SA.
Children's Hospital of Philadelphia, Philadelphia, PA, USA

The distribution of HIV-1 in the blood, throat and urine of infected children was studied. In a group of 21 children aged 2 mos to 15 yrs, who had clinical or epidemiological evidence of HIV infection, viral blood cultures were positive more than 90% of the time, using an optimization of previously described techniques. Peripheral mononuclear cells were separated into T cell-depleted adherent cells (AC) and nonadherent cells (NAC), followed by co-culture with PHA-stimulated PBMC. Virus was detected in NAC in 18 of 21 patients, and in T cell-depleted AC of 14 patients. In 7 patients virus was isolated only from NAC, and in 3 cases only from T cell-depleted AC. Children with virus localized in AC populations had relatively asymptomatic infection.

Neutralizing antibodies were checked by a colorimetric assay using MT-4 cells and MTT dye. Titers of neutralizing antibodies of patients who were virus positive only in AC were low, compared to titers of patients who were positive in only NAC. Monocyte/macrophages may be a site of latency in pediatric HIV infection. In these cases, the viral neutralizing antibody response seems to be weak.

HIV was isolated from the throat swabs of 9 of 19 children (47%). The virus was usually, but not always present in small amount, and was both cell-free and cell-associated. Irradiation experiments confirmed that virus in the throat was in an active replicating state. In contrast, urine specimens from 8 patients were uniformly negative for virus. These findings do not yet have epidemiologic correlates, and their significance for virus spread is unknown.

TRACK B: CLINICAL SCIENCE & TRIALS
POSTER SESSION

Neurology: Neuropsychiatric Findings

F.B.361 SUBTLE COGNITIVE CHANGES IN HIV INFECTION

Levin, Bonnie E.*, Berger, J.R.*^, DiDona, T.M.*, Black, R.*, Duncan, R.#.
The University of Miami School of Medicine, Departments of Neurology*, Internal Medicine^ and Oncology#, Miami, Florida, USA.

Objective: To examine subtle neuropsychological changes in early HIV infection in asymptomatic gay males.
Methods: Ninety-nine HIV+ gay men (No AZT or IVDA) and 36 HIV- control subjects of similar age and education were examined using a battery of neuropsychological tests designed to assess language, attention and memory, judgement, visuospatial skills, set shifting and depression.
Results: Repeated measures MANOVA indicated a similar pattern of performance scores between the two groups in all cognitive domains. However, specific group comparisons of the individual subtests using MANOVA revealed a significant downward shift towards impaired performance on measures of verbal fluency ($p<.001$), arithmetic calculations ($p<.05$), design fluency ($p<.01$), set shifting ($p<.05$), delayed recall of logical discourse material ($p<.05$), depression ($p<.001$) and anxiety ($p<.001$). There were no differences on reasoning or attention subtests. Although there were no education interaction effects, age significantly inter acted with group membership on the memory scores. When specific comparisons were made using MANOVA there were no significant differences in the older age group (>35 yrs.), but younger subjects (<35 yrs.) were significantly different from controls in their immediate and delayed recall of verbal material ($p<.05$).
Conclusions: These findings suggest that in some individuals, HIV infection may result in subtle cognitive decline on select neuropsychological tasks.

Supported by NIH, NINDS grant PO1-NS25569.

F.B.362 NEUROPSYCHOLOGICAL CHANGE AT ONE-YEAR FOLLOW-UP IN HIV-INFECTED MALES

Velin, Robert; Heaton, R.; Atkinson, J.; Grant, I.; McCutchan, J.;
University of California, San Diego and VA Medical Center, San Diego, CA, USA

Objective: Neuropsychological (NP) impairment is a known complication of frank AIDS, but the natural history of neurocognitive deterioration within an HIV-infected population is not well defined. To help clarify this evolution we examined relationships between NP change over one year and the following variables: baseline NP functioning; CD4+ at baseline and one year follow-up; the ability to culture HIV-1 from the CSF; and various measures of depression. *Methods:* Homosexual men in CDC IV (n=11), CDC II/III (n=25), and seronegative controls (n=18) were evaluated with an extended Halstead-Reitan Neuropsychological Battery. Both mean scores and expert blind clinical ratings of NP change (RKH) were used in the analyses. All subjects also underwent comprehensive medical, neurological, and psychiatric evaluations. *Results:* Preliminary analyses indicate mild decline in NP performance in 36% of the CDC IV, 20% of the CDC II/III, and 6% of the seronegative subjects. There was no significant relationship between NP deterioration and baseline NP functioning, or NP decline and CD4+ count at baseline or follow-up. However, there was a slight trend for HIV-infected subjects who experienced a NP decline to have lower CD4+ at follow-up than seropositive subjects who did not evidence deterioration. There was no relationship between NP decline and ability to culture HIV-1 from the CSF at one year or baseline. Preliminary analyses suggest that change in NP functioning was not significantly associated with affective status. *Conclusions:* Slight NP decline is noted during a one year time period in HIV-infected subjects, particularly CDC IV subjects. However, mild NP decline may also occur in a minority of persons in earlier stages of infection. Initial analyses do not suggest strong relationships between NP decline and immunosuppression, CSF infection, or psychiatric findings.

F.B.363 THE NEUROPSYCHOLOGY AND PSYCHIATRY OF HIV INFECTION IN ASYMPTOMATIC GAY MEN - ST STEPHEN'S COHORT STUDY

Riccio Massimo*/**; Jadresic D*/**; Hawkins D*; Wilson B***; Thompson C****.
* St Stephen's Hospital, ** Charing Cross Hospital, London;
*** Southampton General Hospital, Southampton;
**** Royal South Hants Hospital, Southampton; U.K..

OBJECTIVE: To assess the association between HIV infection, cognitive and neurological deterioration and other psychiatric disorders in a cohort of asymptomatic gay men (CDC Group II).
METHODS: 68 HIV negative and 33 HIV positive gay men were recruited from an HIV Clinic in central London when requesting an HIV test. They are taking part in a longitudinal cohort study which includes neuropsychological, psychiatric and neurological assessments. The results of the latter are reported elsewhere. Psychiatric, neuropsychological and neurological assessments took place prior to notification of HIV serostatus. Blood samples were obtained at the time of the HIV test for routine tests and lymphocyte subsets.
RESULTS: The number of variables was restricted and a p value of 0.002 was used. There was no significant difference between the two groups for any of the neuropsychological or mood variables. 4 / 68 HIV negative subjects had evidence of neuropsychological impairment as opposed to 6 of 33 HIV positive men. There was no correlation between the types of test which gave rise to the category of neuropsychological impairment.
CONCLUSIONS: Asymptomatic HIV infection does not appear to be associated with neuropsychological impairment.

F.B.364 RECENT AND REMOTE SYPHILIS AND ITS RELATIONSHIP TO NEUROPSYCHOLOGICAL TEST PERFORMANCE DURING ASYMPTOMATIC HIV-1 INFECTION.

Selnes, Ola A.*; McArthur JC*; Miller EN**; Cohen B***; Wesch J***; Becker J****; McArthur JH*; Saah A*; Jacobson, LP*; The Multicenter AIDS Cohort Study. *Johns Hopkins Medical Institutions, Baltimore MD, **University of California, Los Angeles, CA, ***Northwestern University, Chicago IL, ****University of Pittsburgh, Pittsburgh, PA.

Objective: To examine the rate of current and previous history of syphilis and its relationship to neuropsychological (NP) test performance of homosexual/bisexual men in the Multicenter AIDS Cohort Study (MACS).
Methods: Rapid Plasma Reagin (RPR) testing as well as history of previous syphilis (self-report) was obtained at entry into the MACS. Standardized neuropsychological testing, including measures of attention/concentration, memory and psychomotor speed, has been performed on a subset of 1,990 MACS participants since 1986.
Results: At baseline, 112/1959 (5.7%) tested RPR positive, while 523/1990 (26.3%) participants reported a past history of exposure to syphilis. NP performance of 36 participants who had become RPR positive since entry into the NP protocol did not differ from that of RPR negative subjects matched for serostatus, age and education. Comparison of 66 subjects with remote history of syphilis and participants with no remote history of syphilis matched on HIV-serostatus, likewise did not reveal any difference in NP performance.
Conclusion: Both HIV-1 seronegative and seropositive participants report high rates of remote syphilis. The incidence of new syphilis infection was low. Neither recent nor remote syphilis had a significant effect of NP performance in the asymptomatic phase of HIV-1 infection.

F.B.365 NEUROPSYCHOLOGICAL DEFICIT IN HIV INFECTED GAY MALES

Bornstein, R., Nasrallah, H, Rosenberger, P, Para, M, Fass, R. The Ohio State University, Columbus, Ohio.

Objective: The study investigated the incidence of neuropsychological deficit in to groups of homosexual males: 1) men who were HIV+ but asymptomatic, (N=25), and 2) men with ARC or AIDS N=17). Method: A neuropsychological test battery was administered which included measures of concept formation, memory, and vigilance. These tests yielded 8 scores and subjects were rated as impaired if their performance was more than one standard deviation from the mean of published normal samples on three or more tests. Results: It was found that 25% of the HIV+ asymptomatic group was classified as impaired compared with 56% of the ARC/AIDS group. The difference in proportion of patients rated as impaired was significant ($x^2 = 4.1$, $p < .05$). The most frequently abnormal performances were observed on a measure of vigilance (Paced Auditory Serial Addition Test). The mean number of impaired measures was significantly higher in the ARC/AIDS patients. Conclusion: These data indicate a relatively high incidence of neuropsychological impairment in asymptomatic HIV+ patients. The T4 levels of this group (approximately 500) suggest some level of disease progression. Nevertheless, there is a substantial number of asymptomatic patients which demonstrate neuropsychological deficit. In addition, patients with later stages of illness show more severe deficits, and a higher proportion of subjects in these disease groups demonstrate deficit.

F.B.366 THE LONGITUDINAL ASSESSMENT OF PERCEIVED AND OBJECTIVE COGNITIVE IMPAIRMENT IN SYMPTOMATIC HIV SEROPOSITIVE MEN

Canick, Jonathan D.* and Temoshok, L.**
*University of California School of Medicine, San Francisco; **Henry M. Jackson Foundation, Walter Reed Army Medical Center, Washington, D.C.

Objective. To determine the prevalence of both perceived and objectively assessed cognitive impairment over time, and whether they are differentially associated with psychosocial distress in symptomatic HIV+ men.
Methods. From an original sample of 100 HIV+ homosexual men with at least one HIV-related symptom, 60 subjects completed all three assessments, which were 9 months apart. Neuropsychological test results were adjusted for age and education, and standardized ratings of impairment were determined. Self-report measures of perceived cognitive and HIV-related symptoms, and standard measures of distress, coping, and mood were also administered.
Results. Unexpectedly, the group as a whole showed less neuropsychological impairment across time, particularly from Time 1 to Time 2 in terms of moderate impairment (at least 2 standard deviations below the norm on ≥ one measure)--55% at T1, 32% at T2, 35% at T3; and marked impairment (at least 3 S.D. below the norm on ≥ one measure)--20% at T1, 13% at T2, 13% at T3. The prevalence of perceived cognitive impairment remained stable across time at about 70%. The number of self-reported HIV-related symptoms was significantly correlated with perceived rather than objective cognitive impairment ($r = .58$, $p < .001$). Distress accounted for 48% of the variance in perceived cognitive impairment, but only 11% of objective neuropsychological results.
Conclusion. The finding that perceived cognitive impairment is more influenced by psychological distress than reflective of objective neuropsychological dysfunction suggests that diagnosis of neuropsychological impairment in HIV patients should be based on objective assessments rather than self-report.

F.B.367 NEUROLOGIC FINDINGS IN EARLY HIV INFECTION: A PROSPECTIVE STUDY

COATS, MICHAEL*; SALAZAR, A.M.**; MARTIN, A.**; WILLIAMS, J.**; BROWN, D.*; JABBARI, B.*; BROWN, H.**; GRAVES, M.***
*Walter Reed Army Medical Center, Washington, DC, **Uniformed Services University of the Health Sciences, ***H.M. Jackson Foundation, Bethesda, Maryland, USA.

Objectives. To prospectively investigate the neurologic natural history of early HIV infection.
Methods. Sixty-five (65) HIV seropositive patients (57% stage WR (Walter Reed) 1-2; 21% WR 3-4; and 21% WR 5-6) were entered in a prospective study which included neurologic and neuropsychological examination, Magnetic Resonance Imaging (MRI), EEG/Evoked Potentials (EP), and lumbar puncture at 6-month intervals.
Results. The most common initial neurologic symptoms were headache (53%) and increased irritability (50%). The incidence of most neurologic symptoms tended to decrease with time. The standard neurologic examination remained essentially normal in the majority of patients over a 12-month period. No systematic pattern of deterioration could be detected. Spinal fluid (CSF) was initially abnormal in almost all patients, and remained so at 1 year follow-up. Hyperintense lesions were seen on MRI at initial evaluation in 31%, and an additional 10% had sulcal prominence. New MRI lesions developed in 6/29 at 1 year. While only 1 EEG was abnormal initially, 5/26 became abnormally slow in 1 year. Somatosensory EPs were initially abnormal in 11%, but only 2 additional patients developed abnormalities. There was no correlation between neuropsychologic changes (reported elsewhere), and the standard neurologic examination.
Conclusions. In contrast to neuropsychological and CSF changes, as well as less frequent deteriorations in the MRI and EEG/EP, the remainder of the neurologic evaluation is generally unremarkable in early HIV infection, and remains so over a 12-month follow-up period.

F.B.368 NEUROPSYCHOLOGICAL AND PSYCHOLOGICAL MEASURES PROVIDING SENSITIVE DISCRIMINATION OF DIAGNOSTIC CATEGORY IN HIV-SPECTRUM PATIENTS

Stroad, Margaret, Boccellari, A, Biggart, E, and Pope, D., Neuropsychology Service, San Francisco General Hospital, San Francisco, California, U.S.A.

Objective: To define a short battery of neuropsychological and psychological measures which efficiently track the cognitive and personality changes seen in HIV-spectrum patients.
Methods: Neuropsychological (NP) tests [Wechsler Memory subtests, Shipley, Fingertapping (FTT), Controlled Oral Word Association, and Trailmaking (TMT) tests], together with the Minnesota Multiphasic Personality Inventory (MMPI) were administered to 60 patients classified in 3 HIV-spectrum diagnostic categories: HIV antibody positive, ARC, and AIDS. A discriminant analysis of the relationship between the quantitative variables and the diagnostic categories was performed to determine: (a) the degree to which the categories can be discriminated based on the NP and MMPI variables, (b) the relative quantitative contribution of each of the measured variables to this discrimination, and (c) the modal profile of each of the categories in terms of the most important variables. The discriminant method used is based on the multivariate Mahalanobis metric, and the contribution of variables was assessed using an information-theoretic measure of discrimination power.
Results: In this preliminary study, the combined data correctly classified 7 of 8 HIV+ cases, 37 of 38 ARC cases, and 10 of 14 AIDS cases. The NP and MMPI measures by themselves contributed, respectively, approximately 60% and 40% of the discriminating information. The 23 individual variables used differed widely in their contribution to the discriminative classification. In particular, a total of 5 measures specifically proved to be effective in achieving the best discriminative classification (MMPI PD and PA scales, FTT, TMT B and TMT A).
Conclusion: The results suggest that these variables together capture essential elements that differentiate the stages of HIV infection. Also, ambiguous or discrepant assignments may indicate cases in which the cerebral effects of the HIV infection are transitional or discordant with respect to standard medical diagnostic criteria. These preliminary results additionally suggest that these statistical methods may prove particularly useful for discovering such relationships.

This work has been supported in part by grant #DA04873 from the National Institute on Drug Abuse.

F.B.369 RELATIONSHIP BETWEEN COGNITIVE DYSFUNCTION AND MOOD STATE AT DIFFERENT STAGES OF HIV DISEASE

Krell, Pamela;* Wisniewski A;**Jensen P.***
*Veterans Administration Medical Center San Francisco, SF CA

Objective: To evaluate the relationship between cognitive impairment and emotional distress at different stages of HIV disease.
Method: Neuropsychological and psychometric tests assessing attention, concentration, memory, language, abstract reasoning, visuospatial abilities, general intellectual function, and mood state were administered to 140 gay men: 85 mildly symptomatic/early ARC and 55 with medical symptoms in the later stages of ARC or AIDS.
Results: In the mildly symptomatic group mild levels of cognitive impairment were associated with high levels of emotional distress, depression, and anxiety. In the late ARC/AIDS group levels of cognitive impairment ranged from mild to severe but were accompanied by only mild or minimal levels of emotional distress.
Conclusion: Cognitive impairment which is seen in the early stages of HIV disease may be more related to emotional distress, depression, and anxiety than to CNS dysfunction. As patients advance in the HIV disease process, cognitive impairment becomes more reflective of actual CNS disease.

F.B.370 REPORT ON 2-YEAR NEUROPSYCHOLOGICAL STUDY OF HIV SEROPOSITIVES.

Kocsis, Agnes, Vearnals, S., Church, J., Hoffman, S., Hopper, C.,*Pinching, A.J.
Psychology Department, St. Mary's Hospital, London, U.K. *Department of Immunology, St. Mary's Hospital Medical School, London, U.K.

Objectives:- To determine (a) the natural history neuropsychological changes in HIV seropositives over a two year period (b) the nature of any such changes (c) the most sensitive tests to measure cognitive impairment (d) the effect of Zidovudine on the progression in CDCIV patients.
Method:- 700 test occasions were analysed, HIV Controls (194), Group II & III individuals (168), Group IV (321). The battery used included computerised tests of speed, attention, memory and frontal lobe processess. Paper and pencil tests of a traditional nature were also used and compared. Objective and subjective mood questionnaires were given, neurological examination was performed and where possible serum was analysed for p24 antibody, HIV antigen and antibody and beta-2-microglobulin.
Results:- All tests measuring motor performance and attention combined, showed significant differences between HIV+ and HIV- individuals overall. However, group differences between those at CDCII or III versus those in group IV were detected only by the computerised tasks. A sub-group of those in groups II and III (27%) showed overall impairment on the battery but with the pattern over the different tests and time varying; the pattern will be described in detail. Zidovudine treated patients improved in comparison with untreated group IV individuals.
Conclusion: Some studies may fail to detect cns involvement in Group II & III individuals because of the insensitive tests and because of failure to observe the patterns of performance over time.

F.B.371 NEUROLOGIC FINDINGS IN 95 GAY MEN

Villasana, David; Thal, L.; Grant, I.; Atkinson, H.; Weinrich, J.
University of California, San Diego, California, USA

Objective: The goals of this study are to demonstrate the prevalence of clinically observable neurologic findings in a selected population and to examine their correlation with immune system function.
Methods: A detailed neurologic examination was performed on a cohort of 95 gay men being followed prospectively with neuropsychological studies. 67 are HIV+ and 28 were seronegative. Subjects were categorized into three groups: A) HIV+, less than 200 T4 cells, B) HIV+, greater than 200 T4 cells, C) HIV negative. There are no significant differences in age or education between the three groups. Chi square analysis was employed to compare findings among the subjects.
Results: On initial examination, several symptoms distinguished the HIV+ and seronegative subjects. These abnormalities were reported in the areas of employment, concentration, reading, memory, gait, involuntary movement, mood, social withdrawal, emotional lability, alertness, and numbness. These symptoms were found in only 0–21% of the seronegative group but were present in 18.1–93% of the HIV+ subjects. Additionally, 10–25.3% demonstrated altered affect, lower extremity weakness, or impaired gait on examination. Overall, 32.4–38.4% of HIV+ subjects demonstrated clinical evidence of neurocognitive impairment.
Conclusion: Our results demonstrate that neurologic signs and symptoms are common in HIV+ subjects with greater than 200 T4 cells. The importance of these findings will be clarified by longitudinal studies. A review of follow-up examination results will also be presented.

F.B.372

PSYCHIATRIC SYMPTOMS AND NEUROPSYCHOLOGICAL FUNCTIONING IN HIV-INFECTED PATIENTS. ETIOLOGY?

Naber, Dieter; Perro, C.; Schick, U.; Einhäupl, K.*
Psychiatric Hospital of the University of Munich, West-Germany
*Neurological Hospital of the University of Munich, West-Germany

Reduced cognitive functioning was observed in all stages of HIV-infection, but incidence and severity are controversial. Moreover, aside from cerebral infestation factors such as education, neuropsychiatric history, drug abuse or depression are often not fully considered.
182 HIV-positive patients WR 1-3: 108; WR 4-6: 74) and 100 HIV-negative controls were investigated by psychiatric and neuropsychological examination. A subgroup of 65 patients were re-examined after six months, another 58 patients were also neurologically examined (incl. CT, CSF, EEG).
Psychiatric exploration and self-rating revealed a major depression in 27%. Depression score correlated highly significantly with most neuropsychological scores. Cognitive functioning was significantly reduced already in early stages (normal: 75%, slight imp.: 20%, marked imp. 5%), relevant was the deficit only in late stages (60%, 25%, 15%). Markedly impaired patients were all either in late stages, depressed or had a history of drug abuse. Re-examination showed within six months no change of psychopathology, but a significant worsening in one of eight cognitive tests. Of the neurological variables, severity of central symptoms, CSF level of protein and CT atrophy correlated with cognitive functioning. These data on psychiatric symptoms indicate a multifactorial etiology, psychogenic and somatogenic.

F.B.373

RATE OF NEUROPSYCHOLOGICAL (NP) ABNORMALITIES IN PATIENTS WITH HIV INFECTION.

PERDICES, MICHAEL, COOPER D, National Centre in HIV Epidemiology and Clinical Research, Sydney, AUSTRALIA.

OBJECTIVE: To document the nature of neuropsychological deficits and determine the rate of cognitive impairment at different stages of HIV infection.
METHOD: Cognitive function was assessed in two cohorts of HIV seropositive homosexual men. Study A subjects (AIDS=17;ARC=17;HIV-=10) were selected for complaints of cognitive dysfunction. Study B subjects (AIDS=18;ARC=18;HIV+=20; HIV-=23) were unselected. None of the subjects had a prior neurologic or psychiatric history. The NP battery contained 26 tests in Study A, and 45 in Study B. The cut-off point for abnormal test scores was 1 standard deviation below the control mean. Level of impairment was rated according to the number of abnormal test scores: 0-2=NONE; 3-5=MILD; 6-8=MODERATE; 9+=SEVERE.
RESULTS: The percentage of impaired subjects in both studies is shown below. Although there was no significant impairment in the HIV- group in Study A,

# OF ABNORMAL TEST SCORES	STUDY A CONTROL	ARC	AIDS	STUDY B CONTROL	HIV+	ARC	AIDS
0 - 2 NONE	90.0	23.5	47.5	30.4	10.0	5.6	0.0
3 - 5 MILD	10.0	29.4	35.3	34.8	25.0	5.6	0.0
6 - 8 MOD	0.0	23.5	5.9	17.4	15.0	22.2	28.9
> 9 SEVERE	0.0	23.5	11.8	17.4	50.0	66.7	61.1

impairment rates in the AIDS and ARC groups were respectively lower and higher than perviously reported in other studies. In Study B impairment rates in all groups were substantially higher than those reported by other investigators.
CONCLUSIONS: Ratings based on number of abnormal test results may not validly determine impairment. The probability of an abnormal test score increases as the number of tests in the NP assessment battery increases.

F.B.374

RELATIONSHIP OR NEUROPSYCHOLOGIC AND IMMUNOLOGIC PARAMETERS IN ASYMPTOMATIC HIV SEROPOSITIVE INDIVIDUALS

Francine F-A. Sarazin*, DW Cameron, GE Garber, MT Aye and the University of Ottawa AIDS Study Group

Objective: To correlate neuropsychometric test scores with immunologic parameters to determine if changes in neurocognitive performance precede progressive clinical HIV related immune disease.
Method: Fifty-one asymptomatic HIV seropositive cases were individually administered a comprehensive battery of conventional neuropsychological tests, questionnaires of psychological functioning (mood & anxiety), as well as computerised reaction time measures (simple and multiple choices). Laboratory immunologic evaluation of 30 consecutive cases was available for this preliminary analysis.
Results: Mean age was 34.98 +/- 6.9 years, education 14.53 +/- 2.9 years. Neurocognitive performance was compared between cases with < 350 CD4 T cells (n=7) and > 350 CD4 T cells (n=32). Mean scores were within normal limits. Unpaired t-tests showed significant differences in verbal learning (p=0.008), nonverbal learning (p=0.010), and nonverbal intelligence (p=0.044). Trend analysis on learning scores for 3 strata (T-CD4 < 250 (n=4), 250-350 (n=11), > 350 (n=15) was marginally significant for verbal learning (p=0.07).
Conclusion: There was no evidence of neuropsychologic deficiency. However, neurocognitive performance declines concurrently with CD4 T-cell counts, a predictor of progressive clinical immune disease.

F.B.375

SEARCH FOR A SCREENING TEST BATTERY FOR COGNITIVE DEFICITS IN HIV INFECTION:

Woo, Stephen*; Hunter, J.*; Wang,P.*; Wortzman,G.*;Fernandes, B.*; Chemerynsky, I.*
* Mount Sinai Hospital, University of Toronto, Toronto, Ontario, Canada.

Objectives: 1) To design a screening measure with the capacity for early detection of neurocognitive impairment in HIV infected individuals. 2) To establish if scores on this measure may be used to infer the degree of CNS or immune impairment.
Methods: This is a two year longitudinal study of a case group with HIV infection (Ab = 28 Symptomatic HIV Disease = 11, AIDS = 12), and a control group, similar in age, education and SES. Neuropsychological tests, and measures of depression and anxiety are administered 3 month intervals. The neuropsychological battery includes: Trails A & B, Controlled Oral Word Association, WAIS-R Digit Symbol and Digit Span, Stroop, Reye Auditory Verbal Learning Test, Benton Visual Retention & PASAT. To determine the pathological correlates of cognitive status, blood tests, MRI and SPECT are done every 6 months.
Results: Initial testing, 3,6, & 9 mos.follow-up show consistent differences between cases and controls. Comparisons of the groups with AIDS vs. those with other HIV disease and the controls show: 1)All groups improved but the case group consistently scored in the impaired range on Trails B & the PASAT. Within the case group, the group with AIDS scored the lowest on these tests. 2) The case group consistently scored in the depressed range on the BDI,with the AIDS group showing the greatest amount of depression.
Conclusions: 9 month follow-up results show some cognitive changes associated with HIV infection which are greater in persons with AIDS. Investigators will explore how depression and anxiety states affect neuropsychological test scores in patients with HIV infection.

TRACK B: CLINICAL SCIENCE & TRIALS
POSTER SESSION

F.B.376 THE NEUROPSYCHIATRIC AIDS CHECKLIST: ITS RELATIONSHIP TO HIV STATUS, IMMUNE FUNCTIONING, & NEUROPSYCHIATRIC PERFORMANCE

Boccellari, Alicia; Dilley, J.W.; Davis A.; Moss, A.; Bacchetti, P.; and Kelly, T.
University of California San Francisco (UCSF) School of Medicine and San Francisco General Hospital (SFGH), San Francisco, California, U.S.A.

Objective. To describe the effectiveness of the SFGH Neuropsychiatric AIDS Checklist (NAC) in detecting individuals at risk for developing HIV related cognitive impairment, scores on the NAC were compared with HIV antibody status, neuropsychiatric performance (Np) and immune functioning (IF).
Methods. The NAC is a 54 item self-report checklist of HIV related CNS symptoms, comprised of five subscales. Previous research has established a high level of internal consistency (α=.93). The NAC was administered to 47 Gay & 47 IVDU seropositive subjects (CDC Groups II, III, & IV-A) and to 23 HIV Gay and 21 HIV seronegative IVDU's. Np tests and Auditory Brain Wave Response Evoked Potentials (ABR's) were also administered. Measures of IF were obtained for HIV+ subjects ($Beta_2$, p24, T cell counts). Group differences between HIV+ & HIV- subjects were determined through the use of T tests. The HIV+ Gay men were stratified into symptomatic (Sym: CDC Group III & IV-A) and asymptomatic groups (Asym: CDC Group II) and T tests were applied. Correlations among the Np, IF, and ABR's with the NAC were obtained.
Results. 1. The HIV+ Gay men were differentiated form the HIV- Gay men on 4 of the NAC subscales.
2. The HIV+ IVDU's were differentiated from the HIV- IVDU's on 2 of the NAC subscales.
3. The Gay+ Sym group was differentiated form the Asym group on 2 of the NAC subscales.
4. Three of the NAC subscales correlated with IF: $Beta_2$, T4, and T4/T8 ratio.
5. Four of the NAC scales also correlated with Np measures of fine motor speed, gross motor strength, and immediate and delayed verbal and visual spatial memory.
6. ABR wave 3-5 (left ear) abnormalities correlated with the NAC for the IVDU, but not for the Gay men.
(For all significant results: P=<.05.)
Conclusions. This brief self-report instrument correlates with objective measures of immune functioning, Np performance and evoked potential studies. It appears to be a practical and efficient tool in identifying both gay and IVDU's who are at risk for developing HIV related cognitive impairment.

This work has been supported in part by grant # DA04873 from the National Institute on Drug Abuse.

F.B.377 IMPLICATIONS OF SELF-REPORTED COGNITIVE AND MOTOR DYSFUNCTION IN AN HIV+ PATIENT POPULATION

Jean W. Wilkins, Robertson W, Snyder C, Robertson K, van der Horst C, Hall C.
University of N. Carolina, Chapel Hill NC USA

Objectives: The ACTG MICRO neurological examination is being used in several clinical drug trials being conducted through the ACTG. This evaluation includes patient self-assessment of cognitive and motor performance. The study is often conducted by non-physician evaluators, and it is important to know what significance should be placed on the patient's reports of dysfunction.

Method: We analyzed the results of the self-evaluation portion of the MICRO neurologic assessment in 77 patients undergoing research studies and compared them to the results of neuropsychological testing and measures of depression and anxiety.

Results: Significant correlations were found between the patients' reports of cognitive dysfunction and levels of depression and anxiety. However, cognitive complaints were not significantly correlated with performance on neuropsychological testing. A significant correlation was found between self-reported motor complaints and lower performance on objective tests of motor function. There was no significant correlation between motor complaints and levels of depression and anxiety.

Conclusions: These results suggest that when patients report symptoms of cognitive dysfunction, the evaluator should also be alert to the presence of anxiety or depression, both treatable conditions. When patients report motor dysfunction, this should lead to careful neurological evaluation, as this may be associated with reduced motor performance.

F.B.378 IMPAIRED LEARNING AND MEMORY IN ASYMPTOMATIC HIV POSITIVE INDIVIDUALS DEMONSTRATED BY THE SELECTIVE REMINDING TEST

Maruff, Paul, Currie, J.N., Ramsden, B.M., McArthur, C.M., Lynch, J.M. Benson, E.M.* & Mulhall, B.**: Mental Health Research Institute of Victoria, Australia; *Alfred Hospital, Melbourne; **Royal Melbourne Hospital.

OBJECTIVE: To characterize learning and memory processes in asymptomatic HIV seropositive (HIV+A) individuals.
METHOD: The Selective Reminding Test (SRT) was administered to 21 homosexual HIV+A males and 12 seronegative homosexual male controls matched on age, education, and measures of verbal intelligence, attention anxiety and depression. Cumulative scores for the 7 SRT parameters across 6 trials were compared with two-way repeated measures analyses of variance.
RESULTS: There were no significant differences for total scores on any SRT parameter. However significant group x trial interaction effects for LTR ($p<0.01$), STR ($p<0.01$) and SUM ($p<0.01$) indicated slower rates of recall from long term memory for HIV+A subjects due to encoding problems. Demographic and affective variables could not account for these differences.
CONCLUSION: Detailed analysis of SRT learning profiles may provide a sensitive indicator of subtle cognitive change in early HIV-1 infection.

F.B.379 SPATIAL ATTENTION IN EARLY HIV INFECTION

Martin, Eileen; Edelstein, H.; Robertson, L.; Sorensen, D.
University of California Medical School, Davis, and Veterans Affairs Medical Center, Martinez, California, USA.

Objective. In a previous study, subtle signs of slowed cognition were demonstrated in ARC and HIV-positive asymptomatic (ASx) patients, using reaction time tasks. The objective of the present study is to investigate attentional disturbance as a possible mechanism of cognitive slowing.
Methods. In an ongoing study, 9 patients with early HIV infection (6 ASx and 3 ARC) and 6 matched seronegative controls performed a computerized reaction time task requiring rapid shifts in attention following "valid" or "invalid" stimulus cues. Subjects were also administered self-report measures of depression and anxiety.
Results. Both groups showed a typical validity effect (faster reaction times following valid stimulus cues ($p < .03$)). There were no differences in overall reaction times. However, analyses of the HIV group data indicated that the duration of the validity effect was shorter than that of the controls ($p < .01$). Test performance was not significantly correlated with self-reported depression or anxiety.
Conclusions. Cognitive slowing is prominent in AIDS dementia and present in subtle form in individuals with less advanced infection. Underlying mechanisms of slowed cognition have not been elucidated. The present data indicate that patients with early HIV infection can allocate and shift attention efficiently, suggesting that early cognitive slowing may not be associated with global disturbances of attention. However, changes in the timing of attention may be present.

F.B.380 EARLY INTELLECTUAL IMPAIRMENT IN HIV PATIENTS A LONGITUDINAL STUDY

Bolgert, F.*; Brunet, P.*; Cances, A.M.*; Chave, B.**; Chieze, F.*; Dhiver, C.**; Gastaut, Jean-Albert**; Gastaut, J.L.**; Gentilini, M.*; Katlama, C.*; Signoret, J.L.*
*Hôpital de la Salpêtrière, Paris, France.
**Hôpital de Ste Marguerite, Marseille, France.

OBJECTIVE : to confirm or invalidate an early intellectual impairment.
METHODS : longitudinal study of HIV infected homosexual men (HM) belonging to groups II, III, IV A, C1 and C2 (CDC). At inclusion : neurological examination, laboratory tests (CD4 numeration, multimodality evoked potentials [MEP], EEG, CT scan and/or MRI), 12 neuropsychological tests (WAIS digit span, digit symbol, similarities, bloc design ; verbal fluency [A, M] ; Trail making tests A and B ; Stroop ; verbal and visual memory [immediate and delayed recall] ; visual recognition test [B 144] ; pegboard test ; PM 47), depression and anxiety scales (Spielberger, Beck, COVI, MADRS). All examinations are repeated every 6 months. Control group : 30 seronegative individuals.
RESULTS : 100 seropositive HM. Groups II and III : 49 %. Mean age : 36 years. At inclusion neurological examination and CT scan are normal, EEG is abnormal in 12 %, MEP in 40 % and MRI in 30 %. Neuropsychological tests are normal (0 to 2 abnormal tests/12) in 75 % of cases. In 25 % (most of them in group IV), 3 or more tests are impaired. 50 subjects have been reexamined at 6 months, 17 at 12 and 6 at 18 : no difference compared to initial findings.
CONCLUSION : percentage and importance of intellectual impairment are negligible in asymptomatic patients and very low in ARC. Preliminary results show no difference at inclusion and 6, 12 and 18 months later.

F.B.381 A BRIEF NEUROPSYCHOLOGIC SCREENING BATTERY FOR PATIENTS WITH HIV-DISEASE

Wisniewski, Amy; Vanderburg, D.
San Francisco Veterans Affairs Medical Center and University of California, San Francisco, California, USA

Objective: To develop and test a brief neuropsychologic screening battery for early detection of HIV-related cognitive changes.
Methods: Detection of early neuropsychologic abnormalities in HIV-disease is important as prompt intervention with AZT may slow or even reverse progression of deterioration in cognitive function. Comprehensive neuropsychological assessments are time consuming and staff-intensive. There is a need for a brief neuropsychologic screening battery that would provide a reasonable level of accuracy regarding the presence of impairment. A review of the literature and data from comprehensive neuropsychologic testing done at the San Francisco VA identified a battery of specific neuropsychological tests that were (1) sensitive to the deficits commonly associated with HIV-encephalopathy, and (2) relatively easy to administer and analyze. A brief screening battery was developed. Beginning January 1989, HIV referrals to psychiatry and psychology were screened using the newly-developed battery.
Results: A total of 32 screenings were performed. Results and comparison with full-scale neuropsychologic assessments are described and discussed.
Conclusions: Routine use of test batteries similar to the one described may allow more widespread rapid detection of early subtle neuropsychologic abnormalities in patients with HIV-disease.

F.B.382 PROSPECTIVE STUDY OF NEUROLOGICAL INVOLVEMENT IN EARLY HIV INFECTION: ONE YEAR FOLLOW-UP

Marra, Christina, Collier AC, Longstreth WT Jr, Claypoole KH, Cohen WA, Handsfield HH.
University of Washington, Seattle, WA, USA.

Objective: Assessment of the natural course of neurological and neuropsychological findings in homosexual men with and without early (primarily CDC group II/III) HIV infection.
Methods: Cases and HIV- controls undergo serial neurological examination, magnetic resonance imaging (MRI) neuropsychological testing, and cerebrospinal fluid (CSF) analysis. To date, 77 HIV+ and 44 HIV- subjects have been enrolled; 48 and 33 have been reevaluated at 6 months and 27 and 16 at 12 months.
Results: HIV+ subjects had lower CD4 counts than controls, and CD4 counts declined with time. There were no significant differences on neurological examination at enrollment, except for mild hearing deficits in 14 (18%) of 77 HIV+ and 1 (2%) of 44 HIV- ($P<0.05$). These abnormalities were not related to CSF leukocytes, CSF HIV culture, or past syphilis. There were no significant changes in hearing or other neurological findings over 12 months. At enrollment, cases showed poorer performance on neuropsychological testing compared to controls, but mean scores remained in the normal range and neither group demonstrated a decline in performance over time. MRI showed white matter abnormalities and/or atrophy in 32 (58%) of 55 HIV+ subjects at enrollment; 9 of these showed worsening of MRI findings over 12 months. CD4 counts fell in all 9, compared to 6 of 12 of those whose MRI scans were abnormal but did not worsen ($P<0.05$).
Conclusions: No neurological or neuropsychological deterioration was observed over 12 months, except for worsening of MRI findings in some HIV+ subjects which correlated with immunologic deterioration. Continued long-term follow-up is planned.

F.B.383 SIMPLE AND CHOICE REACTION TIME IN HIV-, HIV+, AND AIDS PATIENTS

Nance, Matthew* **; Pirozzolo, F.**; Levy, J.**; Fernandez, F.**
*University of Houston; **Baylor College of Medicine, Houston, Texas

Objective: To examine psychomotor speed and decision making information processing speed as measured by simple auditory and visual and complex visual reaction time (RT) in HIV seronegative, HIV seropositive, and AIDS patients.
Methods: Nineteen homosexual or bisexual males with AIDS (N=8) or pre-AIDS HIV infection (N=11) and 8 homosexual or bisexual males who recently tested HIV- were administered simple auditory, simple visual, and three-choice visual RT tasks. For each RT task, 12 responses were recorded for each hand. In each simple RT task, the patient was instructed to press a key as quickly as possible to extinguish a tone (auditory task) or lamp (visual task). In the 3 choice RT task, the subject was instructed to respond to one of three keys corresponding to the trial determined illuminated lamp as quickly as possible. Additionally, all patients were administered the vocabulary subtest of the Shipley Institute of Living Scale to control for intellectual functioning and the Beck Depression Inventory to control for depression.
Results: Education and age differences among the diagnostic groups were not significant. Analysis of variance (diagnostic group x RT task) revealed significant main effects for diagnostic group, $F=11.10$, $p<0.001$ and RT task, $F=7.30$, $p<0.002$ after controlling for differences due to intellectual functioning and depression. Interaction between diagnostic group and RT task was not significant. Planned comparisons showed that RT in the HIV- group was significantly shorter than RT in the AIDS group for the simple auditory task, $F=19.30$, $p<0.001$; the simple visual task, $F=22.54$ $p<0.001$ and the complex visual task, $F=17.22$, $p<0.001$. Similarly, RT in the HIV+ group was significantly shorter than RT in the AIDS group for the simple auditory task $F=11.90$, $p<0.003$ the simple visual task $F=14.49$, $p<0.001$ and the complex visual task $F=14.23$, $p<0.001$. Differences between the HIV- and HIV+ groups approached significance for simple auditory RT $F=2.81$, $p=0.10$ simple visual RT $F=2.96$, $p=0.10$ and complex visual RT tasks $F=3.86$; $F=0.06$.
Conclusions: Increased simple and choice RT in AIDS patients over HIV+ and HIV- patients confirms the prediction that AIDS patients with no previously documented neurological complications demonstrate psychomotor slowing. Increased reaction time is not accounted for by depression, level of intellectual function, age, or education. Psychomotor slowing is consistent with early AIDS Dementia Complex (ADC) and may herald the onset of cognitive dysfunction in otherwise neurologically healthy patients. The addition of a signal detection, decision making component to the RT task increased reaction time equally among the three diagnostic groups demonstrating that while psychomotor speed is decreased, information processing speed for higher cognitive tasks remains unchanged relative to HIV- controls. Additionally, HIV+ patients appear to demonstrate increased reaction time over HIV- controls.

F.B.384 NEUROLOGIC FOLLOW-UP STUDY IN A GROUP OF ASYMPTOMATIC HIV-1 POSITIVE SUBJECTS

Spadaro,Maria ; Tilia,G.; Pinter,E.(*); Bianco,F.; Bernabei,A.; Mezzaroma,I.(*); D'Offizi,GP.(*); Morocutti,C.
Nervous and Mental Diseases Institute, and (*)Dept. of Allergy and Clinical Immunology, University "La Sapienza", Rome, Italy.

Objective: To study neurologic and psychologic involvement in CDC groups II-III HIV-1 infected subjects.
Methods: A neurologic follow-up study in 27 asymptomatic HIV-1 positive subjects (3 homosexuals, 19 drug users, 5 heterosexual; CDC class II-III) has been carried out as follow: neurologic clinical examination (every 3 months), neurophysiological (EEG, multinodal evoked potentials, MEPs) investigations (every 6 months), neuropsychological (psycometric testing) and neuroradiological (brain CT scan and/or MRI) examinations (once a year). Immunological parameters were studied at six months intervals.
Results: High prevalence (37%) of neurologic abnormalities in asymptomatic seropositive were present. Neurologic clinical examination (NCE) has revealed the most sensitive test to detect such abnormalities, while psychometric evaluation, followed by BAEPs, CT and SEPs seem to be the most reliable paraclinical tools. This trend is confirmed by the follow-up data, showing an increase in the number of patients with NCE abnormalities (up to 64%).
Conclusion: Neuropsychologic involvement is often present in early phases of HIV-1 infection. The appearance of cerebellar and/or pyramidal signs seems to have a negative prognostic value, being frequently related to, and sometimes preceding, a decrease in CD4+ cell count.

F.B.385 NEUROPSYCHOLOGICAL STATUS AND STAGE OF HIV INFECTION IN A COHORT OF INTRAVENOUS DRUG ABUSERS.

Jacas,Carlos;Muga,R;Tor,J;Barranco,L;Pascual,J;Navio,M;
Rey-Joly,C;Fox,M.
Hospital "Germans Trias i Pujol".Badalona.Barcelona.Spain.

Objective: To analyze the relationship between neuropsychological status (cognitive deficits,personality disorders, anxiety and depression) and the stage of HIV infection in intravenous drug abusers (IVDAs) admitted to detoxification.
Methods: 111 IVDAs (85 M,26 F) underwent psychometric tests: Raven, MMPI, Catell's 16PF, STAI-Trait and Beck's Depression Inventory. HIV Ab was analyzed by EIA and Stage of HIV infection by CDC criteria.
Results: 86/121 (79.33%) of patients were HIV+. The mean age was 25.2±5 years and the time of addiction 69.8±37.6 months. 76.4 % had only primary schooling level, 50.2% had been in prison and in 72.8% of patients the socioeconomic status was middle-low or low.
We found deficits in the visuo-spatial reasoning area in 48/111 (43.3%) of the patients but no differences between seronegatives (8/25,32%) and seropositives (40/86,46.5%) (p=0.29).
In relation to stage:

	Normal	Deficits	X^2	p (95%)
Group II	64% (16/25)	36% (9/25)	II /III	0.8
Group III	63.6% (21/33)	36.4% (12/33)	III/IV-C2	0.03
Group IV-C2	32.2% (9/28)	67.8% (19/28)	II /IV-C2	0.04

No statistical differences between Stage groups in: Personality disorders, anxiety and depression.
Conclusion: Neuropsychological impairments are related to advanced stages of HIV infected drug abusers.

F.B.386 NEUROLOGICAL SIGNS AND SYMPTOMS IN PARENTERAL DRUG USERS

Marder, Karen; Malouf, R.; Dooneief, G.; Bell, K.; Chen, J.; Gorman, J.; Ehrhardt, A; and Mayeux, R.
HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, New York, New York, USA.

Objective: To document the presence of neurological symptoms and signs in a cohort of parenteral drug users (PDU).
Methods: A structured neurological exam including a functional disability scale and symptom checklist was administered to 198 subjects, 111 HIV+ and 87 HIV- at a methadone maintenance clinic and a city hospital ID clinic. Examiners were blind to the HIV status of the 64 women and 134 men.
Results: Among the HIV+, 33 were asymptomatic, 25 were mildly symptomatic, and 53 were symptomatic but did not meet criteria for AIDS. HIV+ and HIV- groups had similar age, education, handedness, and history of head trauma. HIV+ subjects reported memory impairment and depressed mood significantly more often than HIV- subjects ($p<.05$). A significant relationship between symptomatic complaints and stage of illness among the HIV+ was seen in the domains of memory, word finding difficulty, gait impairment, bladder incontinence, depressed mood, apathy, and emotional lability. HIV+ subjects had significantly more extrapyramidal signs ($p<.05$) and frontal release signs ($p<.01$). The frequency of cranial nerve abnormalities, alternating movement abnormalities, and sensory abnormalities did not differ in the two groups.
Conclusion: Certain symptomatic complaints and neurological soft signs are more frequent in HIV+ drug users. Clear differences were seen when HIV+ symptomatic subjects were compared to all other stages combined. PDU may be particularly prone to neurological changes when infected by HIV.

F.B.387 ASSESSMENT OF A GROUP OF ASYMPTOMATIC INTRAVENOUS DRUG USERS FOR HIV-RELATED NEUROLOGICAL IMPAIRMENT

Royal, W.,III; Updike, M.; McArthur, J.C.; Selnes, O.A.; Proctor, T.V.; Solomon, L.
The Johns Hopkins Medical Institutions, Baltimore, Maryland, USA

Objective: To identify HIV-related neurological impairment among a group of asymptomatic intravenous drug users.
Methods: A clinical assessment which included demographic, general medical, and neurological questionnaires and a neurological examination was administered to 101 intravenous drug users with no constitutional symptoms of fever, weight loss, etc. Evaluations were performed with the examiner blinded to the serostatus of the participants.
Results: 65 HIV-1 seropositives (SP) and 36 HIV-1 seronegatives (SN) were evaluated. Cross-sectional analysis of data revealed no significant difference in age, education, drug or alcohol use, or frequency of reported neurological or psychiatric symptoms among the two groups. Neurological examination revealed a difference between serostatus groups only on one test item: following multistep commands, with 31/64 (48.4%) SP's failing the maneuver compared to 8/34 (23.5%) SN's ($p=0.029$, Chi-square test with continuity correction).
Conclusion: The frequency of neurological and psychiatric symptoms or of neurological examination abnormalities did not differ significantly between HIV-1 seronegatives and asymptomatic HIV-1 seropositives (CDC II/III) in this cohort, supporting our previous observations in asymptomatic homosexual men. The finding of more frequent difficulty with multistep commands among SP's will be studied further by analysis of longitudinal data.

F.B.388 HIV POSITIVE (+VE) DRUG USERS ARE COGNITIVELY IMPAIRED, BUT DO NOT HAVE EARLY AIDS DEMENTIA COMPLEX (ADC)..

Egan, Vincent; Crawford, J.R.*; Goodwin, G.M.**; Brettle, R.P.***.
Dept. Psychiatry, Royal Edinburgh Hospital; *Dept. Psychology, King's College, Aberdeen; **MRC Brain Metabolism Unit, Royal Edinburgh Hospital; ***Infectious Diseases Unit, City Hospital, Edinburgh; all SCOTLAND.

Objective: Population models combining premorbid IQ (National Adult Reading Test [NART]) and demographic features (age, sex, years of education and social class) predict performance on the revised Wechsler Adult Intelligence Scale (WAIS-R). We used these models to see if cognitive impairments seen in HIV +ve drug users were due to ADC or the long term use of drugs.
Method: 80 HIV +ve (CDC 2:3:4 = 11:43:26) and 12 HIV -ve drug users were given the NART and WAIS-R Arithmetic, Digit Span, Block Design, and Digit-Symbol Substitution subtests; demographic data was also recorded. Comparisons were made between HIV -ve and +ve patients, across CDC status, and in relation to population models.
Results: No differences in NART or WAIS-R subtests were seen across CDC status or between HIV -ve and +ve drug users. Population models accurately predicted premorbid IQ, but over-estimated all WAIS-R measures to a significant (P<.001) degree.
Conclusion: With no decline of cognitive performance despite progression of HIV illness, these results suggest no early onset ADC in drug users. However neuropsychological function is poor for drug users, irrespective of their serostatus, and is appreciably worse than expected from population norms. Our study provides guidelines for inferring impairment in an abnormal population.

Neurology: Other Diagnostic Tests

F.B.390 CEREBROSPINAL FLUID BETA-2-MICROGLOBULIN AND Ab HIV p24 IN PATIENTS WITH AIDS

Perrella,Oreste; Izzo,E; Liberti,A; Gnarini,R; Morisco,E; Arciello,G; Piccolo,F; Soscia,M.
Ospedale "D.Cotugno", Naples, Italy.

Objective: The aim of this study was to determine whether CSF beta-2-microglobulin (beta-2-M) and Ab HIV p24 levels are related to neurological complications in patients affected by HIV-I.
Methods: The study population consisted of 30 patients classified, according to the Center for Disease Control (Atlanta, GA) as follows: CDC-2=10 patients; CDC-3=10 patients; CDC-4=10 patients. Twelve of these subjects suffered from neurological disorders: 6 from AIDS dementia complex (ADC); 4 from headache; 1 from vascular lesions; and 1 from cerebral toxoplasmosis. Cerebrospinal fluid was analyzed for HIV using the ELISA test (Abbott Laboratories), Ag HIV p24 (Du Pont) and beta-2-M. Serum beta-2-M was also determined.
Results: In 91.6% of subjects with neurological complications, the mean CSF beta-2-M level (x=3.732 mg/l) was higher in the ADC patients (x=5.445 mg/l). The CSF beta-2-M/serum beta-2-M ratio was 86.6% in patients with neurological symptoms, while in patients without symptoms it did not reach 1. Ab HIV p24 were found in 2/10 of the CDC-4 cases, while Ag were not found in any patient. CSF beta-2-M was higher in patients with symptoms than in those without ($p < 0.01$). There was no correlation in any of the groups examined between beta-2-M, Ab and Ag HIV p24.
Conclusion: The CSF beta-2-M/serum beta-2-M index is more indicative of neurological complications in HIV-1 infection than CSF beta-2-M concentration alone.

F.B.389 MILD COGNITIVE IMPAIRMENT IN HIV INFECTED ASYMPTOMATIC OR OLIGOSYMPTOMATIC HEMOPHILIACS

Kokkevi, Anna*; Hatzakis, A.**; Arvanitis, Y.*; Maillis, A.*; Zalonis, J.*; Samartzis, D.*; Pittadaki, J.***; Mandalaki, T.***; Stefanis, C*.
*Department of Psychiatry, Athens, University Medical School, Athens, **Dept of Epidemiology, Athens University Medical School, ***Laikon General Hospital, Athens, Greece.

Objective: To evaluate whether asymptomatic or oligosymptomatic stages of HIV infection are associated with cognitive function impairment and especially attentional performance.
Methods: The sample consisted of 88 haemophiliacs. Among them 60 were HIV positive with known seroconversion dates and 28 HIV negative. None of the HIV positive patients had AIDS (CDCIV-C1) or ARC (CDCIV-A). Patients were blindly investigated with a battery of computerized neuropsychological tests. They were also screened for psychopathology and their mood was assessed with the Beck Depression scale and POMS.
Results: Comparisons between HIV (+) and HIV (-) patients did not show consistent differences in cognitive functioning. However among HIV positives for more than five years, performance impairment was shown in the reaction time test. Impairment was also observed in the reaction time test between HIV positive CDCIV-C2 and asymptomatic patients (CDCII and CDCIII) as well.
Conclusion: Patients with asymptomatic HIV infection do not show neuropsychological impairment. Duration of seropositivity and early symptomatic HIV infection are associated with minimal neuropsychological impairment reflected in prolonged reaction times.

F.B.391 ISOLATION OF HIV FROM CEREBROSPINAL FLUID (CSF) AND THE DEVELOPMENT OF CENTRAL NERVOUS SYSTEM DISEASE.

Spector, Stephen A.; McCutchan, J.A.; Atkinson, J.H.; Villasana, D.; Weinrich, J.; Grant, I. University of California, San Diego, California, USA.

Objective: To determine the association between isolation of HIV from CSF and the development of AIDS-related CNS disease.
Methods: Seventy homosexual men without clinical AIDS-dementia (49 HIV+, 36 CDC II/III and 13 CDC IV; and 21 HIV-) were evaluated for CNS disease with an extensive battery of neuropsychological tests (NPT) and had 1 ml of CSF cultured in PHA-stimulated peripheral blood mononuclear cells.
Results: Of 27 HIV+ pts with only 1 evaluation, 52% had HIV cultured from CSF (3/8 CDC IV and 11/19 CDC II/III) vs 0/12 controls. Twenty-two HIV+ pts had 2 evaluations 1 yr apart with at least 1 of 2 CSF HIV cult pos in 73% (2/5 CDC IV and 14/17 CDC II/III) vs 0/9 controls. Of 13 pts with moderate impairment on NPT at study entry, 7 (58%) had CSF HIV cult pos. However, of 3 pts with 2 CSFs HIV cult pos, 1 had impairment at entry and 2 had worsening NPT on repeat testing. HIV isolation from CSF correlated with a CSF pleocytosis (wbc/mm^3 mean $\pm$ S.D.: pos: 13.6 $\pm$ 13.7 vs neg: 5.4 $\pm$ 7.8; $p = .003$). No CSF specimen was HIV p24 antigen pos. Peripheral blood T_4 counts in HIV+ pts did not correlate with CSF cult pos for HIV (mean 545/mm^3 in cult pos vs 480/mm^3 in cult neg).
Conclusion: Most infected pts have HIV in their CSF and the ability to culture HIV is related to the number of CSF mononuclear cells. Also, although repeated isolation of HIV from CSF may be associated with development of CNS disease, pts frequently have virus present in the CSF without dementia, and some pts with HIV-related CNS disease may not have HIV cultured from their CSF.

F.B.392 CEREBROSPINAL FLUID EVALUATION IN HIV+ SUBJECTS

Colin D. Hall, Snyder C, Robertson K, Messenheimer J, Wilkins J, Whaley R, Silverman L, Robertson W, van der Horst C. University of N. Carolina, Chapel Hill NC USA

Objective: As part of a longitudinal study attempting to predict indicators of neurologic involvement and to establish the earliest effects of HIV infection on the nervous system, evaluation of cerebrospinal fluid (CSF) was performed on a group of 41 HIV+ subjects.

Method: Levels were obtained for glucose, protein, cell count, albumin, globulin, serum/CSF albumin/globulin ratio, presence of oligoclonal banding and p24 antigen. The results were analyzed for variations from normal and compared to a variety of other neurological, neuropsychological, clinical neurophysiological and neuroradiological parameters.

Results: 15% of the sample had no abnormalities of CSF. The others had from 1 (29%) to 7 (5%) abnormalities. 37% had abnormal albumin/globulin ratios. Oligoclonal bands were present in 33%. There was no relationship between overall abnormalities of CSF and level of disease progression, abnormalities in the neurological examination, neuropsychological examination, MR scan or clinical neurophysiological examination. Correlates were found between total nucleated cells in the CSF and serum WBCs and CD4 levels, between the percentage of lymphocytes in the CSF and serum CD4 cells and disease progression, between disturbed albumin/globulin ratios and reduction of lower limb somatosensory evoked potentials.

Conclusions: Abnormalities of the CSF are common in HIV+ subjects. At this stage it is not clear that these abnormalities are related to clinical problems or prognosis. Followup evaluation in this group is essential.

F.B.393 ACTIVATED TERMINAL COMPLEMENT(SC5b-9) IN CEREBRO-SPINAL FLUID(CSF) OF PATIENTS WITH AIDS DEMENTIA COMPLEX(ADC)

Senderowicz, Adrian M.; Nolletti,C.; Inada,Y.; Watanabe,K. and Lange,M.
St. Luke's-Roosevelt Hospital Center, Columbia University, New York, NY, USA.

Objective: We previously demonstrated that AIDS patients have plasma complement activation associated with a decrease of erythrocyte complement receptor for C3b fragment, a finding also found in clinically active SLE and Sjögren Syndrome. Similarly, in these two diseases, central nervous system(CNS) manifestations are correlated with increase of SC5b-9(J. Immunol. 138:2095,1987). To assess the presence of intrathecal complement activation, we assayed SC5b-9 level in CSF in a group of patients with AIDS Dementia Complex.
Methods: CSF collected prospectively was tested for the terminal complement complex(SC5b-9) in the following groups: 9 AIDS patients(group I) with clinical ADC(non-specific changes in CT scan, negative cultures, negative cryptococcus antigen, slightly elevated protein); 7 patients with suspected aseptic meningitis(group II) and 10 patients who had a myelogram for suspected herniated intervertebral discs(group III).

Results:	group I	group II	group III
number of samples(N)	9	7	10
SC5b-9(ng/ml) ± SD	170 ± 37	123 ± 37	14 ± 11
(range)	(84 - 212)	(62 - 182)	(1.5 - 31)

Statistically significant differences were found between groups I and III($p<0.005$), and groups II and III($p<0.005$).
Conclusion: In group I, several factors could be responsible for activation of the complement cascade including HIV itself, complement coated immnune complexes or complement fixing autoantibodies formed within the CNS.

F.B.394 LEVELS OF TUMOR NECROSIS FACTOR (TNF) IN THE CEREBROSPINAL FLUID (CSF) FROM HIV-INFECTED PATIENTS

Mastroianni, Claudio M.*; Paoletti F.*; Ferri F.*; Valenti C.*; Di Seri M.**; Vullo V.* *Institute of Infectious Diseases, **Dep. Med. Sperim., University "La Sapienza", Rome, ITALY.

Objective. To evaluate the relationship between TNF and neurological disorders in HIV-infected patients.
Methods. 82 CSF from 42 HIV+ patients, including 9 with AIDS dementia complex (ADC), 8 with cryptococcal meningitis, 7 with cerebral toxoplasmosis,3 with TBC meningitis, 1 with bacterial meningitis and 14 HIV+ subjects without central nervous system (CNS) diseases, were examinated. TNF was measured by using a specific enzyme immunoassay (Biokine, T Cell Sciences, USA).
Results. Raised CSF levels of TNF (>40 pg/ml) were detected both in patients with ADC (6/9) and with CNS opportunistic infections (10/19), and, less frequently, in HIV+ patients without CNS diseases (2/14). However, the most elevated CSF concentrations of TNF (>100 pg/ml) were found in 7 out of 8 patients with cryptococcal meningitis. A follow-up study in these patients showed a progressive decrease of TNF levels, which are closely related to the improvement of neurological manifestations and to the decline of cryptococcal antigen titers.
Conclusions. Although a role for TNF in demyelinating lesions associated to ADC has been postulated, our results indicate that a marked elevation of TNF in the CSF from HIV+ patients may occur only in acute inflammatory disorders, such as cryptococcal meningitis.

F.B.395 DETECTION OF HIV-PROTEINS SPECIFICITY OF IgG INTRATHECAL SYNTHESIS IN HIV INFECTION.

Carbonara, Sergio; Angarano, G.; Quarto, H.*; Fiore, JR; Monno, L.; Barbuti, S.*; Pastore, G.
Institute of Infectious Diseases and *of Hygiene,University of Bari,Bari,Italy

OBJECTIVES.To understand HIV-antigens specificity of the IgG intrathecal synthesis (IS) wich often occurs in HIV infection.METHODS.57 samples of serum and spinal fluid (CSF) were collected from 25 HIV infected patients,grouped at presentation according to CDC criteria: group II=10; IV-A=3; IV-C2=7; IV-B-C1=9. 1-4 paired samples were drawn from 18 subjects followed-up over 3-24 months.Both CSF and serum of each sample were diluted up to an identical IgG concentration and analyzed by a commercial Western-Blot (WB).An IS to a given HIV Ag was recognized when the corresponding band was present in CSF but absent or significantly less represented in serum.Albumin,total IgG and HIV p24 Ag concentrations as well as anti-HIV IgG titres and comprehensive anti-HIV IgG IS (mathematic formulae) were also assessed.RESULTS and CONCLUSIONS.Our easily performable comparative WB analysis of CSF and serum,as compared to mathematic formulae,showed higher sensitivity in detecting comprehensive anti-HIV IgG IS and,most importantly,allowed detection and monitoring of the HIV antigens specificity of IgG IS over different stages of infection.Our results indicated two different models of immune response to HIV into the central nervous system (CNS),likely because of different time of CNS invasion by HIV:part of the patients develops an IS to HIV early after the infection,initially directed to the envelope and,subsequently,to the main gag and pol antigens. This IS pattern,thus developed over the asymptomatic phase, tends to remain constant as the disease progresses.In other subjects,IS begins in later stages of infection.IS concerned mainly gp41 and p24 and groups IV-B-C1/2.An inverse relationship between CSF p24Ag and anti-p24 IS was found,suggesting,for the CNS,a prognostic value as the corresponding relationship in serum has.

F.B.396 VIROLOGICAL AND IMMUNOLOGICAL PARAMETERS IN CSF FROM HIV INFECTED SUBJECTS WITH OR WITHOUT CNS INVOLVEMENT

Castagna, Antonella*; Cavalli, G.**; Grimaldi, L.M.E.***; Amprimo, M.C.**; Martino, G.***; Bini, T.*; Lazzarin, A.*
*Infectious Diseases Clinic, ***IV Neurologic Department, University of Milan, Milan, **Laboratory Department, G. Bosco Hospital, Turin, Italy.

Objective: to evaluate the significance of the immunological and virological markers in cerebrospinal fluid (CSF) during Central Nervous System (CNS) involvement in HIV infection. **Methods:** We studied 62 HIV infected subjects (11 CDC group II/III, 13 group IV B, 38 group IV C1). 25/38 of the patients from IV C group had CNS opportunistic diseases (group IV C1b), whereas 13 not (group IV C1a). Levels of soluble interleukin 2 receptor(sIL-2r), β2-microglobulin(β2-M), neopterin, α-tumor necrosis factor (α-TNF) and HIV p24 antigen (HIV Ag) were determined in paired CSF and sera. **Results:** CSF sIL-2r levels were normal in all the groups. Mean CSF β2-M and neopterin levels were increased than paired serum in patients from group IV C1b and group IV B; in the same groups a mild increase of CSF α-TNF levels was also observed. CSF HIV Ag was detected in 67% of patients from group IV B and in 25% of cases from group IV C1b ($p < 0.05$). **Conclusions:** Both CNS opportunistic diseases and HIV-related CNS pathologies are associated with an increase of CSF β2-M, neopterin and α-TNF levels; CSF HIV Ag seems the most useful marker in differentiating CNS HIV-related involvement from CNS opportunistic diseases. The possible role of these immune mediators in enhancing HIV replication within CNS is still to evaluate.

F.B.397 PROGRESSIVE SLOWING OF REACTION TIME AND INCREASING LEVELS OF CEREBROSPINAL FLUID QUINOLINIC ACID IN HIV+ SUBJECTS

Martin, Alex*; Heyes, M.P.*; Salazar, A.M.***; Williams, J.***; Law, W.****; Roller, T.****; Kampen, D.***; Coats, M.**; Markey, S.P.*
*National Institute of Mental Health, Bethesda, Md. **Walter Reed AMC, Washington, DC. ***USUHS, Bethesda, Md. ****H. M. Jackson Foundation, Rockville, Md., USA.

Objective. To investigate changes during a 6 month interval in reaction time (RT) and in cerebrospinal fluid concentrations of an endogenous neurotoxin, quinolinic acid (CSF QUIN) in HIV+ individuals. Methods. 52 HIV+ subjects were compared to 15 matched seronegative psychiatric patients with adjustment disorders and 18 seronegative normal individuals on tests of simple and choice visual RT. 41 HIV+ and 10 of the normal controls were retested after a six month interval. HIV+ patients were classified in Walter Reed (WR) stages 1-5; 85% were in WR stages 1-3, 54% had lymphadenopathy syndrome, and 71% were without other constitutional symptoms. CSF QUIN was measured by gas chronometry/mass spectrometry in 36 HIV+ subjects at baseline and in 17 at 6 month follow up. Results. The HIV+ group was significantly slower than both control groups on the RT tasks at initial testing ($p < .001$). The control groups did not differ from each other on either measure. In addition, significant slowing during the 6 month test-retest interval was found on both tasks for the HIV+ patients ($p<.05$) but not the controls. CSF QUIN levels were elevated in the HIV+ patients at initial evaluation ($p<.01$) and increased during the 6 month interval ($p<.05$). Moreover, there was a significant correlation between change over time in RT and CSF QUIN ($r= .85$, $p<.01$). Conclusions. Some HIV+ patients without constitutional symptoms exhibit progressive slowing of response times that may be related to abnormally high concentrations of an endogenous neurotoxin, quinolinic acid.

F.B.398 NEUROPHYSIOLOGICAL DATA IN HIV+ INFECTION

Grippo, Antonello*; Ghidini, P.*; Di Pietro, M.**; Mazzotta, F.**; Bartolozzi, D.; Pinto, F.*
*University of Florence and **Careggi Policlinic, Florence, Italy

Objective: We tested: a)the utility of Electrophysiological techniques in recognizing subclinical neurological involvement through the course of HIV infection b)the value of neurophysiological changes as indicator of clinical evolution in HIV infection Methods: in 91 HIV+ patients, classified according to the Center for Disease Control (1987), without clinical evidence of Nervous System (NS) involvement, we performed Electroneuronographic study and recorded spinal (L2,CV7) and cortical (P1, N20) Somatosensory Evoked Potentials from stimulation of posterior Tibial and Median Nerve. Results: A reduction of Motor Conduction Velocity of Deep Peroneal Nerve was found; such a reduction was statistically significant in group III ($p,0.05$), in groups IVC2 & IVA ($p,0.05$) and in group IVC1 (p 0.01). The absolute latency of P1 and the interpeak latency L2-P1 were significantly prolonged (2.5 DS) in 30% of the IVC2 & IVA and 40% of the IVC1 group. Conclusion: We than concluded that neurophysiological techniques succeed in documenting subclinical involvement of NS. Peripheral Nervous System involvement is widespread in HIV+ subjects while the alteration in conduction in lower medullary tract appears only in a part of group IV patients.

F.B.399 PROGRESSIVE ELECTROPHYSIOLOGIC ABNORMALITIES IN ASYMPTOMATIC HIV-INFECTED HOMOSEXUALS : A PROSPECTIVE CONTROLLED STUDY

Koralnik Igor, Beaumanoir A., Häusler R., Kohler A., Mayer E., Safran A.B., Hirschel B. et al. Geneva University Hospital, Geneva, Switzerland.

Objective : To study the earliest neurologic manifestations in HIV1-infected individuals (CDC group II and III).
Methods : Twenty-nine HIV seropositive asymptomatic homosexuals (Ps) and 33 seronegative homosexual controls (Cs) participated in this study. It included neurologic and neuropsychologic examinations, MRI, EEG and EEG mapping, multimodal evoked potentials (EPs) and otoneurologic tests. Tests were repeated after a period of 6 to 9 months. Investigators were blinded to the serologic results.
Results : All Ps remained asymptomatic during the course of the study, with a mean CD4 lymphocytes count of 600/mm³, and none of the Cs seroconverted. Neurologic and neuropsychologic examinations, MRI and Pattern Visual EPs did not show significant differences between the two groups. Ps had prolonged mean median nerve somatosensory EPs at both examinations, indicating a central defect. EEG was considered abnormal at first in 30% and the second time in 40% of the Ps (compared to none of the Cs) with slowing of fundamental activity, poor spatialisation, subnormal reactivity and unusual anterior theta activities. These findings were confirmed by EEG mapping. The otoneurologic evaluation showed abnormalities of the central auditory or vestibulo-ocular pathways of 34% of Ps and 6% of Cs at the first and 44%/7% respectively at the second exam. Altogether, electrophysiologic abnormalities were found in 67% of Ps and 10% of Cs ($p < 0.00003$).
Conclusion : Electrophysiologic tests may be the most sensitive indicators of subclinical impairment of cerebral function in asymptomatic Ps. Abnormalities show a tendency towards progression after a 6 to 9 months' follow up.

F.B.400

USING COMPUTED TOMOGRAPHY AND MAGNETIC RESONANCE IMAGING TO DISTINGUISH INTRACRANIAL LESIONS AND THE NEED FOR BIOPSY IN PATIENTS WITH AIDS

Ciricillo, Samuel F.; Rosenblum, M.L.
University of California, San Francisco, California, USA

Objective: To determine the utility of radiographic imaging studies to define the need for biopsy of focal intracranial lesions in AIDS patients.
Methods: We reviewed the CT and MRI scans of 149 AIDS patients with toxoplasmosis (74 cases), primary central nervous system (CNS) lymphoma (45 cases) and progressive multifocal leukoencephalopathy (PML, 30 cases) who presented with signs and symptoms of focal CNS lesions between 1983 and 1989. One hundred thirty-seven (137) CT scans and 54 MRI scans were available for review.
Results: Toxoplasma abscesses and lymphoma had similar appearances as focal mass lesions on both CT and MRI scanning, while PML appeared as diffuse lesions without edema, enhancement or mass effect. The appearance of AIDS-related lymphoma on CT and MRI is different than that reported in non-AIDS associated CNS lymphoma. Lesions are frequently ring or target-like on MRI, in contrast to the diffuse, homogeneous high-signal lesions previously described. Finding a single mass lesion on CT or multiple lesions on CT or MRI did not assist in the differential diagnosis beyond the known frequencies for the disease processes. However, a solitary lesion on MRI was lymphoma in 72% (13/18), toxoplasmosis in 17% (3/18), and PML in 11% (2/18) of cases.
Conclusion: Empirical treatment for toxoplasmosis is unlikely to be successful when MRI demonstrates a single focal process. Early biopsy may be indicated in such cases so that radiation therapy may be started without delay, especially when the patient does not have debilitating systemic manifestations of AIDS.

F.B.401

HIV ENCEPHALOPATHY: CLINICAL STAGING, MRI AND SPECT FINDINGS.

Galgani Simonetta*, Balestra P.*, Narciso P.+, Pau F.°, Tozzi V.+, Volpini V.*, Visco G.+.
USL RM/10: *S. Camillo Hosp., +L. Spallanzani Hosp., °C. Forlanini Hosp., Rome, Italy.

OBJECTIVE. To evaluate the prevalence of MRI and SPECT abnormalities in different stages of HIV encephalopathy.
METHODS. A total of 49 pts were studies with neurological examination and neuropsychological evaluation. Moreover 31 of them had MRI plus SPECT, while 12 had MRI and 6 SPECT exams only. Clinical staging of HIV encephalopathy was made according to Price (0-4). MRI findings included cerebral atrophy (mild-moderate-severe) and white matter lesions ("punctate"-"patchy"-"diffuse"). SPECT abnormalities were distinguished in focal, multiple and diffuse uptake defects
RESULTS. MRI showed atrophy in all pts but one, more severe at stage 3-4. "Punctate" white matter lesions were observed in 9/20 pts (45%) at stages 0-1, "patchy" and "diffuse" ones in 9/11 (80%) and 5/5 (100%) at stages 3 and 4 respectively. All kind of lesions were observed at stage 2. SPECT was abnormal in 35/37 pts (94%) showing focal uptake defect in 6 cases (exclusively at stage 0), multiple or diffuse ones in 29 cases (7/15 at stage 0; 6/6 at stage 1; 6/6 at stage 2; 8/8 at stage 3; 2/2 at stage 4).
CONCLUSIONS. MRI showed "diffuse" or "patchy" white matter lesions exclusively in pts at stages 2, 3, 4 of HIV encephalopathy. Such abnormalities were associated with clinical signs suggestive of dementia. On the other hand "punctate" lesions may represent aspecific findings. SPECT was a very sensitive tecnique, showing uptake defects in a high percentage of HIV asympomatic pts. A study to determine the prevalence of SPECT abnormalities in HIV negative pts, expecially drug addicts, is underway.

F.B.402

ALTERATIONS IN BRAIN PHOSPHATE METABOLITE CONCENTRATIONS IN PATIENTS WITH HIV INFECTION AS MEASURED BY MAGNETIC RESONANCE SPECTROSCOPY

Deicken, Raymond F.; Hubesch, B.; Jensen, P.; Sappey-Marinier, D.; Fein, G.; Weiner, M.W.; et al.
San Francisco Veterans Administration Medical Center and the University of California, San Francisco, San Francisco, California, U.S.A.

Objective: HIV infected individuals often demonstrate neuropsychiatric impairment; however, it is unclear how brain metabolism may be altered in such patients. We utilized in-vivo ^{31}Phosphorous Magnetic Resonance Spectroscopy to assess brain energy and phospholipid metabolism by measuring brain concentrations of adenosine triphosphate (ATP), phosphocreatine (PCr), inorganic phosphate (Pi), as well as phospholipid compounds and intracellular pH. Methods: In Study 1, 17 HIV seropositive men with varying degrees of neuropsychiatric impairment and 6 control subjects were studied. Localized spectra were obtained from a heterogeneous 5x5x5 cm volume of interest (VOI). In Study 2, 3 HIV seropositive men with neuropsychiatric impairment were compared to 11 HIV seronegative men. Localized spectra were obtained from 1) a predominantly white matter VOI, and 2) a predominantly subcortical gray matter VOI. Results: In Study 1, patients with HIV infection had significantly lower ATP/Pi ($p=.03$) and a trend for lower PCr/Pi ($p=.10$) than the control group. In addition, ATP/Pi and PCr/Pi were both significantly correlated ($r=-0.57$ and $r=-0.47$, respectively) with overall severity of neuropsychiatric impairment. In Study 2, the 3 HIV infected patients demonstrated significantly decreased ATP and PCr ($p=.03$ and $p=.04$, respectively) in the white matter VOI. Conclusions: These results suggest that HIV infection may impair brain cellular oxidative metabolism and that the degree of neuropsychiatric impairment may affect such metabolism.

F.B.403

ABNORMAL BRAINSTEM AUDITORY EVOKED POTENTIALS (BAEPs) IN HIV - INFECTED INDIVIDUALS.

Cahn,P.*;Pagano,Miguel*;Perez H.*;Garau,L.*
Casiro,A.*; Mangone,C.*; et.al. *Htal Fernandez, Bs. Aires, Argentina.

OBJECTIVE: To compare BAEPs from HIV + individuals (Group A), with two control groups: HIV - healthy subjects (Group B), and HIV - intravenous drug abusers (IVDA), (Group C).
METHODS: Thirty five Group A (25 CDC Group III and 10 CDC Group IV); 62 Group B and 24 Group C individuals were studied by means of BAEPs, using an AKONIC 2001 AVERAGING SYSTEM, by conventional methodology. Central conduction times (CCTs) I-V; I-III; and III-V were measured, data of both ears were pooled. No patient (pts) had clinical evidence of neurological involvement. History of alcohol consumption was an exclussion criteria, as other diseases that might involve Central Nervous System. The non-paired t-test was employed to compare the means between groups. Percentage of pts with abnormal BAEPs were calculated from values beyond the mean plus 2 Standard deviations (SD)
RESULTS: I-V and III-V CCTs were significantly higher in HIV + patients than in both control groups (B and C), $p < 0.01$. Comparison of I-III CCTs in the same groups showed no difference ($p > 0.05$). Comparing IVDA HIV + pts ($n = 22$) with IVDA HIV - pts also showed the same differences. CCTs with 2 Standard deviations out of the mean were as follows: CDC Group III: I-V = 16 %; III-V = 12 %; I-III = 0 %. CDC Group IV: I-V = 40 %; III-V = 50 %; I-III = 20 %.
CONCLUSION: Subclinical involvement of upper Brainstem was founded in HIV + pts, and not in healthy and IVDA HIV - controls. Direct action of HIV on Central Nervous System is a possible explanation for this findings, and deserves further investigation.

F.B.404 NATURAL HISTORY OF BRAIN INVOLVEMENT BY HIV AS PROSPECTIVELY STUDIED WITH MRI IN A COHORT OF 50 PATIENTS: RESULTS AFTER A FOLLOW-UP OF 3 YEARS

Trotot Pierre M.*, Sandoz-Tronca, C.*, Prady C.*, Pialoux G.*, Kirstetter M., Yamashita H.**.
*Institut Pasteur-Hopital, Paris, France;
** Escola Paulista de Medicina. Sao Paulo. Brazil.

METHODS Since October 1986 a cohort of 50 initially asymptomatic HIV seropositives patients has been constituted, matched with a control group of the same range of age. Follow-up comprised with clinical, biological and brain MRI examinations every 6 months.
RESULTS Initial MRI exams showed in 18 patients (32%) high signal intensity areas (HSIA) of small size, in the subcortical white matter, analoguous to the plaques of multiple sclerosis.
EVOLUTION During this 3 years follow-up we observed in 1 patient, one HSIA wich had increased in size and after treatment with AZT decreased. In the all other HSIA initially carrier the small plaques remain stable. One patient presented toxoplasmosis brain abcesses: the 2 HSIAS he showed didnt move during this time.
CONCLUSION First exam demonstrated early brain involvement by HIV. At this moment the 2 hypothesis were: initial lesion that will further lead to developpement of AIDS dementia complex or scars of the primary infection by the HIV. The unchangeable aspects of the lesions with the inte. currences or complications may represent its scar nature. But the case with transient increasing still remains unexplained.

F.B.405 DIAGNOSTIC AND PROGNOSTIC VALUE OF MAGNETIC STIMULATION IN HIV INFECTED PATIENTS.

Moglia, Arrigo *; Zandrini C.*; Bono G.**; Alfonsi E.*; Parisi A.***; Malfitano A.***.
* Dept. of Neurophysiology and ** 3rd Dept. of Neurology, IRCCS C. Mondino; *** Dept. of Infectious Disease, IRCCS Policlinico S. Matteo, University of Pavia, Italy.

Objective: To detect early involvement of the central motor pathways and to evaluate significance and prognostic value of subclinical alterations eventually recorded among neurologically asymptomatic HIV+ individuals.
Method. 180 HIV-infected patients (120/60 M/F), aged 16-52 yrs were studied (asymptomatic=128; ARC= 17; AIDS= 35).
Percutaneous magnetic stimulation of the brain and spinal cord was performed in all the patients with measurements of the central motor conduction time (CMCT). N. 58 neurologically asymptomatic patients (CDC group II, n. 39; CDC group III, n. 19) were clinically followed for a mean time of 18 months.
Results: The percentage of abnormalities observed in our patients ranged from 46% (asymptomatics) to 85% (AIDS). Considering the progression rates to successive stages of disease in the 58 neurologically asymptomatics patients, one cans see that the patients with delayed CMCT at the first observation tend to progress to successive stages of disease in higher percentages (about 64%) vs those patients with normal CMCT values.
Conclusions: CMCT are a non-invasive correlate of CNS damage in HIV patients, as it is for demyelinating disease (Hess et al.,1987). In the early stages of the infection it seems to have a negative prognostic value.

F.B.406 HMPAO-SPECT IN EARLY STAGES OF HIV INFECTION

Schielke Eva+, Tatsch K++, Einhäupl KM+, Kirsch CM++, Trenkwalder C+, Pfister HW+
Departments of Neurology (+) and Radiology (++), University of Munich, Munich, West Germany

Objective: HMPAO-SPECT results are always pathological in patients with AIDS dementia complex. As early stages of HIV infection have not been investigated yet, we compared SPECT results of early stage patients with CT, MRI and neurological findings.
Methods: HMPAO-SPECT was performed in 43 HIV infected patients. All of them were examined by a neurologist. CT scan was performed in all patients, MRI was performed in 18 patients.
Results: 34 of 43 patients showed focal (13) or patchy (21) decreased uptake in HMPAO-SPECT. All 8 patients with AIDS dementia complex had pathological SPECT results, their CT/MRI scans were negative (3) or showed atrophy (5) only. Only 9 of 35 patients without ADC showed normal SPECT findings and CT/MRI scans. 26 of 35 patients in earlier stages of HIV infection presented pathological SPECT results, CT and MRI scans, however, were pathological in only 4 of 35 patients.
Conclusion: Alterations in cerebral blood flow detectable by SPECT are already found in early stages of HIV infection. Negative CT/MRI scans suggest that changes in brain perfusion have not caused structural damage so far. SPECT findings may reflect the functional effect of microvascular changes, presenting one factor in the pathogenesis of ADC. HMPAO-SPECT, therefore, not only serves as a valuable method to evaluate patients with ADC but also those at risk for it.

F.B.407 A LONGITUDINAL STUDY OF MAGNETIC RESONANCE IMAGING (MRI) FINDINGS IN HIV-1 INFECTED HOMOSEXUAL MEN: THE MULTICENTER AIDS COHORT STUDY (MACS)

McArthur, Julie H, Aylward E, McArthur JC, Kumar AJ, Selnes OA, Margolick J, Saah A. The Johns Hopkins Medical Institutions, Baltimore, MD, USA

Objective: To determine whether structural brain changes as identified by serial MRI scans correlate with duration of infection and degree of immunosuppression.
Methods: Serial MRI scans were performed on 44 HIV-1 seropositive (SP) and 11 HIV-1 seronegative (SN) homosexual men with a mean interval between first and last scan of 572 days. Individuals with CNS opportunistic infections were excluded. Central and cortical atrophy and white matter (WM) intensity were assessed by an observer blinded to clinical status. Changes in these variables were calculated by comparison of the ratings of first and last scan.
Results: No differences in changes in WM intensity or central atrophy were observed comparing SP and SN subjects. Four of 25 SP's with "long duration" of HIV seropositivity (HIV-1 SP in 1984) compared to 0/18 with "short" duration (mean duration of seropositivity = 13 mos.) developed cortical atrophy ($p = 0.08$). Three of 10 SP's with CD4 counts at the time of their last scan <200 developed cortical atrophy compared to 1/34 with CD4 counts >200 ($p = 0.0089$, Chi square). All 3 with progressive atrophy and CD4 <200 developed HIV-1 related dementia between first and last scans.
Conclusions: The development of cortical atrophy paralleled incident dementia in SP's with CD4 counts <200. No other structural changes were evident. Further studies will address whether MRI patterns in neurologically normal subjects are predictive of subsequent neurological disease.

F.B.408 THE EFFICACY OF IMAGE GUIDED STEREOTAXIC BRAIN BIOPSY IN NEUROLOGICALLY SYMPTOMATIC AIDS PATIENTS

Levy, Robert; Russell, E.; Brody, B.; Yungbluth, M.; DalCanto, M.
Northwestern University Medical School, Chicago, Illinois, USA.

Objective: While image guided stereotaxic brain biopsy is clearly efficacious for the diagnosis of other central nervous system (CNS) diseases, it has been reported to be nondiagnostic in up to 50% of patients with AIDS. To evaluate the efficacy of stereotaxic biopsy in AIDS, we prospectively evaluated all HIV infected patients undergoing stereotaxic biopsy at our institution.
Methods: Brain lesion(s) were identified on gadolinium enhanced magnetic resonance imaging (MRI) or double dose contrast computed tomography (CT) scans and brain biopsy was performed using the BRW or Leksell systems. Six tissue samples were obtained with 1 each sent for microbiological, cytopathological and frozen section histopathological evaluation (with subsequent immunologic staining and electron microscopic evaluation) and 3 sent for permanent histopathological evaluation.
Results: The brain tissue from 30 consecutive AIDS patients undergoing stereotaxic biopsy was obtained and evaluated. Diagnoses included progressive multifocal leukoencephalopathy (9), lymphoma (7), toxoplasmosis (6), HIV encephalitis (3), and 1 case each of treated toxoplasmosis, metastatic adenocarcinoma and malignant melanoma. Two biopsies were non-diagnostic (gliosis and pontine vacuolar degeneration) due to technical errors. The ability for stereotaxic biopsy to establish a diagnosis in this setting was thus 93%, agreeing well with the efficacy established for other CNS diseases. Both the rates for mortality and major morbidity were 0%; minor morbidity occurred in 2 cases (7%).
Conclusion: Image guided stereotaxic brain biopsy appears to be both safe and effective in this patient population.

F.B.409 LOWER LIMB SOMATOSENSORY EVOKED POTENTIALS IN HIV INFECTION: FOLLOW - UP.

McAllister RH, Connolly Sean, Griffin GB, Quirk J, Newman SP, Manji H, Fowler CJ, Weller IVD, Harrison MJG.
UNIVERSITY COLLEGE & MIDDLESEX SCHOOL OF MEDICINE, LONDON UK.

Objective: To evaluate repeated lower limb somatosensory evoked potentials (SEPs) as markers of progressive subclinical neurological disease in HIV infection.
Methods: 90 gay men participating in the Medical Research Council Cohort study of HIV infection had repeat neurological and neurophysiological assessments at a median interval of 10 months (range 6 -17 months) from the baseline assessment. There were 45 HIV seropositive men (SP), 19 with ARC or AIDS (CDC Group IV) of whom 10 had progressed since first assessment, and 26 seronegatives (SN). The groups did not differ significantly in age or height (paired t-tests). Lower limb SEPs to posterior tibial nerve stimulation were recorded as before (ref). Latencies were compared using repeated measures analysis of variance.
Results: The lower limb SEP latencies of the 3 groups did not differ significantly at reassessment. There was no evidence of progressive increase in latencies in the SP or ARC/AIDS group compared with the SN comparison group.
Conclusion: We previously reported that SP men appeared to have longer lower limb SEP latencies than SN men at baseline (ref). Repeat recordings on a subgroup of 90 from the original cohort of 127 men do not confirm a difference, nor do they suggest a trend towards deterioration of the evoked potential results in SPs, ARC/AIDS, or progressors.
Reference: McAllister RH Harrison MJG, Griffin GB, Fowler CJ, Newman SP, Herns MV, Weller IVD. Abstract Th.B.P. 287, Fifth International Conference on HIV Infection, Montreal, Canada 1989.

F.B.410 EEG-TOPOGRAPHY BY EEG-MAPPING: HINTS FOR AN EARLY CEREBRAL MANIFESTATION?

Riedel R.R.(1), Bülau P. (2)
1) University Clinic Munich L.d.I. Dpt. of Psychiatry, FRG
2) University Clinic Bonn, Dpt. of Epileptology, FRG

Objective: At the moment HIV-central nervous system manifestationsare of special interest owing to its unespected development With EEG-topogram one can expect to gain more information about possible changes in frequency according to topographical locations. Methods: We recorded 109 HIV-positive hemophiliacs (38 WR 2, 41 WR 3-5, 30 WR 6) plus 50 HIV-negative controls with a 12 channel EEG-topogram evaluation, also examinig neuropsychologically (d-2, Benton, AVLT, C.I., v. Zerssen). During the critical examination we looked for the results of two parameters: a) Alpha 1-3/Alpha 4 and b) Alpha 1-4/Theta and neuropsychological deficits. Results: We registrated a decrease in Alpha-frequencies during the progress of HIV-infection: Controls 10.5 Hz, WR 2 9.8 Hz, WR 3-5 9.0 Hz, WR 6 8.4 Hz. In comparison to the controls we found a significance (p 0.05) for WR 2-6 in Alpha 1-3 / Alpha 4 index and the Alpha 1-4 Theta index. Neuropsychological deficits were significant (p 0.05) in WR 2 for visual perceptual speed and in WR 3-5 for verbal memory; only in AIDS-patients we diagnosed a demential syndrome.
Conclusion: Considering the known neuropsychological data these EEG-topogram results hint to an early cerebral manifestation during the HIV-infection.

F.B.411 BEHAVIORAL CORRELATES OF MAGNETIC RESONANCE IMAGING IN HIV

Dooneief, George; Bello, J; Mun, I; Gorman, J; Todak, G; Marder, K; Bell, K; Stern, Y; and Mayeux, R.
HIV Center for Clinical and Behavioral Studies; New York State Psychiatric Institute and Columbia University, New York, New York, USA.

Objective: Determine the timing and behavioral correlates of brain atrophy and white matter lesions seen on MRI scans of subjects with HIV infection.
Methods: MRI scans were performed on a random sample of subjects in a study of the natural history and evolution of neurological and neuropsychological manifestations of HIV infection in gay men (GM) and parenteral drug users (PDU). Scans were obtained on 81 subjects: 18 PDU/HIV+, 10 PDU/HIV-, 39 GM/HIV+, and 14 GM/HIV-. Pearson correlations of neurological and neuropsychological findings with MRI variables were performed. The % brain water in a random subgroup of 25 subjects was also calculated.
Results: There were no significant differences between HIV+ and HIV- subjects with respect to the presence of generalized atrophy, focal atrophy, white matter lesions, and % brain water. In fact, though 88% of HIV- subjects demonstrated focal atrophy, only 68% of HIV+ subjects demonstrated focal atrophy. Two cases of PML were identified in PDU/HIV+ subjects. One case of CNS lymphoma was seen in a GM/HIV+ subject. Atrophy correlated with global neuropsychological performance in the group as a whole (p=0.02) and the PDU/HIV+ subgroup (p=0.04). Atrophy also correlated with a global measure of neurologic disability in the PDU group (p=0.01).
Conclusions: Aside from those cases where opportunistic infection or neoplasm was noted, MRI did not distinguish HIV+ from HIV- subjects, except in the PDU group (where atrophy was associated with HIV positivity). This may indicate that the PDU group is particularly susceptible to neurological involvement by HIV.

F.B.412 POSTURAL IMBALANCE AS AN EARLY SIGN OF HIV INFECTION

Straube A, Trenkwalder Claudia, Einhäupl K, Bötzel K, Krafczyk S, Paulus W, Pfister W, Schielke E
Department of Neurology, University of Munich, Munich, West Germany

Objective: Signs of ataxia are well known in advanced stages of HIV infection. The aim of this study was to investigate time of onset and the frequency of occurance of gait and stance disturbances in early stages.
Methods: We measured the postural sway of the center of gravity of 22 HIV positive patients with different stages according to the Walter Reed classification (WR) with eyes open and closed, with firm support and standing on a foam rubber. We recorded 25 s periods with a piezoelectric platform (Kistler). Normal limits were defined as mean +/- 2.5 sd of an age matched control group of 23 probands.
Results: Sway path was pathological in 2 patients with eyes open on firm support, in 5 patients with eyes closed on firm support, in 6 patients with eyes open on foam rubber and in 13 patients with eyes closed on foam rubber, 11 of the 13 patients needed active support to prevent falling. All 13 had slight pathological gait disturbances, 4 of 13 also had other neurological signs. Pathological results were found in WR I as well as in WR VI, patients with WR V and VI showed a reduced visual stabilization.
Conclusion: The data suggest that the early involvement of CNS detected by sway path increase is not reflected by the WR classification.

Neurology: Treatment and Miscellaneous Issues

F.B.414 CORRELATION BETWEEN CSF ZIDOVUDINE (ZDV) CONCENTRATION (CONC.) AND NEUROLOGIC AND CSF FINDINGS IN AIDS PATIENTS RECEIVING ORAL ZIDOVUDINE THERAPY (RX)

Tartaglione,Teresa;Collier,A.C.;Coombs,R.W.;Opheim,K.E.;Cummings,D.K.;Mackay,R.; Benedetti,J.,Corey,L. University of Washington,Seattle,Washington,USA

Objective: To correlate the CSF findings, HIV cultures and pre- and post-therapy neurologic outcome with the conc. of ZDV in CSF in AIDS pts.

Methods: HIV CSF cultures (CX) and N measurements were evaluated in 30 and 45 AIDS pts. s/p PCP, respectively. 29 pts. were evaluable for ZDV CSF conc. Patients underwent LP and N testing and ZDV measurement before and after $\geq$8 wks of PO ZDV RX. ZDV was given at doses between 600 to 1500 mg/day.

Results: Prior to ZDV RX, 29(64%) and 21(47%) pts. had $\geq$1 N symptom or sign respectively. and 18 of 43(42%) pts. had HIV isolated from CSF. At 8 weeks, 11 of 30(37%) pts. had a positive CSF HIV CX including 6 of 12 pts. from whom HIV was originally isolated (NS). The median CSF ZDV conc. was 0.047 mcg/mL (range 0.0165 to 0.198 mcg/mL). Higher ZDV CSF conc. were observed in pts. receiving $\geq$15 mg/kg/dy. All pts. had a CSF ZDV conc. >ID_{50} although only 3 (10.3%) had CSF ZDV levels > the ID_{90} of HIV-1. No correlation between CSF ZDV conc. and isolation of HIV from CSF was noted. ZDV RX was associated with a significant reduction in the number of objective N findings. No relationship between CSF ZDV conc. or cumulative peak dose of ZDV was observed.

Conclusion: CSF conc. were highly variable and were often < the ID_{90} for HIV-1. Within the doses of ZDV studied, recovery of HIV from CSF was unrelated to CSF ZDV conc., although the signs and symptoms of CNS HIV infection appeared to be reduced.

F.B.413 MEDICATION EFFECTS ON AFFECT AND COGNITION IN HIV DISEASE

Ollo, Christina*, Bridge TP*, Kenagy G*, Govoni L*, Lane HC*
*LCS NIMH, Bldg 10 Rm 4C-418, *CC NIMH, *LIR NIAID, 9000 Rockville Pike, Bethesda, MD, USA 20892.

Objectives Estimates of cognitive abnormality range from 9-44% in HIV-positive asymptomatic patients and from 27-87% in patients with ARC or AIDS. Differences across studies may be due to the criteria or tests used to establish abnormality, or medication status which is not always specified. This study examines cognition and affect in HIV+ asymptomatic patients who were not receiving antiviral medication and AIDS patients who were medicated.

Methods Twelve HIV-positive asymptomatic males (+AS) and 15 males with AIDS were compared to 18 HIV-negative gay control subjects on a broad range of neuropsychological tests including intelligence, visual and verbal memory, attention/concentration, language and motor speed and dexterity, and behavioral ratings of mood state including depression and anxiety. Subjects did not differ in age or education. Patients did not differ in months since diagnosis of illness. None of the subjects were IVDA. None of the +AS patients were receiving antiviral medication, whereas all of the AIDS patients were taking medications (6 AZT; 6 AZT+alpha interferon; 1 alpha interferon alone; 2 other). Data were analyzed using BMD-P7D.

Results The results show that significant group differences occurred for all affective measures including Beck depression ($F(2,18)=4.84$, $p<.02$) and STAI anxiety state ($F(2,39)=5.53$, $p<.01$). In each case, the +AS patients did not differ from the control subjects but the AIDS patients did ($p<.01$). Marginal group differences emerged for a few cognitive measures such as performance for the non-dominant hand in finger tapping ($F(2,41)=4.10$, $p<.03$), and grip strength ($F(2,42)=6.54$, $p<.01$) and oral digit-symbol decoding ($F(2,40)=4.54$, $p<.02$). Again, controls and AIDS patients differed, but controls and +AS did not.

Discussion These data indicate that unmedicated +AS patients do not differ from controls in mood state or performance on cognitive tests. Although AIDS patients taking antiviral medication may have preserved cognitive abilities, affective distress does not seem to be alleviated by antiviral medication. This aspect of HIV disease should not be overlooked by health professionals.

F.B.415 EFFECTS OF PEPTIDE T ON COMPUTERIZED ELECTROENCEPHALOGRAM (CEEG) AND BRAIN MAPPING (BM) IN PATIENTS WITH AIDS

Roffman, Mark*; Mayer, K**; Bridge, P***; Moon, M**; Itil, T****
*International Drug Development Corp, Parsippany, NJ; **Fenway Community Health Center, Boston, MA; ***National Institute of Mental Health, Bethesda, MD; ****HZI Research Center, Tarrytown, NY

Objective: The aim of the study was to establish: 1) whether patients with AIDS have deviations from normal in electroencephalogram (EEG), CEEG, and BM; 2) whether peptide T by intranasal chronic administration can reverse such abnormal findings.
Methods: Twenty-one HIV-positive patients were treated with intranasal peptide T in 3 parallel groups with daily doses of 1.2, 6.0 or 30 mg given in 3 divided doses for 12 weeks.
Results: Conventional EEG testing indicated that 9 patients demonstrated normal EEGs, but 12 had slight to moderate abnormal EEGs. CEEGs suggested a pattern of significant slowing and epileptic-like potentials. Similarly, BM indicated more slowing in AIDS patients, predominantly in the anterior and temporal brain areas, compared to historical controls. After peptide T, most of the patients demonstrated a slight to moderate increase of alpha activity. In patients with slow EEGs, alpha replaced the theta and delta activity after peptide T treatment. In some patients peptide T decreased spikes and sharp waves.
Conclusion: HIV-positive patients show more frequent abnormal EEGs than historical aged-matched controls. Peptide T produced significant effects on brain function causing an increase of alpha and a decrease of slow waves. Such changes may be indicative of a reversal of dementia or reductions in cognition caused by HIV.

F.B.416 EFFECT OF ZIDOVUDINE (AZT) ON HISTOLOGICAL MARKERS OF HIV INFECTION IN THE CENTRAL NERVOUS SYSTEM (CNS) OF AIDS PATIENTS.

Antonacci,CM*;Berta,L*;Boldorini,R*;Castagna,A*;Cinque,P*; Costanzi,Giulio*;Cristina,S*;Lazzarin,A*;Lechi,A**;Moroni,M*;Trabattoni,R**; Vago,L*. *University of Milan, **University of Parma, Italy.

Objective. To evaluate the effect of AZT treatment on HIV related lesions in the CNS of patients died from AIDS. Methods. We examined the CNS of 40 patients treated with AZT for a median period of 205 days (7-713) with an oral dose of 600-1200 mg daily, and of 95 untreated patients, died from AIDS in the years between 1985 and 1989. As the only histological pattern unanimously attributed to a direct HIV action is the presence of multinucleated giant-cells (GC)(both in nodular encephalitis and in progressive diffuse leukoencephalopathy), we used this marker to evaluate the effectivness of antiviral treatment, by comparing the frequence of GC associated lesion (GCAL) in the CNS of the two groups. Results. The percentages of GCAL in the CNS of untreated and AZT patient were 50.5% (48/95) and 30.0% (12/40), respectively, with a slightly statistically significant difference between the two groups (p=0.045). Moreover, if we consider only the patients treated for at least one month, we saw a further significant decreasing of the frequence of GCAL in AZT group (27.2%; 9/33, p=0.03). Interestingly, 3/7 (42.8%) patients treated for more than one year had GCAL. Conclusion. The reduction of GCAL in the CNS of AIDS patients treated with AZT is consistent with a positive effect of the drug on CNS HIV-specific lesions.

F.B.417 PSYCHOLOGICAL INFLUENCES ON HERPES SIMPLEX VIRUS (HSV) TITERS IN HIV+ SUBJECTS

Kevin R Robertson, Wilkins J, Bowdre J, van der Horst C, Robertson W, Snyder C, Fryer J, Hall C. University of N. Carolina, Chapel Hill NC USA

Objective: Recent studies in psychoimmmunology have found evidence suggesting a relationship between psychological stressors and immune functioning. The present study investigated the relationship between psychological distress and HSV titers.

Methods: Fifty HIV+ subjects underwent psychological evaluation (Diagnostic Interview Schedule, Brief Symptom Inventory, Profile of Mood States) and measurement of antibody titers to HSV.

Results: Significant positive correlations were found between psychological distress and HSV titers, but not with cytomegalovirus or Epstein-Barr virus titers. Partial correlations with possible mediating variables (AZT status, absolute CD4+ cell count, smoking) did not significantly change these findings.

Conclusions: In general, the findings indicated that the more psychological distress experienced, the higher HSV antibody titers. Individuals infected with HIV frequently have HSV infections with severe consequences. It has been established that there is an in vitro synergistic effect between HSV and HIV. Psychological distress may reactivate latent HSV infections, which could potentiate concurrent HIV infection resulting in HIV disease progression. A stress mediated reactivation-potentiation hypothesis is proposed and implications are discussed.

F.B.418 HIV ENCEPHALITIS: EVOLUTION OF THE MORPHOLOGICAL CHANGES AND COBRELATION WITH CLINICAL FEATURES

Artigas, Juan*; Grosse, G.*; Niedobitek, F.*; Heise, W**; Risch, W.***
*Institute of Pathology, **Department of Medicine, ***Department of Radiology Auguste-Viktoria-Hospital, Berlin, Federal Republic of Germany.

Objective: To define the evolution of the morphological changes in HIV encephalitis and their correlation with the neurological status.
Methods: 100 brains of HIV-infected patients were extensively examined by means of conventional histology and immunohistochemistry.
Results: In 28 cases with presence of HIV antigen we found 3 types of lesions that we interpreted as sequencial bouts of the encephalitis. 1) Early changes: In 8 cases, without neurological symptoms, we found discrete perivascular infiltration of macrophages, some of them carrying HIV antigens, in the pons and in the white matter. 2) Mature HIV encephalitis: in 20 cases (14 of them with mild to severe dementia) we found infiltration of macrophages and multinucleated cells (100% positive to EBM/11, RCA-1 and KP-1; 30% positive to HLA-DR) in the subcortical structures. 5-10% of these infiltrating cells showed core (p24) and envelope (gp41) HIV-antigens. Astrocytosis was also present. 3) Severe changes: In 4 cases, clinically with severe dementia and showing brain atrophie in CT-scan, the infiltrating macrophages yielded increased amount of HIV-antigen. Further there were a extremely marked astrocytosis, large areas of microcalcification in the white matter, and diffuse leukoencephalopathy.
Conclusion: HIV encephalitis produces chronic progressive damage of the brain tissue. The intensity of the morphological changes correlates with the severity of the neurological symptoms.

F.B.419 NEUROPATHOLOGICAL FINDINGS IN 108 AIDS CASES FROM THE STATE OF RIO DE JANEIRO

Chimelli, Leila; Hahn, M.D.; Guedes Vilar, E.; Torres, W.; Carvalho, A.C.G.; Barretto Netto, M.
Fluminense Federal University, Niterói, R.J., Brazil.

The central nervous system (CNS) was studied in 108 AIDS patients (97 men, 11 women) who died in an university hospital in the State of Rio (1985-1989). We intended to compare the frequency and morphology of opportunistic infections and encephalopathies assumed to be caused by HIV with other series. Risk factors included homosexuality(42 cases), drug abuse(9, including 7 homosexuals), blood transfusion(11), placental transmission(1) and unknown(45). In 55 cases there were neurological symptoms. Many patients were first seen in terminal stage. Selected CNS paraffin sections were stained for myelin, axons, fungi, acid fast bacilli and, using immunohistochemistry, for cytomegalovirus (CMV), toxoplasma and HIV. There were lesions in 102 cases(94.5%), 10(9.2%) with multiple concomitant infections and/or tumors. They included toxoplasmosis in 35 (32.4%), cryptococcosis in 15(13.8%), HIV-associated encephalopathy (15,13.8%) including the child, CMV encephalitis in 7(6.4%), one of them with myeloradiculitis, primary lymphoma in 5(4.6%), chronic basal meningitis (CBM) possibly due to HIV in 2(1.8%), histoplasmosis (1, 0.9%), tuberculous meningitis in 1 (0.9%) and a fulminant multiple sclerosis-like leukoencephalopathy(MS-like L) as the only clinical feature in 1(0.9%). Non-specific findings included perivascular lymphocytes occasionally associated with vascular calcification (19, 17.5%), infarcts in 9(8.3%), septic emboli in 5(4.6%) and microglial nodules in the absence of CMV or other agent (5, 4.6%). In 6(5.5%) the CNS was normal. Our study confirms the high frequency of CNS lesions. The incidence of some infections, some of them absent, and the presence of rarer ones (histoplasmosis, CBM, MS-like L) differ from other series.

F.B.420 PERIPHERAL NERVE INVOLVEMENT IN PATIENTS WITH AIDS AND AIDS-RELATED COMPLEX (ARC).

Medaglini S., Nemni R., Quattrini A., Comi G., Comola M., Galardi G., Corbo M., Canal N., Lazzarin A.*.
Dept. of Neurology, University of Milan, Scient. Inst. H San Raffaele.
*Infectious Diseases, University of Milan, H Sacco, Italy.

Peripheral neuropathy (PN) has been described both in patients with the acquired immunodeficiency syndrome (AIDS) and in patients with lymphoadenopathy syndrome and positivity for antibodies to HIV (ARC), some of which developed subsequentely AIDS. In order to detect the frequency of PNS involvement in AIDS and to evaluate if the presence of PN in pts with ARC can be considered a prognostic factor for the evolution to AIDS, we investigated clinically, neurophysiologically and morphologically 22 pts with AIDS (18 males and 4 females) and 23 pts with ARC (14 males and 9 females). All the patients underwent neurophysiological evaluation. Nerve biopsies were performed in 10 pts with AIDS and 9 with ARC; muscle biopsies were taken from 10 cases with AIDS and 9 with ARC. At clinical evaluation, 13 out of 22 pts with AIDS and 6 out of 23 pts with ARC showed signs of PN.
Neurophysiological findings of PN were detected in 17 pts with AIDS and 6 pts with ARC. 4 out of 10 pts with AIDS had morphologic alterations of nerve biopsy consisting in axonal degeneration. Muscle biopsy confirmed the neurogenic involvement in the same cases. The nerve biopsy showed acute degeneration in only 1 pt with ARC. Our data showed that peripheral nervous system is often involved at subclinical level in AIDS pts and that the prognostic value of PNS involvement in ARC has to be considered.

F.B.421 CEREBROSPINAL FLUID ANTIBODIES TO TWO DIFFERENT FORMS OF MYELIN BASIC PROTEIN AS A MARKER OF MYELIN DAMAGE IN AIDS DEMENTIA COMPLEX

Liuzzi, Grazia M.*; Mastroianni, C.M.**; Jirillo, E.*; Vullo, V.**; Delia, S.**; Riccio, P.*.
*University of Bari, Bari, Italy, **University of Rome, Rome, Italy.

Objective: Demyelination is one of the major alterations found in AIDS Dementia Complex (ADC). The aim of the present study was the detection of cerebrospinal fluid (CSF) antibodies against the myelin basic protein (MBP) for the diagnosis of myelin damage in ADC patients.
Methods: 9 ADC patients were compared to 13 HIV-infected patients with no neurological disorders with regard to anti-MBP antibody concentration in their CSF. Analysis was carried out by ELISA, applying 1ug/well of MBP, either in a lipid-bound, native-like form, or in its denatured, lipid-free counterpart. CSF samples were subjected to acid hydrolysis to dissociate immune complexes.
Results: In the CSF of all individuals with ADC, high anti-MBP antibody titers were found, while this was not so in the case of the other 13 HIV+ patients. In 6 out of 9 ADC patients, on which a follow-up was carried out, antibody concentration increased significantly with time. The antibody reactivity was observed in the case of both MBP forms with no significant difference.
Conclusion: Evaluation of anti-MBP antibody levels in CSF may be a reliable method for a laboratory diagnosis of myelin damage in ADC. In fact, antibody levels paralleled the clinical progression of ADC. Antibody reactivity with native-like MBP reinforced the specificity, but it does not help in the early identification of myelin damage. (Grant 4204-27, 1989, Ist. Sup. Sanità, Italy)

F.B.422 SUBCLINICAL WERNICKE'S ENCEPHALOPATHY IN AIDS.

Verano, Andre; Cassanova J, Grunauer D, Reyes MG.
Cook County Hospital, Chicago, IL

Objective: To estimate the severity of histopathologic changes in the hypothalamus and thalamus in non-demented AIDS patients and controls.
Methods: Thirteen non-demented AIDS patients without diffuse or inflammatory lesions of the thalamus and hypothalamus, 10 age-matched thiamine deficiency prone controls and 3 normal controls comprised the study. First, we subjectively graded the severity of neuronal loss and reactive astrocytosis as 0 = absent, 1+ mild, 2+ moderate and 3+ severe. Next, using counting technics of stereology, we estimated the numerical density of neurons and reactive astrocytes in the mammillary bodies.
Results: Neuronal loss and astrocytosis in the mammillary bodies, posterior hypothalamus and thalamus characteristic of Wernicke's encephalopathy were found in 4 patients with AIDS. By contrast, 2 of our thiamine deficiency prone controls showed 3+ neuronal loss and astrocytosis in the mammillary bodies but not the thalamus. In the mammillary bodies, the numerical density of neurons was lower in AIDS than controls--mean $\pm$ std err, 75.7 $\pm$ 7.7 neurons per sq mm vs 128 $\pm$ 15.2, $F(1,14) = 8856$, $p < 0.01$--and the thiamine deficiency prone controls--89.6 $\pm$ 15.0, not significant. Also, the numerical density of astrocytes was higher in AIDS than controls--86.2 $\pm$ 12.6 astrocytes per sq mm vs 21.3 $\pm$ 5.3, $F(1,14) = 5.79$, $p < 0.05$--and the thiamine deficiency prone--80.4 $\pm$ 13.1, not significant.
Conclusion: Our finding of histopathologic changes of Wernicke's encephalopathy in non-demented AIDS patients suggests that a treatable subclinical thiamine deficiency may precede or aggravate the predominantly subcortical dementia of AIDS Dementia Complex.

Clinical Heterogeneity of AIDS

F.B.423 CLINICAL VS NECROPSY FINDINGS IN AN AIDS POPULATION

Pando, Jose A.; Klimas, N.G. Veterans Administration Medical Center, University of Miami, Miami, Florida, USA.

Objective: To compare suspected cause of death to necropsy proven cause of death in HIV-1 infected veterans.
Methods: Post-mortem studies were done in 51 of the 162 patients who died over a 23 month period in our AIDS Program. All of the patients were male, with an average age of 46, 50% were IVDA, 36% homosexual, 14% heterosexual without other known risk behavior. 46% were black, 52% white, only one hispanic. Post-mortem studies were compared to the ante-mortem evaluations, to determine the diagnostic clinical accuracy of ante-mortem diagnosis in this subset of patients.
Results: The cause of death was diagnosed correctly in 43% of cases, suspected clinically in 36%, and completely unsuspected in 20%. Pulmonary complications accounted for 35 deaths: 15 with PCP, 15 of bronchopneumonia, and 5 of aspiration. In the 20% whose actual diagnosis was completely unsuspected, 4 had been classified "PCP" in fact revealed disseminated cryptococcal disease in 2, Kaposi's Sarcoma of the lung in 1, and pulmonary CMV in 1. One defined as "pulmonary TB" was shown to be nocardia, one "HIV encephalitis" was found to be anoxic from pulmonary emboli(PE), another died suddenly without diagnosis from PE. There were 2 cases of "diarrhea" which actually were 1 case of Hodgkin's lymphoma involving the GI tract and 1 gram negative septicemia. One presumptive toxoplasmosis was shown to be CNS lymphoma. Other clinically undiagnosed findings, either as cause of death or as unexpected autopsy findings included: CMV disease 34%, atypical mycobacterium, 8%, PE 16%, hemangioma of liver 27%, testicular atrophy 63%.
Conclusions: Missed diagnosis continues to plague intervention plans in the treatment of HIV-1 related disease. Aggressive and often invasive diagnostic strategies could reduce missed diagnoses, and seem important because at least partially effective therapies are available in 60% of the "missed diagnoses" that were considered "cause of death" at post-mortem evaluation.

F.B.424

PRESUMPTIVELY DIAGNOSED AIDS CASES; CHARACTERISTICS AND IMPACT ON SURVIVAL

Ciesielski, Carol A.; Fleming, P.L.; Mays, M.A.; Stehr-Green, J.K. Centers for Disease Control, Atlanta, Georgia, USA

Objective: To compare demographic characteristics and survival among AIDS patients with presumptively diagnosed (pres dx) and definitively diagnosed (def dx) AIDS-indicator diseases.
Methods: We compared U.S. adult AIDS cases diagnosed and reported to CDC between 9/87-6/89 with the pres dx (n=19,195) or def dx (n=4,770) of *Pneumocystis carinii* pneumonia, esophageal candidiasis, Kaposi's sarcoma, toxoplasmosis, *M. avium*, *M. tb*, & other mycobacterial infections as their only reported AIDS-indicator disease; data were examined using stratified and survival analyses and logistic regression modelling.
Results: Percentage of pres or def dx, by sex, race, mode, & reporting region

	Female	Black	Hispanic	IVDU	South	Northeast
pres dx	15%	36%	17%	36%	34%	45%
def dx	9%	26%	14%	19%	25%	37%

In logistic regression analysis, these characteristics (except being female) were independently associated with pres dx when compared to the reference group of white, male, homosexuals from the western U.S. The proportion surviving 1 year after diagnosis was lower for patients with the pres dx of *Pneumocystis carinii* compared to def dx (0.572 ± .009 and 0.682 ± .004, respectively, p=0.0001). No significant difference in the 1-year survival was found among the other 6 diseases.
Conclusions: AIDS cases reported from minorities and IVDUs are more likely to have been pres dx. For surveillance purposes, pres dx are useful in defining serious morbidity due to HIV, but they may not represent optimal patient management in all instances.

F.B.425

RACIAL HETEROGENEITY OF HIV P24 ANTIGENEMIA IN PERSONS WITH HIV INFECTION

Chaisson, Richard E, Fuchs E, Stanton D, Quinn TC, Bartlett JG, Farzadegan H. The Johns Hopkins University, Baltimore, MD, USA

Objective: To assess racial differences in expression of serum HIV p24 antigenemia in patients with HIV infection.
Methods: We analyzed baseline clinical and laboratory data in 234 HIV seropositive patients presenting for HIV treatment trials. HIV p24 Ag was measured by EIA (Abbott Labs) and confirmed by neutralization. Sera from 102 patients was tested for anti-p24 antibodies by competitive EIA using recombinant p24 (Abbott Labs).
Results: Both p24 Ag and anti-p24 Ab were strongly associated with diagnosis and CD4 count (p<.000001). Whites were significantly more likely to be p24 Ag+ (p<.01).

	White		Black	
	% Ag+ (N)	% anti-p24+ (N)	% Ag+ (N)	% anti-p24+ (N)
AIDS	63% (51)	50% (14)	47% (15)	50% (6)
ARC	47% (38)	50% (12)	22% (9)	100% (4)
Asympt	19% (89)	80% (55)	3% (32)	100% (11)
CD4<400	51% (121)	57% (48)	33% (30)	75% (12)
CD4≥400	9% (57)	88% (34)	0% (26)	100% (9)
Total	38% (178)	70% (81)	18% (56)	86% (21)

Blacks had significantly higher median total globulin levels (3.8 mg% vs 3.2 mg%, p<.00001). Racial differences in HIV p24 Ag persisted after exclusion of IV drug users. By logistic regression, HIV p24 Ag was associated with white race and CD4 counts <400.
Conclusion: Whites are significantly more likely to have serum p24 Ag than blacks. This difference may be explained by higher total immunoglobulin levels in blacks, and specifically anti-p24. The biologic significance of this difference is unknown.

F.B.426

RISK OF CEREBRAL TOXOPLASMOSIS (C.T.) ACCORDING TO TOXOPLASMOSIS SEROPREVALENCE IN AFRICAN AND EUROPEAN HIV SEROPOSITIVE PATIENTS AND RECOMMANDATIONS FOR C.T. PRIMARY PREVENTION.

LIESNARD, Corinne, VAN VOOREN, J.P., FARBER, C.-M.
Erasme Hospital, University of Brussels, Brussels, Belgium.

Objective : To evaluate the risk of cerebral toxoplasmosis (C.T.) in patients (pts) of different toxoplasmosis (toxo) seroprevalence.
Patients and Methods : Toxo serology was determined in 119 consecutive HIV seropositive pts-84 Europeans, 35 Africans. Indirect immunofluorescence assay was used to detect and titrate IgG and IgM anti-toxo antibodies (Ab). Sera positive for IgM Ab were retested after absorption of rhumatoïd factor. In some cases, a capture ELISA for IgM was also used.
Results : 51% of African pts and 30% of European pts had no detectable toxo Ab (P=0,042). Among toxo seropositive pts, geometric means of IgG Ab titers were significantly higher in African than in European pts (P=0,046). Among 24 toxo seronegative pts, during a mean follow-up period of 18 months, we observed 1 asymptomatic seroconversion of toxo IgG ant IgM Ab, and 1 C.T. without Ab response in two European pts. In toxo seropositive pts, the risk of C.T. is the same in European and African pts : we observed 10 C.T. (6 European-4 African pts) in 45 pts during a mean follow-up period of 19 months. Only one pt had a IgM response and 4 pts showed a sharp rise in IgG Ab at the time of diagnosis.
Conclusion : European pts are at significant higher risk of developing C.T. compared to African pts, since their toxo seroprevalence is 70%. Absence of IgG anti-toxo Ab is associated with a low risk of C.T. Therefore, to prevent acquisition of toxo infection, we always advise toxo seronegative HIV seropositive pts to avoid raw meat and crude vegetables consumption, gardening and contacts with cat litters, like for toxo seronegative pregnant women.

F.B.427

HISTOPATHOLOGY: ITS ROLE IN THE MANAGEMENT OF HIV DISEASE IN AFRICA

Lucas, Sebastian *; Ponnighaus, J.**; De Wind, C.***; Serwadda, D.****; Odida, M.****; Allen, S.*****
*University College & Middlesex School of Medicine, London, UK, **LEPRA, Chilumba, Malawi, ***Boga Hospital, Zaire, ****Makerere University, Kampala, Uganda, *****Projet San Francisco, Kigali, Rwanda.

Objective: To assess the usefulness of histopathology in African AIDS, given that local pathology facilities and expertise are poorly provided.
Methods: Review of major organ biopsy material from >250 HIV-infected patients in Gambia, Malawi, Rwanda, Uganda, Zaire, Zambia and Zimbabwe, and of autopsy material from >80 Ugandan patients. Consideration of the research implications of diagnoses alongside the management usefulness of histopathology.
Results: 1) Skin biopsy has not indicated aetiology or therapy for maculopapular rash. Surveys for early leprosy in Malawi have shown no clinicopathological differences between HIV+ve and HIV-ve patients. 2) Small and large intestinal biopsies for diarrhoea show significant parasitism (up to 50% patients have coccidioses) but only isosporiasis may be treated, and faecal parasitology is more sensitive. 3) Biopsy and autopsy lung pathology has emphasised the importance of tuberculosis (TB) and Kaposi's sarcoma (KS), and the infrequency of pneumocystosis (5.3% of adult HIV+ve autopsies in Uganda). 4) Lymph node biopsies usefully diagnose treatable TB versus KS and lymphomas. 5) Limited neuropathological studies reveal multiple infections (toxoplasmosis, cryptococcosis, JC virus) but overall proportions are unknown.
Conclusions: For data to underpin algorithmic and empirical managements of patients, autopsy surveys of pulmonary and neuropathology are essential. Lymph node biopsy is the most useful biopsy site for individual patient management.

F.B.428

TRANSMISSION GROUP AND FIRST CLINICAL MANIFESTATIONS OF AIDS

LAPORTE A. LOT F. PATRIS C. CLUZAN S. BRUNET JB.
MINISTRY OF HEALTH, PARIS, FRANCE

OBJECTIVE: To assess differencies in first diseases indicative of AIDS according to transmission categories.
METHODS: Among 8073 AIDS cases reported up to september 1989, 6884 adult cases fitting only the pre-1987 aids case definition, were analysed by first disease indicative of AIDS diagnosed and transmission group.
RESULTS :Opportunistic infections (OI) count for 76% of first reported diseases among all cases. Percentage of OI is over 85% for all transmission categories, except for homo-bisexuals males (68%).
The main pathologies observed are: Pneumocystis carinii pneumonia (PCP) diagnosed in 41% of reported cases, kaposi 's sarcoma (SK) in 25 %, candidiasis of the eosophagus (CO) in 23%, and cerebral toxoplasmosis (CT) in 14%.
The distribution of first AIDS indicator diseases (isolated) by transmission group is given in the table:

	PCP(%)	CO(%)	CT(%)	SK(%)	OTHERS	TOTAL
Homo-bisexuals	28	6	7	29	30	4017
IVDU	30	24	12	4	30	1286
Heterosexuals	23	18	13	6	40	618
Coag. disor./transfused	31	22	10	3	34	521
Indetermined	36	12	11	11	30	442

Analysis of trends over time shows: for isolated PCP, an increase from 17.8% of all cases diagnosed in 1985 to 35.4% in 1989 and an increase in each transmission group; for isolated CT an increase from 6% in 1985 to 13% in 1989, and particulary in IVDU group; a stabilization of CO; a decrease for SK globaly from 32% in 1985 to 13% in 1989, due to an important decrease in homo-bisexual group.
CONCLUSION: These data could suggest a relation between categories of transmission and first clinical manifestations of AIDS. However it is very likely that diagnostic process has experienced changes through the survey period, and that these changes could be different in transmission groups.
Frequency and increase of PCP and CT as first clinical manifestations of AIDS support anyhow the administration once validated of primary prevention of these diseases.

F.B.429

AIDS AMONG THE HOMELESS OF BOSTON: A COHORT STUDY

Lebow, Joanne*; O'Connell, JJ*; Avery, RK**; Freedberg, KA*. *Boston Health Care for the Homeless Program and Section of General Medicine, Boston City Hospital; **Infectious Disease Unit, Massachusetts General Hospital, Boston, MA, USA.

Objective: To describe the problem of AIDS and HIV-infection among homeless persons in Boston.
Methods: We conducted a retrospective cohort study of all cases of HIV-infection seen by the Health Care for the Homeless Program (HCH). HCH sees homeless patients in clinics at Boston City Hospital, Massachusetts General Hospital, and New England Medical Center, as well as in outreach clinics in over 40 shelters and soup kitchens. Detailed demographic, social, clinical, and survival information was gathered by chart review.
Results: Of 15,000 adults seen by HCH since 1985, 40 with AIDS, 86 with ARC, and 44 with asymptomatic HIV-infection were identified. Of AIDS cases, 7 (18%) were women, and 31 (78%) used IV drugs. Ten (25%) were white, and thirty (75%) were minority (22 Black, 7 Latino, 1 Native American). Twenty-two have died, with a mean survival of 10.4 months (range 0-36 months). *Pneumocystis carinii* pneumonia (PCP) was the AIDS-defining diagnosis in 17 (43%), while 6 (15%) had extra-pulmonary tuberculosis (TB) as first diagnosis.
Conclusion: AIDS is an increasing problem among Boston's homeless, especially among minorities and IV drug users. The high incidence of treatable infections such as PCP and TB underscores the importance of early diagnosis and treatment.

F.B.430

BASELINE HEALTH STATUS OF INTRAVENOUS DRUG USERS WITH AND WITHOUT HIV INFECTION

Davenny, Katherine; Buono, D.; Schoenbaum, E.; Friedland, G.
Montefiore Medical Center/Albert Einstein College of Medicine, Bronx, N.Y.

OBJECTIVE: To assess baseline laboratory values, and rates of infectious disease (ID) and mortality in HIV seronegative (SN) IVDUs in New York City.
METHODS: Serial lab data, ID and mortality data were collected on 362 SN and 319 HIV+ (SP) from 7/85-7/89 in a prospective study of HIV in methadone maintained IVDUs. Hematologic, serum protein, liver function (AST&ALT), ß-2 microglobulin (ß-2), and T-cell data were compared in 151 asymptomatic (ASX) SNs and 55 ASX SPs (ASX=<2 of fever,diarrhea,weightloss, and no ID).
RESULTS: Among 362 SNs, mortality was 2/100 person years; ID incidence was 2.7/100 (endocarditis, sepsis, pneumonia, tuberculosis, H.zoster). Of 362 SNs, 43% had weight loss; 14% had fever or diarrhea. Of the 151 ASX SNs, 17 (11%) had CD4 <500; 15 (10%) had CD4/CD8 <1.00. Of 74 ASX SNs tested, 24 (32%) had abnormally elevated AST&ALT. Of 75 ASX SN females, 25(33%) had hemoglobin(Hg)<12g/dl. ASX Black SNs had lower mean CD4/CD8, Hg, white blood cell and platelet (PLT) count than ASX SN whites or Hispanics. ASX SNs and SPs had similar proportions of abnormal values for AST&ALT, PLT, and Hg. ASX SNs and SPs had mean ß-2 above the normal reference mean of 1.6mg/l±.5 (p<.001). In ASX SNs, mean ß-2 was 3.2mg/l (range 0.1-9.0) vs 4.4 (0.3-6.9) in ASX SPs. Of ASX SNs, 73/141 (52%) had ß-2 >3.0mg/l.
CONCLUSION: Preliminary analysis shows that a substantial proportion of SN IVDUs have clinical illness, lab values outside normal reference ranges and values approximating ASX SPs. This finding is most striking for ß-2. Abnormal baseline lab values and poorer health status in IVDUs may confound clinical assessment of prognosis and eligibility for clinical trials among those infected with HIV.

F.B.431

ACUTE PRESENTATIONS OF PATIENTS WITH HIV INFECTION TO AN EMERGENCY DEPARTMENT

Fleetwood, Debbie; Johnson G, Kelen G. Division of Emergency Medicine, Johns Hopkins University, Baltimore, MD.

Objective: To determine the clinical parameters of acute complications of HIV infection early and late in the course of the disease as they actually present to medical attention.
Methods: Data regarding patient characteristics and clinical parameters were collected on all patients with known HIV infection who presented to our emergency department (ED) during an 8 month period beginning March 1988.
Results: There were 497 visits by 301 HIV infected individuals. Of 147 visits by patients with homosexual risk, 83% were due to complications from HIV vs 37% (of 271) IV drug users (IVDU's) (P<.01). Of 276 visits from previously asymptomatic patients, 87 (32%) presented with their first ever manifestation of HIV to be brought to medical attention. Those with homosexual risk were 2.8 times (relative risk) likely to present with their first complication of HIV compared to IVDU's (P<.01). Among AIDS/ARC patients with ED visits related to HIV, there were no differences in distribution of ED diagnoses among homosexual risk and IVDU. However, such differences among those with first time complications were striking. There were major differences in distribution of diagnoses between first time presenters and previously symptomatic patients also.

	Previously Symptomatic		Previously Asymptomatic	
Diagnosis	Gay (n=82)	IVDU (n=33)	Gay (n=26)	IVDU (n=47)
Pulmonary	27%	24%	9%	47%
GI	20%	18%	0%	11%
Neuro	24%	15%	42%	2%
Derm	5%	6%	4%	11%
	p=.8		p<.01	

Conclusion: Many HIV infected patients may present to EDs with their initial complication of HIV. Early complications may differ based on underlying risk. IVDUs likely represent more recent infection compared to other risk groups in this location and thus, the full impact of the HIV epidemic in this ED setting is yet to be realized.

F.B.432 NATURAL HISTORY OF HIV DISEASE IN AN URBAN COHORT OF WOMEN

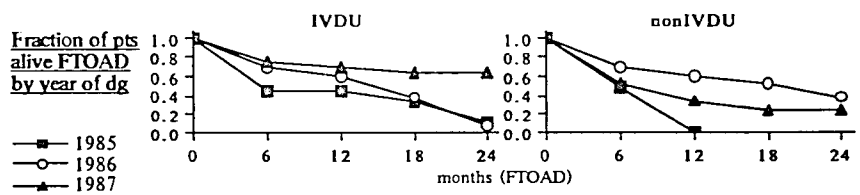
Young, Mary A; Pierce, P.
Georgetown University Hospital, Washington, D.C.

OBJECTIVE: Women comprise 10% of AIDS cases however, few studies are available documenting the natural history of HIV infection in this group. This retrospective review analyzes demographic features and disease progression in an urban cohort of women.
METHODS: 56 women HIV positive by ELISA and WB were evaluated at GUH's HIV Clinical Center from 7/87 to 11/89. A retrospective chart review assessed demographic information, absolute T4 cell count, opportunistic infection (OI), other HIV related events and clinical disposition.
RESULTS: Of 281 patients evaluated since 7/87, 56 (20%) were women, age range 17-66 yrs. 32/56 were black, 16 caucasian, 3 hispanic, 2 haitian, 3 other. Risk factors were as follows: 25/56 IV drug use (IVDU), 24 heterosexual contact, 4 blood transfusion, 1 artificial insemination, 2 unknown. 39/56 had a total of 66 children. 6/66 children were presumed to be HIV+ one had expired. 22/56 women presented with absolute T4 cell counts <200, 20 with T4 200-500, 14 with T4 > 500. 18/56 patients had AIDS defining events, all with T4 <200. 12/18 (67%) had PCP, 2 (11%) HIV encephalopathy, 1 CMV, 1 candida esophagitis, 1 Toxo, 1 wasting with fever. The mean T4 of those with PCP was 89 (range 13-102). There have been 32 recorded OI's in these 18 patients, 19 PCP, 3 CMV, 2 Candida esophagitis, 4 MAI. No KS or cryptococcal disease was seen. 7 patients have expired (mean T4 44).
CONCLUSION: Urban women presenting for + HIV testing were likely to be black (57%), in their twenties (41%), with children (70%), and to have almost equal risk from IVDU (45%) or heterosexual transmission (43%). Women present late in the disease process, 39% with T4 < 200, 36% T4 200-500. The most common AIDS defining event as in male cohorts is PCP (67%).

F.B.433 IMPROVED SURVIVAL, FROM TIME OF AIDS DIAGNOSIS, FOR INTRAVENOUS DRUG USERS DIAGNOSED IN 1987

Rubinstien, Eytan; Madden G.; Smith C.; Lyons R.
Saint Francis Hospital & Medical Center, University of Connecticut, Hartford, Connecticut, USA.

Objective: to identify changes in the survival, from time of AIDS diagnosis (FTOAD).
Methods: data was obtained from charts of AIDS patients (pts) seen at an inner-city/community 592-bed hospital in Hartford, Connecticut, USA, between 1/1/85 and 12/31/89.
Results: 110 pts were diagnosed as AIDS between 1985-1988. All pts were followed by the authors. Frequency of risk groups was: intravenous drug users (IVDUs)=54%, Gay=38%, heterosexual=4.5%, others=3.5%. Frequency of races was: black=43%, hispanic=31%, white=25%, others=1%. Frequency by year of diagnosis (dg) was: 1985=10%, 1986=23.5%, 1987=33.5%, 1988=33%. Survival FTOAD, (mean=417 days), correlated positively with year of dg (p=0.04) and AIDS defining dg (p=0.03) but not with sex or race. The 2 year survival FTOAD was available for all 74 pts diagnosed by 12/31/87 (live=24/74 pts). The survival of the IVDUs (live=15/42 pts) correlated positively with year of dg (p=0.01), particularly for those whose dg was made in 1987 (13/15 pts). This was not true for nonIVDUs (live=9/32, p=0.60).
Conclusions: Survival FTOAD has improved from 1985 to 1987. In particular, IVDUs diagnosed in 1987 have an improved 2 year survival.



F.B.434 THE CLINICAL AND AUTOPSY SPECTRUM OF HIV INFECTION IN A CONSECUTIVE SERIES OF AUTOPSY AIDS PATIENTS SEEN IN MEXICO CITY

Mohar Alejandro[1], Romo J[2], Salido F[2], Jessurrum J[2], Ponce de León S[3], Reyes E[3], Volkow P[4], Larraza O[4], Cano C[5], Peredo M[5], Gómez G[5], Sepúlveda J[6], Mueller N[1].
[1]Harvard School of Public Health, [2]Hospital General, [3]Hospital Nutrición, [4]Hospital PEMEX, [5]Hospital La Raza, [6]Dirección General de Epidemiología.
[1]Boston, MA, [2-6]Mexico City, Mexico.

Objective. Little is known concerning the clinical profile of AIDS among Latin American populations. This report characterizes the clinical and pathological manifestations of AIDS in a representative series of Mexican patients. **Methods.** Subjects included 177 consecutive AIDS patients who were autopsied at four major Mexico City hospitals and diagnosed between March 1984-January 1989. **Results.** Clinically, 60% presented with wasting syndrome. At autopsy a wide spectrum of opportunistic infections and malignancies was present. Cytomegalovirus [CMV] (69%), tuberculosis (25%), and *Pneumocystis carinii* pneumonia [PCP] (24%) were the more common infections; PCP and tuberculosis were mutually exclusive, which suggested that PCP has certain degree of competitiveness with this *Mycobacteria*. There was a high frequency of central nervous system infections, mainly Toxoplasmosis (19%) and cryptococcoses (10%). Kaposi's sarcoma was present in 30% of the cases and non-Hodgkin's lymphoma in 9%. A strong association was found between high socioeconomic status and risk of Kaposi's sarcoma, Relative Risk (RR) 5.6 (95% confidence interval=2.2-14.8), and a weak association with systemic CMV infection; RR= 1.8 (0.8-4.0). **Conclusion.** Based on these autopsy findings, the AIDS epidemic in Mexico has an "intermediate" pattern than that seen in developed and developing countries, and is likely a prototype for Latin American populations.

F.B.435 SEROPREVALENCE OF VIRAL MARKERS AND TOXOPLASMOSIS IN HIV-POSITIVE PERSONS: COMPARING TRANSMISSION RISK GROUPS:

Stein Michael, Wachtel T, Durand L, Fisher A, Sepe S, O'Sullivan P. Rhode Island Hospital, Providence, RI, USA.

Objective: To determine the prevalence of infection with Toxoplasma gondii (Toxo), Cytomegalovirus (CMV), Herpes Simplex Virus (HSV), Hepatitis B Virus (HBV) and Epstein-Barr Virus (EBV) in a region of moderate HIV seroprevalence.
Methods: 82 consecutive HIV-positive persons were screened during 1989 at the time of their first observation. IgG antibodies were assayed by indirect immunoflorescence for Toxo, CMV, HSV and EBV, with positivity defined as a titre of ≥ 1:64. HBV exposure was determined by radioimmunoassay. P-values were calculated using Fischer's exact test.
Results: Our sample was 48.8% non-white. The mean age was 33.0 ± 6.8. Homosexual men (HM) made up 31.7% of our sample, intravenous drug users (IVDU) 52.4%, heterosexually infected persons (HT) 15.8%.

	HM	IVDU	HT	P-value (HT vs. HM/IVDU)
Toxo+	11.8%	16.1%	8.3%	0.68
CMV+	84.2%	86.1%	33.3%	.0006
HSV+	76.5%	79.2%	54.5%	0.12
HBV+	70.8%	86.8%	25.0%	.013
EBV+	86.7%	85.7%	50.0%	.015

Conclusions: 1) The seroprevalence of Toxo in our population is lower than that reported for series of homosexual men in other regions. 2) HTs have lower seroprevalence of all markers measured. We speculate that HTs are less likely to exchange body fluids than IVDUs or HM. 3) Seroprevalence rates will have implications for future trials involving chemoprophylaxis of opportunistic infections.

F.B.436 CLINICAL MANIFESTATIONS OF AIDS IN SALVADOR, BRAZIL

Moreira, Edson, Jr.*; Badaró, F. S.*; Ho, J.**; Carvalho, E. M.*; Badaró, R.*; Johnson, W. D., Jr.**
*Federal Univ. of Bahia, Salvador, Brazil; **Cornell Univ. Med. College, NY.

Objective: To characterize clinical aspects of AIDS in tropical Brazil.
Method: Thirty-two consecutive class IV AIDS patients were studied in the AIDS Research Unit of the University Hospital (HUPES).
Results: The patients' mean age was 34 yrs. They were all males and had lived in Bahia for at least the last five years. Seventeen (53%) reported foreign travel. The risk activities associated with HIV infection included: homosexual/bisexual (63%); promiscuous heterosexual activity (6%); IV drug abuse (19%); blood transfusion (3%); homo + IVDA (3%); and unknown (6%). The presenting signs and symptoms included: weigh loss (100%); fever (87%); oral thrush (87%); diarrhea (78%); cough (66%); hepatosplenomegaly (63%); dyspnea (47%); dysphagia (42%); dermatitis (31%); and adenopathy (29%). The most common opportunistic infection was oral/esophageal candidiasis (39%), followed by tuberculosis (38%), P.carinii pneumonia (28%), bacterial pneumonia (25%), anogenital herpes (25%), cryptosporidiosis (3%), giardiasis (3%), salmonelloses (3%), shigellosis (6%) and hairy oral leukoplakia (6%). CNS involvement 6 of the 32 patients included: seizures (4), hemiparesis (5), encephalopathy (3) and peripheral neuropathy (3). Diagnoses in these patients included CNS toxoplasmosis (4), cryptococcal meningitis (2), and herpes encephalitis (1). Four patients had Kaposi's sarcoma.
Conclusion: The clinical manifestations of AIDS in northeast tropical Brazil is initially following the pattern of the US and Europe.

F.B.437 CLINICAL AND EPIDEMIOLOGICAL ASPECTS OF HIV2 INFECTION IN SENEGAL

Dansokho E.*; Badiane S.* ; Diop B.M.*; Faye/Ndao M.A.* ; Coll A.M.*
* Faculty of Medicine - University of Dakar - Senegal

Objective: 1) To determine the clinical and epidemiological characteristics of HIV2 ; 2) To evaluate the clinical definition of AIDS established in Bangui with regard to HIV2 infection.
Methode : We reviewed all charts from HIV1 and/or HIV2 patients hospitalized in the Infectious Diseases Service at the Fann Hospital in Dakar between 1987 and 1989. All cases were classified as HIV1 or HIV2 or as dual infection by Western-Blot. All charts contained information on the presence or absence of the 3 major and 9 minor criteria used for classification of patients in the Bangui definition of AIDS.
Results of the 134 seropositive patients ; 29 (21.6%) classified as HIV2 with a prevalence of 21.64%. The male to female ratio was 2.5 ; median age : 38.5 ; Risk factors included transfusion (1), repeated episodes of S.T.D. (12) ; bisexual (1) ;homosexual or IV. drug abusers were not present in this Service. The most frequent signs noted included weight loss (92.85%) ; prolonged fever (89.28%) ; chronic diarrhoae(67.85%); oral thrush (67.85%) ; chronic cough (53.57%). Mortality rate was 64.3%
Conclusion : The Bangui definition of AIDS appeared to be sensitive for a few criteria (fever, weight loss) but not ver y specific when applied to this population of patients hospitalized with HIV2 infection. The epidemiological and clinical characteristics of patients hospitalized with HIV2 infection were similar. However the latency period seemed to be longer for HIV2.

F.B.438 **HIV1 and acute encephalitis in a Kampala Hospital**

Müller, Olaf*, Balabyeki, M.+ Duggan, M.+
*Inter Aid, Kampala, Uganda; +Nsambya Hospital, Kampala, Uganda

Objective: To determine the prevalence of HIV1 disease in adult patients with acute encephalitis in a Kampala hospital. To compare the major causes of acute encephalitis in HIV1 positive and HIV1 negative patients.
Methods: All charts of patients (> 13 years) admitted to the Nsambya Hospital during 1987/88 have been screened for cases of acute encephalitis (acute febrile confusion, convulsion or loss of consciousness).
Results: During 1987 and 1988, 3% of patients admitted to the hospital demonstrated acute encephalitis. Of these 257 cases, 91 were suspected to have HIV1 disease and therefore serologically checked for HIV1 (55 were positive and 36 were negative). Detected causes of encephalitis were (% HIV1 pos./% HIV1 neg./% HIV1 not checked): P. falciparum malaria (27/44/43), bacterial meningitis (7/6/5), cryptococcosis (5/0/0), typhoid fever (0/6/2) and trypanosomiasis (0/3/0).
Conclusions: At least 21 % of admissions with acute encephalitis in a Kampala hospital are HIV1 infected. P. falciparum malaria is the major detectable cause of acute encephalitis with no difference in prevalence between HIV1 positive and HIV1 negative patients.

F.B.439 **CPCRA/CBCTN OBSERVATIONAL DATA BASE PROJECT: A MAJOR COMMUNITY-BASED RESEARCH PROJECT ON HIV INFECTION**

Carlyn, Marcia*; Cohen, C.**
*Division of AIDS, Natl Institute Allergy and Infectious Diseases (NIAID), Bethesda, MD, **Harvard Medical School, Boston, MA, USA

Objective: This joint project involves the 18 Community Programs for Clinical Research on AIDS (CPCRA) supported by NIAID and over 20 community programs comprising the Community-Based Clinical Trials Network (CBCTN) supported by AmFAR (American Foundation for AIDS Research). Clinical site objectives: to obtain a profile at predetermined intervals (e.g., every 3 months) of the HIV patient populations being seen on a regular basis at individual community-based clinical sites; to estimate the number of potential patients who would meet the eligibility criteria for other research studies; and to allow community clinicians to gain experience in data collection and quality assurance techniques. Research objectives: to answer research questions relevant to an observational data base study; to evaluate whether a certain drug, drug combination, or other therapy should be examined more thoroughly in a randomized clinical trial; and to permit future comparisons of community-based study participants with other HIV-infected populations.
Methods: Specific data items to be collected for each study participant include demographic information, CDC-defined AIDS diseases/conditions, other HIV-related diseases/conditions, symptoms, lab values, and medications.
Results: Case report forms have been developed and will be presented.
Conclusion: The project is unprecedented in its scope; the CPCRA sites alone have a current caseload of over 30,000 HIV-infected patients (24% black, 10% Latino, 21% IV drug users, and 8% female), and the CBCTN sites have a caseload of similar size. The project offers a unique opportunity to study clinical manifestations of HIV infection in a very broad population.

F.B.440 PATTERNS AND CLINICAL-EPIDEMIOLOGIC EVOLUTION OF AIDS CASES IN MEXICO.

VALDESPINO, JOSE LUIS, GARCIA, M.L., SALCEDO, A., MORA, J.L., BRAVO, E., SEPULVEDA, J.
General Directorate of Epidemiology. Ministry of Health. Mexico.

OBJECTIVE: To analyze clinical patterns and evolution of 1,764 AIDS cases in Mexico.
METHODS: Demographic variables, transmission categories, initial clinical manifestations or symptoms, infections, neoplasias, and survival were analyzed in 1,764 AIDS patients. All cases comply with CDC definition.
RESULTS: Demographic aspects: Males 88%; adults 96.2%; urban households 95%, (Mexico City 36%). Transmission categories: Male homosexuals 40%, bisexuals 24%, apparently heterosexuals 16%, recipients of blood transfusions 15%; hemophiliacs 20% and IVDU 1%. Initial clinical manifestations or symptoms: weight loss 82% diarrhea 80%, fever 68%, oral candidiasis and lymphadenopathy 39%. Initial clinical description: P. carinii pneumonia (PCP) 13%, Kaposi Sarcoma (KS) 8.8%, other opportunistic infections 8?%, wasting syndrome 39% neurological manifestations or symptoms 5.6% and other neoplasias 1.8%. Associated infectious agents: Most frequently associated pathogens were: C. albicans, P carinii, M. tuberculosis, Herpes simplex, Herpes zoster, Cryptosporidium, hepatitis and Citomegalovirus. Entheropathogens most frequently identified were E. histolytica, Cryptospotidium and G. lamblia. Neoplasias most frequently found were SK and Non-Hodgkin lymphoma. Trends: A decreasing trend has been observed of cases associated to PCP and KS; there has been an increase in cases associated to endemic illnesses such as tuberculosis and entheropathogens. Wasting syndrome and neurological disorders, mainly dementia have also shown an increasing trend. Survival: The average time from the appearance of initial symptoms to death varied from 14 to 57 weeks at the two hospitals that care for most of AIDS cases.
CONCLUSIONS: In Mexico, AIDS presents clinical manifestations or symptoms different from those in the United States or Europe; frequency of wasting syndrome and of endemic illnesses is greater. An ascending trend is observed in cases associated to tuberculosis; in a short period of time, it is expected to become the second infectious disease associated to AIDS, second only to C. albicans. Short survival of Mexican patients makes it necessary to analyze clinical management. Clinical-epidemiological AIDS studies must be reinforced in Latinamerican countries.

F.B.441 ANALYSIS OF 115 CASES OF AIDS REPORTED IN COSTA RICA

Herrera, Gisela. AIDS Department Ministry of Health, Costa Rica.

Objective: A retrospective study to analize the first 115 diagnosed with AIDS in Costa Rica.

Methods: Information was collected regarding, age, sex, residence, manner of acquisition of HIV, clinical manifestations, time of survival, and present condition.

Results: One hundred fifteen cases of AIDS, reported in Costa Rica between 1983 to July, 1989 were analysed, 59% were homosexuals, 13% were bisexuals, 3.4% heterosexuals, 19% hemophiliac and 1.7% I.V. drug addicts and 0.86% perinatal transmission.
The most frequent clinical presentation was chronic diarrhea.

Conclusion: There is a difference observed in the clinical presentation of the AIDS in the tropical countries and North America or Europe

Pediatric and Obstetric AIDS: AIDS in Infants

F.B.442 CLINICAL OUTCOME OF HIV INFECTED MOTHERS AND THEIR CHILDREN IN SWEDEN

A-B Bohlin*, B Anzén**; S Lindgren*; K Lidman****
Depts of *Pediatrics and **Obstetrics & Gynecology, Huddinge Hospital and Depts of ***Obstetrics & Gynecology and ****Infectious Diseases, Danderyds Hospital, Stockholm, Sweden.

Objective: To evaluate the clinical outcome of all women in Sweden who have delivered a child after being HIV infected, and the outcome of their children.
Patients and methods: All children in Sweden known to be born by an HIV infected mother, and their mothers, were enrolled. 34 women 19-37, mean 25.5 yrs at the time of delivery, and their 38 children were studied. 19 women were hetero sexually infected, 10 were/had been iv drug abusers, 5 were infected by blood transfusion. The follow-up time of the mothers was 1-78, median 24 mos after delivery, and that of the children 1-86, median 26 mos.
Results: 25 children are more than 18 mos old, one of them is lost for follow-up. Eight of the 24 children are HIV ab+ beyond 18 mos or virus+ or both. A ninth child is virus+ at 6 mos. Of these 9 infected children, 3 have contracted AIDS at 3, 10(died) and 34 mos, 4 have HIV related symptoms at 27-86 mos and 2 are asymptomatic at the age of 9 and 34 mos. There was no statistical differences in gestational age or birth weight, height or head circumferences between infected and uninfected children. None of the 10 children born within the first two years of the mother's HIV infection wasinfected, as compared to 5/11 born after two years of maternal HIV. In 8/9 cases of infected children the mother's clinical and/or immunological status deteriorated, as compared to 8/15 cases where the child was uninfected.
Conclusion: It seems as if long duration of maternal HIV infection might be a risk factor for perinatal transmission, which overall was 33 %.

F.B.443 THE UTILITY OF A NUMBER OF AIDS EVOLUTION MARKERS IN THE FOLLOW-UP OF THE VERTICAL TRANSMISSION OF HIV INFECTION

Tuset, Concha; Elorza, J.F.J.; Tuset, L.; León, P.; Tacons, J.
Service of Hematology, Immunology Unit. Valencia General and University Hospital. Valencia, Spain.

We study a number of AIDS evolution markers in 41 children (15 males, 26 females) of HIV-infected mothers. Mean age was 28 months (range, 12-70). All were subjected to continuous clinical and biological monitoring from birth. During follow-up, the absence of p24 antigen (EIA; Abbott) was considered an indicator of good prognosis, as was a decrease in antibodies to HIV (EIA, Abbott) - IgG under 1000 mg/dl and IgA under 100 mg/dl (Array, Beckman) - over 700 CD4+ cells/mm³ (Facs, Becton-Dickinson), a CD4/CD8 ratio of greater than 1, and beta$_2$ microglobulin (B_2M) levels under 2.6 mg/l (EIA; Pharmacia). Of the 26 patients over 18 months old, 8 presented signs or symptoms of HIV infection (30.7%); of these, three (11.5%) suffered AIDS. At 6 months of age, all AIDS cases presented antibodies to HIV, with raised IgG and IgA, and high B_2M values. Moreover, 66% presented p24 antigenemia and inversion of the CD4/CD8 ratio. The number of CD4+ cells was of little use as an AIDS evolution marker at this follow-up. The patients infected by HIV presented at least three altered markers at 6 months of age, an increase in B_2M being observed in 100% of cases.
The children over 12 months old who were free of disease and antibody-negative or with clearly decreasing antibody levels (only Gp160 bands with Western blot) presented one or no altered marker at the 6 months follow-up - elevated antibodies to HIV being the most common alteration.
Conclusion: The 7 parameters chosen as possible markers of poor prognosis in pediatric patients proved to be of use as such, with the exception of the number of CD4+ cells, at the 6 months follow-up. The AIDS patients presented 4 or more altered markers, whereas B_2M proved to be the most useful marker in the cases of asymptomatic or scarcely evident vertically transmitted infection.

F.B.444 BIOLOGICAL PARAMETERS OF PREDICTIVE VALUE IN THE FOLLOW UP OF HIV INFECTED INFANTS FROM HIV POSITIVE MOTHERS.

Courpotin C.*, Leverger G.*, Dormont D.**, Nicolas J.C.*, Parnet-Mathieu F.**, Lasfargues G.*
* Hopital Trousseau, Paris, France ; ** C.E.A. Fontenay-aux-Roses, France, *** C.H.P. Saint-Antoine, Paris, France.

Objective : To evaluate the predictive value of different parameters between HIV infected infants (HIV I.I.) of different clinical severity.
Methods : 24 HIV I.I. confirmed by + PBL cultures were divided in 2 groups : 12 enfants class P2 A (Group A) versus 12 infants with AIDS (Group B). Both groups were similar in term of sex ratio · maternal risk factor and age distribution. CD_4+, CD_8+, seric $beta_2$ microglobulin and immunoglobulins were recorded at last evaluation before January 90. 22 of 24 received AZT Therapy.
Results : Comparison of Groups A and B shows no statistically significant differences for the mean absolute number of CD_4 + (A : 1996 ± 1143/mm³, B : 1089 ± 970/mm³), the mean IgG Level (A : 13.43 ± 9.6 g/l, B : 22,47 ± 13.19 g/l) and the mean IgM level (A : 1,50 ± 0.75 g/l, B : 1.94 ± 1.21 g/l). Conversely mean CD_4+/CD_8+ ratio in significantly lower in Group B (0.56 ± 0.20) than in Group A (1,43 ± 0,89) $p < 0.05$. Mean $beta_2$ m level is significantly higher in Group B (3.36 ± 0.85 mg/l) than in group A (2.20 ± 1.12 mg/l) $p < 0,05$. Mean IgA level is significantly higher in group B (1.56 ± 0.77 g/l) than in Group A (0.69 ± 0.45 g/l), $p < 0,05$.
Conclusion : CD_4+/CD_8 + ratio, beta 2 m and IgA are parameters of predictive value in HIV I.I.

F.B.445 HIV-1 IN FETAL ORGANS AND IN EMBRYONIC PLACENTA OF HIV-1 POSITIVE MOTHERS.

Siegel, Günter*, Schäfer, A.**, Unger, M.***, Jimenez, E***, Backé, E.***, Simon, D.***, Pauli, G.*
*AIDS-Zentrum and ****Robert Koch-Institut des Bundesgesundheitsamtes, ***Institut für Pathologie, Abt. Paidopathologie und Plazentologie and **Universitätsfrauenklinik UKRV der Freien Universität Berlin, Berlin, FRG.

Objective: Determination of the intrauterine transmission of HIV from mother to child.
Methods: Placentas (7-8 week of pregnancy) and fetal organs (15-27 week of pregnancy; thymus, spleen, liver, lung, brain) were collected from abortions of HIV-seropositive mothers. For the detection of HIV by PCR primers located in pol and env were used.
Results: Organs of 4 fetuses were investigated, three of them (19-21 weeks old) were HIV-negative in all organs, whereas one (27 week) was PCR-positive in spleen, liver and mesenteric roots but negative in lung tissue.
Conclusion: Transmission of HIV-1 may occur early in pregnancy. Evaluation of additional fetal and embryonic tissues will give better results for the incidence and time of intrauterine transmission of HIV.

F.B.446 NEW APPROACHES TO THE DIFFERENTIATION OF INTRAUTERINE FROM OTHER POSSIBLE ROUTES OF HIV TRANSMISSION FROM MOTHER TO CHILD.

Nahmias, André J.*; Lee, F.K.*; Ou, C.-Y.**; Stoll, B.*, Nesheim, S.R.*; Schochetman, G**. *Emory University School of Medicine and **Centers for Disease Control, Atlanta, GA, USA.

Objective: To develop improved means to define the proportion of infants born to HIV+ mothers who have become infected as a result of intrauterine vs. other possible routes of transmission.
Methods: Two methologies are being combined to assay peripheral blood mononuclear cells (PBMC) being obtained prospectively from infants born to HIV+ mothers at, or soon after birth: PCR - assaying for viral genetic information - and the ELISPOT immunological method, which allows the enumeration of B lymphocytes secreting antibodies to HIV proteins, as well as of B cells secreting IgG, IgA and IgM.
Results: We have demonstrated that, within 2 days of age, 34 normal neonates had no lymphocytes secreting IgG or IgA, and 5 had a small number of B cells secreting IgM. In contrast, 6 neonates infected in utero with other agents, including syphilis and cytomegalovirus, had high numbers of lymphocytes secreting IgG, IgA and IgM soon after birth. So far, 1 of 4 neonates born to HIV+ mothers had a positive PCR and high numbers of Ig secreting cells. The other 3 infants had negative PCR assays, and no PBMC secreting IgG, IgA or IgM, or cells secreting antibodies to HIV proteins.
Conclusion: Positive results with PCR or virus culture obtained in cord blood may be the result of maternal blood contamination and, if tested on blood obtained soon after birth, may be due to intrapartum rather than intrauterine infection. Such virological test, combined with the immunological ELISPOT assays, should provide greater support for the most likely route of HIV transmission. Such information is critical to the development of potential interventive prophylactic therapies for HIV+ women during pregnancy or their progeny at birth.

F.B.447 EFFECT OF LYMPHOCYTE DEPLETION DURING PREGNANCY ON CLINICAL COMPLICATIONS, BIRTH WEIGHT AND HIV-INFECTION OF THE NEWBORN

LUTZ, Renate*; Hiller, K.*; Stauber, M.*; Wintergerst, U.**; Notheis, G.**; Belohradsky, B.H.**
*University of Munich, 1.Women's Hospital, Munich, Fed.Rep. of Germany
**Univ. of Munich, Immundefektambulanz Kinder, Munich, F.R. of Germany

Objective: To compare the course of pregnancy and the decrease of lymphocytes in asymptomatic HIV-infected women whose children were HIV-infected to those with children who became HIV-negative.
Methods: Regular gynecologic examination. CD3, CD4, CD8 T-cell counts, B-cell counts, lymphocyte transformation, natural killer cells'activity in the maternal blood. Regular follow-up of the HIV-exposed newborns.
Results: None of the women showed signs of clinical aggravation during pregnancy. All women examined had a CD4-cell depletion, most of them with a short period of rather severe decrease. A lower rate of cell transformation after presentation of antigen as an early sign of immunosuppression could be found in nearly all cases. The most frequent clinical complications during pregnancy were pruritus with eczema (4/23 ≙ 17 %) and repeated vaginal mycosis (7/23 ≙ 30 %). Fetal retardation was noted in 3/21 ≙ 15 % of all children, but in 2 of the 4 HIV-infected newborns. Clinical complications and low birth weight did not significantly depend on the maternal immunological staging.
Conclusions: Clinical complications, fetal retardation and/or HIV-infection of the newborn were not clearly related with the lymphocyte depletion during pregnancy. Further research needs to be done to define the extent of immunosuppression that represents a cofactor of vertical transmission.

F.B.448

BETA-2 MICROGLOBULIN (ß2-M) AND NEOPTERIN SERUM LEVELS IN INFANTS BORN TO SEPOPOSITIVE MOTHERS.

Lazzarin,Adriano;d'Arminio Monforte,A.;Novati,R.;Castagna,A.; Cavalli,G°;Amprimo,M.C°;Marchisio,P*;Principi,N*
Infect.Dis.Clin.,*Ped.Dept.IV,University of Milan;°G.Bosco Hospital,Turin.

Objective:To evaluate if ß2-M and neopterin serum levels may be usefull markers in the diagnosis of HIV infection in infants from seropositive(seropos)mothers Patients and methods:21 infants born to seropos.mothers referring to L.Sacco Hospital entered the study (follow-up:18±8 mo.s).11 were defined as seroreverted(SR),10 as infected(INF).At present 4/10 are P-1,6 are P-2(2 died within the 5th mo.).All infants were tested at time 0,3,6,9,12th mo. and then every 6 mo.s for anti-HIV ELISA and W.B.,HIV p24Ag ELISA,T-lymphocyte subsets,serum immunoglobulin levels and for ß2-M (MEIA,Abbott) and serum neopterin (RIA,Henning). Results:At birth no differences in ß2-M and neopterin serum levels were noted between SR and INF infants.Since 3rd till 24th mo. statistically significant differences in ß2-M levels were observed between INF and SR group. SR infants had always ß2-M levels below 2 mg/l,whereas INF ones above the same value. Serum neopterin levels became statistically different between the 2 groups only starting from the 12th mo.although in SR infants neopterin levels were always below 10 ng/ml,and in INF above.Conclusion: High levels of ß2-M seem to be precocious indicators of true infection in infants born to seropos. mothers,whereas serum neopterin levels,as other immunological parameters,seem slightly less usefull. The significance of both markers as predictive of evolution to disease in our series is still to evaluate.

F.B.449

ANTIBODIES TO THE GP120 PRINCIPAL NEUTRALIZING DOMAIN OF THE HIV-MN STRAIN (GP120-MN-PND) AS PREDICTORS OF MATERNO-FETAL TRANSMISSION

Rubinstein, Arye*; Calvelli, T.*; Reagan, K.J.**; Devash, Y.** *Albert Einstein College of Medicine, Bronx, New York
**E.I. du Pont de Nemours, Newark, Delaware, USA.

Objective: To determine whether high affinity antibodies to gp120-MN-PND in the serum of HIV infected pregnant women can predict absence of materno-fetal HIV-transmission.
Methods: Serum antibodies to gp120-MN-PND were measured by an ELISA in microtiter plates containing decreased antigen concentrations.
Results: Fifteen HIV-infected mother/baby pairs were evaluated. Eleven of the babies were found to be infected, while four were defined as uninfected after more than 15 months follow-up with negative HIV serologies, negative serum P24 antigen and negative PCR. The antigen limiting ELISA for the gp120 MN-PND was shown to detect high avidity/affinity antibodies. Utilizing this assay in a blinded study of maternal sera, we could predict HIV-1 transmission/lack of transmission in each instance. The predictability of this assay for HIV transmission is superior to the use of optimal antigen ELISAs and of ELISAs utilizing gp120-PND peptides from the HTLV-IIIB and RF strains.
Conclusion: The antigen limiting ELISA for gp120-MN-PND can be utilized to assess materno-fetal HIV transmission.

F.B.450

PREDICTIVE SIGNIFICANCE OF IMMUNOLOGICAL PARAMETERS: RESULTS IN 335 CHILDREN BORN TO HIV-INFECTED MOTHERS

De Martino, Maurizio*; Tovo, P.-A.**
for the Italian Multicentre Study
*University of Florence (Italy),**University of Turin (Italy)

The Italian Multicentre Study for HIV infection in children was instituted in 1985. By the end of 1989 more than 1,200 children born to HIV-infected mother had been recorded by the 65 participating centers. In 335 children the infection status was known (according to the presence or absence of HIV antibodies after 18 months of age) and immunological parameters (valued during the first 6 months of life, when all children were symptom-free) were available. Infected children were classified (MMWR,36:225,1987) in P1 (symptom free; no:33) and P2 (symptomatic; no:46) classes, whereas 256 children were presumably uninfected (seronegative). Mean age at the immunological evaluation did not differ in the three groups (during the 4th month of life). No significant difference as to CD3- and CD8-positive cell numbers was observed. By contrast, in P2 children CD4-positive cells were significantly (p=0.001) lower (2271±1343/mm3) than in P1 (2903±1527/mm3) and in seronegative (3055±1514/mm3) children.In P2 children, levels (median) of IgG (1366 mg/dl), IgA (86 mg/dl) and IgM (133 mg/dl) were higher (p <0.04) than in P1 (976, 37, and 79 mg/dl, respectively) and inseronegative (785, 33, and 62 mg/dl, respectively) children. It is suggested that immune modifications during the first months of life are predictive of the presence of clinical manifestations in infected children rather thanof the infection status of infants born to HIV-infected mothers.

F.B.451

CORRELATION OF INFANT OUTCOME WITH STUDIES OF HIV-INFECTED PLACENTAS: IN SITU HYBRIDIZATION (HIV-RNA), P24AG CONTENT, EXPRESSION OF CD4, DR, AND CELL SURFACE ADHESION MOLECULES

Lewis, Dorothy; Langston, C.; Hammill, H.; Hanson, C.G.; Hawkins, E.; and Shearer, W.T.; Baylor College of Medicine, Houston, Texas, USA.

Objective: To correlate clinical outcome of 7 infants born to HIV-positive mothers with scientific studies of the corresponding placentas.
Methods: The Oncor probe was used for HIV-RNA detection in placental cells; HIV p24Ag was localized immunohistochemically in the syncytiotrophoblast; cell surface glycoproteins ICAM-1 and ELAM-1 were detected on placental macrophages and CD18 was found on endothelial cells of placental villi as well; HLA-DR and CD4 were detected on placental macrophages.
Results: (underlining signifies decreased from normal; ND, not done)

Patient	HIV RNA	p24	CD4	DR	CD18	ICAM-1	ELAM	Infant HIV status
Control	-	-	4+	4+	4+	4+	4+	-
1	*	4+	ND	ND	ND	ND	ND	indeterminate
2	+	2+	4+	4+	4+	4+	4+	lost to follow-up
3	*	1+	4+	1+	4+	4+	2+	+
4	+	1+	2+	1+	1+	4+	4+	indeterminate
5	*	2+	4+	2+	4+	4+	+/-	-, maternal AZT
6	*	2+	4+	4+	2+	4+	+/-	+
7	+	4+	2+	2+	2+	4+	1+	indeterminate

Summary: HIV-RNA was detected in 3 of 7 placentas (* control actin probe defective, test to be repeated); p24Ag was detected in all placentas; there was variable expression of CD4, DR, ICAM-1, ELAM-1, CD18. Two infants have HIV infection, 3 are indeterminate, and 1 is HIV-negative (maternal AZT) at 3-18 mo follow-up. Molecular and immunologic analysis of placental tissue may uncover the mechanism of maternal to infant HIV transmission.

F.B.452 ALLANTOIS VASCULOPATHY OF THE PLACENTA IN HIV-EXPOSED PREGNANCIES: CORRELATION TO CLINICAL FINDINGS

Unger, Matthias*; Jimenez, E.*; Backé, E.*; Vogel, M.*; Schäfer, A.**; Friedmann, W.**
Freie Universität Berlin, Universitätsklinikum Rudolf Virchow, Federal Republic of Germany
* Institute of Pathology, Dept. of Pediatric Pathology ** Clinic of Obstetrics

Objective: Allantois vasculopathy occurs with increased frequency in placentae of HIV-exposed pregnancies. It is essentially characterized by endothelial degeneration, medial hyperplasia and intramural lymphocytic infiltration. Correlation to a decreased maternal CD 4/CD 8 ratio was described[1]. To determine if the vasculopathy is associated with additional maternal disease symptoms we correlated clinical and laboratory data with vasculopathy degrees.

Methods: We examined 63 formalin-fixed placentae of HIV-exposed pregnancies by light-microscopy and immunohistochemistry (APAAP). As immune markers served antibodies against actin, desmin, vimentin, collagen IV, the endothelial marker UEA I as well as HIV-associated P24, P18, P17. The vasculopathy was graded (slight, medium, severe) and correlated to mode of HIV-transmission, disease stage, CD 4/CD 8 ratio, CD 4 depletion, mitogenic capacity of lymphocytes and immunoglobulins.

Results: Additionally to the already known correlation of vasculopathy and decreased CD 4/CD 8 ratio, vasculopathy was associated with maternal hypergammaglobulinemia: All cases without placental vasculopathy had normal gammaglobulin levels (< 18%). 40% of patients with medium or severe vasculopathy showed gammaglobulin levels > 25%.

Conclusions: Allantois vasculopathy is an unspecific change of the fetal placenta correlating to maternal hypergammaglobulinemia and immunecomplexes crossing the placental barrier.

1) Jimenez E. Unger M. Vogel M. et. al. (1988): Morphologische Untersuchungen an Plazenten HIV-positiver Mütter. Pathologe 9: 228-234

Supported by the BMFT (No. II-098-89)

F.B.453 FUNISITIS (UMBILICAL CORD VASCULITIS) AND HIV INFECTION

Nyongo A.*, Temmerman M.*°, K'Oduol T.+, Wamola I.*, Plummer F.*♦, Piot P.°
* University of Nairobi, Kenya; + Pumwani Maternity Hospital; ♦ University of Manitoba, Winnipeg, Canada; ° Institute of Tropical Medicine, Antwerp, Belgium

Objective: To determine whether histological changes in the umbilical cord are associated with poor obstetrical outcome and with HIV infection.

Methods: As part of an ongoing case-control study investigating the effect of maternal HIV infection on pregnancy outcome in Nairobi, Kenya, 599 placentas were examined histologically. Funisitis was graded from 1 to 4; (1 = <5 polymorphonuclears (PMN) per high power field (hpf), 2 = 5-19 PMN/hpf, 3 = ≥ 20 PMN/hpf with or without necrosis, 4 = diffuse necrosis and thrombosis).

Results: 350 term placentas, including 157 from preterm babies and 92 placentas from stillborns were examined. Funisitis was found in 65/599 (10.8 %) of these placentas. Its prevalence in preterms was 22.9 %, as compared to 16.3 % and 13.9 % in stillborns and neonates delivered at term respectively ($p = .08$). 18/65 (27.7 %) of mothers with funisitis had HIV antibody, as compared to 23/534 (4.3 %) without funisitis ($p < 10^{-6}$, OR = 8.5, 95 % CI 4.1-17.8). 14/65 (21.5 %) of mothers with funisitis were RPR seroreactive as compared to 17/534 (3.2 %) of those without funisitis ($p < 10^{-6}$ OR = 10.4, 95 % confidence interval 4.5-24.1). Only 2/65 mothers were seropositive for both HIV and RPR. 16/65 (24.6 %) showed necrotizing funisitis (grade 4). Four of these (25 %) were from HIV infected mothers and 6/16 (37.5 %) from those with syphilis.

Conclusions: Funisitis was independently associated with HIV and RPR seropositivity, and tended to be associated with premature delivery.

F.B.454 VIROLOGICAL AND HISTOLOGICAL STUDIES OF THE PLACENTAS OF HIV SEROPOSITIVE PREGNANCIES.

Mattern, CFT; Farzadegan, H; Murray, K; Modlin, John F.
The Johns Hopkins Medical Institutions, Baltimore, Maryland, USA

Objective: To study the role of the human placenta in the vertical transmission of HIV.

Methods: Placentas were obtained at term from the pregnancies of 29 HIV seropositive (HIV+) women, 1 seronegative woman (HIV-), and 5 HIV untested women with no risk factors for HIV infection. To date, minced placental tissue specimens from 18 of the HIV+ pregnancies have been co-cultivated with stimulated human PBMC. Twenty-one placentas from HIV+ pregnancies, the one placenta from the HIV- pregnancy, and 4 from pregnancies at low risk have been examined by immunoperoxidase immunocytochemistry (IP) using monoclonal anti-p24 primary antibody and biotinylated horse anti-murine IgG1 secondary antibody.

Results: HIV was isolated from 3 of the 18 placentas from HIV+ pregnancies. P24 antigen was demonstrated by IP in 6 placentas of the 17 HIV+ pregnancies (3 conclusive, 3 probable), and in none of the 5 placentas of seronegative or low risk pregnancies. P24 antigen was located exclusively in the cytoplasm of placental macrophages which are very sparsely distributed; examination of multiple sections is required to identify a single cell. The IP positive cells were found mostly within the villi. Staining of the trophoblast layer was not observed. Although clinical follow up is incomplete, there is no apparent relationship between isolation of virus from the placenta, or positive IP staining, with presence or absence of infection in the newborn infant.

Conclusion: Isolation of virus from the placentas of HIV+ pregnancies is an infrequent event. Placental HIV p24 antigen can be located by our IP method in less than 50% of placentas of HIV+ pregnancies. The relationship of these findings to neonatal outcome remains to be determined.

F.B.455 Correlation of placental histopathological and immunohistochemical analysis with infant outcome in congenital HIV infection.

D.A. SCHWARTZ*, F. LEE**, M. LINDSAY***, R. KHAN*, K. WINN*, A. NAHMIAS**, Departments of *Pathology, **Pediatrics, and ***Obstetrics. Emory University School of Medicine, Atlanta, GA, U.S.A.

OBJECTIVE: To investigate the role of the placenta in congenital HIV transmission by examining histopathological and immunohistochemical features of placentas from HIV+ women, and correlating the results with the HIV status of their infants.

METHODS: We are examining placentas from HIV+ indigent, primarily black pregnant women by histopathology as well as immunohistochemistry and in-situ hybridization for HIV and leukocyte antigens, HIV receptors (CD4), and other infectious and sexually-transmited agents. Results are correlated with HIV status of the infants.

RESULTS: Preliminary data includes the finding of one of four placentas from infected infants having lymphoplasmacytic villitis and deciduitis; whereas none of 12 placentas from uninfected infants had villitis but with 6 having chorioamnionitis. Two of 8 placentas from recently delivered infants with indefinite HIV status showed villitis (1 chronic and 1 mixed acute& chronic), and 3 had chorioamnionitis. Results of viral and leukocyte antigen analysis, and concomitant infections will be presented.

CONCLUSION: Although preliminary, the apparent increased frequency of villitis may be significant in congenital HIV transmission. Additional cases are currently being studied.

TRACK B: CLINICAL SCIENCE & TRIALS
POSTER SESSION

F.B.456 EXPRESSION OF CELL SURFACE ACTIVATION MARKERS BY CONGENITALLY HIV-INFECTED CHILDREN

Calvelli, T.A., Golodner, M., Shliozberg, J., Keswani, A. and Rubinstein A. Albert Einstein College of Medicine, Bronx, New York, USA

Objective: To evaluate lymphocyte cell surface activation antigens for use as surrogate markers of disease state/progression in children congenitally infected with HIV.
Methods: EDTA anticoagulated blood from HIV-infected children was labelled with monoclonal antibody combinations specific for activated lymphocyte subpopulations using a whole-blood-lysis technique dual-label (FITC/phycoerythrin [PE]) staining. Cells were analyzed using either an EPICS-C fluorescence activated cell sorter (Coulter) or a FACScan flow cytometer (Becton-Dickinson).
Results: Forty HIV-infected children, and 20 age-matched children born to HIV-seronegative mothers, were tested. Increased Leu 7$^+$/Leu 2$^+$ lymphocytes (>20%), previously reported to be elevated in adult AIDS patients, were observed for only 4/40 HIV-infected children. Increased percentage of Leu 18$^+$/HLA-DR$^+$ cells, and Leu 18$^+$/Leu 4$^+$ (>30%), correlated with HIV infection status. Children with high serum HIV p24 antigen (>100pg/ml) also had the highest percentage of Leu 18$^+$/Leu 2$^+$ lymphocytes. In addition, elevation of CD20$^+$/HLA-DR$^+$ (>30%) showed positive correlation with hypergammaglobulinemia. Increases were observed only for HIV-infected children.
Conclusions: Lymphocytes of children congenitally infected with HIV show increased reaction with monoclonal antibodies specific for markers of lymphocyte activation. The pattern of reactivity differs somewhat from that seen in adult AIDS patients, but shows positive correlation with clinical status.

Pediatric and Obstetric AIDS: Maternal Issues

F.B.457 HIV INFECTION IN PREGNANT WOMEN UNDER CARE AT CLINICAL TRIALS CENTERS IN THE UNITED STATES

Stratton, Pamela; Mofenson, Lynne; Willoughby, Anne; NIH, Bethesda, MD

OBJECTIVE: To describe the clinical status of HIV + pregnant women in major obstetric clinical centers in the United States.
METHODS: Obstetricians (OBs) from 49 medical centers funded for HIV clinical trials by the NIH were surveyed concerning the status of HIV + pregnant women in their centers. RESULTS: In the 12 month period before Dec 1989, an estimate of 1105 to 1942 HIV + women delivered at these centers. Data on initiation of prenatal care was available from 78% (38/49) centers: only 17% of HIV + women began prenatal care in the first trimester; 43% second trimester; 22% third trimester; and 17% had no prenatal care. The majority (82%) of HIV + pregnant women were asymptomatic, 12% with HIV-related symptoms and 6% had overt AIDS. HIV-related diseases reported in these women included: 37 PCP, 8 toxoplasmosis, 16 systemic candidiasis, and 17 tuberculosis disease; in addition, 52 syphilis and 4 chancroid were reported. Zidovudine was administered during pregnancy in 29 women; aerosolized pentamidine PCP prophylaxis in 14 women. Routine T cell testing for HIV + pregnant women was done in only 37/49 hospitals. CONCLUSION: Data from nationwide anonymous newborn blood seroprevalence studies indicates that an estimated 5600 HIV infected women gave birth during 1988 in the US. This survey indicates that as many as 33% of these women were identified as HIV+ during their pregnancy and delivered at a clinical trial center; however, the use of antiretroviral agents or PCP prophylaxis in these women was limited. With increasing HIV infection in women, an obstetric network for HIV clinical trials is needed.

F.B.458 THE RELATIONSHIP BETWEEN HIV INFECTION AND MATERNAL MORBIDITY IN MASAKA, UGANDA

Kalibala, S.*; O'Kane, D.**; McCombie, S.***
*The AIDS Support Organization, Masaka, Uganda, **Kitovu Hospital, Masaka, Uganda, ***University of Pennsylvania, Philadelphia, USA

Objective: To compare the clinical features of HIV positive and negative women at the time of delivery.

Methods: A retrospective review was undertaken of records of 403 women who were admitted to the post-natal ward, had normal deliveries, and were tested for HIV at Kitovu Hospital between January and July 1989. Odds ratios (OR) and 95% confidence limits (CL) were computed for each diagnosis recorded.

Results: 17.6% were HIV positive (ELISA). Positives were similar in age and parity to negatives, but had significantly longer hospitalizations and lower mean hemoglobin levels. Positives were more likely to be diagnosed with oral thrush (OR 4.9, CL 1.3,18.5), herpes zoster (OR 23.9, CL 1.1,503.8), and puerperal pyrexia (OR 4.2, CL 2.4,7.2), and to have experienced symptoms of headache (OR 2.5, CL 1.2,5.3), diarrhea (OR 2.8, CL 1.5,5.5), and vomiting (OR 3.7, CL 2.0,6.8). Rates of tuberculosis (OR 1.3, CL 0.2,7.8) and cough without tuberculosis (OR o.9, CL 0.4,2.0) were similar in both groups.

Conclusions: Patterns of maternal morbidity differ between HIV positive and negative women after normal deliveries. Further research is needed to evaluate the impact of HIV infection on the health of pregnant women in this area.

F.B.459 Fertility rates in HIV(+) women in Zaire.

Batter, Veronique*; Badi, N.*; Nsuami, M.*; Matadi, N.*; Tshala, B.*; Ryder, R.*/**. *Projet SIDA, Kinshasa, Zaire; **CDC, Atlanta, GA, USA.

Objective: To determine if maternal HIV infection may be expected to decrease the fertility rate (FR) in HIV(+) women and thus decrease the number of children born with perinatally-acquired HIV infection.
Methods: The annual number of live-born children in a cohort of HIV(+) and HIV(-) Kinshasa women of similar child-bearing age was determined during the two year period following delivery, HIV serostatus notification and enrollment in a volunteer family planning (FP) program in 1986-87. The total age-specific lifetime FR in HIV(+) and HIV(-) additional women of child-bearing age was also calculated.
Results: Table I. Use of FP and FR/1000 in HIV(+) and HIV(-) women

	Prevalence FP use		Total FR		Adjusted FR*	
	1988	1989	1988	1989	1988	1989
HIV(+) (n=249)	24%	25%	80.9	243	107	323
HIV(-) (n=310)	8%	13%	89.1	366	97	421
p [HIV(+) vs HIV(-)]	(.01	(.01	).05	).05	).5	.06

*Adjusted FR=Total FR-FR in women who used FP more than 3 months/year.

Table II. Total lifetime FR/1000 women

	Maternal age (years)						
	15-19	20-24	25-29	30-34	35-39	40+	Total
HIV(+) (n=559)	857	1453	2521	4244	5436	7800	2811
HIV(-) (n=671)	969	1652	2577	4191	5781	4333	2862
p [HIV(+) vs HIV(-)]	.4	.1	.7	.8	.4	.2	.7

Conclusion: Despite increased acceptance of FP in HIV(+) women, the total FR, the adjusted FR and the total lifetime FR were not different in HIV(+) and HIV(-) women. Initial acceptance of FP by HIV(+) women was often followed by a rapid decline in FP acceptance 4-6 months after HIV seronotification. The similar FR in HIV(+) and HIV(-) women suggests that an HIV-induced decrease in the number of live births in HIV(+) women resulting in fewer children being born with perinatally-acquired HIV infection cannot be expected.

F.B.460 SERUM BETA-2-MICROGLOBULIN AND INTERLEUKIN-2 RECEPTOR LEVELS IN HIV (+) PREGNANT WOMEN.

Landers, Daniel V.; Coyne, B.A.; Crombleholme, W.R.; Smith, J.; Koller, T; Sweet, R.L.
Depart. Obstetrics, Gynecology and Reproductive Sciences, University of California, San Francisco, and San Francisco General Hospital, San Francisco, California, USA

Objective: Serum beta-2-microglobulin (B-2-M) and interleukin-2 receptor (IL-2R) levels have been shown to be predictors of disease progression in HIV (+) homosexual men. We studied serum levels of B-2-M and IL-2R in HIV (+) and HIV (-) women longitudinally during pregnancy to assess their usefulness in this setting.
Methods: HIV (+) and HIV (-) women were studied in each of the three trimesters of pregnancy and postpartum. Serum levels of B-2-M and IL-2R were determined by standard ELISA techniques.

RESULTS:

		1st tri	2nd tri	3rd tri	PP	Non-P
B-2-M	HIV (+)	1.9 ± 0.9 (n = 2)	2.6 ± 0.3 (n = 4)	3.3 ± 1.5 (n = 5)	3.3 ± 0.9 (n = 6)	---- ---
	HIV (-)	0.8 ± 0.1 (n = 6)	0.8 ± 0.1 (n = 5)	0.5 ± 0.5 (n = 4)	--- ---	0.8 ± 0.6 (n = 8)
IL-2R	HIV (+)	920 ± 169 (n = 2)	713 ± 290 (n = 4)	578 ± 230 (n = 5)	708 ± 268 (n = 6)	--- ---
	HIV (-)	280 ± 60 (n = 4)	190 ± 19 (n = 5)	365 ± 37 (n = 4)	--- ---	340 ± 126 (n = 6)

Conclusions: (1) B-2-M and IL-2R were significantly elevated in HIV (+) pregnant women compared with HIV (-) pregnant women. (2) Elevations in these two serum markers appears to be related to HIV status and not pregnancy. (3) These two markers may prove to be as useful in pregnant women as in HIV (+) men.

Pediatric and Obstetric AIDS: Epidemiology

F.B.462 THE CLINICAL MANIFESTATIONS OF HIV-INFECTION IN CHILDREN FROM THE NOSOCOMIAL FOCUS IN ELISTA

Irova, Tatyana; Yurin, O; Eramova, I; Mazankova, L; Pokrovsky, V.V.
Central Research Institute of Epidemiology, 3-a, Novogyreyevskaya, Moscow, USSR

Objective: To estimate clinical manifestations in children which were infected by reusing of syringes in Elista hospitals from May 1988 to January 1989.
Methods: 46 children were examined in 2-12 months after they had been infected with HIV-1. 28 of them were under a year old, 39 were under 2 years old. 15 children were infected at the time of their first admission to the hospital and previously had been healthy. Others had suffered from severe diseases before. 38 patients were treated with a lot of different drugs at the time of infection.
Results: The following signs were revealed: hypotrophy in 20 (43,5%), generalized lymphadenopathy in 34 (87,9%), anemia in 43 (93,5%), pneumonia in 15 (32,6%), thrush in 23 (50%), diarrhea in 23 (50%), hepatomegaly in 32 (69,5%), splenomegaly in 32 (69,5%). 13 had HBs Ag, and 21 CMV antibodies. 6 children at the age under 2 years old didn't survive a year with HIV-disease. All of them had life-threatening illnesses before HIV transmission.
Conclusion: Signs of the disease in children infected through contaminated syringes in Elista were rather similar to manifestations of blood transmitted HIV-infection in little ones. Initial serious diseases of children lead to the faster development of clinical symptoms.

F.B.461 INTERFERON ALPHA AS A PREDICTIVE PARAMETER IN THE DEVELOPMENT OF GYNECOLICAL DISEASES IN HIV-INFECTED WOMEN

Friese, Klaus*; Voth, R.**; Rossol, S.***; Mueller, W.E.G.***
*University of Mannheim/Heidelberg, Mannheim, FRG, **Boehringer, Mannheim, FRG, ***University of Mainz, Mainz, FRG

Objective: To develop a model which uses the in vitro interferon alpha secretion as a predictive parameter for the progression of gynecological diseases in HIV-infected women.
Methods: All HIV-infected - and AIDS female patients had had colposcopical directed smears and microbiological and gynecological examinations. For alpha interferon production mononuclear cells (PBMC) of all women in different stages (CDCII) were isolated by Ficoll-Paque density gradient centrifugation and levels of interferon alpha were determined by an enzyme immunoassay (EIA).
Results: It turned out that PBMC of women at stage II and early stage III produced decreasing titers of alpha interferon and that PBMC of women at late stage III and stage IV completely lost their capacity of in vitro interferon alpha secretion. Concerning the gynecological diseases the increase of vagina-cervical atypias and inflammations was parallel to the loss of interferon production.
Conclusion: The results demonstrate that the decrease of the in vitro interferon alpha production gives a predictive information in HIV-infection and gynecological diseases in comperative tests with reduced counts of T 4 cells.

F.B.463 EPIDEMIOLOGICAL ASPECTS AND CLINICAL MANAGEMENT PROBLEMS IN CHILDREN OF MOTHERS INFECTED BY HIV

Elorza, Javier F.J.; Tuset, C.; León, P.; Tacons, J.
Pediatrics Service, Valencia General and University Hospital. Valencia, Spain.

We have followed-up on the 66 children of HIV-infected mothers admitted over the past 4 years (prevalency: 1.9% of mothers treated in our Service). Active intravenous drug addiction (particularly heroin, and even during pregnancy) was documented in 63.6% of mothers, mean duration of addiction being 3.2 years. Mean age was 24.3 years, with an average of 2.39 pregnancies and 2 provoked abortions. Over 12% were declared prostitutes, which gives an idea of the psycho-emotional alterations suffered by these children. At birth, no phenotypic or morphometric features were found to distinguish this pediatric population, with no statistically significant incidence of premature deliveries. Pregnancy was undesired in 46% of cases, and over 59% of the children required neonatal care - withdrawal syndrome and severe social problems being the cause of admission in over 80%. Sexually transmitted disease was detected in 9.3% of cases. Although 76.7% of the children live with their mothers, family acceptance tended to be wanting. Many mothers have attempted to abandon addiction for the sake of their offspring, but the problems inherent to these children often led to a worsening of drug dependence during the first 18 months, this making follow-up all the more difficult.
Conclusions: Centers dealing with high-risk populations should perform HIV screenings (following consent) at the time of birth. Problems in the social context alter the true clinical picture of these children; frequent monitoring may help counter this effect. The function of psychological support institutions and organisms should be sponsored, at least during the period of uncertainty as to whether a child is infected by HIV or not, or has AIDS.

F.B.464 EXTENT OF RECOGNITION OF PERINATAL HIV INFECTION

Hsu Ho-Wen[1,2]; Kunches, L[1]; Ng, P[1]; Moye, J[1]; Makarewicz, L[1]; Shea, B[1]; Grady, G[1]; Hoff, R[1]; Mcintosh, K[2]; Meissner, C[3]; Pelton, S[4]; Sullivan, J[5]; Stechenberg, B[6]; and the MA Working Group on Surveillance of HIV in Children. [1]MA Dept. of Public Health, Boston, MA, USA. [2]Childrens Hospital, Boston, MA, USA. [3]New England Medical Center, Boston, MA, USA. [4]Boston City Hospital, Boston, MA, USA. [5]University of Massachusetts Medical Center, Worcester, MA, USA. [6]Baystate Medical Center, Springfield, MA, USA.

OBJECTIVE: To determine the prevalence of pediatric HIV infection in Massachusetts, and to describe patterns of diagnosis and patient referral.
METHODS: Chart reviews of perinatally-exposed children were conducted in the 5 centers that have reported >90% of pediatric AIDS cases. Community pediatricians were surveyed by a statewide mailing with a 74% response rate.
RESULTS: In addition to the 222 infants seropositive at birth and followed at the 5 centers, only 14 others (4 PO, 10 seroreverters) were identified among the practices of the 1100 community pediatricians responding to the survey. Median age at first evaluation was 6 months. The percentage of children asymptomatic at initial evaluation rose from 7% in 1986 to 63% in 1989. Compared to newborn serosurvey data, the proportion of children evaluated before age 6 months was 17%, 22%, and 24%, for 1987, 1988, and 1989, respectively. As of 12/89, the number of infected children identified from 1987, 1988, and 1989 births was 42%, 36%, and 48% of the expected number (estimated as 1/3 of seropositives detected in statewide newborn surveys).
CONCLUSION: Although substantial numbers of perinatal HIV infections remain undetected, early recognition appears to be improving.

F.B.465 MEDICAL PROBLEMS IN ADOLESCENTS WITH ASYMPTOMATIC HIV INFECTION

Ahlstrom, Promise; D'Angelo, L.; Woodward, K.; Richmond, D. Children's National Medical Center, Washington, D.C.

Objective: To determine the range of medical problems occurring in HIV positive adolescents, predominantly asymptomatic, followed in an urban children's hospital.
Method: Chart review and prospective follow-up of identified patients.
Results: Since January 1986, we identified 21 adolescents (12 male, 9 female) with HIV infection. Their mean age at diagnosis was 17 yrs. (range 14-20 yrs.), and mean length of follow-up is 11 mos. (range 2-28 mos.). Ten are no longer followed here and one 18-year-old female with AIDS died of pneumocystis carinii pneumonia. Ten patients, all non-Hispanic Black, are currently receiving care; 8 are asymptomatic and 2 have ARC. Females account for 60% of patients; all contracted their HIV infection via heterosexual transmission. Gynecologic problems account for 69% of acute female medical visits. Five of 6 females had multiple documented sexually transmitted diseases (STD) and 2 became pregnant. Sixty-seven percent of visits in males were for viral infections of the respiratory tract. One male fathered a baby and 1 had an STD. Trauma, bacterial infections, and psychiatric problems accounted for the remainder of acute medical visits.
Conclusion: Adolescents are emerging as a group at risk for HIV infection on the basis of traditionally recognized risk behaviors. The spectrum of medical problems in these adolescents (after HIV detection) reflects continued high-risk behavior. Since 1988, more females than males were identified. Services for HIV infected teenagers must include easy access to medical care, ongoing counseling and education with regard to partner protection as well as self-protection to decrease morbidity as well as HIV transmission.

F.B.466 NATURAL HISTORY OF PERINATAL HIV TRANSMISSION

C.Giaquinto, A.De Rossi*, A.Mazza**, E.Ruga, P.Cogo, S.Cozzani, A.Giacomelli, A.Pagliaro, L.Chieco-Bianchi*, R.D'Elia, F.Zacchello, Dp. of Pediatrics, *Institute of Oncology, University of Padova; **Dp. of Pediatrics, Trento, ITALY.

Objective: To study the natural history of pediatric HIV infection.
Methods: All children born to seropositive mothers were followed clinically, immunologically and virologically (PCR, virus culture and antigenemia) every 3 months. Children were defined as infected if symptomatic (CDC classification) or antibody positive after 18 months of age, or with evidence of viral genome.
Results: To date 132 children have been enrolled; 112 since birth and 20 after birth, 86% were born to IVDU mothers, 14% to mothers with seropositive partners. Patients followed since birth (mean time 22.3 months) were classified as follows: 16 infected, 62 not infected and 34 indeterminate. 62 (86%) of 72 children older than 18 months seroconverted, but 3 (4%), despite clinical and immunological normality had evidence of viral genome on repeated virus culture and PCR. The infection rate is 18%, a value within the confidence intervals reported by the European collaborative study (The Lancet 2:1039-1043 1988). 13 out of 16 infected children were symptomatic. In all children, symptoms appeared in the first 6 months of life. The analysis of symptoms in infected and not infected children showed that diffuse lymphadenopathy in the first weeks of life is specific of HIV infection as well as oral candidiasis after 6 months of age.

F.B.467 T CELL SUBSETS AND DISEASE STATUS IN HIV INFECTED CHILDREN

Bash, Margaret C, Robb, M., Ascher, D.*, Goldberg, D.***, Moriarty, R.**, Vincent, J., Morgan, C., Dow, N., Pettett, G.*, Fischer, G.*. Walter Reed Army Medical Center, Washington, D.C., USA, *USUHS, **National Naval Medical Center, Bethesda, MD, USA., ***Eisenhower Army Medical Center, Ft. Gordon, Georgia, USA.

Opportunistic infections are a major cause of morbidity and mortality in HIV infected children. The CD4 count and T_4/T_8 ratio is frequently used in the adult population to identify patients at risk for opportunistic infection. We reviewed 31 HIV infected children to evaluate the relationship between T cell subsets and development of opportunistic infection or advanced disease. Patients were staged using CDC criteria. T cell subsets from the most recent evaluation for stage P1 patients or from the initial P2 evaluation were reviewed. Among P1 patients, 14 of 16 had CD4 counts >400. Ten of these 14, however, had T_4/T_8 ratio <0.8. One patient has had persistently low CD4 counts and T_4/T_8 ratios without evidence of disease progression. Among P2 children, 7 of 15 had CD4 counts >400 and 4 of these had T_4/T_8 ratios >0.8. These children, therefore, would not be considered at risk for opportunistic infection using adult criteria. Five of 10 perinatal P2 patients presented with severe opportunistic infections. Two of these had been symptomatic for over 6 mos prior to evaluation and both had low CD4 counts and T_4/T_8 ratios. The remaining 3, however, presented with pneumocystis pneumonia under 6 mos of age and 2 of these had both CD4 counts >400 and T_4/T_8 ratios >0.8.

	Total	T_4>400	T_4<400	T_4/T_8>0.8	T_4/T_8<0.8	T_4/T_8<0.5
Perinatal P1	6	6(100%)	0	2(33%)	4(67%)	1(17%)
Other P1	10	8(80%)	2(20%)	2(20%)	8(80%)	5(50%)
Total P1	16	14(88%)	2	4	12	6
Perinatal P2	10	6(60%)	4(40%)	5	5	4
Other P2	5	1	4	0	5	4
Total P2	15	7(46.6%)	8	5	10	8

Pediatric patients with advanced HIV disease, particularly perinatally acquired, may not have T cell subset abnormalities and using these criteria may not be accurately identified as at risk for opportunistic infection.

F.B.468

COMPARISON OF USED LATEX GLOVES AS AN EFFECTIVE BARRIER ON TWO HIGH RISK UNITS: SICU AND AIDS

D. Korniewicz, D.N.Sc.,R.N.*; M. Kirwin, M.S.N., R.N.& E. Larson, Ph.D.,R.N. Johns Hopkins University, School of Nursing, Baltimore, Maryland

Objective: The purpose of this study was to compare the use of several brands of latex examination gloves from two high risk clinical units: SICU and AIDS.
Methods: Research assistants observed and recorded the use of gloves (secretion contact level, glove stress level, time used) by nursing personnel. Observed gloves were coded and collected from the units after use. Gloves were tested for holes/leaks in the laboratory by using the 1000 ml waterleak test (FDA, 1988; ASTM, 1988). The gloves were fastened to a graduated cylinder marked in increments of 50 ml up to a total of 1000 ml. 1000 ml of room temperature water was poured into the top of the cylinder and glove, suspended for 2 minutes while visually inspected for water leakage. Glove leaks were recorded as droplet, stream, location of holes, and volume leaked.
Results: To date, a total of 1432 gloves were tested in the laboratory. Sixty-six percent (942/1432) of the individuals who wore the gloves had direct contact with the patient and equipment while 34% (484/1432) had no contact with a patient. There were no statistically significant differences in the proportion of gloves that leaked whether they were worn by staff in SICU or AIDS (X^2 =1.28, p=.52); however, the location of the leak and the amount of time the gloves were worn was statistically significant (X^2=3.93, p = .002).
Conclusions: These results suggest that the location of the leak may be related to the amount of time gloves are used.

F.B.469

CLINICAL AND IMMUNOLOGICL FOLLOW-UP STUDIES ON HIV-Ab (+) NEWBORNS.

Gonzalez-Molina, A.; Otero, M.C.; Perez-Tamarit, A.; Granda, D.; Carbonell, F. and Canosa, C.A. Exp. Immunology, Dpt.of Pediatrics, Dpt. of Microbiology, Transfusions Center. VALENCIA. Spain.

Since the last 5 years we have performed a longitudinal, clinical and immunological follow-up study on HIV-Ab (+) newborns (NBs+). Sociocultural, clinical, microbiological, psycological and immunological examinations have been carried out every 3 months. Up to date 93 NBs+ have been enrolled. Five NBs+ died with AIDS and 16 (mean age 15.9-11.5 mo.) showed clinical manifestations (P2 group of CDC classification) and are under AZT treatment. All the remaining children stay asymptomatic, being 56% of them HIV-negative at a mean age of 11.8 +/- 4.3 mo.
Only in advanced AIDS cases a broad spectrum of persistent immunological abnormalities were observed. A 67% of NBs+ of P2 group showed low T4/T8 ratios and a 89% showed a significant increase in TAC(+) cells and also a polyclonal increase in "in vitro" IgG secretions.
It appears that TAC(+) cells return to normal values in 70% of AZT treated NBs+. However, no significant modifications on the other immunological parameters analysed were detected. Neither children in P0 group nor those that lost the maternal HIV-Ab showed persistent clinical or immunological alterations, and their peripheral cell number and/or their functional lymphocyte assays remained normals.

F.B.470

SEROREACTIVITY OF HIV POSITIVE PEDIATRIC PATIENTS TO RECOMBINANT AND SYNTHETIC ENVELOPE AND CORE ANTIGENS OF HIV

Reuben, James*; Liang, L.*; Rosenblatt, H.**; Hanson, C.**; Shearer, W.**
*University of Texas, M.D. Anderson Cancer Center, and **Texas Children's Hospital, Baylor College of Medicine, Houston, Texas, U.S.A.

We screened 18 sera from 15 pediatric and 20 adult HIV-seropositive (EIA+, WB confirmed) patients and 14 control subjects by ELISA for the presence of antibodies to recombinant envelope (rGP160, PB-I, JJ) and core (PG2) antigens as well as to envelope (P116) and core (HGP-30) synthetic peptide antigens. The mean time between serum analysis and serological diagnosis of HIV infection in children was 22.9 months (range 5-46 months). All pediatric patients had a P-2 category of HIV infection and 3 patients met the CDC criteria for AIDS. The mean age of the pediatric patients at the time of testing was 69.5 months (range 28 - 144 mo). Using 3SD above the mean OD for normal control sera as a cut-off, all 18 pediatric sera were positive for JJ and GP160; 16 were positive for PG2, 5 for PB1, 2 for HGP-30 and 3 for P116. The mean OD for all sera reactive with the above antigens was statistically greater than seronegative adult control sera ($p < 0.05$). There was no statistical difference between pediatric and adult HIV+ sera that were reactive. Moreover, comparison between p24 antigen positive and negative children showed no statistical difference in mean OD values for any of the peptide sequences. These data suggest that the pattern of reactivity for the envelope and core epitopes studied is the same for pediatric and adult HIV seropositive patients and that their reactivity is independent of p24 antigenemia.

F.B.471

CHANGING FACE OF PERINATAL HIV INFECTION: INITIAL PRESENTATION AT OR AFTER 5 YEARS OF AGE.

Shah, K*; Chow, J.; Gupta,A.; Bamji, M.; Kaul, A.; Gromisch, D.S. Lincoln Hospital, New York Medical College, Valhalla, New York, U. S. A.

Objective: Identification of increased survival in children with perinatal HIV infection.
Methods: Review of records of children with HIV infection seen since 1983. Of 110 children under 13 years of age, 11 were 5 to 11 years (5>7 years) at initial presentation. Detailed histories and examination were carried out to exclude those with infection acquired by transfusion or sexual abuse.

5 relatively healthy children > 5 years of age in the last one year. No child presented initially with opportunistic infection, though 5 subsequently developed disseminated Mycobacterium avium infection. Six remain clinically well at followup (3 months to 5 years). Interestingly, only 3/11 children had a non-specific HIV related event at presentation. Others were identified because of maternal or family history of HIV infection. A 9 year old remains asymptomatic and immunologically normal.
Conclusion: The natural history of perinatal HIV infection continues to evolve. We should anticipate greater numbers of children presenting and surviving in later childhood. Clinical presentations of these children differ from that seen in infancy. Clinicians, therefore, must maintain careful vigil and long term followup of children born at risk and their older siblings.

Pediatric and Obstetric AIDS: Infections and Other Complications

F.B.472 THE MYELINATION PROCESS AND ITS RELATIONSHIP TO THE SPINAL CORTICOSPINAL TRACT (CST) DEGENERATION OF PEDIATRIC AIDS

Weidenheim, Karen M.*; Belman, A.L.**; Dickson, D.W.*
*Albert Einstein College of Medicine, Bronx, NY, **SUNY at Stony Brook, Stony Brook, NY, USA.

Objective: To characterize myelination in the cerebrum and brainstem in children with AIDS and corticospinal tract (CST) degeneration involving myelin (myelinopathy-type) or myelin and axons (axonopathy-type).
Methods: Myelination in cerebral hemispheres, brainstem and spinal cord of pediatric AIDS patients with spinal cord CST axonopathy (n=3), myelinopathy (n=3), normal CST (n=2), and 1 patient with Wallerian degeneration was assessed with the Luxol-Fast-Blue technique on a scale of 0-4 according to a previously published method (J Neuropathol Exp Neurol 1987; 46:283-301).
Results: Myelin was decreased in the spinal CST of the axonopathy and myelinopathy cases. Pallor was present in the brainstem CST, although contiguous levels of the medulla, pons and midbrain CST were not necessarily affected in a given case. Myelination of the internal capsules was consistent with age in all cases except the case of Wallerian degeneration, where all levels of the CST were affected. The amount of myelin was consistent with age in most of the cortical and brainstem sites evaluated; decreased myelination was more common in the myelinopathy cases.
Conclusion: The lower CST is selectively damaged in pediatric AIDS in a manner unlike that of Wallerian degeneration due to hemispheric disease. Myelination in the hemispheres and brainstem was usually consistent with age; myelinopathy cases were more likely to show decreased myelination. Further study is necessary to determine whether observed decreases in myelin are due to failure of formation or to myelin destruction or to both.

F.B.473 SIGNS OF HIV ENCEPHALOMYELOPATHY IN INFANCY; VIROLOGIC AND IMMUNOLOGIC CORRELATES.

Belman, Anita*; Calvelli T,** Nozyce M,** Rubinstein A,** Goedert J,*** Willoughby A.***
* SUNY at Stony Brook, NY ** Albert Einstein College of Medicine,Bronx, NY
***NIH/Bethesda,MD

Objective: Identify earliest neurologic manifestations and subsequent stages of HIV-related encephalomyelopathy in congenitally HIV-infected infants; correlate stages of encephalomyelopathy with immunologic & virologic status.
Methods: Prospective study of infants born to HIV+ mothers, serial neurologic examinations. HIV antibody assay by ELISA/Western blot at follow up. Lymphocyte subsets determined by flow cytometry using duel-staining with whole-blood lysis. HIV p24 measured by antigen capture ELISA.
Results: Of 34 infants, 13(9-35 mo) are HIV infected by clinical, immunologic, &/or virologic criteria; 5(21-30 mo) seroconverted & are well; 16(2-17 mo) are indeterminate. Of the 13 HIV infected children, 6 have HIV-related encephalomyelopathy. In early infancy 3 had delayed acquisition of head control, social smile & coo. By age 7 mo, CNS signs in 6 included loss of head control, variable degrees of axial hypotonia + ↑reflexes, ↓vocalizations and ↓Mental Developmental Index scores; 2 infants progressed to spastistic quadriparesis. Neuroimaging was abnormal in 5(basal ganglia calcification 3). In 5 children early signs preceded onset of immune defects & p2 classes; in 5 progression was associated with ↓T4/T8; in 5 ↑p24. In 4 neurologically normal children(18-28 mo) 2 had detectable p24, 2↓T4/T8.
Conclusion: In infancy early signs of HIV-related encephalomyelopathy may not correlate with onset of immune dysfunction, however the severe form of infantile HIV-related encephalomyelopathy appears to correlate with ↑p24 antigenemia.

F.B.474 SOLUBLE INTERLEUKIN 2 RECEPTOR (sIL-2R) CONCENTRATIONS IN PEDIATRIC HIV INFECTION

Ellaurie, Maadhava; Rubinstein, A.
Albert Einstein College of Medicine, Bronx, New York, USA.

Objective: To determine whether sIL-2R is a predictor of disease activity in HIV infected children.
Methods: sIL-2R levels were measured by ELISA in 57 symptomatic HIV infected children.
Results: In 33 children aged 5 months to 5 years the mean SIL-2R concentration was 1148 ± 444 u/ml as compared to HIV negative controls with 1350 ± 325 u/ml ($p > .05$). Twenty-one patients in CDC stage P2A;B;C had a sIL-2R concentration of 1200 ± 394 u/ml. Five patients with Mycobacterium Avium Intracellulare (MAI) infection had a mean sIL-2R level of 1157 ± 432 u/ml while 7 patients with Pneumocystis carinii pneumonia (PCP) had an sIL-2R concentration of 490 ± 171 u/ml as compared to controls ($p < .05$) and to HIV infected children in CDC stage P2A;B;C ($p < .05$). In 24 patients aged 7 mo to 10 yrs sequential specimens were assayed. Eleven of 13 patients in whom sIL-2R concentrations decreased by over 200 u/ml from baseline or remained below 1000 u/ml have died. Eight of 11 patients in whom sIL-2R levels increased or decreased by less than 200 u/ml (72.7%) have stable clinical disease.
Conclusion: HIV infected children with PCP have significantly lower sIL-2R concentration. Significant decrease of sIL-2R predict progressive disease.

F.B.475 CLINICAL SPECTRUM OF PERINATALLY-ACQUIRED PEDIATRIC HIV INFECTION

Maldonado, Yvonne*; Wang, N. Ewen*; Sullivan B*;Margolis, H**; Wilson, M.J.**; Hughes, M**;Oxtoby, M***
*Stanford University School of Medicine, Stanford, California.
**California Department of Health Services, Sacramento, California.
***Centers for Disease Control, Atlanta, Georgia, USA.

OBJECTIVE: To describe the natural history of perinatal HIV infection.
METHODS:Beginning in June 1989, pediatric patients followed since 1983 were identified by active surveillance of three medical centers diagnosing and treating pediatric HIV infection in Northern California. Patients were classified using the revised 1987 CDC classification system. Demographic, clinical and laboratory data were collected.
RESULTS: One hundred and three children met the definition for pediatric HIV infection; of these, 74 were perinatally infected and these were further analyzed. Thirty-five (47%) were P0, 4 (6%) were P1 and 35 (47%) were P2. Ages ranged from 0-116 months. 61% were female. Only 17 of the 35 P2 patients were reportable AIDS cases. LIP was the most common specific AIDS diagnosis (47%) followd by PCP (20%) and HIV encephalopathy (13%). Of nonspecific diseases among the 35 P2 patients, the most frequently encountered were hepatomegaly(80%), lymphadenopathy (74%), candida pharyngitis(54%), recurrent otitis media (49%) and anemia(43%). 65 (74%) of perinatally infected children had mothers who were IV drug users or had a partner who used IV drugs.
CONCLUSION: Further analysis of this group of perinatally-infected patients will expand our understanding of the clinical spectrum of pediatric HIV infection.

F.B.476

CONGENITAL TOXOPLASMOSIS IN INFANTS PERINATALLY INFECTED WITH HIV-1

Mastrucci, Mary*; Mitchell, C.*; Hutto, C.*; Erlich, S.*; Scott, G.*; Parks, W.**; *University of Miami, Miami, Florida, **New York University, New York, New York

Objective: To describe the occurrence of congenital toxoplasmosis(Ct) and perinatal HIV-1 infection in infants born to HIV-1 infected women who are seropositive for Toxoplasma(Tox).
Methods: Congenital toxoplasmosis was diagnosed when the mother and infant were seropositive for Toxoplasma(by IgG and/or IgM) and the infant had histological evidence of Toxoplasma infection present at autopsy. Perinatal HIV-1 infection was diagnosed by culture of HIV-1 from an infant.
Results: Of 160 Haitian(Hai) infants diagnosed with perinatal HIV-1 infection from 1983-1988, 4 were found to also have Ct. Two of the three mothers of these 4 infants had no history of toxoplasmosis (tox), one had Tox encephalitis at delivery. IgG EIA for Tox was positive in all three mothers, but Tox specific IgM(by EIA) were absent. Ct was diagnosed in one infant by a +Tox IgM. Three infants were asymptomatic for tox at birth. One infant was SGA. This baby and 2 others developed Tox encephalitis at ages 6, 3, and 1 month respectively. One of these latter three infants lacked Tox IgG(by EIA). HIV-1 was cultured from all four infants. To determine the seroprevalence of Tox among Hai, we screened 471 Hai women for Tox IgG(EIA). 38% were seropositve. This suggests that 61 of the perinatally HIV-1 infected Hai infants were exposed to maternal toxo.
Conclusions: Ct can occur in infants born to HIV-1 infected mothers who are seropositve for Tox but have no history of toxo. Ct may also occur in subsequent offspring of a women dually infected with HIV-1 and Tox. A minimal estimate of the seroprevalence of Ct in our population is 6.5%(4/61).

F.B.477

ABSENCE OF COMPLICATIONS FROM RESPIRATORY SYNCYTIAL VIRUS IN CHILDREN WITH HIV INFECTION.

ER Cooper MD, S. Fine, AM Regan RN, SI Pelton MD, A Meyers MD, T Schwartz RN, MB Meservey RN. Boston University School of Medicine, Boston City Hospital and the Children's AIDS Respite and Day Care Program (CAP), Boston, Massachusetts, USA.

Following a case of illness due to Respiratory Syncytial Virus (RSV) in the CAP Program, we began screening for RSV. To define risk of RSV transmission and disease among HIV infected children, weekly nasal washings from staff and children are collected. RSV antigen is determined by ELISA; all symptomatology is recorded by daily log. CAP has 15 children aged 3 mos to 6 yrs attending 8 to 40 hours per week. By CDC Classification, 10 children are P2, 1 child is P1, and 4 remain P0. During the first 5 weeks of study, 7 children (3 P0, 1 P1, 3 P2) had evidence of RSV antigen. 6 of 7 had less than 7 days of shedding, and none had serious illness due to RSV. None of 13 staff had laboratory evidence of RSV.

In addition we reviewed the medical records of all HIV infected children with a history of RSV. 8 children with RSV infection (1 P1, 7 P2) were identified between January 1987 and December 1989. 2 children had a history of PCP, and 2 had biopsy proven LIP. 4 of the 6 children who had T cell determinations had T4/T8 ratios less than 0.5; however all had absolute T4 counts greater than 1000. O_2 saturation was between 90-98% by oximetry on admission, and length of stay ranged from 1 to 11 days. Only 1 child received Ribavirin. The length of shedding was less than 7 days in 5 cases in whom sequential testing was performed. 2 children had RSV detected twice within 30 days, each with a negative ELISA between episodes of symptomatic RSV infection.

We conclude that some children with HIV disease and RSV infection have a mild course, and that prolonged shedding seems uncommon. Relapse or reinfection however does occur. Further studies are necessary to clearly define which HIV infected children are at risk for severe RSV disease so that appropriate management strategies may be instituted.

F.B.478

CMV SEROPREVALENCE IN HIV INFECTED CHILDREN.

Duliège Anne-M.*, Rouzioux C.**, Blanche S.*, Tardieu M.**, Griscelli C.*.Hôp. Bicêtre U292*; U56**; Hôp. Necker pediatrics*, virology**; Paris, France.

Objective: to study the seroprevalence rate for CMV among children vertically infected with HIV1.
Methods: from 1983 to 1988, 94 HIV1 infected children were referred at Necker Hospital because of HIV related symptoms (P2A in 75% of the cases). Their median age at first visit was 10 months and as of September 1989, their median follow-up was 37 months. Retrospectively the sera of these children were sequentially tested for CMV IgG and IgM Abs (Elisa). To avoid possible measurement of transmitted maternal Abs, we selected the sera from patients over two years of age.

Results: - 33 children (35%) could not be analysed: 7 had received IV-gamma globulins prior to the first available sera, 26 children had no sera still available for test or had not reached age two
- among the remaining 61 children, 30 (49%) were seronegative for CMV during all the study period (median age of 35 months at the last negative serum); 31 children (51%) were positive (median age of 26 months at the first detectable positivity); for 10 of these 31 seropositive children (32%), the seroconversion or a reactivation has been observed (presence of IgM or significant increase of IgG), for the remaining 21 children (68%), the seroconvertion has not been observed and therefore occurred at any time prior to this first positive test.

Discussion: 1- the observed 50% rate of seropositivity for CMV is probably under-estimated. However it is much higher than those reported in non-infected children of similar ages (20 to 30%) and is close to those observed in populations with a low socio-economic status.
2- the hypotheses are: a high rate of CMV vertical transmission during pregnancy or breast-feeding, related to a possible maternal immune deficit; a higher prevalence of CMV infection in an environment with other HIV infected persons; the relatively low socio-economical level of these families; an increased susceptibility to CMV of these children because of their own potential immune deficit.
3- therefore, prospective studies have to analyse the role of CMV as a possible co-factor for AIDS

F.B.479

THE IMPACT OF HIV INFECTION ON MALNUTRITION IN A ZAMBIAN RURAL COMMUNITY

Chela, Clement*; Nseluke, M.; Rader, A.; Campbell, I.; Siankanga, Z.
*The Salvation Army Chikankata Hospital, Zambia

Objectives: 1) To describe the management of seropositive children presenting with malnutrition in a rural area of Zambia; 2) to discuss the implication of seropositivity in children for the nutrition rehabilitation program and for the AIDS home based care and prevention program.
Method: The four phase nutrition rehabilitation program established at Chikankata Hospital over the past three years is described: data is presented on sixty children which illustrates the positive effects, in terms of decreased mortality, decreased readmission rates, and decreased admission time. This is compared to data on sixty seropositive children followed prospectively for two years, using the same parameters.
Results: The differences observed are described, as are the implications for admission into the rehabilitation program. The alternative of home based support for seropositive children by a visiting team from the hospital has been implemented, through which opportunities for family and community counselling have developed, contributing to a long term control strategy.
Conclusions: 1) Mortality and morbidity for seropositive children is increased; 2) admission of seropositive children into the established nutrition rehabilitation program is likely to be counterproductive; 3) home based care is a viable alternative, which also contains opportunities for preventive counselling of families and communities.

F.B.480 NUTRITIONAL STATUS IN CHILDREN WITH AIDS.

M-Fontelos,P*;De José,MI**;Mellado,MJ*;G.Miguel,MJ**;Villota,J*;Codoceo,R**.
*Instituto de Salud Carlos III. **Hospital Infantil La Paz. Madrid.SPAIN.

OBJECTIVES: To evaluate the nutritional status of children infected by HIV. To determine if there is a relationship between the immuno-serological stage with the nutritional status. To study the incidence of recurrent infections related to the nutritional status.

MATERIAL AND METHODS: We study 20 children(11 females,9 males) with symptomatic HIV infection,whose ages ranged between 11 months and 15 years. We use the nutritional index as the main clinical marker. We determine: Hb, Fe, Vitamin B_{12},Folic acid,Zn, Albumin, Cholesterol in all the children. A specific digestive study was performed: Van de Kamer,Quimiotrypsin(QT) and $\alpha_1$antitrypsin in stools, fibronectin,RBP and prealbumin in serum.

RESULTS: The nutritional index was below 70($\bar{x}$:61.4) in 50% of the patients. Iron deficiency anemia was present in 80% of the children despite of treatment with iron. Vitamin B_{12} and folic acid values were normal in 100 % of them. Hypocholesteremia was present in 10 % of the cases and the rest showed normal cholesterol values but below average. Steatorrhea with a predominance of fatty acids in 25 % of the patients with low values of QT and α_1 AT. P_{24} Ag was positive in 55 % of them,without any relationship with the nutritional index. The 90 % of the ones with a nutritional index below suffer more infections than the ones with normal index.

CONCLUSIONS: 1) Malnutrition and/or subclinical malabsorption in patients with AIDS is a frequent complication and it's caused by multiple factors. 2) Malnutrition is in direct relation with the lenght of survival and no with the immuno-serological stage. 3) Recurrent infectious processes are more frequent in the malnourished patients. 4) Nutritional therapy is obligatory in these patients because of their high risk of malnutrition.

F.B.481 INTESTINAL FUNCTION (I.F.)IN CHILDREN WITH AIDS.

Zuin G,Loguercio L,Tornaghi R,Marchisio P,D'Arminio Monforte A*,Principi Nicola. Pediatr Dept 4,*Infect Dis Clinic,University of Milan, Milan,Italy.

Objective: Evaluation of I.F. in children with HIV symptomatic infection without recent acute gastrointestinal symptoms.Patients and methods: up to December '89,five children with HIV symptomatic infection (age 7 - 90 months,CDC classification:3 P2AB,2 P2A) were enrolled.All had failure to thrive and anorexia.In all the patients determinations of CBC,total serum protein,albumin, prealbumin,iron and xylose absorption tests,lactose tolerance test were performed. Results: Anemia was demonstrated in 4 out of 5 children;in one case with microcytosis.All the children had iron deficiency and an abnormal iron absorption test.Total protein and albumin concentration were normal,while prealbumin was low in all of the cases. Oral xylose test was pathological in 2 of the 5 cases: in these 2 children enteric biopsy showed a mucosal damage of mild to moderate degree.Lactose tolerance test was always abnormal,even at low lactose load.No concomitant viral,parasitic or bacterial infection was identified. Conclusions: These data indicate that in children with HIV symptomatic infection I.F. may be altered even in absence of clinically evident intestinal involvement and may be the reason of failure to thrive. The identification of an abnormal I.F. is important in order to provide the most adequate nutritional support.

F.B.482 THE NATURAL EVOLUTION OF RADIOGRAPHIC LYMPHOID INTERSTITIAL PNEUMONITIS (R-LIP) IN HIV-INFECTED PEDIATRIC PATIENTS

Perin Patrick, Connor E., Marquis J., Berman C., Oleske J. Children's Hospital of N.J. and UMD-N.J. Medical School, Newark, New Jersey, USA.

Objective: To investigate the natural history of R-LIP in HIV-infected pediatric patients.
Methods: The collective chest x-rays of children with LIP diagnosed by open lung biopsy (Bx) and/or chest radiography between 1981 and 1989 were reviewed. A diagnosis of R-LIP was made only when a definite nodular radiographic pattern was confirmed by 2 pediatric radiologists and persisted for >2 months.
Results: Twenty-two patients had LIP diagnosed at some time during their clinical course; 9/22 had R-LIP at initial visit (median age 34 mo); 13/22 developed R-LIP (median age 26 mo, median follow-up from negative chest x-ray 36 mo). In 8/22 patients R-LIP resolved over time; 4/8 temporally related to treatment (AZT, Prednisone). 3/8 without treatment and in 1/8 the relationship to therapy could not be determined. Eleven of the 26 patients had LIP diagnosed by Bx. Among these, 9 had no R-LIP at the time of Bx (median age 19 mo), 5/9 developed R-LIP after Bx (median age 40 mo, median time to appearance R-LIP 21 mo), 3/9 did not develop R-LIP (median follow up 19 mo, median age at last visit 24 mo), 1/9 had insufficient follow up to date.
Conclusion: The natural radiographic evolution of LIP may be variable. The time between histologic evidence of LIP and development of a reproducible radiographic pattern consistent with LIP may be as long as 5 years. The radiographic pattern of LIP may also naturally resolve over time without therapy.

F.B.483 CARDIAC ABNORMALITIES IN PEDIATRIC HIV INFECTION

Kavanaugh-McHugh Ann*, Ruff A*, Rowe S*, Holt E*, Modlin J*, Maha M**, Wilfert, C***, & the ACTG 043 Study Group.
*Johns Hopkins Univ., Baltimore, MD, **Burroughs Wellcome Co., Research Triangle Park NC,***Duke Univ., Durham, NC

OBJECTIVE: To determine the prevalence of cardiac abnormalities and their association with immunologic parameters in children with symptomatic HIV infection.
METHODS: Eighty-six children underwent electrocardiographic (ECG) and echocardiographic (ECHO) evaluations at enrollment in ACTG protocol 043.
RESULTS: ECG abnormalities were observed in 49% of children, and included: rhythm disturbances (22%), atrial enlargement (4%), conduction abnormalities (9%), ventricular hypertrophy (12%) and ST-T wave changes (24%). ECHO abnormalities were documented in 41% of children and included: atrial dilatation (5%), ventricular dilatation (15%), ventricular hypertrophy (6%), decreased ventricular function (8%), and pericardial effusion (6%). Right heart abnormalities, noted in 9% of children, were less common than left heart abnormalities (14%). There was no consistent association between results of cardiac assessment and immunoglobulin and CD4 determinations.
CONCLUSIONS: Cardiac abnormalities are common in children with HIV infection and are not limited to those with marked immunologic impairment. Longitudinal data regarding cardiac function while on therapy are not yet available.

F.B.484

HEART INVOLVEMENT IN CHILDREN WITH AIDS.

Cilleruelo,MJ; Mellado,MJ; Villota,J;García,M; M.Fontelos,P; Guinea,J.
Instituto de Salud Carlos III. Madrid. SPAIN.

OBJECTIVES:To study heart damage in children with symptomatic HIV infection.
MATERIAL AND METHODS:We included 14 children(5F,9M),whose ages ranged between 1-15 years.In all of them we performed study with noninvasive methods:EKG,Chest X ray and Echocardiography-Doppler.
RESULTS:We found cardiac pathology in 50% of cases;left ventricular(LV)involvement in 41.6% and right heart damage secondary to chronic lung processes in 8.4% of them.Two children(16%) suffered a congenital heart disease:1 aortic coartation,1 enlargement of aortic Valsalva sinus.In 81.4% we could observe an increase of myocardial mass,specially in those who present enlargement of left cavities(>2SD for the age).We noticed mainly damage of the LV,with dysfunction parameters(average ejection fraction 0.44 by area-length method in bidimensional-echo).In the most advanced cases there is a typical dilated cardiomyopathy with loss of the geometric contours,variations of total or regional contractility and mitral regurgitation with atrial thrombi in 1 case.In 1 patient,the right heart involvement began as a chronic pulmonary cardiopathy with development of pulmonary hypertension and right heart failure secondary to recurrent lung infections.Symptoms resulting from congestive heart failure(HF)responded satisfactory to the standard treatment,except in cases of right heart failure.In our serie,cardiac involvement appears at any time in the evolution,in most of them after more than 6 months of treatment with ZDV.We didn't find evidence of other viral,bacterial,fungal or parasitic myocardial infection.Nowadays we are evaluating,with Indium 111-monoclonal antimyosin antibodies,if heart involvement in these children behaves in a similar way to other types of cardiomyopathy.
CONCLUSIONS:1)Cardiac involvement is very common in children with AIDS,with no relationship with the clinical stage of the disease.2)Myocardium is mostly involved,showing an increase of its mass specially in those with left ventricular enlargement.3)Heart involvement can be the first manifestation of HIV infection and it seems not to vary with ZDV treatment.4)More sophisticated diagnosis methods such as serological and isotopic studies can proportionate information about pathogenesis of heart involvement in children with AIDS.

F.B.485

DEVELOPMENTAL TESTING OF INFANTS BORN TO HIV-1 SEROPOSITIVE AND HIV-1 SERONEGATIVE MOTHERS.

Hitimana Deo-Gratias*, Lepage P*, Van Goethem C*, Msellati P**, Dabis F**, Bazubagira A*, Stevens AM*, Van de Perre P***.
* Department of Pediatrics, Centre Hospitalier de Kigali, Kigali, Rwanda;
** INSERM U 330, University of Bordeaux II, Bordeaux, France;
*** AIDS Reference Laboratory (National AIDS Control Program), Kigali, Rwanda.

Objective : To compare the psychomotor development of infants born to HIV-1 seropositive and to HIV-1 seronegative mothers.
Methods : Two cohorts of children- consisting of 218 infants born to HIV-1 seropositive mothers(group 1)and 218 infants born to HIV-1 seronegative mothers(group 2) - have been followed up since November 1988 in Kigali, Rwanda. A simple, quick (consisting of 15 items), and reproducible psychomotor assessment has been elaborated for children aged 3, 6, 9 and 12 months old. At 3 months of age, the following items are studied : gross motor, hand movements, vocalisation and vision. At 6 and 9 months of age, gross motor, hand movements, general understanding and social contacts are evaluated.
Results : At 3 months of age, developmental testing was considered as abnormal in 8/190 (4.2%) of group 1-infants versus 5/192 (2.6%) of group 2-infants(p> 0.05).
At 6 months of age, developmental testing was considered as abnormal in 11/195 (5.6%) of group 1-infants versus 3/193 (1.5%) of group 2-infants (p< 0.05). At 9 months of age, developmental testing was considered as abnormal in 5/69 of group 1-infants versus 0/72 of group 2-infants. Complete results for children of 9 months of age will be available at the end of March 1990.
Conclusion : When evaluated at 6 and 9 months of age, children born to HIV-1 seropositive mothers in Kigali, Rwanda, are more frequently developmentally delayed than children born to seronegative mothers. However, these developmental abnormalities do not seem as frequent as in other series. Further follow up studies are planned to evaluate the long term neurological prognosis of these children.

F.B.486

NEUROCOGNITIVE FUNCTIONING AMONG INFANTS EXPOSED PRENATALLY TO HIV

Swales, Thomas P.; Scott, G.B.; Cohen, D.
Departments of Pediatrics and Psychology, University of Miami, Miami, Florida.

Objective. The Fagan Test of Infant Intelligence (Fagan), a promising visual recognition memory test predictive of later mental retardation in high-risk populations, was selected for use in a prospective study exploring cognitive, developmental, and neurological aspects of pediatric HIV infection. This paper reports on our one year findings.

Methods. The Fagan was administered cross-sectionally to 55 infants at either six, nine, or twelve months of age, along with Bayley, neurological exam, and laboratory studies. Subjects were the offspring of HIV+ Haitian mothers with no history of drug abuse.

Results. The sample yielded a mean Fagan novelty preference of 59.6% (SD=6.1). Two groups displayed attentional problems. Twelve infants were unable to maintain attention sufficiently to complete the task. Six infants failed the Fagan by completing the task and displaying abnormal visual recognition memory (novelty <54%). The results of the Fagan testing are outlined below:

	HIV+	HIV-	Indeterminate	Total
Failed Fagan	4	1	1	6
Passed Fagan	8	13	16	37
Incomplete Fagan	3	4	5	12

The sample displayed a transmission rate of 45.4%. HIV+ infants who failed the Fagan showed a consistent CNS involvement on the neurological exam and the Bayley. The HIV+ infants who passed the Fagan also had normal neurological and Bayley findings. Two infants displayed AIDS during infancy; both of whom failed the Fagan.

Conclusion. Four of twelve infants with prenatally-acquired HIV infection, two of whom had pediatric AIDS, exhibited decreased cognitive function as assessed with the Fagan. Further descriptive studies based upon infant habituation, memory and cognitive function in relation to HIV-related encephalopathy appear warranted.

Pediatric and Obstetric AIDS: Therapy

F.B.487

IMPAIRED RESPONSE TO VACCINATION IN HIV+ CHILDREN TREATED WITH AZT, VEINOGLOBULINS.

S.KAPLANSKI[1], C.SEIDEL-FARNARIER[1], P. DE BOISSE[2], C. PALLIX[4] G.SIMONIN[2], G.MICHEL[3], A. MARTIN-LAVAL[3], D.UNAL[2], M.PERRIMOND[3]
Laboratoire d'Immunologie[1] Hopital Sainte Marguerite, Service de Pédiatrie Pr UNAL[2] et Service d'hématopédiatrie[3] Pr PERRIMOND CHU Timone, Service de Pédiatrie[4] Pr BERNARD Hopital Nord, Service de Pédiatrie[5] Hopital Saint Joseph, Marseille FRANCE.

Objective : A comparative study between immunologic status of HIV+ and HIV- children, all of HIV infected mothers.
Methods : 63 children aged 1 to 41 months were investigated every three months 16/63 were surely contaminated (mean age 18.6 mths), 16/16 were clinically well and 14/16 received azidothymidine associated with veinoglobulins. 28/63 (mean age 18.6 mths) became seronegative and 19/63 were indetermined. Immunological tests included HIV antigen and antibody detection, immunoglobulin and tetanus toxoid (TT) antibody level determination, absolute lymphocyte subset count and lymphocyte proliferative responses to mitogens (phytohemagglutinin, pokeweed mitogen) and antigens (candidin, TT).
Results : 1) CD4+ blood lymphocyte number was lower than 1500 mm^{-3} in 34 % and lower than 1000 mm^{-3} in 18.4 % of sample HIV+ children versus respectively 4.6 % and 1.5 % in seronegative children. 2) Proliferative responses did not appear be significantly different between the HIV positive and negative populations. 3) Interestingly TT antibody level between 9 and 24 months were lower in contaminated children (0.6 U/ml versus 2.2 U/ml).

Conclusion : This study points out a defect in specific antibody response to TT vaccination in HIV infected children despite a lack of marked quantitative change of CD4+ lymphocyte subset.

F.B.488 Safety and Tolerance of Zidovudine in Pediatric AIDS

Mitchell, Charles*; Scott, G*; Hutto, C.*; Mastrucci, T.*; Gourley, J*; Owens, C.*; Sajous, M.*; and the Zidovudine Pediatric Study Group *University of Miami School of Medicine.

Objective: To evaluate the safety and tolerance of Zidovudine(ZDV) in the pediatric population.
Methods: 124 children with symptomatic (Class P-2) HIV-1 infection were treated as part of a Phase I or Phase II trial of ZDV and monitored for up to 2.5 years. Clinical and laboratory adverse effects were recorded.
Results: 124 children (69 male, 55 female were enrolled into either the Phase I (36 children) or Phase II (88 children) trial. The median age was 3.3 years. Intravenous dosage ranged from 80-160mg/M^2 q6h given for a median of 30 days. Oral dosages ranged between 120-240mg/M^2 q6h and were given for a median of 450 (Phase I) and 187 days (Phase II) respectively. As of March 1989, 87 children were still enrolled. 14 children have died while 23 had ZDV discontinued. Possible clinical adverse effects occurred in 24(19%). Twenty-three percent had a decline in Hgb to < 7.5gm/dl requiring either a dose modification or transfusion. A WBC of <1900/mm^3 were observed in 18% while neutropenia of <750/mm^3 was observed in 39%. Four of the 27 children with neutropenia of < 500 cells/mm^3 developed a serious bacterial infection. The majority (60%) of the cases with neutropenia spontaneously resolved without dose modifications.
Conclusion: ZDV was generally well tolerated. The frequency of possible clinical adverse effects (19%) in these pediatric patients was less than that previously reported in adults (89%). Anemia and neutropenia were the most common laboratory adverse effects noted but the frequency of those effects was no greater among children than in adults. This study was supported by Burroughs Welcome Co. and the NIH, NIAID Clinical Trials Group.

F.B.489 MARKERS OF ZIDOVUDINE (AZT) EFFICACY IN CHILDREN

Marchisio Paola, Massironi E, Novati R*, D'Arminio Monforte A*, Cavalli G**, Amprimo MC**, Principi N.
Pediatr Dept (IV),* Infect Dis Clinic, University of Milan, Milan and ** G.Bosco Hospital, Torino, Italy.

Objective: Prospective evaluation of immunological and laboratory markers of the efficacy of AZT treatment in children. Patients and methods: HIV infected symptomatic children treated with AZT (600 mg/m2/day in 2 oral doses) entered the study. The monthly follow-up included evaluation of clinical and laboratory parameters, such HIV serologic tests, T-lymphocyte subsets, immunoglobulins serum beta 2 microglobulin and serum neopterin levels. Results: up to December '89, 7 children (3 P2A, 3 P2AB, 1 P2AC) were enrolled. Duration of AZT therapy ranges from 3 to 15 months. In four children a complete regression or reduction of clinical symptoms related to HIV infection was demonstrated while in 3 cases no clinical response was observed. In the children who had a good clinical response a precocious reduction towards normal limits of serum IgA, beta2 microglobulin and neopterin concentrations, markedly elevated before treatment, occurred. In the other 3 children these parameters remained abnormally elevated. In no case CD4+ subsets changed significantly. HIV p24 antigen did not correlate to clinical response. Conclusions: Efficacy of AZT treatment in children seems to be predictable by monitoring IgA, beta2 microglobulin and neopterin serum concentrations in the first weeks after the beginning of drug administration. CD4+ subsets and HIV p24 antigen were not reliable markers.

F.B.490 T-CELL SUBSET CHANGES IN HIV-INFECTED CHILDREN TREATED WITH ZIDOVUDINE (AZT)

Frenkel Lisa*, Gillespie S.*, O'Rourke S.*, Plaeger-Marshall S.*, Cohen H.*, Perry-Marx D.*, Deveikis A.**, Wong V.***, Stiehm ER.*, Bryson Y.*
* University of California, Los Angeles, CA, ** Memorial Medical Center, Long Beach, CA, *** Kaiser Permanente Medical Group, Downey, CA, USA.

Objective: To evaluate in children with symptomatic HIV infection (CDC P-2) the effect of AZT on helper-inducer T-cells (CD4 # and %) and helper/suppressor (CD4/CD8) T-cell ratio.
Methods: T-cells of children (ages 9 months to 13 years, median 6 years) were characterized by flow cytometry immediately prior to (T_0) (n=13) initiation of AZT therapy (180 mg/m_2/dose, every 6 hours, adjusted for renal insufficiency in 1 child), and after 3 (T_3) (n=13) and 6 (T_6) (n=9) months of AZT. Changes in T-cell parameters were assessed for statistical significance using paired (T_0-T_3) and independent (T_0-T_6) T-tests.

Results: Table. T-cell parameters (mean ± SD) in relation to AZT therapy.

	T_0	T_3	T_6	P-value
Absolute CD4 #	650 ± 605	762 ± 714	651 ± 633	NS
% CD4	18 ± 10*	24 ± 15*	18 ± 12	*0.006
CD4/CD8 ratio	.47 ± .36+	.65 ± .54+	.49 ± .41	+0.01

Conclusions: When symptomatic HIV-infected (P-2) children are treated with AZT a significant, although transient, increase in the % of CD4 cells and the CD4/CD8 ratio occurs, as well as a possible trend towards an increase in absolute T-cell numbers. T-cell parameters after six months of AZT therapy do not differ from those pre-therapy. Further investigation is needed to elucidate the mechanisms and clinical significance of AZT-related T-cell changes.

F.B.491 CLINICAL PHARMACOKINETICS AND BIOLOGICAL DATA OF ORAL ZIDOVUDINE THERAPY IN CHILDREN WITH AIDS OR ARC SYNDROME.

Garraffo, Rodolphe* ; Deville, A.** ; Chanalet, L.* ; Colin, J. N.*** ; Mariani, R.** et Lapalus, P*
* Department of Clinical Pharmacology, Nice, ** Department of Pediatrics, Nice, *** Wellcome Inc. Paris FRANCE

Zidovudine (AZT), has shown it's potential benefit in treatment of adult AIDS and related diseases, specially by increasing the duration and improving the quality of life. The important number of children infected by HIV viruses and the high risk of rapid morbidity and mortality in this population required therapeutic responses. Clinical trials with Zidovudine have been started in several centers. Pharmacokinetic, biological and clinical data are needed to optimise the dosage regimen in children. In the present study, twenty-two children (4,9 ± 4,5 years) have been treated orally by AZT with a posology ranging between 1,7 and 7,5 mg/kg (mean = 4 ±1,6 mg/kg) each 4 (4) or 6 (18) hours for 15 days to 14 months (mean = 6,9 ± 4,7 months). They underwent a pharmacokinetic test after several days of treatment when steady-state was reached. The blood determinations of AZT and G AZT concentrations were performed by HPLC and the pharmacokinetic parameters were estimated by a model independant program. The mean elimination half life was 1.05 ± 0.7h for AZT and 1.2 ± 0.5h for G AZT the Cmax = 744.5 ± 629.4 µg/l (AZT) and 1432 ± 916.6 µg/l (G AZT) the AUC = 1134.30 ± 700.9 µg.h.l-1 (AZT) and 2945.6 ±1891 µg.h.l-1 (G AZT) the clearance / F = 4.43 ± 2.05 l.kg.h-1 (AZT). The metabolic ratio (AUC G AZT/AUC AZT) was 3.4 ±1.9 and showed important inter individual variability (0.8 to 8.8). The tolerance of the treatment was generally good. No toxic effect was observed on white blood cells count, while the hemoglobinemia was always under 6.5 mmol/l and directly related to AUC or Cmax AZT value. The lymphocytes count increased under treatment and this was significantly related to the importance of the AZT AUC. Positive effects an CD4 / CD8 ratio and P24 were moderate and essentially described at the initiation of therapy. In the studied children 8 necessitate a dose reduction, 6 an interruption of therapy among wich 3 stopped definitively.

F.B.492 SERIOUS INFECTIONS IN SYMPTOMATIC HIV-INFECTED CHILDREN TREATED WITH ORAL ZIDOVUDINE (ZDV)

McIntosh, Kenneth*; NIAID/Burroughs Wellcome Pediatric ZDV Study Group. *Children's Hospital, Boston, USA.

Methods: The 88 children who received oral ZDV (180mg/m^2, 4id) in 10 US medical centers as part of a Burroughs Wellcome/NIAID-ACTG Phase II pediatric trial were analyzed for the incidence of serious infections. The children were between 3 months and 12 years of age; on entry all had AIDS (62) or severe ARC (26). They were followed for 3-352 days (mean 186). Infections developing in the first 14 days of treatment were omitted from analysis.
Results: Fifteen children (17%) developed 18 opportunistic infections (OIs). The commonest OI was PCP, which occurred 8 times with 4 deaths. None of the 8 children was on prophylaxis, and in 7 this was the first episode.
Other OIs were candida esophagitis (4), MAI bacteremia (2, both fatal), cryptosporidiosis (2), CMV retinitis (1) and Listeria meningitis (1). Children with OIs had fewer CD4+ cells on enrollment than those without.
There were 26 cases of pneumonia in 22 patients. Eight were presumed or proven bacterial (2 S. pneumo, 2 H. influ, 1 S. aureus, 3 other). One was fatal. There were also 17 episodes of bacteremia without parenchymal focus in 13 patients, almost half of them catheter-related. Six were due to S. pneumo.
Infection accounted for 7 of 10 deaths in the study (6 OIs, 1 bacterial pneumonia). An 11th death was due to CMV viremia with onset 14 days after drug was begun and was not analyzed here.
Conclusion: Without an untreated control group it is difficult to judge the efficacy of ZDV in this group. It is reassuring, however, that Kaplan-Meyer analysis of this high-risk group of children indicated a probability of remaining OI-free after 24 weeks of 0.81.

Nursing Research

F.B.494 THEORY OF INFORMATION: a methodological alternative to study the verbal interaction nurse-AIDS patient.

GIR, Elucir[1]; MORIYA, Tokico Murakawa[1]; DELA COLETA, José Augusto[2]

[1] University of São Paulo- Nursing School of Ribeirão Preto - Brazil.
[2] Federal University of Uberlândia - Brazil.

OBJECTIVE: To identify the quality of verbal interaction occurred between nurses and patients, with AIDS through the amount of information transmitted.
METHODS: The verbal behaviors occurred between 3 AIDS patients and 3 nurses were observed and registered during 15 sessions of 6 hours each. These behaviors were classified according to the System of Analysis of Verbal Interaction (SAVI) by 3 trained and calibrated referees, and then they were put in a matrix. By using the form preconized by FAVERGE and STEPHANEK, we calculated the amount of information transmitted in each area and in each square of the total matrix.
RESULTS: The 302 verbal behaviors identified were put in one SAVI matrix, that was composed by the squares: a) P-NUR; b) P-P; c) NUR-P; NUR-NUR; according to the utterer and receptor respectively. In the areas where the verbal behaviors were attributed, we got values of R varying from 0.0755 to 0.5203 and from 0.1213 to 0.3020 in the squares. Theses values indicate that the verbal interactions tend to move away from repetition and stereotypy, since the more distant the value of R be of zero and nearer of 1, the richer the dialogue is.
CONCLUSION: The calculation of information transmitted (R) according to the Theory of Information permits the identification of the type of interaction that is occurring and how rich the dialogue is. In this study, we evidenced a value of R that is not the ideal one, but it can be worked and improved. We believe that this tool can contribute very much to the study of verbal interaction, not only between the health professionals and the AIDS patients, but also among other patients, patients' relatives and other professionals.

F.B.493 HIV AND ADVERSE REACTIONS FOLLOWING ROUTINE CHILDHOOD IMMUNIZATION IN AFRICA: A COHORT STUDY IN KIGALI, RWANDA.

Dabis, François*; Msellati, P.*; Lepage, P.**; Bazubagira, A.**; Hitimana, D.G.**; Van de Perre, P.***
* INSERM, U. 330, Université de Bordeaux II, Bordeaux, France
** Centre Hospitalier, Kigali, Rwanda *** Laboratoire du Programme National de Lutte contre le SIDA, Kigali.

Objective: To compare the rate of side effects following vaccination through the Expanded Programme on Immunization (EPI) of infants born of seropositive (HIV+) and seronegative (HIV-) mothers.
Methods: During the two-year follow-up of a prospective cohort study launched in 1988 to study the perinatal transmission of HIV1, infants are immunized according to the following schedule: BCG at birth, Diphteria-Tetanus-Pertussis vaccine at 6, 10 and 14 weeks of age (DTP1, 2 and 3), oral polio vaccine at birth then with DTP. Edmonston-Zagreb (EZ) measles vaccine is given at 6 months. Local and general reactions are monitored 48 hours after each dose of DTP and 10 days after EZ vaccination. Tuberculin skin test is performed at 6 months. Regional adenitis and major side effects are looked for every 2 weeks during the first year of follow-up.
Results: As of January 1st, 1990, 139 HIV+ infants and 143 HIV- infants have been enrolled and followed until the age of 6 months. A higher rate of local reactions following the administration of DTP1 is reported in the HIV+ group (63% vs 50%; Chi2 test; $p<0.03$). No difference is found for fever (mother's perception) (40% in the HIV+ group vs 29% in the HIV- group; $p<0.06$) and 3% of the infants in both groups have a body temperature > 38.5°C 2 days after DTP1 vaccination. All reactions are reported at comparable rates after DTP2 and 3. Two cases of regional adenitis have been identified 60 days after BCG vaccination in the HIV+ group and none in the HIV- group (Fischer's exact test; $p=0.24$). The proportion of negative tuberculin test is higher in the HIV+ group (28%) than in the HIV- group (12%) ($p<0.001$). The mean diameter of the positive reactions is 8mm for both group
Conclusion: No major adverse reaction following immunization has been recorded. The recommended practice of immunizing HIV+ infants in Africa should be continued. Data should be reanalyzed once better definition criteria of pediatric HIV infection are developed.

F.B.495 A DETERMINATION OF THE KNOWLEDGE BASE OF CAREGIVERS OF HIV INFECTED PRESCHOOL CHILDREN

Cleven, Karen*; deJesus, R.**; Sharp, S.***
*Department of Veterans Affairs Medical Center, Miami, FL. **Mercy Hospital, Miami, FL, ***Barry University, Miami, FL, USA.

Objective: The purpose of this study was to determine both the characteristics and the knowledge base of the caregivers of HIV infected preschool children.
Methods: The caregivers were participants in the direct care of HIV infected preschool children in an institutional setting in South Florida. A questionnaire that was developed by the researchers was personally administered to the caregivers in the institution. The questionnaire obtained demographic data describing the caregivers and consisted of twenty questions concerning health care practices relating to HIV infected preschool children. There were 30 participants in the study. Data collected were analyzed using descriptive statistics.
Results: Results indicated that the profile of the caregiver in this institutional setting was a black, single, female employee, 25 to 34 years of age with her own children. She was caring for children with HIV infections, but did not know which children were infected. Data obtained from responses to the 20 item true-false questionnaire revealed deficiencies in the caregivers' knowledge base in areas related to psychological and nutritional care.
Conclusion: The caregivers appeared to have a baseline knowledge of modes of transmission of HIV. All of the respondents felt the need to be better informed about this disease. Recommendations have been implemented to meet the needs of educational programs for the caregivers of HIV infected preschool children. Future research related to HIV infected preschool children needs to emphasize the development and structuring of educational programs for the caregivers to insure an adequate understanding of the health problems.

TRACK B: CLINICAL SCIENCE & TRIALS
POSTER SESSION

F.B.496 FACTORS AFFECTING PARTICIPATION IN A COOPERATIVE TRIAL OF ZIDOVUDINE (AZT) vs PLACEBO IN HIV INFECTED PATIENTS.

Haren N. Bailey E. Diamond G. New York VA Medical Center, New York, NY., USA.

Objectives: Determine factors influencing participation in AZT/placebo trial for treatment of ARC in a V.A. primary care facility and the rate of active Intravenous Drug Use (DU) among study participants.
Methods and Results: 58 vets were randomized from 1/87 to 1/90. 7 died and 14 withdrew or were terminated. Of the remaining 38, 33 (32 male, 1 female) completed a confidential questionnaire. 39% (n=13) were Black non-Hispanic, 36% (n=12) were White non-Hispanic and 21% (n=7) Hispanic, and 1 other. 58% (n=19) identified DU as risk behavior, 30% (n=10) had homosexual contact (HS), 9% (n=3) reported heterosexual exposure, 1 man listed DU and HS contact as risks. In the questionnaire, 8 possible reasons for joining study were provided. The 4 most frequently cited as being very important were: to receive regular health care (88%), to do something about HIV+ status (82%), to help others learn about HIV (76%), a 50/50 chance to get AZT (61%). Subjects were also asked if they had different reasons for staying in study than for entering: 71% (n=22) cited rapport with study team. Overall responses were similar when broken down according to risk and racial group. Finally, the subjects were asked if they had used IV drugs or smoked crack in the course of the study: 45% of the sample (n=15) said yes; 67% DUs and 22% of the HSs.
Conclusion: 1) The opportunity to receive regular health care was a stronger incentive for entering a research protocol than the chance to get AZT. 2) Active DUs can successfully comply with a research protocol.
Implication: Clinical trials conducted within a primary care setting may facilitate participation, especially in the DU population.

F.B.498 NURSES ATTITUDES IN THE CARE OF HIV/AIDS PATIENTS

NYAMBAKA MONICA, NYANZA PROVINCIAL HOSPITAL, KISUMU KENYA

Nurse regards herself among the high risk groups in the spread of HIV/AIDS infection. This has greatly affected care of such patients objective.
To asses Nurses attitudes in the care of HIV/AIDS patients. To identify factors contributing to the negative attitude. To identify ways and means of solving the problem.
METHOD.
Period of study - May 1986 - December 1989. Area of study - Four Hospitals. Discussions with Nurses. 50 Nurses completed a questionnaire on-
1 Nurses knowledge on AIDS
11 Aspects of Nursing Care, obstacles.
111 Nurse patient relashionship.
1V Nurse, Doctor, colleagues relashionship.
V Nurse relationship with patient relatives.
RESULTS:- 45 Nurses regarded themselves at risk. 37 Nurses served under fear.
CONCLUSION. Knowledge on AIDS is vital in patients care. Asceptic technique ability to improvise the meagre recources will assist in control of infection. Nursing ethics and Commitment will ward of fear of Nursing AIDS patients.

F.B.497 PREDICTORS OF DELAY IN SEEKING MEDICAL TREATMENT FOR AIDS.

Adinolfi, Anthony; Suarez E; Dideriksen P; Bartlett, J.
Duke University Medical Center, Durham, NC, USA.

Objective: To investigate the psychological, situational and social factors influencing persons with AIDS to seek medical attention.

Methods: 43 subjects with AIDS were recruited from the outpatient clinic between July 1988 and January 1990. Patients completed the Trait Personality Inventory (TPI), the Beck Depression Inventory (BDI) and a personal demographic and lifestyle questionnaire. Multiple regression analyses were performed to identify the important variables impacting upon the length of time between the onset of clinical symptoms and a subject's presentation to the clinic.

Results: Multiple regression analyses revealed that age, BDI scores, TPI-anxiety scores, and living with a significant other were responsible for 46% of the variability in time to seek medical attention. Living with a significant other was the only variable to achieve statistical significance, (B=0.63, p=0.04). The availability of health insurance did not influence the time to seek medical attention.

Conclusions: These results suggest that living with a same sex significant other contributes to patients seeking medical treatment much sooner than those living in other arrangements. Clinicians need to recognize this association, and must encourage patients living alone to gain early success to medical intervention.

Hematology/Immunology/Allergy

F.B.499 HTLV-I/II AND HIV-I INFECTION IN INTRAVENOUS DRUG USERS (IVDUs): HEMATOLOGICAL AND SERUM CHEMICAL INDICES.

Brown, Jr., Lawrence*+; Chu, A.*; Sawyer, Robert*; Hickson, M.J.*+; Phillips, R.Y.*; Lee, H.#; Allain, J.P.#
*Addiction Research & Treatment Corporation, Brooklyn, N.Y., +Harlem Hospital Center, Columbia University, N.Y., N.Y.,-#Abbott Laboratories, Chicago, Ill.

OBJECTIVES: To compare hematolgical and serum chemical indices in IVDUs with either HTLV-I/II or HIV-I infection or both.
METHODS: Previously frozen aliquots of sera were assayed for antibodies to HTLV-I/II (using enzyme linked immunoassay, Western blot and radioimmunoprecipitation techniques) in 454 NYC IVDUs for which HIV-I antibodies serostatus, hematological indices and serum chemistries were previously determined. Univariate and multivariate methods of analysis were utilized.
RESULTS: HIV-I infection was found in only 46.3%, HTLV-I/II only in 4.6%, HTLV-I/II and HIV-I in 14.3% and neither infection in 34.8%. The white blood cell (WBC) counts, platelet counts, percent of monocytes and percent of eosinophilia ($p<.05$, $p<.05$, $p<.005$ and $p<.005$, respectively) differed significantly among these groups. Differences among these groups were also observed in serum aspartate aminotransferase ($p<.005$), alanine aminotransferase ($p<.05$), total bilirubin ($p<.05$), albumin ($p<.005$), globulin ($p<.005$) levels.
CONCLUSION: Dual HTLV-I/II and HIV-I infection in this population was clearly related to lower WBC and platelet counts and lower serum albumin levels but higher serum globulin levels.

F.B.500 BLOOD TRANSFUSION REQUIREMENTS BETWEEN HIV POSITIVE HAEMOPHILIACS AND OTHER RISK GROUPS.

Lim, Seng Gee; Lee, CA; Squires, B*; Johnson, MA*; Swaden, L**; Kernoff, PBA. Haemophilia Centre, Academic Department of Haematology, the AIDS Unit* and the Pharmacy**, Royal Free Hospital, London, United Kingdom.

Objective: To assess differences between haemophiliacs and other risk groups for HIV infection, in relation to blood transfusion (BT) requirements.
Methods: A retrospective analysis of the BT records was performed of 111 HIV positive haemophiliacs and 179 HIV positive patients belonging to other risk groups (predominantly homosexuals), and the case notes were examined for all patients who had a previous HIV related BT(non-HIV causes were excluded) and the factors involved.
Results: The results are shown in the table below :

transfusion dependent pts.	pt. no.	transfus. episodes	units of blood(Ø)	concurrent clinical events	zidovudine>1g episodes	zidovudine>1g blood	zidovudine<0.6g episodes	zidovudine<0.6g blood	median T4 count	macrocytosis (MCV>100)
haemophiliacs	4	40	119Ø	0	5	18Ø	16	49Ø	0.04	5/23(22%)
non-haemoph.	6	65	287Ø	9	20	85Ø	10	46Ø	0.08	7/47(14%)
non-transfusion dependent pts.										
haemophiliacs	15	30	93Ø	18	5	17Ø	3	10Ø	0.1	7/16(44%)
non-haemoph.	18	34	137Ø	13	17	70Ø	1	2Ø	0.1	12/24(50%)

18/33 (55%) haemophiliacs and 24/81 (30%) of non-haemophiliacs (CDC IV), required BT (1 haemophiliac was CDC II), of whom all were on zidovudine. Although a higher proportion of haemophiliacs required BT, non-haemophiliacs used a larger amount of blood. BT dependent patients (>4 BT and/or >15Ø blood) tended to have less macrocytosis and lower T4 lymphocyte counts. Two of these patients (homosexuals) developed aplasia despite ceasing zidovudine.
Conclusion: In non-haemophiliacs, higher dose zidovudine resulted in more BT than haemophiliacs, but otherwise, the two groups were similar.

F.B.501 THERAPEUTIC APHERESIS AND INTRAVENOUS GAMMAGLOBULIN THERAPY IN HIV-RELATED IMMUNE SYNDROMES.

Dobri Kiprov, Beata Kwiatkowska, Raphael Stricker, Robert Miller, Immunotherapy and Neurology Divisions, Children's Hospital of San Francisco, San Francisco, California.

A number of clinical syndromes related to immune dysregulation may emerge during the course of HIV infection. Since therapeutic plasmapheresis (TP) has previously been shown to benefit HIV-seronegative patients with similar syndromes, the same treatment was utilized in the presence of HIV infection. Twenty patients with peripheral neuropathy, 5 patients with polymyositis, 4 patients with thrombotic thrombocytopenic purpura (TTP), 4 patients with autoimmune neutropenia, and 3 patients with immune thrombocytopenia who failed to respond to other treatments were treated with TP. Improvement of clinical and laboratory parameters was seen in 28 of the 36 patients. Relapses were common in all disease categories except TTP. In an attempt to prevent relapses we investigated the synchronous use of TP and intravenous gammaglobulin (IVIG) in 11 patients. 5 had peripheral neuropathy, 3 polymositis, and 3 ITP. Although different regimens were explored, the best results were obtained using one plasma volume TP against 5% human albumin followed by 200-300 mg/kg IVIG twice a week for a month. 8 of the 11 patients responded to the combination therapy. The interval between relapses was increased 50% in the responding patients, compared to patients treated with plasmapheresis alone.

F.B.502 ANERGY IN INTRAVENOUS DRUG USERS (IVDUS): PREVALENCE, INFLUENCE OF HIV STATUS, SEX

Cohen,James*; Nardell, E.**, * Spectrum House,Inc., Westboro Massachusetts, USA, ** Massachusetts Dept. of Public Health, Boston, Massachusetts, USA

Objective: To determine the prevalence of cutaneous anergy in HIV negative (HIV-)and asymptomatic HIV positive (HIV+) IVDUS with unreactive skin tests for tuberculosis (TB).
Methods: IVDUS admitted to 2 inpatient drug treatment units were studied prospectively using the MULTITEST CMI panel (Merieux, Inc.) Enrollment was limited to patients with verified intradermal 5 TU Mantoux tests $<$5 mm in induration and verified HIV serologies. Exclusion criteria included hepatitis B surface antigenemia, diabetes, pregnancy, prior use of Zidovudine, CDC Class IV HIV infection. Results were analyzed by the Chi-square test.
Results: Sixty-five patients enrolled; the average age was 29 (range 20-44) and 59 patients weighed at least 90% of predicted ideal body weight. Anergy was present in 47% (7/15) HIV+ and 10% (5/50) HIV- patients ($p<.01$). Anergy was more common among HIV- women (5/18) than among HIV- men (0/32, $p<.05$). All 4 HIV- patients weighing below 90% of predicted ideal body weight reacted to skin tests; 1 of 2 HIV+ patients did not react. All 53 patients reacting to at least 1 test antigen responded to either Tetanus toxoid or Candida.
Conclusions: Cutaneous anergy may have accounted for 18% of negative Mantoux tests in this group. The prevalence of TB infection in IVDU cohorts with high proportions of asymptomatic HIV+'s and HIV-women may be underestimated if based only upon Mantoux results. Testing with Tetanus toxoid and Candida may be a more economical way to identify anergic IVDUS.

F.B.503 CLINICAL UTILITY OF BONE MARROW EXAMINATIONS IN HIV-INFECTED PATIENTS.

MAZZULLI, Tony and SALIT, I.E. Division of Infectious Diseases, Toronto General Hospital, Toronto, Canada.

Objective: To determine the diagnostic and clinical utility of bone marrow aspirate (BMA) and biopsy (BMB) examinations in HIV infection.
Methods: Retrospective review of BM's from 1982-1990.
Results: BMA's were done on 85 patients classed as CDC Gp. IV C1 (54%), Gp IV D (23%), Gp III (12.5%), Gp IV C2 (4%) and Gp II (6.3%). BMA's were normocellular (58%), hypercellular (33%) or hypocellular (9%). Dysplastic erythropoiesis was noted in 34%. Iron stores were usually normal. BM cultures were done in 40% and were positive in 32% of those patients: MAI (21%), MTb (5%) and histoplasmosis (5%). However, these cultures were also positive from other sites, especially blood (100%). BMA was of no additional value in diagnosing lymphoma. Patients with thrombocytopenia had adequate megakaryocytes. BMB was done in 80% of all patients. Granulomas and positive smears were present in all of those with positive BM cultures. Lymphoma was diagnosed in 11% but the BMB provided no additional information beyond the other available investigations .
Conclusions: BM examination did not have additional clinical value in diagnosing infections or lymphoma since these had been readily diagnosed from other sites. Patients with thrombocytopenia all had adequate megakaryocytes. Overall, results from the BM examination had limited clinical utility and did not result in a change of therapy.

F.B.504 SERUM ERYTHROPOIETIN LEVELS IN PATIENTS INFECTED WITH THE HUMAN IMMUNODEFICIENCY VIRUS

Gutfreund, Klaus; Hess, G.; Voth, R.; Rossol, S. and Meyer zum Büschenfelde, K.-H.
Johannes Gutenberg University, Mainz, Federal Republic of Germany.

Objective: To assess serum erythropoietin levels in patients with and without anemia at different stages of HIV-infection.
Methods: Fiftyone anti-HIV positive patients as confirmed by enzyme linked immunosorbent assay (Abbott Laboratories, N.-Chicago, Ill., USA) and Western blot analysis (Dupont, Bad Nauheim, FRG) were included in this study. Anemia was present in 27 patients. Twentyfive anti-HIV positive patients belonged to stage III and 24 to stage IV according to the criteria of the Centers for Disease Control. Seven patients received zidovudine for periods between 6 and 12 months and two patients combination chemotherapy for Kaposi sarcoma. Blood transfusions were required in three patients whose sera were taken for erythropoietin assay at least one month after the last transfusion. All patients had normal values for serum creatinine. The control group consisted of 44 anti-HIV negative blood donors. Erythropoietin (EPO) was measured with a commercially available enzyme linked immunosorbent assay (Medac, Hamburg, FRG). The significance of differences were determined by Student's two tailed t test.
Results: Mean serum EPO levels were significantly elevated in anti-HIV positive individuals as compared to the control group (16,4 mU/ml) regardless whether they were anemic (126 mU/ml) or had a normal hemoglobin (42,3 mU/ml). Patients with anemia induced by zidovudine or chemotherapy had much higher mean serum EPO levels (229 mU/ml) as compared to untreated anemic patients (76 mU/ml). A significant negative correlation between the serum level of erythropoietin and the severity of anemia could be found only in the group with drug induced anemia.
Conclusion: These data indicate that there is a rise in serum EPO levels even in HIV-infected patients without anemia possibly reflecting early involvement of bone marrow in HIV-infection, and that there is an inadequate low response of serum erythropoietin levels in a subgroup of anemic HIV-infected patients. Myelotoxic substances can stimulate EPO production further in most patients, however, even high levels of erythropoietin fail to prevent anemia.

F.B.505 PROTEIN CONJUGATION ENHANCES IMMUNOGENICITY OF H. INFLUENZAE TYPE B (HIB) POLYSACCHARIDE (PS) VACCINE IN HIV-INFECTED ADULTS

Auerbach, Barry Seth; Steinhoff, M.; Nelson, K.; Chaisson, R.; Becker, R.; Vlahov, D.; Saah, A. Johns Hopkins Medical Institutions, Baltimore, Maryland, USA.

Objective Because HIV-infected persons are at increased risk of infection with encapsulated bacteria and show diminished antibody (Ab) responses to PS antigens, we evaluated the immunogenicity of Hib polyribosylribitol phosphate (PRP) with and without a conjugated protein in HIV(-) and HIV(+) adults.
Methods 280 males 18-65 years old were designated HIV(-), or HIV(+) and healthy, ARC, or AIDS, and randomized to receive 0.5 ml IM of either PRP [b CAPSA-I] or PRP conjugated with diphtheria CRM-197 (HbOC) [HibTITER]. Sera were tested for total PRP-binding Ab (Farr-type RIA assay), immunoglobulin (Ig) isotypes and IgG subclasses (ELISA) at 0, 1 month and 6 months. Preliminary geometric mean (GM) Ab data from 47 HIV(+) adults are available.
Results

		Total PRP binding antibody		
		GM Titer (SD)		GM Fold
Vaccine	n	pre	1 mo	Increase (SD)
PRP	23	0.88(5.5)	5.3(7.6)	7.8 (5.5)
HbOC	24	0.87(4.1)	43.5(9.9)	57.9(10.4)
p(ANOVA)		0.97	0.004	0.005

Among subjects with ARC/AIDS, 1/6 PRP recipients and 3/3 HbOC recipients had 1 month titers predictive of longer term protection ($\geq$1.0 mcg/ml).
Conclusion These early data indicate that protein conjugation significantly enhances antibody response to PS in HIV(+) subjects. HbOC immunization may be an effective measure to reduce Hib disease in HIV(+) adults.

F.B.506 VENOUS THROMBOEMBOLIC DISEASE IN AIDS

Lewis, Bradley*+; Brosgart, C.*+; Bresnik, M.*; Jacobson, S.*, *East Bay Aids Center, at Alta Bates-Herrick Hospital, Berkeley, California, USA, +University of California, San Francisco, California, USA

Objective: To describe the incidence of venous thrombotic disease in AIDS.
Methods: The inpatient and outpatient records of HIV+ patients were reviewed in a community hospital AIDS clinic caring for 400 HIV+ patients, 200 with confirmed AIDS. Clinical diagnosis of deep venous thrombosis (DVT) was confirmed by venous duplex ultrasound and pulmonary embolus (PE) by pulmonary angiogram.
Results: Nine episodes of DVT or PE occurred in 8 AIDS patients during 1989. Eight episodes of DVT presented with leg pain and swelling; 1 case of PE presented with fever, elevated LDH and shortness of breath. Six patients had no known predisposing risks for DVT. One was quadraplegic and 1 was hemiparetic but ambulatory. No patient had lymphoma, Kaposi's sarcoma or other cause of chronic edema or venous obstruction. No patient was septic although the majority had pre-existing opportunistic infections: 2, CNS toxoplasmosis; 3, systemic mycobacterium avium complex infection; and 4, recurrent herpes simplex. All patients had normal baseline protime, activated partial thromboplastin time and platelet count. Further evaluation of possible hypercoagulability is pending. All patients responded clinically to anticoagulation with heparin and then warfarin. One patient subsequently expired secondary to a post-traumatic CNS hemorrhage while on warfarin therapy.
Conclusions: Venous thromboembolic disease (DVT and PE) are unexpectedly common in ambulatory outpatients with AIDS. Symptoms may mimic other common manifestations of HIV infection. No common epidemiologic factor or underlying hypercoagulable state has yet been identified.

F.B.507 UTILITY OF BONE MARROW EXAMINATION FOR EVALUATION OF OPPORTUNISTIC INFECTIONS IN PATIENTS WITH HIV INFECTION

Northfelt Donald W, Mayer AJ, Kaplan LD, Abrams DI, Hadley WK, Herndier BG.
San Francisco General Hospital, University of California, San Francisco, California, USA.

Objective: HIV-infected persons can develop opportunistic infections (OI) involving the bone marrow. This study seeks to identify clinical settings in which bone marrow examination facilitates diagnosis of OI.
Methods: We reviewed records of 186 patients with known or suspected HIV infection who had marrow sampled for cultures and/or histologic stains for OI. Information obtained included: HIV disease status before marrow sampling [AIDS (111 patients), ARC (16), asymptomatic HIV+ (20), at risk/HIV status unknown (39)]; indication for marrow evaluation [lymphoma staging (44), cytopenias (91), persistent fevers (51)]; results of marrow cultures and stains for acid-fast bacilli (AFB) and fungi.
Results:

	AFB cultures		AFB stains		Fungal cultures		Fungal stains	
	total	#positive	total	#positive	total	#positive	total	#positive
TOTAL	158	25	149	18	152	5	139	5
AIDS	92	22	92	13	91	3	84	3
ARC	16	2	15	3	13	2	15	2
HIV+	16	1	15	2	16	0	15	0
at risk	34	0	27	0	32	0	25	0
cytopenias	84	15	72	10	79	0	69	0
fevers	47	8	47	5	48	5	44	5
lymphoma	27	2	30	3	25	0	26	0

Using positive marrow culture to define true infection, AFB stain was 56% sensitive, 96% specific. Fungal stain was 100% sensitive and specific; the organism was identified by inspection of the stained specimen in all cases. 17 of 24 patients with positive marrow AFB cultures had simultaneous positive blood AFB cultures. All patients with positive marrow fungal cultures had positive blood fungal cultures.
Conclusions: Bone marrow AFB cultures identify infection in ~20% of patients with AIDS or ARC and unexplained cytopenias or fevers, but the diagnosis can be made by blood culture in the majority of cases. AFB stain can demonstrate infection more quickly than cultures, but sensitivity is low. Bone marrow fungal cultures offer little advantage over blood cultures, but fungal stain is useful for rapid detection of infection.

F.B.508 SPONTANEOUS SECRETION OF ERYTHROPOIETIN IN HIV-1 INFECTED PATIENTS

Bieniek, Bernhard*; Höffken,G.*; Brockmüller,J.**; Petri, M.*; Lode,H.*
Medical Clinic* and Institute for Clinical Pharmacology**,
Klinikum Steglitz, Freie Universität Berlin, F.R.G.

Erythropoietin (EPO) is a glycoprotein produced mainly by juxtatubullar cells of the kidney but also by macrophages and other cell types. It is the most lineage-restricted haemopoietic regulator. Anemia is frequently encountered in patients with the human immunodeficiency syndrome. Beside azidothymidine induced makrocytic anemia, dysmyelopoietic syndrome is commonly found in patients in the later stages of fullblown AIDS.
Objective: To determine physiological secretion of EPO in HIV-1 infected patients in a longitudinal study.
Method: On a regularly basis HIV-1 infected patients are seen in the AIDS-ambulance prospectively. EPO concentrations in plasma were determined by HPLC-method every three months combined with biochemical and immunological follow-up.
Results: Seventy HIV-1 infected patients (median age 41 y; 39 male; AIDS n=25; ARC n=21; LAS n=24). have been examined thus far. Anemia corresponded to the stage of infection: eight of 10 patients with hemoglobin concentrations below 10 g/dl had AIDS, 2/10 ARC and none LAS. Hemoglobin 10-12 g/dl: 7/14 had AIDS, 5/14 ARC and 2/14 LAS. In contrast, hemoglobin concentrations above 14 g/dl were associated with fullblown AIDS in 2/24 patients only, in 6/24 with ARC, but in 16/24 cases with LAS. In addition, a direct correlation could be found between the severity of anemia and EPO-concentrations:

Hemoglobin	>14 g/dl	12-14 g/dl	10-12 g/dl	<10 g/dl
EPO (U/l)	29,7	39,9	49,5	167,1
SD	13	18	23	140
n	24	22	14	10

In 27 of 46 AIDS and ARC patients azidothymidine was the major cause of anemia.
Conclusions: The close correlation between severity of anemia and spontaneous secretion of EPO in HIV-infected patients indicates unchanged physiological regulation of EPO release.

F.B.509 NEUTROPHIL-BOUND IMMUNOGLOBULIN IN HIV-INFECTION HAS AN AUTOANTIBODY NATURE.

Klaassen R.J.L., A. Vlekke, A.E.G.Kr. von dem Borne
Central Laboratory of the Netherlands Red Cross Blood Transfusion Service, P.O.box 9190, 1006 AD Amsterdam, the Netherlands.

Objective: Determination of the nature (adhered immune complexes (IC) or autoantibodies) and the antigenic specificity of HIV-induced neutrophil-bound immunoglobulin (NBIg).
Methods: Sera and acid-eluates from neutrophils (N) from 15 HIV-infected men, containing N-reactive antibodies, were tested by immunofluorescence for reactivity with 1.other leucocytes;2. N from 4 donors selected for expression of the major polymorphic determinants on N (N panel);3. N with a genetically determined deficiency of the major Fc-receptor on N (CD16antigen-);4.N treated with GPI-PLC, an enzyme that removes glycoproteins anchored by a PI-moiety; 5.N with blocked Fc- and complement receptors.
Results: None of the sera and eluates reacted with lymphocytes or monocytes. There was a relative difference in reactivity with the panel N, not related to any known polymorphism. All sera and eluates reacted with CD16antigen- N and with N with blocked FcR and CR.GPI-PLC treatment did not influence reactivity either. Immunoprecipitation and blotting studies are in progress.
Conclusion: NBIg in HIV-infection are autoantibodies and not IC. They recognize N-specific, GPI-PLC resistant antigens.

F.B.510 HIV-ASSOCIATED CARDIOMYOPATHY: EVIDENCE FOR AUTOIMMUNITY

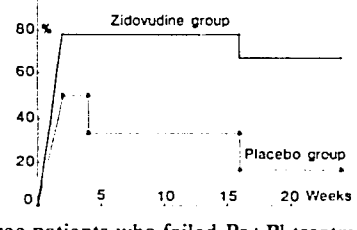
Herskowitz, Ahvie, Willoughby S, Oliveira M, Bartlett J, Vlahov D, Chaisson R, Baughman K, Neumann D, Weiss J, Rose N, Beschorner W, Ansari A*. Johns Hopkins Medical Institutions, Baltimore, MD, USA, *Emory University, Atlanta, GA, USA.

The purpose of this study was to characterize the immunopathologic and serologic features of 21 patients with HIV-associated cardiomyopathy (HIV-CM). All had global left ventricular dysfunction on 2-D echocardiography (mean ejection fraction (EF) 39±13%). Endomyocardial biopsy revealed myocarditis in 8 of 13 patients and was associated with cytotoxic-suppressor T cell infiltrates and induction of major histocompatibility antigen Class I expression within the myocardium. In situ hybridization assays for HIV, CMV, EBV, and HSV failed to detect viral genome within heart tissue. Serum samples were analyzed for circulating immunoglobulin G (IgG) and autoantibodies to three cardiac antigens: myosin, mitochondrial adenine nucleotide translocator (ANT), and branch chain ketoacid dehydrogenase. Sera from 26 HIV positive patients without cardiomyopathy (HIV-nonCM, mean EF 64±6%) matched for age, sex and risk group were similarly tested. High titered autoantibodies to myosin were present in 11 of 16 HIV-CM vs 4 of 20 HIV-nonCM patients (p=.003). Autoantibodies to ANT occurred in 11 of 16 HIV-CM vs 6 of 20 HIV-nonCM patients (p=.042). HIV-CM patients had increased circulating IgG (2846±1276 mg/dl vs 2005±511 mg/dl, p<.001), total immunoglobulins (3521±1333 mg/dl vs 2699±747 mg/dl, p=.012), and total protein (8.7±1.4 g/dl vs 7.9±0.8 g/dl, p=.026). These data suggest that HIV-CM may not be directly due to HIV infection of the heart. The increase in cardiac antibody titers suggests that autoimmunity may play a significant role in the pathogenesis of HIV-CM.

F.B.511 PREDNISONE (Pr) AND ZIDOVUDINE (Z) VERSUS Pr AND PLACEBO (Pl) FOR SEVERE HIV-ASSOCIATED THROMBOCYTOPENIA (HIV-TCP)

de Stoutz, Noémi*; Hirschel B*; Winkelmann JJ*; Poncelet H**; Cajot A***; for the Swiss Group for Clinical Studies on AIDS.
*HCUG, Geneva, and ***CHUV, Lausanne, Switzerland, **Hôpital Salvator, Marseille, France.

Objective : 500-100 mg Z/day raise platelet (plt) counts in patients with moderate HIV-TCP (Ann Int Med 1988; 109:718-21). Does Z permit a reduction or elimination of steroids in patients with severe (<20'000 plt/mm³) HIV-TCP?
Methods : Patients were randomised to either Pr (1,5 mg/kg/d for 3 weeks, then tapered to 10 mg/d over 5 weeks) + Pl, or to Pr + Z (250 mg 4 times/d).



Percent Remaining in Remission
Remission = > 30'000 platelets per cubic mm. P = 0.07 by log-rank test

Three patients who failed Pr+Pl treatment were given Z : after 16 weeks, 2/3 had plt counts above 50'000/mm³.
Conclusions : These preliminary results suggest that more remissions of severe HIV-TCP are achieved with Pr + Z than with Pr alone, and that remissions are maintained longer after tapering Pr if the patient also receives Z.

F.B.512 ALPHA-INTERFERON IN TREATMENT OF SEVERE HIV-RELATED THROMBOCYTOPENIA (TP)

Luzzati,Roberto;Di Perri,G;Malena,M;Mazzi,R;Concia,E;Bassetti,D
Institute of Infectious Diseases,University of Verona,Italy

Objective:Therapy of T P is not well established.In this open trial we evaluate the efficacy of alpha 2b-interferon (IFN) in the treatment of symptomatic T P. Methods:Nine HIV positive drug addicts (2 females,7 males)affected by T P (platelets $< 50 \times 10^9$/L) were enrolled.Their mean age was 25 years(range 19-32). Patients were classified as CDC group II or III.Cutaneous and/or mucous petechiae were present in all cases,hematoma in 4 cases,hepistaxis in 2 cases and menometrorrhagia in one case.None received antiretroviral therapy. Patients were maintained on subcutaneous IFN at the dosage of 3 MU/m^2 three time weekly for a minimum of 12 weeks.Hematologic and clinical evaluations were performed at 4 weeks intervals.Results:The mean initial value of platelets was 20×10^9/L (range 7.0-48).Platelet count rose over the first 4 weeks and persisted at values significantly higher for 8 and 12 weeks (table).Seven out of 9 patients had no bleeding after a median time of 3 weeks.Side-effects were absent except transient flue-like syndrome in 3 cases during the first week of treatment.

weeks	0	4	8	12
platelet count(mean ± S.D.)	20.6 ± 13.6	45 ± 29	52.2 ± 47	47.3 ± 34.8
P values		< 0.05	< 0.05	$= 0.05$

Conclusion:Preliminary results of this ongoing trial suggest that IFN is worth of consideration for controlled evaluation in HIV-related thrombocytopenia.

F.B.513 IS HIV-ASSOCIATED THROMBOCYTOPENIA A PROGNOSIS FACTOR FOR AIDS? HOSPITAL-BASED SURVEILLANCE, BORDEAUX, FRANCE,1985-1989.

Lacoste, Denis*; Parneix, P.**; Dabis, F.**; Commenges, D.**; Pellegrin J.L.*; Brossard, G*; and the Groupe d'Epidémiologie Clinique du SIDA en Aquitaine (GECSA)*
* Centre Hospitalier Régional Universitaire (CHRU), Bordeaux, France.
** INSERM, U. 330, Université de Bordeaux II, Bordeaux.

Objective: To evaluate the frequency of HIV-associated thrombocytopenia (Thro), and its prognosis importance in the occurrence of AIDS from data collected in a hospital-based surveillance system.
Methods: Seropositive patients belonging to all high risk groups are included since 1985 by the GECSA, at all stages of HIV disease, according to the classification of the Centers for Disease Control (CDC). A patient is considered having a Thro (Th+) when his platelet count is lower than 150,000/mm3 at one or more of the check-ups performed while he is classifed in CDC group II, III or IVE (without any other reason than the thrombopenia). The outcome studied is the occurrence of full blown AIDS. The comparison between the Th+ and Th- groups is made using the Cox proportional hazards model.
Results: As of October 15 1989, 495 Th- patients classified in CDC group II or III and 149 Th+ patients have been included. Among them, 99 Th+ and 259 Th- patients have been followed-up. The proportion of IV drug users is significantly higher in the Th+ group (47%) than in the Th- one (30%) ($p<0.01$). The probability of reaching the AIDS stage is 6.4% after 24 months of follow-up in the Th- group (95% confidence interval [CI] = 1.9%-10.9%) and 23.5% in the Th+ group (95% CI = 10.2%-36.8%) (relative risk [RR] = 4.3; $p<0.0002$). Platelet count and CD4 lymphocyte count are positively correlated (Spearman coefficient R' = 0.46). When using as a second explanatory variable CD4 lymphocyte count with the threshold of 400/mm3, the differential evolution of the two groups remains (RR = 2.8; p=0.01). When using CD4 lymphocyte count as a continuous variable, there is no more significant difference in the rate of occurrence of AIDS (RR = 2.2; p=0.06).
Conclusion: The frequency of Thro is estimated to be 23% in our sample (149/644). Taking into account the CD4 lympocyte count cancels the prognosis effect of Thro initially identified. All studies of prognosis factors of HIV disease should include in the analysis the crude rate of CD4 lymphocytes.

F.B.514 HIV-ASSOCIATED THROMBOCYTOPENIA (HATP) IN CHILDREN

Church, Joseph A.; Gomperts, Edward D.
Childrens Hospital of Los Angeles and the University of Southern California School of Medicine, Los Angeles, California, U.S.A.

Objectives: Determination of incidence, clinical manifestations and responses to therapy in children with HATP.
Methods: The records of 92 HIV-infected children were reviewed.
Results: Eighteen (9M, 9F) children developed HATP (platelet count(P) over 150,000/cumm). Fifteen acquired HIV via transfusion, 3 via perinatal exposure. P ranged from under 5,000 to 130,000. In six patients HATP was associated with terminal events and did not cause specific complications; in four P rose spontaneously; in 11 HATP was an incidental finding. Petechiae or easy bruising was the clinical manifestation in five; no CNS bleed was seen. A 6½ year old boy had transient thrombotic thrombocytopenic purpura; an 8 month old girl had HATP with a "lupus anticoagulant" and bleeding. Intravenous immunoglobulin did not maintain P over 50,000 for over six weeks in four treated subjects. In four of five patients prednisone (10-15 mg every other day) has been effective for up to one year and has not been associated with immunologic deterioration. A 7 year old boy with P under 5,000 did not respond to IVIG, prednisone (90 mg/day), or AZT; splenectomy was only transiently effective, but converted him to steroid responsiveness. Hyperimmunoglobulinemia and CD4+ lymphopenia were not related to the presence or severity of HATP.
Conclusions: HATP affected 20% of HIV-infected children in this study, but did not require specific intervention in most patients. IVIG resulted in transient improvement a best; low-dose prednisone appeared to be safe and effective in most children treated. Splenectomy was helpful in one child.

F.B.515 HIV-RELATED THROMBOCYTOPENIA INCLUDES VARIOUS FORMS OF THROMBOCYTOPENIAS.

Landonio, Giuseppe; Nosari, A.M.;Vigorelli,L.*; Spinelli, F.*; Schlacht, I**; Caggese, L.**.
Departments of Haemathology, Nuclear Medicine* and Infectious Diseases ** Niguarda Cà Granda Hospital, Milano, Italy.

Objective: To investigate the pathogenesis of HIV-related Thrombocytopenia (TP) and the response to different treatments
Methods: We evaluated 25 patients with severe HIV-related TP ($<< 25 \times 10^3$/l) by bone marrow morphology and kinetic studies with 111-In Oxine.
Results:

T/2*	<3 days	3-6 days	> 6 days
n. patients	5	11	9
megakario N or ↑	5/5	10/11	8/9

*survival (days) of autologous platelets labelled with 111 In.
- 2/25 patients (8%) had megakaryocites hypoplasia and did not benefit of any treatment;
- 5/25 patients (20%) showed a reduction of T/2 similar to that observed in "acute" ITP: 4/5 responded to splenectomy;
- 10/25 patients (40%) had a reduction of T/2 similar to "chronic" ITP.Five of them were splenectomized et only two responded; five were trated with AZT (3/5: good response);
- 8/25 patients (36%) showed a normal T/2 and a picture of splenic and hepatic "pooling" without platelets destruction.All were treated with AZT (4/8 good response).

Conclusions: megakaryocites hypoplasia, "acute" and "chronic" ITP, splenic and hepatic sequestration represent different forms of HIV-related TP, and have to be differently considered for treatment and prognosis.

560

F.B.516

RESPONSE TO THERAPY IN 31 PATIENTS WITH HIV-RELATED THROMBOCYTOPENIA.

Dominguez A, Peña JM, Valencia E, Mostaza JM, Martinez MA, Barbado J.
Servicio Medicina Interna. Hospital "La Paz". Madrid. España.

OBJECTIVE: Thrombocytopenia is one of the most important clinical haematological features occurring in patients with HIV infection. We have studied prospectively 31 patients (p.) with HIV-related thrombocitopenia over an one-year period.

METHODS: 25 p. were male and six ones were female: 25 intravenous drug abusers, 4 homosexual men, 1 homosexual drug abuser, and 1 unknown risk group patient. At the time of diagnosis, 7 p. belonged to the CDC group IV-C1 (AIDS); 2, IV-C2; 2, IV-A; and the rest, 21 p., IV-E (thrombocytopenia was the only symptom). Responses to therapy were classified as complete if the platelet count rose above 100000 and partial above 50000. We have considered a sustained response if it had persisted throughout more than four months.

RESULTS: 12 p. had mild clinical bleeding. At the time of the diagnosis the mean platelet count was 43550 (range 3-99000); 10 p. had <10000. The mean T4-cell count in group IV-C1 was 300.57 versus 329.8 in the other groups. Platelet bound IgG was detected only in 2 p. and P24 Antigen in four ones (2 IV-C1, 2 IV-E). No patient developed AIDS along the study period. Only 3 p. died; all of them were known to have AIDS before developing thrombocytopenia, which was not the cause of death either. Eleven p. remained untreated, only two of them experienced spontaneous remission. Twenty p. were given any of the following therapies (8 p. received more than one) and the results were as follows:

TREATMENT(33)	SUSTAINED RESPONSE(15)	TRANSITORY R.(8)	PARTIAL R.(7)	COMPLETE R.(16)	NO RESPONSE(10)
Zidovudine (17)	11	2	6	7	4
Steroids (5)	1	3	1	3	1
Danazol (5)	1	0	0	1	4
Immunoglobulin (4)	0	3	0	3	1
Splenectomy (2)	2	0	0	2	0

CONCLUSIONS: 1) In contrast with classical ITP, our p. were minimally symptomatic. 2) HIV-Related thrombocytopenia does not seem to be associated with the development of AIDS. 3) Best therapeutic results were obtained with Zidovudine. 4) We propose that iv immunoglobulin, due to its great though transitory efficacy, should be used mainly in severe cases. 5) Splenectomy appears useful in p. with persistent and symptomatic profound thrombocytopenia.

F.B.517

EFFICACY OF ZIDOVUDINE IN THE TREATMENT OF HIV INFECTION ASSOCIATED THROMBOCYTOPENIA

José A. Carton, Cárcaba V, Vicente P, Maradona JA, Llorente R, Arribas JM. Dpto.de Medicina, Hospital Universitario Covadonga. Oviedo, España.

We have studied 21 out of 30 patients who developed thrombocytopenia (platelets < 100 x 10^9 /L) during the course of HIV infection. Criteria for admission to the study were: Thrombocytopenia for at least 3 months; normal or raised bone marrow megakaryocytes; presence of antiplatelet antibodies; absence of causes different from HIV infection for thrombocytopenia; and continuous Zidovudine (250 mg qid) treatment for at least 8 weeks with weekly hematological control and corresponding dose adjustment.

The initial platelet (Pl) count was lower than 50 x 10^9 /L in 10 cases, with minor signs of hemorrhage in 5 patients. Chronologically, platelet levels measured at starting, 4 weeks later, at platelet peak level (7 ± 3.1 weeks), and at the end of the study (31 ± 20 weeks), were: 59 ± 32, 115 ± 54, 172 ± 72, 122 ± 44 x 10^9 /L, respectively (p <.0001 between the initial figure and any other of them). Under Zidovudine treatment an overall of 14 (67 %) complete responses were obtained (Pl > 100 x 10^9 /L if the initial figure was inferior to 50 x 10^9 /L or twice the starting value if that was hinger than 50 x 10^9 /L). These recoveries were achieved after 3.6 ± 1.8 weeks of therapy. Four patients partly improved, and in 3 cases (14 %) the response was scarce or absent being necessary to associate prednisone to get a remission. During the follow-up 4 patients with a good response to therapy suffered from a transitory relapse (Pl levels < 100 x 10^9 /L),; that was due to suspend medication (2 cases), CMV infection (1 patient), and unknown reasons (1 subject), being necessary to administer in this case Danazol.

Some adverse effects observed during Zidovudine therapy were: lowering of hemoglobin and neutrophils levels accompanied by a significant elevation in the mean corpuscular volume and CD4 cells. Antiplatelet antibodies remained present during the whole time of therapy.

Zidovudine obtained a rapid and sustained remittance of HIV-associated thrombocytopenia with additional benefits on the immunosuppressive state; consequently it may be considered as the initial therapy in these patients.

F.B.518

ANTIPLATELET ANTIBODIES IN HIV INFECTION

Drenaggi,Davide;Piani,M.*;Petroni,S.;Bencivenga,R.*;
Petrelli,E.;Ancarani,F.;Cantelli,G.*;Scalise,G.;
Istitute of Infectious Diseases, University of Ancona, *Transfusion Center General Regional Hospital, Ancona;

Objective:To estimate the frequency of antiplatelet antibodies (antiplt Ab) in HIV infectd patients, we have studied 42 pat.: 32 m. and 10 f.,some of them suffering from thrombocytopenia. 34 pat drug addicts,4 omosex,4 eterosexuals: 19 of whom as GROUP III CDC (45%) and 23 as GROUP IV CDC (54%).

Methods:Antiplt Ab (I-PSIFT), Lymphocyte subsets (monoclonal Ab), immune complexes (I.C.)(C1q binding test),Ag p24 HIV (E.L.I.S.A. platelets count (optical-electronic method) were studied.

Results:I-PSIFT test is positive in 61,9% without a relationship with clinical stage (46,9% in GROUP III, 53,1% in GROUP IV). The positive I-PSIFT pats show a greater count of CD4, presence of Ag p 24 in 50% (25% in negative I-PSIFT pat.) and elevated I.C. in 15% (normality in the others). Thrombocytopenia (<100000/mm3) was observed in 11,9%: the positivity of test(found in 62,5% of thrombocytopenic pat.) wasn't related neither with clinical stage (50% GROUP III, 50% GROUP IV) nor the seriousness of thrombocitopenia (75% in plt > 50000, 71,4% in plt < 50000).

Conclusion:We think that the great frequency of antiplt Ab can be an expression of the well known HIV immunologic alterations.

F.B.519

HIV-RELATED IMMUNE THROMBOCYTOPENIA : FOLLOW UP AND TREATMENT OF 157 PATIENTS

Oksenhendler Eric, P. Bierling, MP. Archambeaud, J.F. Delfraissy, S. Chevret, J.P. Clauvel, Paris - France.

Objective : Longitudinal study of HIV infected patients with thrombocytopenia (platelets < 50 x 10^9 /l).

Patients : IV drug addicts : 43 % ; homosexual men : 27 % ; hemophiliacs : 16 % others : 14 %. At initial evaluation, none had AIDS, CD4 cell count was < 400 x 10 ^{6}/l in 47% and serum p24 antigenemia was detectable in 19 %.

Treatment : 27/49 patients responded to zidovudine (500 mg to 1500 mg/d). Splenectomy was performed in 45 patients with severe symptomatic thrombocytopenia and resulted in a persistent increase of platelet counts in 37 (82 %).

Follow up : Within a median follow up of 40 months, 12 patients have developed AIDS and 13 died. AIDS free survival was 90 % at 2 years and 77 % at 4 years. No differences were noted according to risk groups or splenectomy.

F.B.520 MEDIUM-LONG TERM EFFICACY OF ZIDOVUDINE IN HIV-RELATED THROMBOCYTOPENIA.

Cinque, Paola*; Lazzarin,A.*; Landonio,G.**; Gringeri,A.***; Nosari,A.M.**; Moroni,M.* *Clinic of Infectious Diseases, University of Milan; **Haematology Department, Ca'Granda Hospital, Milan; ***Haemophilia and Thrombosis Center A. Bianchi Bonomi, University of Milan.

Objective. To evaluate how long the efficacy of Zidovudine (ZDV) on platelet (plt) count persists. Methods. We studied 19 patients (pts) with HIV related thrombocytopenia, classified into CDC groups IV-C1 (1 pt), IV-C2 (11 pts) and III (7 pts), and treated with ZDV (800-1200 mg daily) for a period of 12-23 months. The pts fell into two groups: A-initial plt count of< 25 x 10^9/L; B-initial plt count of 25-100 x 10^9/L. Results. The table shows the mean plt count (x 10^9/L) at varying times from the start of treatment:

Month	0	1	3	6	9	12
Group A (n=11)	17.4	40.0	53.4	79.5	88.3	86.4
Group B (n=8)	79.4	138.1	150.4	143.4	160.0	148.4
all (n=19)	43.5	83.4	101.8	109.7	118.5	112.5

Therteen of these pts (74%)(7 in group A and 6 in group B) had shown a progressive increase in plt count, in 2 pts (both in group A) the plt count had decreased to the initial value after 3-6 months of ZDV treatment, 4 pts (2 in group A and 2 in group B) had shown no response to treatment. In the responders pts treated for more than 12 months, the plt count didn't decrease under the reached values; at the contrary in two pts the plt count decreased after suspension of the treatment. Conclusion. The effect of ZDV persists over one year of treatment; severe thrombocytopenia could be proposed as a specific indication for ZDV treatment, even in subjects without evidence of risk of progression of the disease.

F.B.521 ANTI-D IMMUNOGLOBULIN FOR TREATMENT OF IMMUNE THROMBOCYTOPENIC PURPURA (ITP): COMPARISON BETWEEN HIV-RELATED ITP AND IDIOPATHIC ITP.

Santagostino, Elena; Cattaneo, M.; Capitanio, A.; Gringeri,A.; Tradati, F.; Mannucci, P.M.
Hemophilia & Thrombosis Ctr. A.Bianchi Bonomi, University of Milan, Italy.

Objective: to evaluate efficacy of anti-D IgG therapy for increasing low platelet counts in HIV-related or idiopathic ITP.
Treatment protocol: 17 HIV-ITP patients (M:F 13:4; age: range 21-57 yr., median 29) and 19 idiopathic ITP patients (M:F 4:5; age: range 6-82 yr., median 25.5) were enrolled in a open-label prospective study with a 4-month follow-up. All patients had platelet counts < $50x10^9$/, for more than three months; idiopathic ITP patients were not responsive to previous steroid therapy. Induction therapy: 13 mcg/kg body weight/day i.v. for three days. Maintenance therapy: 6 mcg/Kg/week i.m. if platelet count was between 50 and $100x10^9$/l or 13 mcg/kg/week if it was lower than $50x10^9$/l.
Results: in 11/17 (65%) HIV-ITP patients platelet counts increased above $50x10^9$/l, compared to 7/19 (27%) idiopathic ITP ($p < 0.05$). Hemoglobin concentration fell by 0.1 to 4.4 g/dl (median 0.9) in 15/17 HIV-ITP patients and by 0.2 to 2.6 g/dl (median 1.6) in all idiopathic ITP patients.
Conclusion: anti-D therapy is significantly more effective in maintaining platelet count at hemostatic levels in HIV-ITP patients than in idiopathic ITP patients.

Miscellaneous Organ Systems

F.B.522 A PROSPECTIVE STUDY OF THE OPHTHALMOLOGIC FINDINGS IN THE ACQUIRED IMMUNODEFICIENCY SYNDROME IN SAO PAULO CITY, BRAZIL.

Sampaio, Paulo R.S., M.D., Kobinger, Edmund, M.D., and Woller, Jacques, M.D. Reference and Training Center of AIDS, Sao Paulo, Rua Antonio Carlos 122-7o Sao Paulo, SP, Brasil.

A prospective study of ophthalmologic findings in 191 patients with acquired immunodeficiency syndrome disclosed that 99 (51%) had ocular involvement. The cytomegalovirus retinitis, toxoplasmosis retinitis and cotton-wool spots were frequent features in this group.

The cotton-wool spots are clustered in posterior pole and are similar in appearance to those found in patients with diabetes mellitus and systemic hypertension. The cotton-wool spots are transient, resolving over a period of four or six weeks. Ganciclovir became available early and all of our patients with cytomegalovirus retinitis have received treatment. Two thirds of them survived more than 3 months after retinitis was diagnosed.

The treatment of toxoplasmosis preconized in our service is with sulfadiazine and we had poor results with it. They showed an initial good response but allergy to sulfa drugs or severe gastritis occurred and the therapy was discontinued. Oral clindamycin was added with poor results. Fifty per cent of our patients died in the three weeks and the others in six weeks. No patients showed any evidence of pre-existing chorioretinal scars. Antibody titers ranged from 1:64 to 1:4096 and the examination of cerebro-spinal fluid is not helpful in making diagnosis.

The acyclovir therapy can control the herpes simplex and herpes zoster retinitis and appears to be the most effective treatment.

The therapy to pneumocystis carinii and tuberculosis showed bad results and syphilis response to penicilline benzathine was effective.

F.B.523 HIV-ASSOCIATED-NEPHROPATHY: ABSENCE OF HIV-ANTIGENS

A.Genderini, L.Vago*, S.Bertoli, D.Scorza, MT.Barone, N.Landriani, S.Milani and G. Barbiano di Belgiojoso
Renal Unit, Institute of Pathology*, Sacco Hospital, Milan, Italy.

HIV-associated nephropathy (HIV-N) is considered a distinctive disease, whose etiopathogenetic mechanisms are still undefined. A direct virus induced renal cell damage is postulated. The numerous cytolytic ultrastructural changes and few studies by immuneperoxidase are in favour of this hypotesis, but still demostration of virus by electron microscopy (EM) or by tissue culture is lacking.
In 9 cases out of 14 histology proven HIN-N, with proteinuria (6 cases) or nephrotic syndrome (3 cases), we tested renal tissue for HIV antigens (Ags): core p18 and p25; envelope gp45 and gp110, by means of immunoperoxidase avidin-biotin complex monoclonal antibodies (MABs).
Light microscopy showed in 4 patients (pts) a focal and segmental glomerular sclerosis and in 4 a mesangial hypercellularity with vacuolization of visceral epithelium and protein inclusions, one pt had minimal changes disease. EM, performed in 5 of 9 pts, showed several protein inclusions in podocytes cytoplasm, tubuloreticular inclusions in endothelial cells cytoplasm in all cases, nuclear degranulation of tubular cells in 4 cases and nuclear bodies in 2.
HIV Ags by MAB on renal tissue were negative in all cases, both in glomeruli and tubules.

These results do not confirm the presence of HIV proteins in renal tissue of pts with HIV-N. A possible explanation, besides no direct HIV in the disease, can be a low viral load in tissues, because of early phases of renal damage in most cases.

F.B.524

SUBCAPSULAR ALTERED-APPEARING LANGERHANS CELLS (SALC): A DIAGNOSTIC FEATURE OF HIV-ASSOCIATED PERSISTENT GENERALIZED LYMPHADENOPATHY.

Ree, H.J.; Khan, A.; Bauer, S.; Teplitz, C.

Beth Israel Medical Center & Mount Sinai School of Medicine, New York, New York, USA.

Objective: To demonstrate the presence of Langerhans cells (LC) in the lymph nodes of HIV-associated persistent generalized lymphadenopathy (PGL).
Methods: Monoclonal anti-Lewis^x antibody (anti-Le^x) was used with the ABC technique as a paraffin-section marker for LC in 34 cases of PGL, 41 cases various reactive hyperplasias and 59 cases of non-Hodgkin's lymphomas.
Results: LC stained selectively with anti-Le^x. These LC were present subcapsularly, and they appear morphologically altered (enlarged size and irregular cytoplasm). These subcapsular altered-appearing LC (SALC) did not stain, or stained very weakly for S-100 and peanut agglutinin, conventional paraffin-section markers for LC. Granulocytes, plasma cells and rare histiocytes were the only cell types that stained with anti-Le^x, and these cells were easily distinguished from LC. The SALC were observed in all 34 cases of PGL; 1 of 41 non-PGL reactive hyperplasia; none of 59 lymphoma controls. The sole case of non-PGL control with SALC was an axillary lymph node from a 76 y. o. female patient, showing marked follicular hyperplasia of undetermined origin.
Conclusion: 1) using a new marker for LC, the presence of LC was demonstrated in the PGL lymph node for the first time to our knowledge; 2) the LC occurred subcapsularly and appeared morphologically altered, having failed to react with conventional markers; 3) these SALC appeared to be reasonably specific, and thus would be useful as a diagnostic feature for PGL.

F.B.525

HYPOGONADISM IN MALE PATIENTS WITH AIDS.

Klauke, Stephan; Falkenbach, A.; Schmidt, K.; Staszewski, S.; Helm, E.B.; Althoff P.-H.
University Hospital Frankfurt, FRG.

Reduced libido (<60%) and impotence (<30 %) are frequent complaints in male patients with AIDS. Testicular atrophy, fibrosis, and defective spermatogenesis as well as hypoplasia of Leydig cells are common findings at autopsy. In 37 male patients with AIDS (not receiving medication known to influence gonadotropic function) testosterone, DHEAS and estradiol were evaluated in the serum by standard laboratory methods. LH and FSH were measured before and after i.v. stimulation with LH-releasing hormone (0 and 30 min.). A disturbed gonadotropic function was found in 57 % of the patients. In 40 % a hypergonadotropic hypogonadism was seen. In 9 of these 15 patients the testosterone serum concentration was below 300 ng/dl (manifest hypogonadism). In 6 other patients the results revealed a hypogonadotropic hypogonadism; in 3 of them hyperprolactinemia was encountered simultaneously (possible cause of LH-deficiency). A hypothalamic disorder must be assumed in 3 patients, who showed low levels of both testosterone and LH, but a sufficient increase of LH after LH-releasing hormone stimulation. Present study revealed a severe deficiency of male sex hormones in more than 30 %. A substitutional therapy with androgens seems recommendable looking at the positive effects on daily life activity, libido and impotence as well as muscle wasting, osteoporosis and anemia. An extensive discussion by all experts involved is necessary, before androgen substitution can be generally recommended.

F.B.526

STEROID VARIATIONS IN DIFFERENT STAGES OF HIV-DISEASE

CRISTEFF,N*;KADIVAR,M**;GHARAKHANIAN,S**;DIAS TAVARES,M**;ROZENBAUM,W**; NUNEZ,Emmanuel* et al

U 224 INSERM*,ROTHSCHILD UNIVERSITY HOSPITAL** PARIS FRANCE

Objectif: To evaluate the levels of steroid hormones in patients (pts) infected with HIV at different stages.

Methods: Pts seen at an outpatient clinic were selected according to CDC staging during a 2 month period in 1989. Dosage of the following hormones was done by radioimmuno assay: Progesterone (P4), 17-alphahydroxyprogesterone (17 OHP4), Cortisol (F), Dehydroepiandosterone (DHEA), DHEA sulfate, Androstenedione (Δ4), Testosterone (T), Estrone (E1), Estradiol (E2). Pts were compared to non HIV-infected controls. No pt was treated by Ketoconazole. Comparisons were done by the student t-test.

Results: 68 male homosexuals and IVDUs aged 18-48 were compared to 35 controls (18-40 yrs). Main modifications are summarized as follows (see table):

Stage	F ng/ml	Δ4 ng/ml	E1 pg/ml
Controls n=35	136 ± 10.5	2.4 ± 0.2	75 ± 4
II/III n=17	174 ± 17.8**	3.8 ± 0.4***	102 ± 11**
IVC2 n=20	182 ± 20*	2.7 ± 0.3	115 ± 9***
IVC1 n=16	209 ± 246***	2.3 ± 0.2	99 ± 10**
IVO	195 ± 26	2.5 ± 0.4	115 ± 15

*p < 0.05 **p < 0.01 ***p < 0.001

Serum F and E1 levels are higher in all pts as compared to controls. However, androgens (DHEA, Δ4, T) are significantly higher in stage II/III.

Conclusion: This study shows an elevated concentration of androgens only in the early stages of HIV disease, and an elevated cortisol and estrogens in all stages. It remains to be determined whether these modifications are a direct result of HIV-infection and whether they are involved in the immunodeficiency process, as well as in clinical problems such as weight loss.

F.B.527

Possible high frequency of bacteriuria among Brazilian AIDS patients.

Felix de Pinho, A.M.; Marangoni, D.V.; Moreira, M.B.; Ramos-Filho, Celso Ferreira; Rodrigues, K.M.P.; Schechter, M.; Paz, N.A. AIDS Programme, Federal University of Rio de Janeiro.

Objective: to determine the frequency of bacteriuria among AIDS inpatients.
Methods: fifty-seven consecutive male AIDS patients, aged less than 50 years, without any known predisposing factors for bacteriuria and admitted to a University hospital in Rio de Janeiro were screened for bacteriuria. On admission, a clean-catch, midstream urine specimen was cultured; bacteriuria was defined as a repeat result with 100,000 colonies/ml.
Results: The mean age was 33.47 years (SD= 6.74), for a range of 21 to 49 years. Forty-three patients had homo/bisexuality as a risk factor for HIV infection. Bacteriuria was found in 8 patients, giving a frequency of 14.04% (.95 C.L.= 5.02% to 23.06%). Gram-negative bacilli were cultured in all instances.
Conclusion: although a comparison group was not included in our pilot study, a UTI frequency of 14% seems unwarranted among comparatively young male patients, without risk factors for bacteriuria. Similarly, we could discern no augmented risk for homo/-bisexuality (a proxy for active insertive anal practice), by Fisher's exact test (one-tailed: p= 0.64). However, our study probably does not have the power to demonstrate such effect, if it exists. Our results justify a larger study, with a suitable comparison group, as well as further inquiry into putative risk factors for bacteriuria among AIDS patients.

F.B.528

BACTERIAL SINUSITIS IN HIV INFECTED PATIENTS

Lacassin Flore; Leport, C.; Gehanno, P.; Salmon, D.; Raguin, G.; Bricaire, F.; Vildé, J.L.
Hopital Claude Bernard - Bichat, Paris, France.

Objectives : To assess clinical presentation, and outcome of sinusitis in HIV infected patients.
Methods : From 06/1986 to 11/1989, the charts of patients (pts) treated for sinusitis were reviewed. An acute episode (ep) of sinusitis was diagnosed when an opacity, an air fluid level, or a mucosal tickening was present on sinus X-Ray. All had clinical signs consistent with sinusitis and/or a favorable response to antimicrobial treatment i.e improvement of sinus X-Ray.
Results : Twenty-nine eps were diagnosed in 20 pts, 18 men and 2 women, mean age : 35 years (24-56). Ten pts were classified as ARC and 10 as AIDS, mean CD4 cell count was 162/mm3 (3-662) (n=16). Clinical signs, present for a mean duration of 41.5 days (0-5 months) (mths) were : fever (73%), headache (61%), purulent nasal discharge (51.5%), nasal obstruction (39%),sinusal pain (33%); cough was present in 88% and sputum in 48%. Concomitant pneumonia was detected in 28%. In 12 pts, brain CT scan confirmed abnormalities of sinus X-Ray and detected ethmoïdal (n=2) and/or sphenoïdal (n=2) sinusitis in 3 pts (25%). Maxillary sinusitis was present in 22 (76%) eps, frontal sinusitis in 2 (7%), and pansinusitis in 5 (17%). Bacteria were isolated from upper airways in 8/29 eps (28%), of which sinus puncture, positive in 3/3 pts, grew Haemophilus influenzae (n=1), Pseudomonas aeruginosa (n=1) and 3 different strains in 1 pt. From broncho alveolar lavage, sputum,or nasal discharge were isolated : H.influenzae (n=4), S.pneumoniae (n=1). Antimicrobials were ampicillin alone (22%) or combined with clavulanic acid (40%), fluoroquinolones (18%), macrolides (11%) for a mean duration of 23 days (8-51). A surgical drainage was performed in 4 cases. Ten clinical relapses occurred in 8/20 pts (40%) within 2 mths (0-13) after the end of antimicrobial therapy. Final outcome was remission in 15 pts with a mean follow up of 11 mths (1-29), chronic sinusitis in 4 pts with a mean follow up of 12 mths (1-19).
Conclusion : The diagnosis of sinusitis should be considered in HIV pts and may require sinus puncture for bacteriologic documentation. The high rate of relapse suggest a more prolonged and agressive initial therapy.

F.B.529

LONGITUDINAL ECHOCARDIOGRAPHIC AIDS PROJECT: Effect of Substance Abuse on Left Ventricular Function.

Cheitlin MD, Schiller NB, Kee L, Kuecherer HF, Hollander H, Chernoff DN, French D, Tremblay T, Modin GW; Univ. of California, San Francisco and San Francisco General Hospital

Echocardiography in AIDS patients has shown abnormalities of left ventricular (LV) function, usually clinically silent. The cause is unknown, but one hypothesis is that substance abuse may be responsible. We are following gay men with AIDS and comparing them to 3 control groups of gay men: HIV negative (HIV-); HIV positive (HIV+) without disease; and with AIDS-related complex (ARC). Parameters of systolic and diastolic LV function were measured by blinded quantitative 2D Echo-Doppler. A questionaire assessed past and present drug use.
RESULTS: All parameters of systolic function were normal and similar in all 4 groups and were not affected by drug use. The most frequently used drug was cocaine (Coc).

Group	No	DT msec	Coc	No	DT msec
HIV+	46	112±34	+	22	103±21*
			-	18	127±46
ARC	46	110±34	+	19	100±20*
			-	16	119±45
AIDS	44	107±31	+	21	104±31*
			-	13	119±36
HIV-	18	119±27	+	5	98±16*
			-	9	123±77

Deceleration time (DT) used as a measure of rapid LV filling was shorter in Coc users in each group compared to non-users (ANOVA: $p < .001$). Other diastolic parameters were not statistically different. In the table '*' means $p < .01$, the post-hoc p value for Coc vs Coc nonuse.
CONCLUSIONS: These results indicate that LV filling may be restricted in patients using Coc. Also, Echo-Doppler abnormalities seen in HIV patients may be due to factors other than HIV such as substance abuse.

F.B.530

ENDOCARDITIS IN INTRAVENOUS DRUG USERS WITH KNOWN HIV STATUS

Biczak, Laureen; Smith, C.; Rubinstein, E.; Lyons, R.
St. Francis Hospital-University of Connecticut, Hartford, Connecticut, USA.

Objective: To determine differences between infectious endocarditis (IE) in HIV(+) and HIV(-) intravenous drug users (IVDUs).
Methods: Fifty-one consecutive episodes of IE in 41 IVDUs with known HIV status were compared retrospectively. Thirty-four episodes of IE in 27 HIV(+) patients (3 with AIDS), and 17 episodes in 14 HIV(-) patients were reviewed. Groups were similar with regard to age, sex, race, drug used, previous valvular disease, and previous endocarditis.
Results: Staphylococcus aureus was the most frequent isolate in each group, occurring in 71% of HIV(+) patients (pts) and in 65% of HIV(-) pts. Clinical signs and symptoms on admission were similar in the two groups. More HIV(+) pts presented with right-sided disease (71% versus 53%, p=NS). Surgical intervention, serious complications (stroke, congestive heart failure, aortic root abscess, and death all occurred more frequently in the HIV(-) group, but these differences were not statistically significant when corrected for the higher incidence of left-sided involvement in the HIV(-) pts. Duration of clinical symptoms, admission temperatures, and multiple laboratory parameters were similar in the two groups when stratified by organism. Poorer response to therapy could not be detected by comparing time to blood culture conversion, days to defervescence, length of stay, or number of adverse drug reactions.
Conclusion: No statistically significant differences were detected in the presentation, clinical course, response to therapy, or outcome of infectious endocarditis in HIV(+) and HIV(-) intravenous drug users.

F.B.531

INSULIN SENSITIVITY IN HIV-INFECTED MEN.

Hommes, Mirjam; Romijn, J.A.; Endert, E.; Eeftinck Schattenkerk, J.K.M.; Sauerwein, H.P.
Depts. of Endocrinology, Intensive Care and Internal Medicine, Academic Medical Center, Amsterdam, The Netherlands.

Objective. To investigate whether HIV-infection, like other (viral) infections, induces insulin resistance.
Methods. Insulin sensitivity (by a two step euglycemic insulin-clamp study (0.8 and 4 mU insulin/kg.min)), and endogenous glucose production (by infusion of (3-^{3}H)glucose) were determined in 10 HIV-infected men (4 AIDS patients and 6 patients with ARC, age: 36-56 yrs.) and 10 healthy male volunteers (25-51 yrs.) of similar body composition. All participants were free of acute infections for at least two months and did not have known endocrinologic disease.
Results. (mean ± SEM)

		patients	controls	p-value*
0.8 mU/kg.min:				
insulin concentration	(µU/ml)	42 ± 2	52 ± 4	<0.05
glucose tissue uptake	(mg/kg.min)	7.99 ± 0.81	7.92 ± 0.44	ns
4 mU/kg.min:				
insulin concentration	(µU/ml)	255 ± 17	392 ± 14	<0.001
glucose tissue uptake	(mg/kg.min)	14.00 ± 0.81	13.35 ± 0.65	ns

*unpaired t-test.
No differences in concentrations of cortisol, epinephrine, glucagon, growth hormone and free fatty acids were observed between patients and controls.
Conclusion. Insulin sensitivity in HIV-infected men is increased, in contrast to other infections, where insulin resistance occurs. Therefore, AIDS and ARC are unique with regard to carbohydrate metabolism.

F.B.532

PAP TEST AND STD FINDING IN HIV+ WOMEN AT AMBULATORY CARE SITES

Marte, Carola*; Cohen,M.** Fruchter, R.***Kelly, P.*** Bellevue Hosp/Community Health Project* Cook County Hosp** SUNY-Brooklyn***

OBJECTIVE To determine the importance of regular Pap tests and STD screening in HIV+ women.
METHOD Pap tests and tests for syphilis, gonorrhea and chlamydia were obtained from HIV+ women attending 3 ambulatory care clinics.
RESULTS Low rates of syphilis (2%), gonorrhea (0%) and chlamydia (6%) infections were found at the three sites; significant numbers of cervical abnormalities were present. Although rates of Pap test abnormalities differed at the three sites, in each, rates for HIV+ women was significantly higher than in the respective community.

DYSPLASIAS	NYC (N=31)	Bklyn (n=18)	Chicago (n=48)
HIV+	32%	33%	8%
Community	6%	3%	1%

Atypias, although more difficult to compare between sites, were also significantly increased compared to the baseline hospital rates. The presence of cervical abnormality did not correlate with presence of other STDs, risk factor or CD_4 cell level.
CONCLUSION This study suggests that in HIV+ women there is a high rate of cervical abnormalities. Co-existing STD's or degree of immune suppression did not predict cervical abnormalities. Routine gynecologic care with Pap test should be included in clinical protocols for HIV+ women. The interaction between cervical abnormalities and HIV Disease needs further study.

F.B.533

LYMPHATIC SCANNING AND HIV.

*O'Doherty, M.J.; **Tang, Alan, *Gaunt, J.I.; **Bradbeer, C.S.; *Nunan, T.O.
*Department of Nuclear Medicine, **Department of Genito-Urinary Medicine, St.Thomas' Hospital, London, England.

Objective. To assess the potential of dynamic lymphatic scanning in the assessment of inguinal node abnormalities in patients with HIV infection.
Method. Twenty-three patients (46 limbs) were studied using a conventional lymphatic scanning technique for inguinal nodes. 99m-Tc Rhenium sulphide colloid (0.25mls, 75MBq) was injected into the subcutaneous tissue of the second interdigital cleft of both feet. At 30 and 60 minutes, 300 sec images of the lower abdomen and groins were obtained. The uptake in the groin area was expressed as a percentage of the initial injected activity.
Results. The mean(SEM)% uptake for each group is given below. The affected limbs of HIV positive patients had KS of the nodes, TB or recurrent cellulitis.

Mean% Uptake (SEM)

	AIDS (7 limbs)	PGL (18 limbs)	Asymp (8 limbs)	HIV-ve (6 limbs)	Affected (7 limbs)
30 mins	1.3(0.3)	1.0(0.2)	1.0(0.15)	0.9(0.1)	0.16(0.02)
60 mins	2.7(0.4)	2.0(0.2)	2.43(0.6)	1.4(0.4)	0.74(0.2)

The 7 affected limbs therefore had significantly reduced uptake compared with all other groups.
Conclusion. In the presence of palpable inguinal nodes, dynamic lymphatic scanning may help distinguish reactive from diseased .

F.B.534

FREQUENCY OF CHRONIC ACTIVE HEPATITIS (CAH) OR CIRRHOSIS IN PATIENTS WITH AIDS: AN AUTOPTICAL EVALUATION

Caredda, Francesco*; Vago, L.**; Coppin, P.*; Gaiera, G.**; Pavani, D.*; Parravicini C.**
*Infectious Dis. Clinic and **V Chair of Pathology,Univ. of Milan,Milan,Italy

Objective: To assess the frequency and the aetiology of CAH or cirrhosis in patients with AIDS.
Methods: We reviewed the autoptical histopathological and immunohistochemical features, and the HBV and HDV serology of 131 patients (37 homosexual men, 86 drug abusers, and 8 with other risk factors). 19 patients were carriers of HBs Ag, in 9 of them (47%) there was immunohistochemical evidence of HDV infection Serological HBV-markers (Abbott) and HDV-markers (Sorin) were detected by RIA.
Results: The overall prevalence of CAH or cirrhosis was 11.5%; their frequencies according to the presence or absence of HBsAg are reported in the table.

	CAH	Liver cirrhosis	Total
HBsAg-pos. (n=19)	-	8 (42.1%)	8 (42.1%)
HBsAg-neg. (n=112)	2 (1.8%)	5 (4.5%)	7 (6.3%)

The frequency of CAH or cirrhosis was significantly high r ($p<0.001$) in HBsAg-pos. than in HBsAg-neg. individuals. Six out of 8 HBsAg carriers (75%) with cirrhosis had evidence of HDV infection. The frequency of cirrhosis was 67% (6/9) in HDV-pos. and, respectively, 20% (2/10) in HDV-neg. patients.
Conclusion: Our data give evidence that CAH or cirrhosis are not so infrequently detected as generally described in patients with AIDS. Their presence is significantly related to HBV (and HDV) infection.

F.B.535

URINARY TRACT INFECTION IN MEN WITH HIV INFECTION: RESULTS OF A PILOT UNCONTROLLED STUDY.

Santos, Omar da Rosa; Lopes,G.S.; da Costa, J.L.F.; Lacerda,M.R.; Haringer,J.; Faria, R.B.
Universidade do Ric de Janeiro (UNI-RIO), Rio de Janeiro, Brazil.

Objective: To determine the frequency of urinary tract infection (UTI) in men,hospitalized with symptoms of HIV infection.
Methods: Fifty men, with clinical manifestations of HIV infection, were prospectively studied. Age ranged from 18 to 55 years (X=29.7,s=11 years). Risk factors for HIV infection were: homosexualism in 34 (68%), transfusions in 4 (8%), drug addiction in 4 (8%) and indeterminate in 8 (16%). Thirty patients (60%) presented with AIDS, 20 (40%) with ARC. No patient presented recognizable predisposing factors to UTI. A dip-slide urine culture method was employed. UTI was diagnosed when more than 100000 colonies/ml were present in a clean-catch mid-stream sample of urine.
Results: UTI was diagnosed in 4 patients (8%). Their age ranged from 18 to 46 (X=28.5, s=10.5). Three patients presented with AIDS and were homosexuals. Bacteria isolated were E. coli (2x), Citrobacter freundi (1x) and Enterobacter sp. (1x).
Conclusions: A relatively high frequency of UTI due to gram-negative bacteria was observed in hospitalized men with symptomatic HIV infection. A larger prospective controlled study should be conducted to confirm these results and to assess the importance of HIV infection and homosexualism as predisposing factors for UTI in such patients.

F.B.536 CLINICOPATHOLOGIC STUDY OF EYE DISEASES IN HIV INFECTED PATIENTS

Giannini, Valerio*; Carlotti, G.*; Guariglia, P.*; Bonini,S.**;Giannini,R.**;Manni,G.L.**;Grillo,L.***;Galgani,S.***
* "L.Spallanzani" Hospital for Infectious Diseases Rome, Italy
** Chair of Ophtalmology, Tor Vergata University, Rome
*** S.Camillo Hospital, Rome

Objective: A prospective clinical and virological study has been pointed out to estimate the incidence of ophthalmologic manifestations in HIV infected patients, to demonstrate the natural course of the ophthalmologic findings and the relationship of these findings to the state of HIV infection.
Methods: From 1986 to 1989, 154 cases of AIDS and 457 HIV infected subjects have been hospitalized; other 240 individuals have been followed in ambulatory care. Ocular examination has been performed on 214 patients fitting to the class IV of the CDC classification of HIV infection. All patients received indirect oph talmoscopy. Slit-lamp examination was performed when possible and Fluorescein Angiography and VEP were performed in some cases.
Results Ophtalmic examination revealed ocular lesions in 98 of the 214 patients (45.7%): in 86 cases retinal disorders (retinal hemorrhages, cotton-wool spots); in 3 cases conjunctival Kaposi's Sarcoma; in 7 cases cronic inflammation and in 2 cases corneal ulcers. The most frequent involved agent was CMV.
Conclusion: The study confirms that ocular diseases and ophthalmologic manifestations are a frequent clinical picture in patients with HIV infection.

F.B.537 THE PREVALENCE OF HIV POSITIVITY IN KIDNEYS OF AIDS PATIENTS

Cronin, William; Shevchuk, M.; daSilva, M.; Bagchi, S.
Dept. of Pathology,Lenox Hill Hospital, New York, N.Y.,U.S.A.

Objective: To study the prevalence of HIV infection of kidneys in AIDS patients without renal disease. A small percent of AIDS patients suffer from a renal disease known as HIV-associated nephropathy. There are suggestions from subtle renal function alteration, however, that a much larger percent of patients may have HIV damage or infection of the kidneys.
Methods: To study the prevalence of HIV infection of kidneys in AIDS patients without renal disease, a series of 16 such AIDS autopsy cases were selected from the autopsy files and stained with the p24 anti-HIV monoclonal antibody. The controls consisted of kidneys from 13 age-matched, non-AIDS autopsy cases.
Results: Eight of 16 AIDS cases showed focal staining with the p24 anti-HIV antibody. The staining was found predominantly in proximal tubular epithelium and was very focal. Histologic examination of these kidneys showed the HIV-positive kidneys to contain mild interstitial fibrosis and frequent reactive proximal tubular epithelium. Chronic inflammation was infrequent and was usually associated with other demonstrable opportunistic infection. Glomerular staining was not identified, but mild mesangioproliferative changes were seen in 3 of the AIDS cases. The histologic findings of HIV positive kidneys were not significantly different from the HIV negative AIDS kidneys. All 13 control cases were negative for HIV associated p24 antigen.
Conclusion: Silent HIV infection of the kidneys is frequent, approximately 50%. It is localized primarily in the proximal tubule and might explain the subtle renal function changes in kidneys without glomerular nephropathy and opportunistic infections.

F.B.538 SURGICAL PATHOLOGY OF HIV INFECTED PATIENTS IN ZAMBIA

Bayley, Anne*; Luo, N**; Suzgo, Kapanda**.
Departments of Surgery* and Immunology**, University of Zambia, Lusaka, Zambia.

Objectives: to describe the surgical pathology seen in HIV infected patients in urban and city hospitals in the context of other surgical work.
Methods: We studied 243 unselected and consecutive patients of both sexes,aged 15 years or older, who occupied surgical beds during visits (unannounced) to urban or rural hospitals in Zambia during 1989. Visits lasted 1 to 3 days depending on the size of the unit. Each patient had a history taken and a physical examination done and blood was examined for antibodies to HIV antigens using the recombinant Wellcozyme test.
Results: The mean seropositivity for antibodies to HIV was 23%. The mean age for seropositive men was 38 years and for seropositive women 32 years, with a sex ratio of 1.5:1 (M:F). Eight seropositive patients were admitted with injuries unrelated to their serostatus; 17 had soft tissue infections, 5 had bone or joint infections and 4 had tuberculous lymphadenopathy; 8 patients had ano-rectal diseases, 6 had gynaecologic pathologies, 2 had florid genital ulcers and 2 had HIV-related tumours.
Conclusions: HIV infection is present in nearly one quarter of unselected patients in surgical beds in Zambia. Bacterial infections, surgical tuberculosis and ano-rectal pathology are common associations. This study is continuing in 1990.

F.B.539 NATURAL HISTORY OF HIV INFECTION IN LIVER TRANSPLANT PATIENTS

Saimot, Adrien G.*; Bouscarat, F.*; Samuel, D.**; Debat,P.**; Detruchis, P.*; Bismuth, H.**
* Hôpital Bichat/** Paul Brousse, Paris, France.

Objective: To describe immunological and clinical outcome of 11 liver transplant (LT) recipients infected with HIV-1 receiving a triple immunosuppressive regimen (cyclosporine A, azathioprine and steroids).
Patients/Methods: In 5 years (1985-89), 9 adult patients (pts) among 392 (2.3%) were infected with HIV during 431 LT or shortly after : 8 through blood-components and 1 from the donor's liver (group A). Two pts seroconverted $>$ 6 months (M) after LT (1 IVDU, 1 bisexual) (group B). All pts have been followed since LT for a 35M mean time (2 to 55). At each visit they were classified according to the CDC classification. Immunological tests were lymphocyte subset count and B2 microglobulinemia. Virological data included repeated ELISA/WB for HIV antibodies and P24 antigenemia measurements.
Results: 1) Mean time of seroconversion was 66 $\pm$ 27 days after LT. 2) In 7 pts followed more than 5 M, CD4 cell count decreased to $\leq$ 200/ml at M 18 to 45 (mean : M 26) 3) Five pts (group A) died : 1 of acute HIV infection with aplastic anemia transmitted by the graft (M2); 2 from AIDS (M5, M35); 2 from rejection (they were also CDC/IVA) 4) Four pts (group A) are alive at M42 to M55 : 1 is asymptomatic, 1 is in group III, 2 IVA pts received AZT for 7 and 11 M and are stable with no side-effects 5) One of the 2 pts (group B) died of delta superinfection, 1 is asymptomatic.
Conclusions: 1) Incidence of HIV infection in LT pts was 2.3% but decreased to 0% after march 87 2) Among LT recipients, HIV illnesses incidence was 54.5% (6/11) and HIV mortality 27.2 (3/11) 3) Progression to AIDS was fast but 44% of our pts survive for 3-4 years even with immunosuppressive therapy. 4) Cyclosporine A do not prevent/halt HIV infection.

F.B.540 RAPID DECLINE OF NATURALLY ACQUIRED ANTIBODY TO HEPATITIS B SURFACE ANTIGEN (AntiHBs) AND HBV REACTIVATION IN AbHIV+ I.V. DRUG USERS (IVDUs).

Sinicco, Alessandro; Sciandra, M.; Valle, M.; Raiteri, R.; Gagliano, P.; Gioannini, P.
Institute of Infectious Diseases, Univ. of Turin, Turin, Italy

Objectives: To evaluate the behaviour of antiHBs titre in HIV+IVDUs.
Methods: We studied for 4 yrs. the antiHBs titre of 134 HIV+IVDUs. We compared the antiHBs titres' changes of 30 HIV+IVDUs (none of them ARC or AIDS; antiHBs > 10 < 500 IU/l; CD4+ > 400/µl) with those of 31 HIV-IVDUs similar in ages, duration of intravenous drug use, antiHBs levels.
Results:

	AntiHBs	F.U.(months)	AntiHBs	Wilcoxon's test
HIV+(30)	233.6±151.1	26.9±13.1	68.7± 70.2	P = .000
HIV-(31)	250.0±135.2	27.5±12.2	227.5±118.6	P = .093
	P=.717	Mann-Withney's test	P=.000	

65 HIV+IVDUs (48.5%), where initial antiHBs mean titre was 105+96 IU/l, at the end had an antiHBs titre < 10 IU/l. In 4 (3 AIDS, 1 ARC) HBsAg reappeared (in 2 we found also HBeAg and HBV DNA; none showed signs of acute hepatitis).
Conclusions: The decline of antiHBs titre in HIV+IVDUs, even in the early stages of HIV infection, is faster than in HIV-IVDUs. By contrast, only a deep immunodeficiency elicited the HBsAg reappearance.

F.B.541 THYROID FUNCTION IN ACQUIRED IMMUNODEFICIENCY SYNDROM (AIDS).

Michels, Berthold; Hunold, P.; Falkenbach, A.; Klauke, St.; Gottstein, A.; Althoff, P.-H.
University Hospital Frankfurt, FRG.

In our clinics in association with AIDS postmortal histological examination of 63 thyroid glands demonstrated Cytomegalovirus (CMV) inclusions in twelve (19%) cases. In 38 patients with AIDS T_3, fT_3, T_4, ETR, TBG, the antibodies TAK, MAK and TRAK were determined. TRH-tests (200 µg i.v.) were done and TSH was measured before and after 30 min. Main Results: Out of 38 patients in 29 fT_3 was markedly decreased below the lower limit (<2,5 pg/ml) and in 9 of them T_3 was also decreased (<0,8 pg/ml) whereas T4 was decreased in 6 patients and only in 4 of the 29 patients with AIDS rT_3 was elevated. In 2 of this patients TSH-response to TRH was negative (TSH <2 µU/ml); one had proven pituitary-insufficiency. In 7 patients the TSH-response to TRH was exaggerated (in one patient basal TSH was already elevated). 3 of this showed equivocal lowered T_3, T_4, fT_3 and fT_4 without elevation of rT_3.
Conclusions: In several patients with AIDS we found thyroid hormone levels markedly decreased to well within the hypothyroitic state. In view to confusion between hypothyroidism (decreased fT_3, T_3, rT_3) and the "low-T_3-syndrome" (low fT_3 and T_3, but elevated rT3), in AIDS-patients with lowered fT_3 and not elevated rT_3 the exaggerated TSH-response to TRH suggest that an hypothyreotic state - for example by MCV-inclusion - is present in addition to the patients other medical problems.

F.B.542 PERTIONEAL DIALYSIS IN HIV INFECTED PATIENTS WITH RENAL FAILURE.

MARTON, RANDY, Spinelli, L., Slim,J., Johnson, E., Saint Michael's Medical Center, Newark, NJ, U.S.A.

OBJECTIVE: To better understand the usefulness and complications of peritoneal dialysis in patients with renal insufficiency.
METHOD: A retrospective review of 23 outpatient charts comprising the total number of HIV+ patients on peritoneal dialysis at St. Michael's Medical Center covering a period from 1985-1989. Data was analyzed with respect to etiology, therapy and clinical outcome of episodes of peritonitis.
RESULTS: Twenty-three patients with acute renal failure (ARF) on peritoneal dialysis (PD) developed 54 episodes of peritonitis in a period of 1 to 30 months with an average follow up period of 10.1 months. Organisms involved: Staphylococcus Epidermidis (39%), other gram positive cocci (22%), Enterobacteriacae (22%), culture negative (15%), and one episode of Candida Albicans. Eighty-seven percent of the episodes resolved with therapy, 15% required removal of their Tenkoff catheters. Sixty-one percent of the patients expired while on PD, 5 deaths were related to sepsis and/or non-functioning catheter. Five patients were transferred to hemodialysis.
CONCLUSION: PD is a useful tool for prolonging life in HIV+ patients with ARF. The high incidence of peritonitis, dictates a need for increased emphasis in teaching patients aseptic technique. Further studies are indicated to compare the outcome of HIV+ patients on PD versus hemodialysis.

TRACK C: EPIDEMIOLOGY & PREVENTION

POSTER SESSION

HIV Seroprevalence in North America (cont. from Thurs.)

F.C.543 RELATIVE RISK ESTIMATES FOR HIV SEROPOSITIVITY IN BLACK MEN: THE WORSENING TREND AMONG U.S. SOLDIERS

Kelley, Patrick W.*; Pomerantz, R. **, Wann, F.**, Brundage J.*, Burke D.*, Miller R. *, and the U.S. Army Retrovirus Research Group. *Walter Reed Army Institute of Research, Washington, DC, ** SRA Technologies, Inc., Alexandria, VA, USA

Objective: To compare HIV infection trends in defined race/gender groups of U.S. soldiers.
Methods: Over 1.5 million periodic HIV antibody tests have been completed on active duty U.S. soldiers since Oct 1985. Tests on 899,144 soldiers were partitioned into those before 1987 (N= 377,344 people), during 1987 (N= 379,347), during 1988 (N= 404,835), and during 1989 (N= 334,715) and then adjusted for multiply-tested soldiers. Demographics were extracted from personnel files. Seropositive soldiers appear only in the interval the infection was first noted.
Results: HIV antibody was found in 1829 soldiers (1054 in '85-6, 441 in '87, 196 in '88, 138 in '89). Logistic regression analyses to control for age, marital status, and rank showed:

Odds Ratios and 95% CI's for Defined Race/Gender Groups Vs. Non-Members

	Black Men	Black Women	White Men	White Women
1985-6	3.23 (2.85,3.65)	0.63 (0.45,0.88)	0.41 (0.36,0.47)	0.16 (0.09,0.29)
1987	3.45 (2.84,4.17)	0.50 (0.28,0.90)	0.37 (0.30,0.45)	0.18 (0.07,0.44)
1988	4.07 (3.05,5.42)	0.40 (0.17,0.98)	0.41 (0.30,0.55)	0.18 (0.05,0.63)
1989	5.13 (3.61,7.28)	0.61 (0.25,1.48)	0.30 (0.21,0.44)	0.17 (0.03,0.86)

Over time, black men accounted for a greater proportion of the newly identified infections: 51% in '85-6, 52% in '87, 57% in '88, and 64% in '89; the corresponding figures for white men were 35%, 33%, 33%, and 26%.
Conclusions: HIV relative risk estimates for black men show a significantly worsening trend over time; the trends for the other groups do not confirm any notable shifts in relative risk.

F.C.544 SEROPREVALENCE OF HIV INFECTION AMONG HISPANICS IN THE UNITED STATES

Güereña, Fernando*; Onorato, I.*; Allen, D.*; McCray, E.*; Sweeney, P.*; State and Local Health Departments. *Centers for Disease Control, Atlanta, GA, USA.

Objective: To determine HIV seroprevalence in clients of Hispanic origin attending sexually transmitted disease clinics (STDC), drug treatment centers (DTC), and women's health clinics (WHC) in the United States.
Methods: CDC, with state and local health departments is conducting blinded surveys in selected metropolitan areas (MA's). After blood samples have been tested for routine purposes, all patient identifiers are removed and sera are tested for HIV. Information on sex, age group, Hispanic origin, and risk exposure for HIV infection was collected on approximately 30,000 Hispanic clients in more than 20 MA's.
Results: The median seroprevalence rates for Puerto Ricans were 8.9% in STDC (range 0%-19.2%), 19.1% in DTC (range 5.6%-36.4%), and 0% in WHC (range 0%-7.7%). For Mexican Americans, median rates were 0% in STDC (range 0%-20%), 0% in DTC (range 0%-6.7%), and 0% in WHC (range 0%-0.4%). For Cubans, rates were 15.2% in STDC (range 11.3%-17.7%) and 0% in WHC (range 0%-3%).
Conclusion: HIV infection rates varied by clinic and MA; these rates were highest in DTC patients in the northeast and identified Puerto Rican intravenous drug users as a high priority group for the development of HIV prevention programs.

F.C.545 HIV SEROPREVALENCE IN AMERICAN INDIANS AND ALASKA NATIVES

Conway, George A.*; Hooper EY**; Helgerson SD***; Petersen, LR*; Ambrose, TJ**; *Centers for Disease Control, Atlanta, Georgia, USA, **Indian Health Service, Phoenix, Arizona, USA, ***Indian Health Service, Seattle, Washington, USA.

Objective: To assess levels of AIDS cases and HIV infection among American Indians and Alaska Natives (AI/AN) in the United States.
Methods: Available AI/AN AIDS case and HIV seroepidemiology data were reviewed and compared. We are conducting a nationwide blinded seroprevalence survey in Indian Health Service (IHS) facilities using sera obtained for syphilis screening from patients seeking prenatal care, being evaluated for a sexually transmitted disease, or entering drug or alcohol treatment programs.
Results:

	U.S. AIDS Case Cumulative Incidence (to 11/30/89)			HIV Seroprevalence-U.S. Military Recruit Applicants (10/85-6/89)		
Race	Total Cases	Cases per 100,000	Risk Ratio	Number Positive	Prevalence per 100,000	Risk Ratio (95% CI)
AI/AN	152	8.9	0.2	15	1.0	0.8(0.5,1.3)
Other	115,006	47.2	1.0	2,840	1.3	1.0

As of late January 1990, 38 IHS sites serving over 600,000 patients are participating in the blinded surveys; 5,430 specimens have been tested to date and 25,000 sera will be submitted for testing by April 1990.
Conclusions: Despite low AIDS case rates, AI/AN HIV seroprevalence in military recruits suggests a greater problem. The study of sera from IHS patients will provide insight into HIV seroprevalence and distribution in AI/AN individuals.

F.C.546 HIV INFECTION AMONG MINORITIES AT U.S. SENTINEL HOSPITALS: A HETEROGENEOUS PATTERN

Olivo, Noemí*; St. Louis, M.*; Critchley S.*; Dondero T.*; the Sentinel Hospital Surveillance Group.
*Centers for Disease Control, Atlanta, Georgia, USA.

Objective: To assess the association between race, HIV infection, and AIDS in systematically-collected data from U.S. sentinel populations.
Methods: We anonymously tested 131,253 blood specimens for antibody to HIV-1 during 1/88-9/89 from 37 sentinel hospitals (SH), calculated seroprevalence (SP) by race (only for SH with 100 or more specimens for the racial group in question), and SP ratio (SPR) vs. whites, and compared SP at each hospital with the characteristics of AIDS cases diagnosed at that hospital and reported to CDC during 1988-89.
Results:

Race	No. of SH	Number tested	Number HIV+	HIV-1 SP (%) median	HIV-1 SP (%) (range)	Median SPR	% of SH with SPR ≤ 1.0
White	33	61,649	379	0.6	(0.0-3.0)	—	—
Black	30	34,577	952	1.0	(0.0-9.5)	1.6	22
Hisp.	16	22,950	346	1.0	(0.1-4.9)	0.5	75

The proportion of AIDS cases associated with IVDU diagnosed at a SH was correlated with the SPR for blacks ($P<0.05$) but not for Hispanics ($P=0.37$).
Conclusions: In patients admitted to these hospitals, blacks generally have higher SP and Hispanics lower SP than whites, but the reverse is true at a substantial number of other SH. IVDU is an important risk factor predicting higher relative prevalence among blacks. The association between race and HIV infection is variable and complex, a better understanding of it may contribute to more effective prevention guidelines.

F.C.547 HIV INFECTION AMONG IMMIGRANTS TO THE UNITED STATES

Studemeister, Alex*; Westling, R.**; Kent, G.***; *San Jose Medical Group, San Jose, California, USA, **San Jose Medical Center, San Jose, California, USA, ***Department of Medicine, Division of Family Medicine, Stanford University, Stanford, California, USA.

Objective: To determine the prevalence of HIV infection and to describe risk factors for infection among immigrants to the USA.
Methods: During the period from January 1, 1988 through December 31, 1989, 3813 consecutive applicants for U.S. naturalization status were interviewed, examined, and tested for HIV antibodies and syphilis serology.
Results: The median age of the applicants was 31 years (range 14-93); 2040 (53%) were male. Ten (0.3%) were seropositive for HIV antibodies by both enzyme linked immunosorbent assay and confirmatory Western Blot. Syphilis serology was positive in 44 (1.2%). Those aged 30-34 years had the highest HIV antibody prevalence (0.75%). By racial/ethnic origin, the HIV antibody prevalence was as follows: Black, 1.8%; Caucasian, 0.4%; Hispanic, 0.34%; Oriental, 0.08%. Persons with HIV seropositivity were more likely to have positive syphilis serology (RR = 36.7, 95% CI = [9.8-137.6]) and be Black (RR = 8.5, 95% CI [1.8-39.5]).
Conclusion: This study documents a pattern of HIV infection among these immigrants which is comparable to that among the indigenous American population. Accordingly, HIV surveillance, prevention, and treatment efforts should be targeted to known risk groups.

F.C.548 HIV PREVALENCE AMONG HOMOSEXUAL AND BISEXUAL MEN IN THE SAN FRANCISCO BAY AREA: EVIDENCE OF INFECTION AMONG YOUNG GAY MEN

Kellogg, Timothy A.*; Marelich, W.D.**; Wilson, M.J.**; Lemp, G.F.*; Bolan, G.*; Rutherford, G.W.*
*San Francisco Department of Public Health, San Francisco, **California Department of Health Services, Sacramento, California, U.S.A.

Objective: To estimate the prevalence of HIV among homosexual and bisexual men attending sexually transmitted disease (STD) clinics in different geographical regions of the San Francisco Bay Area (BA).
Methods: We conducted HIV serosurveys in 1989 at several STD clinics from San Francisco (SF) County and four surrounding BA counties. This survey was conducted using standardized research protocols developed by the Centers for Disease Control. A total of 816 homosexual and bisexual men who were under evaluation for a new STD episode were included in this survey.
Results: Of the 816 men tested, 376 (46.1%) were confirmed positive for HIV.

HIV seroprevalence rates by age-group (years)

	20-24		25-29		30-34		35-39		40-44		45+	
	%	N	%	N	%	N	%	N	%	N	%	N
SF County	40.7	59	60.7	135	57.6	125	58.9	107	43.9	57	44.1	59
Other BA counties	23.8	42	33.9	62	38.2	55	37.5	40	30.8	26	16.7	30

The HIV infection rate for Black and Latino men was significantly higher than White men (53.2% vs. 43.9%, respectively; p<.025). Seroprevalence was higher in SF County (53.7%) than the surrounding BA counties (30.9%)(p<.001).
Conclusions: HIV seroprevalence in the study population is high, especially for Black and Latino men. Of great concern are the high rates among young (<25 years) homosexual and bisexual men. We suggest that previously uninfected young men may have seroconverted since 1983 when the annual incidence of new infections began to decline in San Francisco.

F.C.549 HIV-1 AND STD INFECTION AMONG MALE TRANSVESTITE PROSTITUTES

KIRK W. ELIFSON*; BOLES, J.*; SWEAT, M.*; POSEY, E.*; DARROW, W.**
*GEORGIA STATE UNIVERSITY, ATLANTA, GA,
**CENTERS FOR DISEASE CONTROL, ATLANTA, GA.

Objectives: To assess HIV-1 and sexually transmitted disease (STD) seroprevalence among male transvestite street prostitutes, a potentially high-risk group prevalent in urban areas, and to identify risk factors for HIV-1 and STD infection among these men.

Methods: During a 9 month period in 1989, 45 male transvestite prostitutes were recruited while working in the Atlanta, Georgia metropolitan area. Structured street-level interviews were used to assess drug-use and sexual history, social networks and health behavior. Serum samples were tested for HIV-1 antibodies, for syphilis (RPR, MHA-Tp and FTA-Abs), and hepatitis B (RIP).

Results: Test results revealed that 68.9% were seropositive for HIV-1, 68.8% had seromarker for syphilis, and 72.7% had seromarker for hepatitis B. Over 80% of the study participants were black and the mean age of the participants was 24.4 years. A history of extensive passive anal sex was reported by 80% of all respondents. "Crack" cocaine was used by 58% of the men while only 7% were currently injecting drugs. The comparable HIV-1 seropositivity rate for 198 nontransvestite male prostitutes also working in the Atlanta area was 25.3%.

Conclusions: Sexual behavior and not intravenous drug use places these transvestites at risk. The high rate of HIV-1 and STD infection among these men, coupled with their high rate of passive anal sex, suggest that they should be specifically targeted in HIV and STD prevention efforts. Male prostitutes should not be viewed as a homogenous group for intervention purposes; male transvestite prostitutes represent a distinct group requiring special attention by public health officials.

F.C.550 TEMPORAL TRENDS IN HIV SEROCONVERSION. A REPORT FROM THE MULTICENTER AIDS COHORT STUDY (MACS).

Kingsley, Lawrence A.*; Bacellar, H.+; Zhou, S.*; Rinaldo, C.*; Chmiel, J.+; Detels, R.+; Saah, A.+; VanRaden, M.+; Ho, M.*; Armstrong, J.*; Munoz, A.+
*University of Pittsburgh, Pittsburgh, PA, USA, for the +Multicenter AIDS Cohort Study

Objective: The specific aim of this investigation was to describe HIV seroconversion rates in the Multicenter AIDS Cohort Study (MACS) by center, age, race and calendar time.
Methods: 3,095 initially HIV seronegative homosexual MACS participants have been followed at 6-month intervals since mid-1984. An additional 134 seronegatives were enrolled in mid-1987. HIV seroconversion was documented by ELISA with Western Blot confirmation, with the estimated date of seroconversion as the mid-point between last negative and first positive samples. Poisson regression methods were used to describe the HIV incidence. The first 10 study visits were included and censored as of June, 1989.
Results: The 5-year follow-up yielded 343 HIV seroconverters. The seroconversion rate in the first 12 months was highest in Chicago (9.2 per 100 PY's), followed by Los Angeles (7.4), Baltimore/Washington (5.8) and Pittsburgh (3.6). A significant decrease (p<.01) over time was observed in all city cohorts except Pittsburgh. The overall MACS HIV seroconversion rate in the most recent 12 months of observation was 1.4 per 100 PY's. A significant recent increase (p<.01) was observed in Chicago, where HIV incidence rose to 2.0 per 100 PY's, compared to 1.0 during the prior 2 years. Younger age (≤29 years) was associated with a significantly higher rate of seroconversion throughout the entire study period. Both Blacks and Hispanics had elevated seroconversion rates, however, these differences were center-specific, with Baltimore noting a 3.5 fold increase in Blacks and Chicago a 3.5 fold increase for Hispanics.
Conclusion: Despite evidence for an initial steep decline in HIV seroconversion in the MACS, current HIV incidence remains unacceptably high with evidence of a recent increase in Chicago. At consistently highest risk were the younger, sexually active men. Documentation of ongoing HIV seroconversion in this high profile homosexual cohort, which has experienced substantial educational interventions, highlights the need for renewed prevention efforts.

F.C.551 SEROPREVALENCE OF HIV INFECTION IN INTRAVENOUS DRUG USERS (IVDUs) IN THE UNITED STATES (U.S.)

Allen, David M.*; Onorato, I.M.*; Sweeney, P.A.*; and state and local Health Departments. *Division of HIV/AIDS, Centers for Disease Control (CDC), Atlanta, Georgia, USA.

Objective: To determine HIV seroprevalence among IVDUs entering sentinel drug treatment centers in the United States.
Methods: Since 1988, CDC, with state and local health departments, has conducted blinded surveys among IVDUs entering drug treatment. Demographic information (sex, age group, race and ethnicity) and information on type of treatment program, and the primary drug used have been collected on over 15,000 IVDUs entering 65 sentinel clinics in 27 metropolitan areas.
Results: Data from the first survey year show that HIV seroprevalence among IVDUs entering drug treatment ranged from 0% to 47.7% (median = 5.0%). HIV seroprevalence rates were highest in the Northeast (median = 18.2%) compared to the remainder of the U.S. (median = 2.5%). For all areas, median clinic rates were 15.1% among African Americans, 8.8% in Hispanics, and 3.9% in whites, but the disparity in HIV seroprevalence by race and ethnicity varied by different metropolitan areas. Median clinic rates for IVDUs who primarily used heroin was 4.2% compared to 0% for cocaine and all other drugs.
Conclusion: These data indicate that transmission of HIV among IVDUs continues to be a significant public health problem, especially in the Northeast U.S. Enhanced efforts are needed to reduce the spread of HIV infection associated with intravenous drug use and to determine reasons for the racial and ethnic disparity in HIV seroprevalence among IVDUs. In areas with lower HIV seroprevalence there is a need to develop innovative programs to prevent the introduction and further spread of HIV among IVDUs.

F.C.552 TRENDS IN HIV INFECTION AND AIDS RISK BEHAVIORS AMONG INTRAVENOUS DRUG ABUSERS IN SELECTED US CITIES

Battjes, Robert J.; Pickens, R.; and Amsel, Z. National Institute on Drug Abuse, Rockville, Maryland, USA.

Objective: To assess trends in HIV infection and AIDS-risk behaviors among intravenous drug abusers (IVDAs).
Methods: A series of nonblinded point-prevalence surveys was conducted with admissions to methadone treatment in New York City; Trenton and Asbury Park, NJ; Baltimore; Chicago; San Antonio, TX; and Los Angeles between March-Dec. 1987 (n=713), Jan.-June 1988 (n=1089), July-Dec. 1988 (n=932), and Jan.-June 1989 (n=1110). Subjects were tested for HIV (ELISA/Western blot confirmation) and interviewed using a standardized questionnaire. Comparisons of admission cohorts were made by chi square test of homogeneity and analysis of variance.
Results: Comparison of point-prevalence of HIV+ within cities found no change in seropositivity levels. High levels of AIDS risk behaviors (frequency of injection, needle sharing, needle cleaning, and use of shooting galleries) were found in all cities. Comparisons of trends in recent risk behaviors (past year) within cities suggest that relatively little reduction in AIDS risk behaviors is occurring.
Conclusion: While HIV+ levels among IVDAs were stable, there is no room for complacency given high levels of AIDS-risk behaviors. HIV prevention initiatives must be expanded.

F.C.553 SEROCONVERSION FOR HIV IN INTRAVENOUS DRUG USERS IN TREATMENT, SAN FRANCISCO 1985-1990

Andrew Moss, K Vranizan, P Bacchetti, R Gorter, D Osmond, B Brodie. University of California, San Francisco and San Francisco General Hospital

Objective. We examined HIV seroconversion rates and risk factors for seroconversion in intravenous drug users (IVDUs) in the San Francisco treatment population.
Methods. Since 1985 we have screened for HIV in treatment programs. Screening is anonymous but repeaters can be identified. 604 IVDUs were studied twice during 1985-90
Results. 15/604 IVDUs seroconverted with a median followup of 14 mos. Rates were 1.9% per person-year overall, 1.2% for men, 2.6% for women, 1.0% for whites, 4.0% for blacks and 3.3% for hispanics. Rates by time period were 4.5% in 1985-86, 1.7% in 87-88 and 0.6% in 89-90. Risk factors associated with seroconversion were number of sexual partners > 5 (OR=4.0, p<.01); crack use (OR 3.7, p<.01); shooting gallery use (OR 4.3, p<.01); and IV cocaine use (OR 2.6, p=.07). Not associated with seroconversion were paid sex (OR=2.4), recent IV drug use (OR=1.0), or needle sharing in the last year (OR=.8). In a multivariate analysis, ethnicity (black vs other) gallery use and number of sex partners were independently associated with risk of seroconversion.
Conclusion The HIV infection rate in San Francisco IVDUs continues to decline and is now close to that in gay men. Rates in women, especially black women, remain high. Infection may now be as much associated with sexual risk as with needle sharing.

F.C.554 LABORATORY MARKERS FOR HIV IN INTRAVENOUS DRUG USERS IN SAN FRANCISCO: RACE AND SEX DIFFERENCES

Karen Vranizan, R Gorter, D Osmond, A Keffelew, A Williams, AR Moss; University of California, San Francisco and San Francisco General Hospital, California, San Francisco, USA.

Objective. We examined specific differences in laboratory markers prognostic for AIDS among men, women, blacks and whites separately for HIV positive and HIV negative intravenous drug users (IVDU) in San Francisco.
Methods. HIV seropositive and seronegative drug users recruited from screening in drug treatment programs are currently in followup at SFGH. We measured lymphocyte subsets, serum beta-2 microglobulin levels, CBC, and HIV p24 antigen at baseline.
Results. Shown for 122 HIV positive IVDU at baseline are median values and Wilcoxon rank sum significance levels for sex and race differences. P24 Ag data is shown as percent positive with significance tested by Fisher's exact p-values.

	WHITE		BLACK		p-values	p-values
	MEN	WOMEN	MEN	WOMEN	Sex	Race
Sample size	29	23	35	35		
CD4 lymphs	389	404	379	468	.15	.48
CD8 lymphs	1104	838	1005	955	.17	.48
CD4 CD8 ratio	.33	.47	.36	.47	.007	.49
WBC	5.3	5.0	5.3	4.9	.47	.51
Beta-2M ug.ml	3.9	4.1	3.1	3.2	.94	.009
p24 Ag+	11%	17%	12%	3%	.43	.19

Conclusion. Among HIV+ Beta-2M levels were significantly higher in white than in black IVDUs despite similar T-cell counts. Higher CD4 counts and lower CD8 counts resulted in significantly higher H/S ratios for women. Black women had a low (but not significant) prevalence of p24 antigenemia, as confirmed by the observation of no p24 positives in 34 additional black women screened who declined followup. In contrast no ethnic or sex differences were observed in the HIV negative group.

F.C.555 EPIDEMIOLOGY OF HIV SEROPOSITIVE AFRICAN- AMERICAN INJECTION DRUG USERS IN SAN FRANSICSO

Evans, Patricia*; Hembry, K*; Bowser, B**; Gross, S**; Dasher, T.**
*San Francisco Department of Public Health, San Francisco, California, USA, **Bayview Hunter's Point Foundation, San Francisco, California, USA.

Objective: To define demographic and risk-behavior patterns among HIV seropositive injection drug users in an area with a high prevalence of injection drug use and high proportion of African Americans.
Methods: We reviewed interview data from injection drug users(IDUs), who were recruited on the streets and shooting galleries by street outreach workers between April and July 1989. Participants were interviewed by trained interviewers using a standardized questionnaire. ELISA and Western Blot tests were used to determine serostatus.
Results: Of 37 seropositive injection drug users(IDUs), 28 were male and 9 were female. The mean age for males was 37 and 40 for females. Males began injection drug use at age 19 and for females the age at first injection was 26 years. Current injection drug use patterns indicate that females tend to inject more frequently than males(44% vs 39%).
Conclusions: Males first injection is at an earlier stage than females, but females tend to inject more frequently than their males. Further research is needed to investigate why women inject more frequently and the types of drugs injected, and why men tend to start injection patterns at an earlier age.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.556 HIV-1 SEROCONVERSION IN A COHORT OF STREET INTRAVENOUS DRUG USERS IN CHICAGO

Wiebel, Wayne; Lampinen, T.; Chene, D.; Stevko, B.
University of Illinois at Chicago, Chicago, Illinois, USA

Objective: To measure the incidence of HIV-1 seroconversion from initial assessment to first followup interview in a prospective cohort study of intravenous drug users (IVDUs) not in drug treatment.
Methods: Indigenous community fieldworkers in three geographically distinct Chicago fieldstations recruited IVDUs for structured interviews and anonymous serologic testing with notification of results. Subjects were followed at 6-month intervals and were paid for their participation. Ethnographic research was employed to delineate the social networks of recruited subjects.
Results: At baseline, 127 of 548 (23.2%) subjects tested HIV-Ab positive. Significant differences in initial rates of seropositivity were found between racial/ethnic groups. At baseline, 17.4% (50/287) of Blacks, 38.0% (46/121) of Hispanics, and 22.1% (31/140) of Whites were seropositive. Of 421 subjects negative at baseline, 27 seroconverted over 283.7 person years, or 9.32% per person year (ppyr). Rates by racial/ethnic group were: Black 10.4% ppyr, Hispanic 11.6% ppyr, and White 5.8% ppyr. Rates varied by geographic field site from 7.6% to 10.9% ppyr. Analysis of second followup serologic data and of demographic and risk behavior characteristics of seroconverters continues.
Conclusion: Seroconversion rates among Blacks and Hispanics were almost twice those of White IVDUs in this study. Given the high initial seropositivity rates among Hispanics in the cohort, the high rate at followup indicates an urgent need for more intensive intervention with this group in particular. Adjustments in the intervention (based on the Chicago Outreach Model) in response these results will be discussed.

F.C.557 SEROCONVERSION FOR HIV-1 IN INTRAVENOUS DRUG USERS IN BALTIMORE

Vlahov David*, Munoz A, Cohn S, Solomon L, Chaisson RE, Nelson KE. ALIVE Study, Johns Hopkins School of Hygiene and Public Health, Baltimore, Maryland USA

Objective: To estimate rates of seroconversion (SC) among intravenous drug users (IVDUs) initially screened during 1988-89.
Methods: IVDUs recruited through extensive community outreach between 2/88-3/89 received confidential screening and counseling. All were scheduled for repeat serological screening at 6 mos. intervals. SC incidence rates were based upon the number of person-semesters (PS) at risk on a given calendar semester. Data on SC was defined as midpoint between last negative and first positive visit.
Results: Of 2242 IVDUs screened negative at baseline, 1277 returned at least once; returnees were likely ($p<0.01$) to be active users injecting $\geq$1 day, Black, >24 years old. Table below provides SC rates by calendar semester.

Semester:	Jan-Jun 88	Jul-Dec 88	Jan-Jun 89	Jul-Dec 89
SC :	2	28	28	7
PS :	294.3	1090.9	1259.0	798.8
Rate :	0.7	2.6	2.2	0.9

Conclusion: Although there is indication of a downward trend, SC continue to occur among IVDUs in Baltimore, despite voluntary testing, education and bleach distribution programs. Differential retention of active IVDUs may produce biased estimates of SC, but this characteristic of study also reflects opportunities for continued interventions.

F.C.558 ANTIBODY TO HIV-1 IN INTRAVENOUS DRUG USERS (IVDU) ENTERING METHADONE TREATMENT PROGRAMS (MTP) IN BOSTON.

Steger Kathleen A*, Zawacki A*; Allen D**; Werner BG***; Coppola D*; Craven DE*. *Boston Department of Health and Hospitals, **Centers for Disease Control, **MA State Laboratory Institute, Boston, MA.

Objective: To compare the prevalence of HIV-1 infection in IVDU entering three MTP in Boston between 8/88 and 7/89.
Methods: Blinded serosurveys for HIV-1 were conducted in IVDU entering MTP. Admission blood was aliquoted, blinded, and linked with demographic data, primary drug injected, and confirmed HIV-1 antibody.
Results: HIV-1 antibody was present in 21% of the 689 specimens tested; 24% of women and 19% of men were seropositive and 95% were 25 to 44 years old. Rates of HIV-1 antibody were higher in IVDU using "speedballs" than in those using heroin only (39% vs 12%, $p<0.01$); significantly higher ($p<0.01$) among blacks (36%) and Latinos (32%) vs whites (12%). HIV-1 antibody was detected in 4%, 14%, and 31% of specimens collected at the three MTP. The 31% rate was obtained in the inner-city MTP which served more people of color and patients with symptomatic HIV disease. The second innercity MTP was privately operated and served fewer persons of color. The third program was privately owned and 30 miles from the epicenter.
Conclusions: Blinded seroprevalence surveys demonstrated marked variation in rates of HIV-1 infection. Seroprevalence rates may vary geographically and by racial/ethnic composition, type of program (private vs public) and by admission policies. These variables are important in projecting the reservoir of HIV-1 infection and for targeting resources and prevention initiatives.

F.C.559 A COMPARISON OF HIV-1 INFECTION RATES AND BEHAVIORS IN MINNESOTA IV DRUG USERS OVER A THREE-YEAR PERIOD: 1987 - 1989

Thomas, J.*; Jones, D.*; Danila, R.*; Godes, J.**; Osterholm, M.*; MacDonald, Kristine*
*Minnesota Department of Health, **Hennepin County Community Health Department, Minneapolis, Minnesota (MN), USA.

Objective: To determine changes in HIV-1 seroprevalence and risk behaviors associated with HIV-1 infection in IV drug users (IVDUs) over time.
Methods: Cross-sectional surveys of IVDUs were conducted at chemical dependency treatment programs in MN in 1987, 1988, and 1989. Clients were interviewed for HIV-1 infection risks and were tested for HIV-1 antibody.
Results: Prevalence of HIV-1 infection was: 3/231 (1.3%) in 1987, 5/335 (1.5%) in 1988, and 7/315 (2.2%) in 1989. Characteristics associated with seropositivity in both the 1988 and 1989 surveys were male-to-male sex ($p<0.005$), history of residence in New York City ($p<0.001$), and sex with an HIV-infected partner ($p<0.001$). For each of the three years, those who shared needles were likely to do so <50% of the time and with only one person at a time. Percent of respondents who used bleach to clean needles during the year of most recent drug injection was 8% in 1987, 33% in 1988, and 64% in 1989. In both 1988 and 1989, 72% of participants indicated they had changed drug-using behavior to reduce their HIV-1 infection risk. The percentage of clients who had been tested for HIV-antibody before their first participation in the surveys was 35% in 1987, 72% in 1988, and 79% in 1989.
Conclusions: These surveys demonstrate a persistently low HIV-1 prevalence over time in MN IVDUs enrolled in treatment programs. Contributing factors may include: 1) infrequent sharing of needles, 2) needle-sharing with only one person at a time, and 3) concern about HIV infection risk as evidenced by behavior change and knowledge of HIV infection status.

F.C.560 HIV-1 INFECTION AMONG NON-IVDA'S ADMITTED TO DRUG TREATMENT PROGRAMS

Patel, Raj; Brandon, D.; Altman, R.; Robeson, L.; Pizzuti, W.
New Jersey State Department of Health, Trenton, NJ, U.S.A.

Objective: To study the difference in HIV-1 infection rates between intravenous drug abusers (IVDA) and non-IVDA admittees to drug abuse treatment facilities.
Methods: Utilizing CDC funding and protocols, anonymous HIV-1 serosurveys were done in drug treatment programs in New Jersey. All unduplicated admittees to 7 drug treatment facilities were surveyed, and demographic data, as well as data on drugs used and mode of drug administration, were collected.
Results: Preliminary results on 1346 admittees show an HIV-1 seropositivity rates for IVDAs of 31.67% (331/1045) and for non-IVDAs of 7.31% (22/301). This difference was statistically significant ($p<.0001$). When rates were calculated for individual clinics, five of the seven reported statistically significant differences between the two groups, the remaining two clinics having insufficient data.
Conclusion: As expected, IVDAs had a higher rate of HIV-1 seropositivity than non-IVDAs. However, this study also shows that reported non-IVDAs entering drug treatment programs also have a considerable risk of HIV-1 infections. Further exploration of risk behavior for HIV-1 transmission in this group is needed.

F.C.561 **An index of risk factors predicting HIV seropositivity in Newark and Jersey City intravenous drug abusers (IVDAs) not currently enrolled in treatment.**

Iguchi, Martin Y.*; Rosen, M.**; Musikoff, H.**; Platt, J.J.*; Baxter, B.**; French, J.**; Lidz, V.*; Liu, S.*; Grant, C.**
*University of Medicine & Dentistry of New Jersey, School of Osteopathic Medicine, Camden, New Jersey, USA, **New Jersey Department of Health, Trenton, New Jersey, USA.

From May to November 1989, 1291 IVDAs in Newark and Jersey City, not currently enrolled in treatment, were recruited by indigenous outreach and word of mouth. Subjects were asked to provide a blood sample for HIV testing (blood samples drawn by either venipuncture or finger stick, tested by ELISA, and confirmed by Western Blot) and to answer questions from a structured questionaire (NIDA AIDS Initial Assessment v. 8.0). In Newark, 743 IVDAs (76.0% male) were interviewed, with a median age of 37. Blacks constituted 83.2% of the sample; 2.2% were hispanic; 14.7% were white or other. In Jersey City, 548 IVDAs (76.1% male) were interviewed, with a median age of 34. Blacks constituted 69.5% of the sample; 14.2% were hispanic; and16.2% were white or other. In Newark, 401 of 709 individuals (56.6%) tested positive for HIV. In Jersey City, 250 of 532 individuals (47.0%) tested positive for HIV. Forward and backward stepwise regressions of the demographic information and questions related to high risk sexual and drug use behaviors identified 5 variables as both highly significant and independently related to HIV seropositivity. Years of IV drug abuse, frequency of injecting cocaine in the past 6 months and frequency of injecting heroin and cocaine together in the past 6 months, were found to be positively related to HIV seropositivity. Highest grade of schooling and number of sexual partners in the past 6 months were found to be inversely related to HIV seropositivity. Each of these risk factors were categorized into higher versus lower risk. Subjects were assigned a risk index value (ranging from 0 to 5) equal to the number of risk factors in which they were categorized as being in the higher risk group. Individuals with 2 risk factors were found to be at 1.5 times greater relative risk for testing HIV positive than individuals with 0 or 1 identified risk factor. Those with 3 risk factors were at 3.4 times greater relative risk, those with 4 risk factors were at 6.0 times greater relative risk, and those with 5 risk factors were at 10.8 times greater relative risk for testing HIV positive than individuals with 0 or 1 risk factor.

F.C.562 ESTIMATING THE PREVALENCE OF IV DRUG USE AND HIV INFECTION AMONG SUBSCRIBERS OF A LARGE PRIVATE HEALTH INSURANCE PLAN IN THE NEW YORK AREA

Eisenhandler, Jon*; Drucker, E.**
* Empire Blue Cross and Blue Shield, New York, U.S.A., ** Albert Einstein College of Medicine, New York, U.S.A.

Objective: To determine the extent of IV drug use and estimate HIV seroprevalence among the 10,000,000 subscribers of Empire Blue Cross and Blue Shield (EBCBS).
Methods: Using hospital claims data, we identified 17,961 individuals hospitalized for opiate use and, separately, 8,775 with AIDS for 1982 - 1989. By using the ratio of all female AIDS cases to female IVDUs with AIDS, we estimated the total number of female IVDUs. This data is used to infer the total number of opiate users of both sexes in the EBCBS population. In addition, by back calculating from the incidence of AIDS in this population we are able to infer the HIV seroprevalence level.
Results: Of 12,202 IVDUs for whom complete data are available, 2,872 (23.5%) are women. In the entire EBCBS population there were 8,775 cases of AIDS of whom 825 (9.4%) were adult females. Of these 57 (6.9%) cross-match with the identified IVDU females. As. 60% of adult female AIDS cases in New York are attributable to IVDU, we would expect to find 495 IVDUs among the 825 females with AIDS. Since we identify 11.5% (57/495) of these, we assume a similar proportion holds for the whole IVDU population. This yields an estimate of 24,941 female IVDUs. If females constitute 25% of the total IVDU population, the total EBCBS IVDU population is 100,000. Since for NYC the percent of reported AIDS cases among IVDUs is 10% with 50% infected and for EBCBS among female IVDUs it is 2% with AIDS (495/25,000), we estimate that at least 20% are infected.
Conclusion: There is a large population of employed IVDUs whose existence is previously unreported. These individuals, though at lower risk for AIDS than other IVDUs, substantially increase the pool of AIDS exposed populations in the New York metropolitan area.

F.C.563 HIV STATUS AND THE USE OF COCAINE/CRACK IN WOMEN DELIVERING WITH LITTLE OR NO PRENATAL CARE

Mitchell, Janet L.*; Briggs, N.**; Faison, C.**; Brown, G.M.*; Loftman, P.*; Williams, S.B.*
Departments of *OBS/GYN and **Pediatrics, Harlem Hospital Center, New York, New York, USA

OBJECTIVES: To determine the association between crack/cocaine use and HIV status in a select population of women.
METHODS: Women with little of no prenatal care (<4 visits) delivering at the Harlem Hospital Center are offered a unique opportunity to enroll themselves and their children in a comprehensive care program for continual health care that includes HIV counselling and testing.
RESULTS: Of the first 61 women who enrolled and consented to testing, 11 (18%) were positive. Nine of the 61 (14%) admitted to intravenous drug usage. Of those 9, 7 (77%) were positive for HIV. Thirty-nine women (63%) gave a history positive for cocaine or crack use (no history of IV use). Four of these women (10%) were HIV positive. The seroprevalence of all women delivering at The Harlem Hospital Center runs between 3.5-5%.
CONCLUSIONS: Women who use crack or cocaine and do not seek prenatal care when they become pregnant engage in behaviors that put them at risk of HIV infection even when the drug is not used intravenously.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.564 HIV SPREAD AMONG INTRAVENOUS DRUG USERS (IVDUs) IN KING COUNTY, WASHINGTON

Harris, Noreen*; Sohlberg, E.*, Livingston, G.**
*Seattle-King Co. Dept. of Public Health, Seattle, WA, USA,
**Centers For Disease Control (CDC), Atlanta, GA, USA.

Objective: To monitor HIV spread among IVDUs for control purposes.
Methods: As part of the CDC HIV Blinded Surveys, we did a case-control analysis using HIV laboratory, demographic and risk data gathered from all (664) clients seeking entrance into 3 drug treatment programs located in the county (August, 1988-December, 1989). These sites admit over half of IVDUs seeking care. We used stratified and logistic regression analyses to generate unconfounded estimates of the relative risks (RR) and 95% Confidence Limits (CL).
Results: HIV positives were more likely than negatives to be: gay/bisexual males versus (vs) heterosexuals (RR=20.3,CL=7.8-52.7); heterosexual males vs females (RR=5.7,CL-1.5-21.7); and heterosexuals who used amphetamines intravenously, as primary drug vs primary heroin use (RR-4.7,CL-1.0-23.0); or as a secondary drug vs no secondary use of amphetamines (RR-5.6, CL=1.5-21.0). Amphetamine use was reported 7 times more often by gay/bisexual males than by heterosexuals. Although not statistically significant, among gay/bisexual males those who primarily injected amphetamines were 3.4 times more likely than the primary users of heroin and cocaine to be infected with HIV (CL=0.6-18.1).
Conclusions: Among IVDUs entering drug treatment programs in King County, Washington, HIV may be spreading more rapidly among amphetamine injectors. The findings from these early HIV seroprevalence data point to the utility of such surveys for the purpose of identifying potential control opportunities.

F.C.565 U.S. HIV SEROCONVERSION SURVEILLANCE PROJECT: REGIONAL SERO-POSITIVITY RATES FOR HIV INFECTION IN PATIENTS WITH HEMOPHILIA

Augustyniak, Linda*, Kramer, A. S.*, Fricke, W.**, Brownstein, A.*, Evatt, B.***, *National Hemophilia Foundation, New York, N.Y., U.S.A.,**Food and Drug Administration, Bethesda, MD, U.S.A., ***Centers for Disease Control, Atlanta, GA, U.S.A.

OBJECTIVE: To determine if there are regional differences in the numbers of hemophilic persons who are HIV-antibody seropositive.
METHOD: A survey instrument developed by The National Hemophilia Foundation, Centers for Disease Control and the Food and Drug Administration was distributed to 125 Hemophilia Treatment Center's (HTC) (approximately 50% of all hemophilia patients routinely receive medical care at an HTC). Follow-up telephone interviews were conducted (1-3 times a year) with identified representatives of the HTCs to gather data on the number of patients tested.
RESULTS: One hundred (100) HTC's representing all 10 geographic regions (designated by the Department of Health and Human Services (HHS)) participated in the study. Seven thousand two hundred and fourteen patients seen at these HTC's were tested between 1985 and 1989; 50% (3633/7214) were HIV-infected. Fifty-six percent (3,204/5,683) of patients who received factor VIII concentrates and 31% (363/1,174) of patients who received factor IX concentrates were infected. Sixty-seven percent (2,750/4102) of persons with severe hemophilia were infected. Eighteen percent (66/357) of patients with other hereditary coagulopathies were infected. No regional differences in seropositivity rates were detected.
CONCLUSIONS: The data indicate that during the period of 1985-1989 half of all hemophilic persons seen at HTC's were HIV-infected. Lack of regional differences in seropositivity rates may be due to the wide distribution of factor concentrates in the U.S.

F.C.566 HIV SEROPREVALENCE SURVEYS IN SEXUALLY TRANSMITTED DISEASE CLINICS IN CALIFORNIA

Wilson, Mary Jess*; Marelich, W.D.*; Lemp, G.F.**; Perkins, C.I.*; Kizer, K.W.*; Rutherford, G.W.**
*California Department of Health Services, Sacramento, California, **San Francisco Department of Public Health, San Francisco, California, U.S.A.

Objective: To estimate HIV seroprevalence in sexually transmitted disease (STD) clinics in selected counties in California.
Methods: Seroprevalence surveys in STD clinics were begun in the 20-county study area in 1988. We collected 23,167 specimens in 1988 and 34,132 in 1989 using standardized research protocols for blinded HIV serosurveys from the Centers for Disease Control. We analyzed available data on blinded HIV antibody testing by demographic characteristics and risk group.
Results: 1,337 (2.4%) of the 55,754 tested specimens were repeatedly ELISA reactive and confirmed positive by Western blot analysis. Men had a higher rate of seropositivity (3.3%) than women (.56%) (p <.01). Homosexual/bisexual men with, and without, intravenous drug use were more likely to be positive (57.5% and 42.4%, respectively) than other risk groups (p <.01). Clients < 25 years of age had significantly lower rates (1.0%) than all other age groups (4.9%) (p <.01). STD clients of white, black, and undetermined/unknown racial/ethnic groups were most likely to be positive (3.5%, 2.3%, and 7.1%, respectively) than other groups (1.3% to 1.4%) (p <.01). For the 15 counties with an adequate 1988 sample size, 1989 seroprevalence rates remained stable when compared to 1988 rates.
Conclusions: The diverse and often high seroprevalence rates in this large statewide sample of STD clinic clients demonstrate the scope of the HIV epidemic in California.

F.C.567 HIV-1 SEROPREVALENCE IN STD CLINIC PATIENTS IN A COUNTY IN THE SAN FRANCISCO BAY AREA

Livermore, Tim*; Gaudino, J.*; Cahoon-Young, B.*; Tempelis, C.*; Chandler, A.*. Benjamin, R.*.
*Alameda County Health Care Services Agency, Oakland, California, U.S.A.

Objective. To estimate the seroprevalence of HIV-1 infection in persons attending sexually transmitted disease (STD) clinics in Alameda County.
Methods. Blinded testing of blood specimens drawn for routine syphilis serologic tests (RPR and MHA-TP) from consecutive patients attending different STD clinics from 11/87 through 12/88 was performed for HIV-1 by ELISA followed by IFA and/or western blot for confirmation.
Results. The overall HIV rate was 2.1% (N=7473) but rates differed statistically by gender, age group, syphilis serology status, and specific clinic sites. The HIV rate for men was 2.9% compared to 0.6% for women (p<.0001). Rates for age groups were as follows: 0.3%, <19 yrs; 1.3%, 20-24 yrs; 2.4%, 25-29 yrs; 3.2%, 30-34 yrs; 4.6%, 35-39 yrs; 2.2%, 40-44 yrs; 1.3% >= 45 yrs, (p<.0001). The HIV rate for syphilis positive patients was 5.4% and 1.8% for negatives (p<.0001). Rate differences among age groups and between syphilis status remained significant when controlling for gender. HIV rates for larger clinics varied statistically, ranging between 0.4% to 2.7% (p=.003).
Conclusion. While the overall sentinel HIV seroprevalence rate was 2.1%, HIV rates differed among clinic populations. Although clinic- specific rates were not controlled for risk group composition, these differences point to the need to implement broad-based sentinel surveys to monitor changes in HIV rates among different groups within the same jurisdiction so that culturally appropriate prevention strategies can be targeted and evaluated.

F.C.568 HIV SEROPREVALENCE AMONG WOMEN OF REPRODUCTIVE AGE SEEKING CLINIC SERVICES, UNITED STATES, 1988-1990

Sweeney, Patricia A.*; Allen, D.*; Onorato I.*; and state and local health departments. *Centers for Disease Control, Atlanta, Georgia, USA.

Objective. To determine HIV seroprevalence in women attending selected U.S. family planning (FP), prenatal care (PN), and abortion (AE) clinics.
Methods. Since 1988, blinded surveys have been conducted annually in clinics providing services to women of reproductive age. After blood has been tested for routine purposes, individual identifiers are removed and consecutive sera are tested for antibodies to HIV. Age group, race/ethnicity, and clinic type have been collected on over 100,000 women from 130 clinics in 32 areas.
Results. HIV seroprevalence ranged from 0%-2.3% (median=0.2%) in the various clinics. Median rates were 0.8% in PN, 0.2% in FP, and 0.1% in AB clinics nationally. Comparison of areas with both FP and PN clinics showed higher median rates in PN (0.7%) compared to FP (0.2%) clinics, as did areas with both PN (1.2%) and AB (0.5%) clinics. Rates were highest in Northeastern clinics. Median seroprevalence was 0.5% (range=0%-3.5%) among black women compared to 0% for white (range=0%-4.3%) and Hispanic women (range=0%-2.5%). Women 20-29 years of age showed the highest rates of infection.
Conclusions. Rates of HIV infection in women seeking reproductive services are low, but vary by clinic type, geographic area, race/ethnicity, and age. Factors which contribute to differences in rates among ethnic minority and young adult women need to be explored. Higher rates among women attending urban prenatal clinics indicate a need to augment local HIV/AIDS prevention, social support, and treatment services for infected women and their children. Continued surveillance including information on risk behaviors is needed to monitor the introduction and spread of HIV in women.

F.C.569 A COMPARISON OF STATEWIDE MINNESOTA HIV/AIDS SURVEILLANCE DATA WITH A POPULATION-BASED HIV SEROPREVALENCE STUDY OF CHILDBEARING WOMEN IN MINNESOTA (MN)

Danila, Richard*; Jones, D.*; Reier, D.*; Thomas, J.*; Osterholm, M.*; MacDonald, K.*
*Minnesota Department of Health (MDH), Minneapolis, MN, USA.

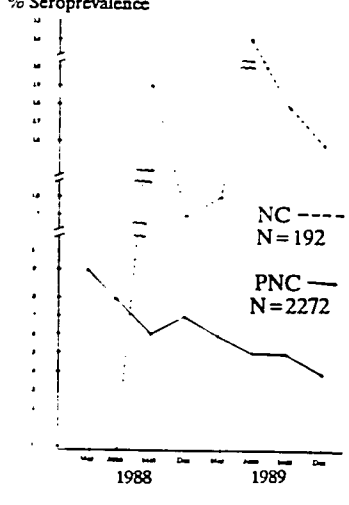
Objective: To compare statewide HIV/AIDS surveillance data of women with results of an HIV seroprevalence program aimed at detecting all HIV-antibody positive (HIV-AB+) childbearing women through testing dried blood filter paper specimens from a neonatal screening program (NSP).
Methods: NSP specimens from MN live births (9/1/88 to 11/1/89) were tested in a blinded fashion; only nonidentifying demographic information was retained (month and hospital of birth, and mother's age, race, and county of residence). Demographic data from HIV-AB+ NSP specimens were compared to non-blinded data of all HIV-AB+ women of childbearing age (including limited data on births) reported to date to the MDH HIV/AIDS surveillance program (which identifies HIV-infected patients receiving medical care in MN).
Results: Fifteen of 51,870 NSP specimens were HIV-AB+; 5 (33%) could be matched (based on demographic data) to HIV-AB+ women reported through surveillance. Of the 107 HIV-AB+ women reported through surveillance, 2 additional women gave birth during the study period and had NSP specimens drawn; however, they were not detected through the NSP HIV-AB testing.
Conclusions: These results raise two important issues: 1) Data from both HIV seroprevalence studies and from routine surveillance can contribute to assessing the burden of HIV disease. 2) The data suggest that 2/3 of the women detected through the NSP were not receiving medical care for HIV infection (due to unrecognized HIV status or failure to seek services).

F.C.570 DECLINE IN HIV SEROPREVALENCE AMONG INNER-CITY PRENATAL PATIENTS: 1988 - 1990

Dattel, Bonnie J; Hauer LB; Crombleholme WR; Landers DV; Padian N; Sweet RL. University of California, San Francisco, San Francisco General Hospital, California, USA

Objective: Determine HIV seroprevalence in women delivering with prenatal care (PNC) or no care (NC) at San Francisco General Hospital; correlate risk and demographics to seropositivity.
Methods: Blinded HIV antibody testing of all PNC and NC women 1/88-1/90; blood coded to anonymous risk/demographic questionnaires.
Results: HIV prevalence in PNC women ranged from 0% to 0.9% (mean 0.45%) by quarter. A downward trend was noted; the cumulative rate was 0.4% in 2272 women. Prevalence in NC women ranged from 0% to 8.3% (mean 2.1%) by quarter; the cumulative rate was 2.6% in 192 women, with no clear trend over time (see graph). Self or partner intravenous drug use was the most significant risk behavior for seropositivity. Conclusion: Further study may determine causes for the decline in HIV seroprevalence in PNC women. These might include 1)overall decline in HIV prevalence in San Francisco women, 2)fewer pregnancies in HIV+ women, 3)fewer HIV+ pregnant women receiving prenatal care.

GRAPH: Cumulative Seroprevalence



F.C.571 HEPATITIS B AND OTHER PREDICTORS OF HIV INFECTION AMONG FEMALES IN THE MIDWEST UNITED STATES

Campbell, Robert J., Halpin T., Lanese R.*, Para M.*
Ohio Department of Health, The Ohio State University*, Columbus, Ohio U.S.A.

Objective: The two primary objectives were to: 1) determine the prevalence of HIV among females at sexually transmitted disease (STD) clinics in Ohio and 2) determine demographic, clinical and behavioral predictors of HIV.
Methods: Female clients attending STD clinics from May 1988 through June 1989 in Ohio's eight largest cities were included if presenting with symptoms or referred as sex partners of a person with an STD. Serum routinely collected was analyzed for HIV antibody (confirmed by Western blot) and hepatitis B core antibody (anti-HBc). Statistical significance was determined using contingency tests, Fisher's exact test and multiple logistic regression.
Results: Overall HIV seroprevalence for females was 0.17% (18/10294). The presence of anti-HBc was the strongest and most statistically significant factor (relative risk [RR]=7.5, $p<.001$). Intravenous (IV) drug use (RR=6.4, $p=.052$), receptive oral sex (RR=2.5, $p=.075$) and number of sex partners ($p=.005$) were the only other variables with $p<0.1$. In the logistic regression model with all the above variables only presence of anti-HBc remained statistically significant (adjusted RR=9.9, $p=.0025$). Significantly associated with hepatitis B exposure were all of the above factors plus: previous STDs, IV drug using and bisexual sex partners, syphilis, trichomoniasis, marital status, age and education.
Conclusion: Anti-HBc is a strong, statistically significant and objective measure of increased risk for HIV in this population. This marker may be useful in targeting a higher risk subset from a large, lower risk population such as sexually active females in the Midwest United States.

F.C.572 HIV INFECTION IN UNDERPRIVILEGED TEENAGERS: UPDATE FROM THE JOB CORPS

Hayman, Charles*, St. Louis, M.**; Petersen, L.**; Miller, C.*
*Job Corps, U.S. Dept. of Labor, Washington, D.C., **CDC, Atlanta, Georgia, USA

Objective: To evaluate the HIV prevalence and trends in Job Corps (JC) entrants.
Methods: Routine screening of entrants to JC residential program by HIV-1 EIA and Western blot. Findings include JC members 16-21 years old from 10/87-11/89.
Results: Of 131,119 specimens tested, 524 (4.0/1000) were HIV-1 seropositive:

HIV-1 Seroprevalence/1,000

	White		Black		Hispanic		All	
Age	Male	Female	Male	Female	Male	Female	Male	Female
16	0.7	0.0	1.7	4.3	0.9	0.0	1.2	2.5
17	0.6	0.8	3.3	3.6	1.4	2.0	2.1	2.6
18	0.7	1.7	5.2	5.5	1.2	4.5	3.1	4.1
19	2.1	0.0	8.5	5.6	6.9	1.4	5.9	3.3
20	3.3	0.8	11.8	8.7	5.5	4.1	7.9	5.6
21	5.5	0.0	14.9	11.0	15.7	0.0	11.3	6.4
ALL	1.5	0.7	6.1	5.6	3.3	2.1	4.1	3.7

Temporal trends among JC entrants show a stable HIV seroprevalence. Along with the steep curve for cross-sectional prevalence by specific year of age shown in the table, this suggests that many adolescents are becoming infected each year.
Conclusion: These findings reveal rapid acquisition of HIV infection during the middle and late teenage years, most rapidly among minority youth, and show the critical importance of HIV prevention activities in this age group. The JC provides HIV-infected and uninfected youth with education and training, and has instituted a primary care model for management of the HIV-infected teenager.

F.C.573 SURVEILLANCE OF HIV INFECTION USING A NETWORK OF SENTINEL PHYSICIANS IN THE PROVINCE OF QUEBEC: A SECOND REPORT.

Alary, Michel*, Parent, R.
*Département de Santé Communautaire, Hôpital du St-Sacrement, Québec, Canada.

Objective: To determine risk factors for HIV infection among patients attending physicians for HIV testing and to detect time trends in these risk factors.
Methods: From May 1988 to September 1989, physicians working in four centers (3 in Montreal and 1 in Quebec City) provided anonymous data on each patient submitted to HIV serotesting. Data on test results, demographic variables (age, sex, country of birth, etc.) and risk factors (sexual orientation, IV drug use, etc.) were collected. Logistic regression was used to determine the independant effect of risk factors on the occurrence of HIV infection. Monthly seroprevalence in subgroups of patients was examined to detect time trends.
Results: Seroprevalence in this high-risk population was 7.9% (308/3899). Median age was 30 years. Using logistic regression, factors associated with HIV infection were (all p-values<0.01): male sex [Prevalence odds ratio (POR)=2.5], homo or bisexuality (POR=8.5), IV drug use (POR=3.4), origin from a type II country (POR=8.1), past history of STD (POR=1.6) and of HIV testing (POR=2.4). A trend in the monthly prevalence of HIV infection was found for IV drug users (chi-square for linear trend=6.42, p=0.01). Among these subjects, HIV seroprevalence was 4% (2/54) in 1988 as compared to 19% (17/91) in 1989 (p=0.01). IV drug users accounted for 2% of seropositives in 1988 as compared to 9% in 1989.
Conclusion: The trend found in the prevalence of HIV infection among IV drug users has not yet been detected by AIDS surveillance. Indeed, the proportion of IV drug users among AIDS cases in Quebec has remained stable over time at approximately 1%. This finding may reflect the capacity of our sentinel network to rapidly detect changes in the epidemiology of HIV infection in Quebec.

F.C.574 HIV-1 SEROPREVALENCE SURVEYS IN NEW YORK CITY

Weisfuse, Isaac B.; Greenberg, B.; Back S.; Araneta, M.; Makki. H.; Thomas, P.; et. al.
HIV Serosurvey Unit, Office of AIDS and HIV Surveillance, New York City Department of Health.

OBJECTIVE: To determine the seroprevalence of HIV-1 infection among selected New York City (NYC) populations.
METHODS: Blinded seroprevalence surveys for HIV-1 were conducted from 1988 - 89. Serum specimens drawn for other purposes were delinked from identifying information and tested for HIV-1 antibody by ELISA and confirmatory Western Blot. Demographic data collected included age, race, sex, and risk factors (when available). Clinic surveys were citywide. Sentinel Hospital surveys involved patients with non-HIV related diagnoses.
RESULTS:

Survey	# Pos.	# Tested	%	Comments
STD clinics	790	8,931	8.8	Genital ulcer pts.=13.1 %
TB clinics	95	303	31.4	Active disease pts.=44.6%
Abortion clinics	21	1,300	1.6	Stable rate '87 - '88
Women's clinics	31	2,162	1.4	Stable rate '87 - '89
Sentinel Hospital A	33	2,279	1.4	M:F ratio = 3:1
Sentinel Hospital B	74	2,746	2.7	25-44 yr. old men =12%
Children age 1-10	2	1,506	0.13	Community lead screening

CONCLUSIONS: With HIV-1 seropositivity rates higher than comparable surveys in other municipalities, NYC is one of the epicenters of the HIV epidemic in the United States. Because of the prolonged incubation period for HIV, AIDS will remain a public health problem for NYC into the next century.

F.C.575 PREVALENCE AND DETERMINANTS OF HIV INFECTION AMONG WOMEN UNDERGOING AN ABORTION IN MONTREAL, QUEBEC, CANADA

Remis, Robert S.*; Eason, E.L.**; Najjar, M.*; Palmer, R.*; Lebel, F.***; Fauvel, M.****; Departments of community health*, obstetrics and gynecology** and microbiology***, Montreal General Hospital, Montreal; ****Lab. de santé publique du Quebec, Ste-Anne-de-Bellevue, Quebec, Canada.

Objective: To estimate the prevalence and determinants of HIV infection among women undergoing an abortion in Montreal.
Methods: In July 1989, we initiated a blinded serologic study of women undergoing an abortion at the Montreal General Hospital. Serum left over from Rh blood typing was tested for HIV antibodies by ELISA and, if repeatedly positive, was confirmed by IFA and RIPA. Data analysis was carried out on a micro-computer using customized software to create multiple unlinked data sets, thus allowing the calculation of HIV prevalence by many variables without compromising anonymity. Variables included age, place of residence and country of birth.
Results: From July to December 1989, sera from 1453 women were included in the study. Median age was 27 years (range 14 to 47 years); 84% were residents of metropolitan Montreal. Three sera (0.21%; 95% confidence limits 0.05%, 0.64%) were confirmed HIV-positive. All were from residents of Montreal aged 20 to 34 years. The HIV prevalence by country of birth was: Canada 1/842 (0.12%), pattern II countries 2/177 (1.1%), other countries 0/395 (0.0%), and country of birth unknown 0/39 (0.0%).
Conclusion: This is the first study in Canada to provide relatively unbiased estimates of HIV prevalence in women by age, place of residence, and country of birth. The prevalence observed indicates that HIV is now present among women of reproductive age in Montreal; continuation of the study will be important to monitor the evolving HIV epidemic.

F.C.576 HIV INFECTION IN THE ELDERLY.

FERRO, Santiago; SALIT, I.E. Toronto General Hospital, Toronto, Canada.

Objective: To describe the clinical and epidemiologic characteristics of HIV infection in patients over 55 years of age at the time of diagnosis.
Methods: Retrospective review of charts of elderly patients with HIV infection diagnosed between 1984 and 1989.
Results: Complete information was available on 28 patients, 25 males and 3 females. The mean age was 60.1 y. (range=55-72 y.). Risk factors included: homosexual/bisexual, 19 (68%); blood products, 6 (21%); heterosexual, 2 (7%); unknown risk, 1 (4%). This contrasts with the following risk categories for other AIDS patients in Toronto: homosexual/bisexual (96%), blood products (1.4%) and unknown (0.8%). In the elderly, 10 (36%) first presented with an AIDS-defining illness as the first manifestation of HIV infection. Another 11 pts. progressed to AIDS after a mean of 12.8 mos. (range=1-39 mos.). The median time from HIV diagnosis to death was 9 mos. and from AIDS until death was 5.5 months. AIDS-related illnesses included PCP (13), KS (1), cryptococcal meningitis (2), candidiasis (2), encephalopathy (6), CMV infections (4), other (3). Eight pts. received AZT which was poorly tolerated and discontinued in 3 pts.
Conclusions: Compared to younger patients, the older HIV-infected patients are more often female and are more likely to have been infected via blood products. The diagnosis was made late in the infection and there was a short survival time after diagnosis. Encephalopathy is a common complication. Higher index of suspicion of HIV infection in older patients will make earlier diagnosis possible.

F.C.577 HIV PREVALENCE AND RISK AMONG STREET-INVOLVED PERSONS

Rekart, Michael L.; Chan, S.; James, E.; Loftus, P.; Whelan Banks, J. British Columbia Centre for Disease Control, Vancouver, B.C., Canada.

Objective: To define the demographics, HIV risks and HIV seroprevalence of street-involved persons (i.e. street youth, needle drug users, prostitutes) in Vancouver, British Columbia, Canada.
Methods: Street-involved persons in Vancouver were tested and counselled through the British Columbia AIDS Street Nurse Program. This voluntary, anonymous testing occurred 'on the street' at two locations where street-involved persons congregate. Several were attending the Vancouver Needle Exchange Project. Data was collected on age, sex, risk behavior and location tested. The tests were performed from April, 1988 to December 18, 1989 and will be updated through May, 1990.
Results: Seventy percent (70%) of those tested were male and 60% were 14-29 years of age. Over 60% were needle drug users, 40% were active prostitutes, 25% were homosexual/bisexual and 12% had all three of these risks for HIV acquisition. Thirty-four (34) of 1176 total tests (2.9%) were reactive. Of the 7 reactive persons among 850 heterosexuals (0.8%), 5 were needle drug users and 2 were prostitutes. Of the 27 reactive persons among 326 homosexual/bisexuals (8.3%), 3 were needle drug users, 6 were prostitutes, 13 were both, and 5 were neither. The only statistically significant risk factor for seropositivity was sex between males (p .001). Seroprevalence varied markedly between the two sites (9.2% vs. 0.7%).
Conclusions: HIV infection rates in street-involved persons in Vancouver are dependent primarily on sex between males. Prevention strategies and services for those infected must reflect the local epidemiology.

HIV Seroprevalence in Latin America and the Caribbean

F.C.578 HIV PREVALENCE AMONG DIFFERENT RISK COMMUNITIES IN THE NORTH-EASTERN AREA OF ARGENTINA.

Rubio, Liliana; Fay, Oscar; Taborda, Miguel; Fernández, Eduardo; Rodenas, Liliana; Fernández, Alicia
Centro de Tecnología en Salud Pública - Fac. de Cs. Bioquímicas y Farmacéuticas Universidad Nacional de Rosario - Rosario - Argentina

Objetive: 1) to study the seroprevalence among risk groups in a definite area of Argentina (borderline with Brasil, Uruguay & Paraguay). 2) To incorporate in to a multidisciplinary assistence activities the HIV infected people.
Methods: Spontaneous consultation from different official medical units in the area, since Nov'87 until Dic'89. ELISA technique(Abbott - Organon), IFA and WB(Dupont,Sorin) were used.
Results: The HIV-1 prevalence among 1.298 IVDU was 29%(82 positive). 85 out of 731 homo/bisexual were positive (11,6%). In 1.305 prostitutes, 25(1,9%) were positive for HIV-1 among 35 hemophiliacs, 5(14,3%) were positive. In 4 men cuples of seropositive women, 9(26,5%) were founded HIV-1 positivity, whereas in 60 women who had prolongned intercourse with seropositive men, 19(31,7%) were positive. In 161 patients undergoing dialysis, 25(15,5%) were positive for HIV-1. None positive were founded among 251 health workers, similary to 63 householders of HIV infected people. 17(71%) babies born from 24 infected mothers were positive for HIV-1.
Conclusions: 1) The greatest HIV infection impact is within IVDU group. 2) The homo/bisexual group shows a stable proportion of positivity during the follow up. 3) The privacy and secrecy of the sistem, archive a good social aceptance, because the number of spontaneous presentation is in permanent increase. 4) The follow up of couples represent an important contribution for the study of heterosexual transmision and to detect early infected people.

F.C.579 PREVALENCE OF HIV-1 ANTIBODIES IN SELECTED GROUPS OF A BRAZILIAN CITY WITH AFRICAN SOCIO-DEMOGRAPHIC CHARACTERISTICS (PRELIMINARY RESULTS)

Bernardo Galvão-Castro, Jairo Ivo dos Santos, Iara Viana Santana, Eliane de Jesus Valadão and Tania Luna Souto Pinto.
Advance Laboratory of Public Health, WHO Collaborating Centre on AIDS, Fundação Oswaldo Cruz, Salvador, Bahia, Brasil.

Objective: To evaluate the seroprevalence of HIV-1 in selected groups in Salvador, Bahia, a Brazilian city that displays socio-demographic characteristics of large African cities.
Methods: The sera from 1,239 individuals, including 248 sera from hemodyalized persons, 250 tuberculosis patients, 324 STD clinic attendants, 208 sera from mothers and their newborn infants and 208 healthy young adults, were tested for HIV-1 by ELISA (Organon, Virgo-Electronucleonics and Abbott) and confirmed to be either positive or negative by indirect immunofluorescence and Western blot (Du Pont). Also, the STD clinic attendants were tested in parallel for *Treponema pallidum* infection by VDRL and FTA.
Results: Eight, or 0.64% of the samples tested were confirmed to be positive: hemodyalized (2/248), tuberculosis (2/250), healthy (0/208), mothers and their newborn infants (2/208) and STD clinic attendants (2/324). In the latter group, 40 (12%) were found to be infected by *T.pallidum*.
Conclusions: Although HIV-1 infection was first detected in Salvador seven years ago, the prevalence of this pathogen is still low in heterosexuals, even in groups of people with high incidence of sexually transmitted diseases (syphilis).

This work was supported by Fundação Banco do Brasil (grant nº10/0212-7).

F.C.580

A CHANGING FACE: HIV SEROPOSITIVITY AND RISK FACTORS IN A BRAZILIAN HIGH RISK AIDS OUTPATIENT CLINIC 1986-1989

Adams, Irene Kay Bruinsma; Oliveira,M.R., Rosa de Castro, M.J.; Vidigal,P.G.; Paulino,U.H.; Moreira,D.N.; Greco,D. B.; Tupinambas,U; Castro Neto,M; Vilela, G; et al
Immunodeficiency Clinic, Infectious and Parasitic Diseases Service, Medical Faculty, Federal University of Minas Gerais, Belo Horizonte, Brazil

Objective:To describe and sequentially analyze the epidemiologic characteristics, risk behaviour, seropositivity, and symptoms of AIDS/ARC at initial clinic visit of patients attending the high risk reference clinic for HIV infection for the city of Belo Horizonte, Brazil; looking for changes over time.
Methods:Analysis was made by semester of 1057 patients who had psychological and medical interviews, physical and laboratory examination at the clinic between 2/86 and 12/89. Seropositivity was defined as Western Blot confirmed ELISA. Risk behaviour was defined as "homosexual", "bisexual", "druguser", "transfusion", "hemophiliac", or "noneabove" (includes sexual partner of HIV+). "Symptoms" excluded isolated generalized lymphadenopathy.
Results: Over the 8 semesters examined, there was a decrease in the male:female ratio from 19:1 in 1986 to 5:1 in 1989; an increase in % seropositivity from 35 to 48; an initial fall in % symptomatic from 25% in 1986 to 10% in 1987 & 1988 followed by a rise to 17% in 1989; percent bisexual and homosexual males fluctuated (range = 26-34% & 30-46% respectively). The profile of seropositive patients changed over time: females increased from 3 to 14% (mainly sexual partners of HIV+ males), homosexuals decreased from 50 to 30%, and bisexual males were consistently in the range of 28-37%.
Conclusion: The recent increase in percent of seropositive and symptomatic patients attending this clinic between 2/86 and 12/89 emphasizes the continuing need for educational programs. The high proportion of male bisexuals indicates a possible route for heterosexual spread of the epidemic. The increasing percent of females attending the clinic combined with their increased representation among the seropositives requires further investigation and may be related to the high incidence of male bisexuality observed.

F.C.581

RETROVIRUS INFECTION IN PROSTITUTES IN BRAZIL -Granato, C.; Johnson, W.; Brites, C.; Bianco, C.; Gerbi, L.; Zamariol, L.

Inst.Adolfo Lutz-Sao Paulo;Cornell Univ.Med. Center, N.Y.Blo. Center.

Objective: To determine the seroprevalence of retrovirus infection in female brazilian prostitutes.
Methods: Serum was obtained from 529 prostitutes in June 1987 in the port city Santos,Sao Paulo and from another 263 prostitutes in the same area in July 1989. Serum was also obtained from 100 prostitutes in an interior city Presidente Prudente, S.Paulo in 1987 and from another 100 prostitutes of this area in 1989. The groups from Santos included 59 IV drug addicts (IVDA)prostitutes in the 1987 sample and 16 IVDA prostitutes in the 1989 sample. Sera were tested for HTLV-1, HIV-1 and 2 by licensed EIA Kits and confirmed by Western-blot (Dupont).
Results: The data shown below represent the percentage (%) of sera reactive in the EIA and WB.

	Santos(IVDA)		Santos		Pres. Prudente	
	1987 n=59	1989 n=16	1987 n=470	1989 n=247	1987 n=100	1989 n=100
HIV-1	15.3%	18.8%	3%	3%	0 %	2%
HIV-2	0%	0%	0%	0%	0%	0%
HTLV-1	-	-	7%	-	-	-

Conclusion: Infection by HIV-1 is common and increasing in these high-risk populations. HTLV-1 infection is as common as HIV-1 infection. HIV-2 infection was not confirmed in these populations.

F.C.582

HIV SEROPREVALENCE AND RISK ACTIVITIES IN BLOOD DONORS IN BAHIA, BRAZIL

Alves, Carlos B.*; Ribeiro, T. T.*; Santana, I.**; Lisboa, W.*; Badaró, R.*; Johnson, W. D., Jr.***
*Federal University of Bahia, Salvador, Brazil; **HEMOBA, Salvador, Brazil; ***Cornell University Medical College, NY.

Objective: To evaluate HIV seroprevalence and associated high risk activities in 6020 blood donors in Salvador, Bahia, Brazil.
Method: Three blood banks serving different populations were studied: the State Blood Center (HEMOBA); the University of Bahia blood bank (HUPES); and a private transfusion service (STS). Age, risk factor, sexual activity and number of partner data were obtained from 2066 donors at the HEMOBA (Nov 88 - Apr 89), from 1131 donors at HUPES (Mar 89 - Dec 89), and from 2823 donors at the STS (Aug 89 - Dec 89). All potential donors were tested at the HUPES and STS during the indicated periods. The HEMOBA excluded 40% of potential donors for various reasons. Sera were tested by EIA with confirmation by Western blot (Du Pont).
Results: The mean age of the 6020 blood donors was 26 yrs; 86% were males. HIV seropositivity was .29% for HEMOBA, .17% for HUPES and 2.2% for STS. The private service male donors (STS) reported the highest rate of homosexuality (1.4%), the lowest rate of heterosexual activity (75%) and had the fewest mean number (2) of female sex partners during the preceeding 5 years. Other risk activities reported by HEMOBA, HUPES and STS donors, respectively, were: female prostitute contact (mean number past 5 yrs), 3.2, 3.9, 1.6; and IV drug abuse, 0, 0.9%, 0.4%.
Conclusion: HIV seroprevalence rates in three blood banks (government, university, private) were sufficiently high to indicate that HIV infection is now a significant problem in Northeast Brazil.

F.C.583

HIGH INCIDENCE OF PARTNERS OF BISEXUAL MEN: RISK FACTORS AND SEXUAL BEHAVIOUR OF WOMEN SEEN IN A HIGH RISK HIV CLINIC IN BELO HORIZONTE, BRAZIL

Oliveira, Edson Ildefonso; Adams, I.K.B.; Cardoso, M.F.P.; Paulino, U.H.; Vitoria, M.A.A.; Greco, D.B.; et al
Immunodeficiency Clinic, Infectious and Parasitic Diseases Service, Federal University of Minas Gerais, Belo Horizonte, Minas Gerais, Brazil

Objective: To define the risk factors and sexual behaviour of women seen in a high risk HIV outpatient clinic in Belo Horizonte, Brazil.
Methods:Psychological interviews of all 155 women [15% of total] seen at the clinic between 2/86 and 12/89 were examined. EXPOSURE GROUP was defined as "Druguser", "Transfusion", "Professional accident", "Heterosexual", or "No known risk factor". SEXUAL ACTIVITY was defined as "not sexually active", "fixed partner only", "fixed plus other partners", "sexually active/no fixed partner", "promiscuous","prostitute with fixed partner", "prostitute". PARTNER RISK was defined as "bisexual", "druguser", "suspected bisexual", "blood products", "promiscuous heterosexual", "unknown". PARTNER VIRAL STATUS was defined as "known AIDS", "known seropositive", "suspected AIDS", "suspected seropositive".
Results: [% of total / % of seropositive]
EXPOSURE GROUP: DRUGUSER 10/25; NOKNOWN 4/5; PROFESS.4/0; TRANSF.15/5
HETEROSEXUAL 67/65:

SEXUAL ACTIVITY:		PARTNER RISK:		PARTN VIR STATUS:	
FIXONLY	50/45	BISEX	78/85	KNOWNAIDS	18/15
FIXOTHER	22/30	DRUGS	8/[illegible]	KNOWNPOS	33/47.5
NOFIX	15/7.5	SUSBIS.8/2		SUSPAIDS	14/12.5
PROS+/-FIX	12/17	PROMIS 5/5		SUSPOS	33/25

Possible heterosexual exposure accounted for 67% (65% of seropositive) women seen; 78% of these (85% of seropositives) were women partners of bisexual males; 51% (62.5% of seropositive women) were partners of known seropositive men. Partners of drug users were 8% of the total (7% of seropositive patients.) Women with only one sexual partner accounted for 50% of patients and 45% of seropositive women. A further 21% of the total (30% of the seropositives) had fixed plus other partners.
Conclusions:The high frequency of women with bisexual partners (85% of seropositive women) and known seropositive partners (in 50% of cases the only partner) seen in this clinic must be taken into account in developing prevention strategies in this geographic region.

F.C.584 FOLLOW UP OF GROUPS AT RISK FOR HIV INFECTION

Souza Dias, Maria Beatriz; Lima, J.N.,Abreu,W.B.;Pedro,R.J.; Silva, L.A.M.;Aoki,F.H. UNICAMP Medical School, Campinas,Sao Paulo, Brazil.

In June 1986 we set up an HIV screening/counselling clinic at the University of Campinas, a 1.2 million people industrial town northwest of Sao Paulo. Counselling is offered to people who seek the clinic spontaneously or by refe ral. Free HIV testing is performed liberaly in order to prevent undue blood donations. Till November 1989 1023 persons were tested. Their distribution according to main risk factor and test results is:

RISK FACTOR	N	1+ ELISA	2+ELISA	C CONF.TEST	TOTAL%POSITIVE
HOMO/BI	261	41	18	4	24
IVDU	224	55	40	14	48.7
HETER.CONTACT	80	8	5	3	20
BLOOD TRANSF.	44	2	1	1	9.1
OTHER	246	10	8	8	10.6
NONE ADMITTED	168	6	5	12	13.7

Seronegative patients whose behavior place them at higher risk for HIV infec tion are counselled and encouraged to retest at 6 month intervals.Up to now 48 such persons were tested with at least 4 months of interval, with the following results:

RISK FACTOR	N	NºSEROCONVERSION	%
HOMO/BI	28	1	3.6
IVDU	10	3	30
HETER.CONTACT	10	0	0
TOTAL	48	4	8.3

More effective means of prevention must be sought, besides medical counseling

F.C.585 HIV-1 AND HIV-2 SEROLOGICAL STUDIES IN INDIVIDUALS WITH RISK BEHAVIOR

Lauria,Catharina****;Vanderborght,B.O.M.*****;Sá Ferreira,J.A.*; Ferreira,A.G.P.*;Bonfim,D.***;Marzochi,K.F.** & Peralta,J.M.****.
*Bio-Manguinhos and **Hospital Evandro Chagas/FIOCRUZ, ***Hospital Pedro Ernesto/UERJ & ****Instituto de Microbilogia/UFRJ, Rio de Janeiro, Brazil; Innogenetics Gent, Belgium.

Objective: Study of the prevalence of HIV-1 and HIV-2 in group with risk behavior attending to AIDS clinics in Rio de Janeiro.
Methods: Sera from 645 individuals at risk for HIV infection, were tested for the presence of HIV-1 and HIV-2 antibodies. Tests used for HIV-1 antibodies detection were: Abbott EIA recombinant, Vironostika II(Organon) and Indirect Immunofluorescence(IIF) Bio-Manguinhos/FIOCRUZ. Genetic Systems HIV-2 EIA was used for HIV-2 antibodies detection. As a confirmatory test the Inno-LIA (Innogenetics) was used. This test is able to make discrimination between HIV-1 and HIV-2 sera on basis of specific recombinant or peptide antigens.
Results: From 645 sera studied, 326 (50.5%) were reactive in the HIV-1 EIA tests and were confirmed by IIF. All sera werealso tested in the HIV-2 EIA, and 119(18.5%) showed to be positive. It should be pointed out that those 119 sera were also reactive in the HIV-1 test. This means that probably 36.5% of the HIV-1 sera gave a cross reactivity with HIV-2. The confirmation for HIV-1 or HIV-2 positivity was done by the Inno-LIA. None of the sera positive in the HIV-2 EIA reacted with the HIV-2 antigen (gp36 peptide) in Inno-LIA. All the 119 sera were considered positive for HIV-1 in this test.
Conclusion: Specific reactivity for HIV-2 was not observed in sera from the group of individuals studied. No evidence for double infection in this population was shown, since sera assayed on the confirmatory test (Inno-LIA) were only reactive for HIV-1. Additional studies need to be done to confirm or not a high cross reativity between HIV-1and HIV-2 in these group of sera.

F.C.586 A COMPARATIVE STUDY BETWEEN SUGAR CANE WORKERS IN THE DOMINICAN REPUBLIC: A SEARCH FOR HIV AND ITS CO-FACTORS

Capellan, Mirtha R.*; Reyes, L.*; DeMoya, A.**, Koenig, E.L.***
*Univ. Tecnologica de Santiago (UTESA), **Programa Control de Enfermedades de Transmission Sexual (PROCETS), ***Nacional Laboratory of Public Health, Santo Domingo, Dominican Republic

Objective: To determine HIV seroprevalence among Dominican and Haitian sugar cane cutters living within a 10 km. radius, to determine if there exists a significant difference between these two groups. At the same time the possible role of malaria, HTLV-I, syphilis and other STDs as well as ritual practives in which blood is involved was examined.
Method: Three hundred ninety seven volunteers living close to the same sugar mill were bled. Slides were prepared on the spot for malaria. Sera were submitted for studies of HIV, HTLV-I and syphilis (VDRL). A questionnaire was filled out by each subject.
Results: An overall 9.32% of the sample was positive for HIV. Among Haitian residents this figure was 15% and among Dominican residents, 4.4%. Male: female ratio was 1:1. None was positive for all 4 diseases and only one of the HIV seropositive individuals was also HTLV-I positive. Seropositivity to HTLV-I was 5.8% with twice the number of women than men.
Conclusion: Analysis of the datasuggests that sexual practices as well as religious customs associated with magic are more important co-factors than other infectious diseases in the transmission of HIV in these population groups.

F.C.587 SEROPREVALENCE OF HIV-1 AND HTLV-I IN STD CLINICS IN THE DOMINICAN REPUBLIC

Guerrero, E.*; Rodriguez, Evelyn M.**; de Moya, E.A.*; Quinn, T.C.**; Monterroso, E.R.***; Zacarias, F.***; Glasner, P.D.**; Vermund, S.H.** *PROCETS, Santo Domingo, Dominican Republic; **NIAID, Bethesda MD, USA; ***Pan American Health Organization, Washington, DC, USA.

Objective: To determine seroprevalence of HIV-1 and HTLV-I in a general population recruited from two STD clinics in the Dominican Republic.
Methods: In July - November 1989, HIV-1 (ELISA and Western Blot confirmed) and HTLV-I (ELISA and RIPA confirmed) were assessed in 583 randomly selected individuals in two Santo Domingo STD clinics. An STD protocol assessed Chlamydia trachomatis (immunofluorescence), N. gonorrhoeae (Thayer-Martin medium and bell jar), syphilis (VDRL and FTA confirmed), genital ulcers (clinical assessment, gram stain and dark field) and genital verrucae (clinical assessment). 51 sera of every tenth non-patient were likewise tested for HIV-1 and HTLV-I to assess possible recruitment biases.
Results: 16 of 583 (2.7%) of participants were positive for HIV-1 and 24 of 583 (4.1%) were positive for HTLV-I. Three of 583 (0.5%) were co-infected with both HIV-1 and HTLV-I. Two sera (0.34%) were indeterminate for HIV-1. Forty-three of 326 (13.2%) were infected with C. trachomatis. One of 51 sera of non-participants (2.0%) was positive for HIV-1 and none for HTLV-I. Data on other STD, and risk behavior, cross-tabulated with the retroviral data will be presented.
Conclusion: In two Santo Domingo STD clinics serving a general population, 2.7% of attendees in late 1989 were infected with HIV-1 and 4.1% with HTLV-I (0.5% were co-infected). Epidemic control measures including education, condom distribution, STD treatment and prevention are urgently needed.

TRACK C: EPIDEMIOLOGY & PREVENTION

POSTER SESSION

F.C.588 A SURVEY FOR ANTIBODIES TO HUMAN RETROVIRUS (HIV-1, HIV-2, HTLV-1) IN ECUADOR.

Cevallos R.**, Denis François*, Verdier M.*, Leonard G.*, Evans L.***, Barriga J.***, Barberis L.***
* Department of Bacteriology-Virology and ** Department of Internal Medicine, CHU Dupuytren, Limoges, France ; *** Hospital Del Sur. Quito, Ecuador.

Objective : To determinate the prevalence of HIV-1, HIV-2 and HTLV-1 infections among high risk and low risk groups in several areas in Ecuador.
Methods : During the period 1988-1989, 1062 blood samples (100 childrens, 962 adults (576 males, 486 females) were collected in several areas (Colta, Esmeraldas, Pastaga, Sangolqui, Sucre, Quito) in general population, blood donors, hospital staff, hospitalized patients, patients with sexually transmitted diseases, and prostitutes.
Ethnics informations (black, indian, halfcaste) were known for each subject.
Sera positive with commercial ELISA (Abbott HIV-1/HIV-2 recombinant, Abbott HTLV-I) were assessed for confirmation by Western Blots (New Lav Blot 1 and 2. Diagnostics Pasteur for HIV, "home WB" for HTLV-1).
Results : The human retroviruses seroprevalence is very low. The cumulative seropositivity was 5/1062 = 0.47 %. No serum was HIV-2 positive, respective seroprevalences HIV-1 and HTLV-1 were 0.19 % and 0.28 %. All patients HIV or HTLV-1 positive were living in Quito.
Conclusion : Just a few data are available concerning retroviral seroprevalence in Ecuador populations. Ecuador presents an extremely weak number of infected persons in populations with low or high risks, comparatively to other Central or South America areas. Among blood donors the HIV seroprevalence observed here (0.5 per cent) is higher than results obtained during the 1986-1988 period by the Equatorian Red cross (0.004 per cent) and these increasing is preocupant.

F.C.589 HIV AND HTLV-I INFECTION IN A SELECTED POPULATION OF HOSPITAL OUTPATIENTS IN RURAL HAITI.

Allain, Jean-Pierre*, Hodges, B.**, Geisler, J.*, Neilly, C.*, Delaney, S.*, Hodges, W.**, Lee, H.*.
*Abbott Laboratories, N Chicago IL USA and **Hopital le Bon Samaritain, Limbe, Haiti.

Objective: Assess the seroprevalence of HIV and HTLV-I in a selected group of patients presenting with clinical symptoms suggesting HIV infection.
Methods: HIV screening was done in Haiti using a visual assay (Abbott Labs) and confirmation with western blot; HTLV-I screening with the Abbott HTLV-I EIA and confirmation with western blot and RIPA. Clinical data were collected by trained US nurses. Constitutional symptoms and infections suggestive of HIV infection were used to select patients for testing.
Results: 643 patients were mostly adults (88%) with equal number of males and females. 312 (49%) were HIV sero+, 57 (18.3%) being also HTLV-I Ab+. In contrast 15 (4.5%) of 331 HIV neg patients had HTLV-I Ab ($p<0.01$). HIV Ab+ was not significantly associated with tuberculosis (37%) chronic diarrhea (13%) or fever (7%) and was marginally associated with the clinical diagnosis of AIDS (6%). HIV prevalence was higher in adults of both sexes (52%) than in children (28%) and no difference in prevalence was seen among sexes. HTLV-I seroprevalence was 3% in children (<15y). In adults it reached 15% in females 15-60 years and 3% in males (15-30y) increasing progressively to 21% in the 45-60 age range.
Conclusion: 1- HTLV-I and HIV infections are significantly associated. 2- Field clinical assessment of symptoms of acquired immune deficiency is not predictive of HIV seropositivity. 3- HTLV-I seroprevalence according to age & sex differs from typical patterns observed in other Caribbean populations.

F.C.590 PATTERNS OF HIV-INFECTION IN CENTRAL AMERICA

Beach, R*; Baum, M*; Shultz, J*; Mantero-Atienza, E*; Prineas, R*; Thiebaud-Alvarenga*, M; Alvarenga*, JC; Gutierrez*, R; Tercero*, D; Zelaya, E**.
*Fogarty International Training In AIDS Epidemiology, Department of Epidemiology; University of Miami School of Medicine, Miami, Florida, USA, **Ministry of Health, Honduras.

Objective: To observe patterns of HIV infection in the countries of Honduras, Guatemala and Costa Rica.
Methods: To review case records in these three countries to determine the distinct features of the HIV epidemic in these three neighboring nations.
Results: As of September, 1989 Honduras had reported 344 cases of documented AIDS, while Costa Rica had reported 113 cases and Guatemala had reported 56 cases. As is the case throughout the Third World, these are only rough estimates of the magnitude of the HIV/AIDS problems in these countries. Honduras has the largest number of AIDS cases and the highest rate of cases per million inhabitants. Patterns of transmission occur in these countries in markedly distinct fashion. Different high risk groups are infected to a highly variable degree with up to 25% of the female prostitutes in San Pedro Sula, Honduras being infected with HIV-1, as opposed to < 1% in San Jose, Costa Rica. The male:female ratio in Honduras is 1.3:1 whereas it is 12:1 in Guatemala and 27:1 in Costa Rica. Thus Honduras appears to be a Pattern II country whereas Guatemala and Cost Rica are Pattern I countries. The rapid spread of HIV-1 infection to the general population, observed in all three countries, appears to be due to the large number of bisexual males, and partially accounts for the rapid decline in the male:female ratio observed in Costa Rica and Guatemala. Compared to countries where the apparent "bridge" to the heterosexual population is the intravenous drug user, in these Central American countries, bisexual males appear to act as a "bridge". There is an urgent need to assess the magnitude of this problem, regarding the knowledge, attitudes and sexual practices, and to design intervention strategies precisely oriented toward bisexual individuals in these Central American countries.
Conclusion: While geographically neighbors, countries in Central America have very distinct patterns of spread of HIV infection and AIDS. The role of the bisexual male in the spread of HIV infection appears important and requires further investigation and intervention.

F.C.591

White, Elizabeth*; Weller, P.*; Figueroa, J.P.*; Brathwaite, A.*; DuCasse, M.*; Cohen, J.B.**
* National AIDS Control Program, Jamaica; ** Program Director, University of California, San Francisco

OBJECTIVE: To assess the prevalence of HIV infection and of other Sexually Transmitted Diseases (STDs) in female sex workers in Kingston, Jamaica and to determine the effects of targetted intervention measures on the prevalence of these infections and on the associated high risk behaviour.
METHODS: Female sex workers are identified and recruited on the street, bars and clubs and invited to attend special clinic sessions where a questionnaire/interview is used to elicit information on knowledge, attitudes and behaviour relevant to Sexually Transmitted Diseases (STDs), history of STDs and social background. A medical examination is performed, including clinical and laboratory investigations for HIV and other STDs. Peer counsellors have been recruited and trained and educational interventions developed.
RESULTS: The study is ongoing. To date, 48 women have been recruited; over 200 should have been recruited by May 1990. Seven of the 48 women have had positive ELISA tests (results of confirmatory tests awaited) and 18 had positive serology for syphilis. None of the women were currently infected with gonorrhoea, but 13 had a chlamydial infection and 9 trichomonas. Results are awaited for HTLVI and hepatitis serology. Most of the women are aware of the risks that are inherent in their profession and aware that condoms should be used in sexual encounters. Almost all claim to use condoms at least occasionally and more than half have been asked to do so by customers. Condom skills are frequently inadequate and this has been identified as a target for intervention.
CONCLUSION: The interventions by peer counsellors are well received, except by a few younger women who are frequently also substance abusers. The interviews and medical examinations will be repeated with this cohort of women in 1991 to assess the effects of the interventions.

F.C.592 SEXUALITY IN WOMEN AND AIDS IN A LATIN AMERICAN COUNTRY

Magis, Carlos L.,Garcia M.L, Sepulveda J.,Loo E.,Izazola J.A, Valdespino J.L.
General Directorate of Epidemiology. Ministry of Health. Mexico.

OBJECTIVE: To analyze HIV-1 seroprevalence, sociodemographic profile, sexual practices, knowledge and attitudes and behavior (KAB) towards AIDS, condom usage and HIV risk factors among Mexican women.
METHODS: National AIDS registry was analyzed. KAB and epidemiological serosurveys were performed on 2788 women of 17 different cities (selected cities included the biggest in the country). The groups studied were: 789 students, 952 health workers (HW), 814 women belonging to general population (GP) and 233 women with specific AIDS risks (WSAR). No female sex workers are included. Investigated variables included sociodemographic data, health status, sexual practices, usage of condom, KAB towards AIDS and confirmed HIV seroprevalence (WB or IFA). HW and G.Pwere selected through random and cluster methods, WSAR voluntarily attended HIV detection services. Free testing was done on voluntary and confidential basis, pre and post-test counselling was offered.
RESULTS: AIDS cases: Until December 1989, 444 female AIDS cases had been notified representing 12.6% with a man female ratio of 7 to 1. The trend has been ascendant, 60% of these cases are associated with blood transfusion reception and 30% to heterosexual transmission.
EPIDEMIOLOGICAL SEROSURVEYS. Sociodemographic profile: All women were between 15 and 60 years old. Single status was predominant in students, while married women represented more than 60% in the rest. Sexual practices. Eighty-four percent were sexually active and 97.5% had had one partner in the last six months; 92.5% referred vaginal coitus, 2% anal coitus and 5% fellatio; 65% recognized condom, 39% had used it at least once and 4% had used condom to prevent AIDS. HIV risk factors in WSAR. Seroprevalence was 6.8%, risk factors were blood transfusion (OR 18.3, CI 5.177-69.55 ($p<0.01$), sexual partner of a high risk person (OR 2.06, CI 0.67-6.33 ($P<0.1$). KAB towards AIDS. Even though knowledge about transmission mechanism is adequate, myths about transmission persist even among health workers.
CONCLUSIONS. HIV/AIDS has a growing trend in Mexican women. Their risk is elevated due to men's bisexuality, taboos in partner condom use, lack of information and myths about AIDS transmission.

F.C.593 PREVALENCE OF ANTIBODY TO HIV-1 IN MEXICAN BLOOD DONORS

Herrera-Ortiz, Flor*; Juarez-Figueroa, Luis*.
*Centro Nacional de la Transfusion Sanguinea. México City.

Objective: To estimate the current status of prevalence of HIV-1 infection in a portion of the healthy nation-wide familiar blood donors.
Methods: During 1989, approximately 500,000 blood donors have been screened for antibody to HIV-1. We obtained data from approximately 1/3th of the whole population, from records sent to our Center,. from 89 regional blood banks. Western Blot was performed to all repeteadly reactive sera in our reference laboratories.
Results: The prevalence of anti-HIV 1 in these donors was 7/10,000, seropositivity was 2.5. times higher in the metropolitan area (10/10,000) in comparison with the states (4/10,000), p 0.0001 X . Nevertheless in 4 states, the prevalence was higher in comparison with the metropolitan area, and 3 to 8 times higher than in the states (12 to 30/10,000). Six states have not yet reported positive cases. Confirmation rate was higher when screening immunoenzimatic test was performed (36%), as compared with hemaglutination test (13%).
Conclusion: Blood donor screening program represents a major opportunity to control the transmision of HIV by blood components, since we had in 1986 a big population of paid donors with an incidence of 7.2% of anti-HIV1. Approximately 350 to 1,050 infections per year are being avoided. Neverheless in order to obtain a better selection of donors, an additional confidential self-exclusion program is mandatory to be implemented.

F.C.594 NATURAL HISTORY OF HIV INFECTION IN A COHORT OF FEMALE PROSTITUTES IN GUADALAJARA, MEXICO.

Torres-Mendoza B.*; Campos-López P.*; Jáuregui Ríos M.L.*; Tlacuilo-Parra J.* and Vázquez-Valls E.*,**
*Grupo de Diagnóstico,tratamiento e Invesgitación Biomédica, de Guadalajara,-A.C. **Unidad de Investigación Biomédica de Occidente,IMSS,Guadalajara,México

OBJECTIVE: To determine by a longitudinal study the HIV seroprevalence and - risk factors in prostitutes of Guadalajara during the last 3 years.
METHODS: Five hundred and fifty women (18-45 years old) were interrogated and bleed every three months between december 1986 and december 1989. They worked in nigthclubs and belonged to a high economical status. Serum samples were - tested by ELISA and Western blot as a confirmatory test. Gynecology evalua - tion and colpocitology smears were also done.
The results were compared with a difference of three years.

RESULTS:	SEX PARTNERS PER MONTH	CONDOMS USE (%)	CERVICITIS AND GENITAL ULCERS (%)	STD %	HIV ANTIBODIES PREVALENCE
1986 n=550	40	68	38.2	69.82	0.44
1989 n=550	22	81	46.5	56.78	0.15

CONCLUSION: Data shows that there is a reduction in the analized prevalence - of anti HIV antibodies, STD frecuency and number of sexual partners; there - is also an elevation in the use of condoms. We suggest that information and - prevention compaigns be reforced.

HIV Seroprevalence in Africa

F.C.595 HIV-BASELINE STUDY IN THE GENERAL POPULATION OF COROM-COROM/BURKINA FASO

Ouedraogo L.Hamade *, Lorenz N.**, Bakouan D.*, Zina Y.*,Barth P.**;Rehle T.***;* Ministère de la Sante et de l'Action Sociale, Ouagadougou;** Gesellschaft fur Technische Zusammenarbeit(GTZ),Ouagadougou,Burkina Faso;***Gesellschaft fur Technische Zusammenarbeit(GTZ)Eschborn,Federal Republic Germany

Objective: In order to obtain baseline data, HIV-Seroprevalence was to be determined in a rural town in North Burkina Faso, where the ordinarily proposed sentinel group did not meet the required sample size.
Methods: A sample of 270 individuals, in the age group of 15 - 49 years, was randomly chosen on the basis of a especially established census list. The study was performed with local health staff and had only minimal external support.
Results: Literacy rate of the study population was low. A prevalence of 3.1%* (1.0%-5.2%) for HIV-1 infection and of 2.3%* (0.5%-4.1%) for HIV-2 infection was found. Double infection was present in 1.9%* (0.2%-3.6%) of the study population. One case (0.4%) of single HIV-2 infection* was found. Individuals who had attended school had a higher probability of being HIV-positive than illiterate individuals.
Conclusion: The study showed a high prevalence of HIV-Infection in a rural area of Burkina Faso for which no data had so far been available.The study showed furthermore that with minimal input a valid study on HIV-Prevalence can be carried out in areas where the ordinary sentinel group cannot be used.
* = confirmed by Western Blot

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.596 SEVERE MALNUTRITION AND HIV INFECTION IN WEST AFRICA (BURKINA FASO)

PRAZUCK T.*, TALL F.**, MALKIN J.E.*, NACRO B.**, TRAORE A.**, SANOU T.***, DUBLANCHET A.*, PATEY O.*, LAFAIX Ch.*
*G.E.E.P. : Villeneuve-Saint-Georges, **Pediatric Ward, National Hospital Bobo Dioulasso, ***University of Medecine of Ouagadougou.

Objectives : 1°) To evaluate the prevalence of HIV infection in hospitalized children suffering of malnutrition. 2°) To determine the vertical/horizontal ratio of the virus transmission. 3°) Study the clinical predictive markers for HIV infection and the outcome of the disease in that particular population.

Methods : All children hospitalized at the Bobo Dioulasso pediatric ward between June and September 1989 were included in the survey. A clinical examination and blood test for HIV (Elisa, Peptilav and WB) were performed to both the child and his mother. t and Chi2 tests were used for statistical analysis.

Results : On September 30, 1989, 90 children have been enrolled in the survey. Mean age was 18 months. 76 of them exhibited marasmus, 14 kwashiorkor and 16 an intermediate form. 14 children were HIV1 positive (prevalence : 15.5%); no one was HIV2 positive. Vertical transmission was found in 78% (11/14) of cases. For the 3 remaining cases, no blood transfusion was previously performed, allowing to suspect another mode of horizontal transmission. Mortality rate in seropositive children was 50% (7/14) compared to 30% (22/76) in HIV-children (p>0.05). Urban extraction was associated with HIV infection (respectively 13/14 (92%) and 26/76 (34%). The more frequently discriminating symptoms were existence of lymph nodes (p=0.02) and absence of kwashiokor.

Conclusion : This study shows the high prevalence rate in that population. Further investigations are need to precise the hypothesis of horizontal transmission.

F.C.597 SETTING UP A SENTINEL SURVEILLANCE SYSTEM FOR HIV INFECTION IN CAMEROON.

Kaptue,L.* ; Zekeng,Leopold*; Salla, R.* ; Trebucq,A** ; Louis, J.P** ; Andela* ; Ndoumou,A.* ; Yanga* ; Lamptey,P.*** ; Michell,S.***
*Service National de lutte contre le SIDA, Yaounde ; ** OCEAC, Yaounde ;
*** Family Health International, North Carolina, USA.

Objective : To monitor the trend of HIV infection in Cameroon.

Methods :On seven sites, sampling will be done as follows : during the first week of each month in STD clinics, 50 new patients will be randomly bled in Yaounde (YDE) and Douala(DLA) and 25 patients in the other 5 sites. In antenatal clinics (ANC), 100 new pregnant women will be randomly bled in YDE and DLA, and 50 from the other 5 sites. All TB patients attending TB clinics in YDE and DLA will be bled averaging 40/month. Data of blood donors is also available. All samples will be screened for HIV-1, Syphilis, and only 5 to 10% will be screened for HIV-2. This system is unlinked and anonymous. Minimal information on age, sex, profession, marital status will be recorded.

Results : Prelimanary results for Yaounde since February 1989(the surveillance will soon start on the 6 other sites).

	HIV-2	HIV-1	Syphilis (RPR - TPHA)
ANC	0	10/900(1,11%)	10%
STD	0	8/467(1,71%)	30,38%
TB	0	9/373(2,41%)	34,50%
Blood donors		113/11 393(0,99%)	

Conclusion : In Yaounde in 1988, we found a prevalence of (1,5%) (9/600) in ANC and in STD clinics, 1% (3/300). Among pregnant women, the prevalence is stable, but is gradually increasing in STD clinics. The rate of infection is high among TB patients. Continual data collection over a long time period may ultimately show the real trend of HIV infection in Cameroon.

F.C.598 A SEROEPIDEMIOLOGICAL STUDY OF SEXUALLY TRANSMITTED AGENTS (HIV, HEPATITIS B VIRUS, T. PALLIDUM) AMONG SENTINEL POPULATIONS IN THE NORTH WEST AND SOUTH WEST PROVINCES, CAMEROON

Zekeng, L.*; Barth, P.**; Salla, Roger*; Kaptue, L.*; Schmidt-Ehry, B.**; Rehle, T.**
* Ministry of Health of Cameroon, Yaounde, Cameroon
** Gesellschaft f. Technische Zusammenarbeit (GTZ) GmbH, Eschborn, FRG

Objective
To appreciate the importance of the transmission problem of HIV, Hepatitis B and Treponema pallidum among the three populations pregnant women, STD patients and blood donors.

Methods
Blood samples were collected between mid-September and end of November 1989 in Bamenda , Kumba and Limbe Towns. The samples were analysed anonymously and unlinked for HIV by ELISA and immunoblot. HBs-antigen and anti-HBc were determined by ELISA, Syphilis antibodies by TPHA.

Results

	HIV-1	HIV-2	HBsAG	anti-HBc	T. pall.
Pregnant women (n=608)	0,7 %	not found	15,3 %	77,5 %	23,5 %
STD-patients (n=282)	2,5 %	not found	13,5 %	77,3 %	31,2 %
blood donors (n=384)	1,6 %	not found	22,0 %	80.1 %	48,1 %

Conclusions
The high prevalences of sexually transmitted diseases, such as Hepatitis B and Syphilis, suggest a great potential for further spread of HIV infection among the populations studied. Therefore, high priority should be given to STD control programmes.

F.C.599 HIV INFECTION AND AIDS IN EGYPT: A CUMULATIVE SURVEILLANCE OVER 3 1/2 YEARS

Constantine, Niel T.*; Sheba, M.F.**; Watts, D.M.*; Amer, H.**; Ghanem, M.**; Khashaba, S.**; Moteleb, F.A.**; Sattar, A.A.**
* U.S. Naval Medical Research Unit No. 3, (A WHO Collaborating Center for AIDS.), ** Ministry of Health, Cairo, Egypt.

Objective: To determine the total number of HIV infections and AIDS cases in Egypt over a period of 3 1/2 years.

Methods: From Apr. 1986 - Sept. 1989, 28,279 sera were collected from 27 governorates of Egypt and analyzed for evidence of HIV infection. The distribution was: 13,795 high risk persons; 9,031 blood or product donors, and 5,453 foreigners. All sera were screened by ELISA and confirmed by western blot (WB).

Results: A total of 191 specimens reacted by ELISA; 119(0.42%) were confirmed positive by WB. Of the Egyptian positives, 17 were blood recipients, 7 had received factor VIII, 3 were drug abusers, 3 had FUO, 4 were STD patients, 4 were contacts (children and spouses) of infected persons, 4 were travellers to endemic areas, and one had no associated risk factors. All blood donors (7,732), mental patients (468), and prostitutes (347) were negative. A total of 76 foreigners were positive, all but 4 from Africa. Seven Egyptians had AIDS and 1 had ARC.

Conclusion: The prevalence of HIV infection and AIDS in Egypt is low, especially among resident Egyptians. Most cases of infection have been identified in foreigners. (Supported by the NAVMEDRSCHDEVCOM, Bethesda, MD, Work Unit No. 3M463105.H29.AA.335).

F.C.600

SEROPREVALENCE OF HIV AND SYPHILIS INFECTIONS AMONG CHILDBEARING AGE WOMEN OF CENTRAL ETHIOPIA.

Debrework Zewdie*, Tafari N.**, Kebede T.* & Gebrehiwot B.*

* National Research Institute of Health; **Department of Pediatrics and Child Health, Addis Ababa University, Addis Ababa, Ethiopia.

Objective: To assess the value of seroprevalence of HIV-1 and syphilis among women of childbearing age as surrogate measure of the prevalence of the infections in the general population and identify factors in disease transmission.
Methods: Patients attending prenatal, family planning STD, and general outpatient clinics were screened obtaining informed consent. Western blot and FTA were used to ascertain infection. Standardized risk ratios were computed to identify factors influencing prevalence.
Results: The present report is based on data on 1834 (30%) of those surveyed. 93% were women, and 76% attended prenatal clinics. The women in the study consist of monogamous (67%), homemakers (56%), Christians (88%), literate (83%), monthly family income less than 100 USD (70%). The prevalence of HIV 3.6% with a range of 2.4% and 9.8% in those attending prenatal and STD clinics.
Conclusion: Prevalence of infection was 2.9 times higher in women earning < 25 USD than those earning > 200 USD per month. The disease was 6.5, 9, and 23 times higher in the single, in divorced and in the sex worker than in the monogamous home maker.

F.C.601

DISTRIBUTION OF HIV-1 AND HIV-2 INFECTIONS IN COTE D'IVOIRE

Adjoriolo Georgette*, Soro B**, Gnaore E*, Gershy-Damet G**, Odehouri K**, Bretton R**, Ouattara D**, Porter A*, Gayle H***, De Cock KM* ***, Heyward WL ***.

* Projet RETRO-CI, Abidjan; ** Comite National de Lutte Contre le SIDA, Cote d'Ivoire; *** Centers for Disease Control, Atlanta, USA.

Objectives: To compare the distribution of HIV-1 and HIV-2 infections in selected populations in Cote d'Ivoire.
Methods: We compared the distribution of HIV infection by age, sex and virus type (HIV-1, HIV-2) in 1988-1989 in Abidjan blood donors (n=929), hospitalized and well children (n=1,003), their mothers, mortuary cadavers (n=698), hospitalized medical patients (n=1,715), and TB outpatients (n=1,256); outside of Abidjan, 1,700 urban and 3,199 rural healthy subjects were recruited by nation-wide cluster sampling.

Results:	HIV-1	HIV-2	Dual	Total Pos	M:F Ratio HIV-Pos
Abidjan Donors	7.2%	2.2%	0.9%	10.1%	1.6
Children*	9.0%	0.5%	0.5%	10.0% (* hospital; >15 mos)	
Hospital Adults	24.7%	4.1%	11.2%	40.0%	1.7
TB Outpatients	28.5%	5.7%	9.5%	43.8%	1.4
Rural Adults	2.8%	1.6%	0.5%	4.9%	1.8
Urban Adults (not Abidjan)	4.0%	2.3%	1.0%	7.3%	1.4

Conclusions: (1) HIV infection is more prevalent in males than females; (2) Dual reactivity is proportionately more frequent in diseased persons; (3) HIV-2 and dual reactivity are rare in children; (4) mean age of HIV-2-positives exceeds that of HIV-1 reactors; (5) HIV-2 is associated with similar illnesses as HIV-1.

F.C.602

HIV SEROPREVALENCE AMONG HOSPITALISED PATIENTS IN DAKAR, SENEGAL.

AWA NDAO*, COLL AM*, HANE A*, SEYE I*, COLEBUNDERS R**, SOW S*.

*Fann Hospital, Dakar, Senegal; **Institute of Tropical Medicine, Antwerp, Belgium.

Objective : To determine the proportion of patients infected with HIV-1 and HIV-2 among patients visiting the infectious disease and tuberculosis wards of Fann hospital, Dakar, Senegal. To compare results obtained in 1989 with those obtained during previous surveys in the same hospital.
Methods : In august 1989, all patients admitted to the infectious disease and the tuberculosis ward at Fann Hospital were screened for HIV. HIV testing was performed using the EIA Abott combi test HIV-1/HIV-2 and the following confirmatory tests : INNO LIA HIV-1/HIV-2 Ab (Innogenetics), Western blot HIV-1 (Dupont), New LAV blot II (Pasteur) and Pepti LAV 1 and 2 (Pasteur).
Results : Of the 210 patients screened in 1989, 20 (9%) were HIV (+) [14 males and 6 females (sex ratio:2.3)], 14 (7 %) were HIV-1 (+), 4 (2%) HIV-2 (+) and 2 (1%) dually reactive to HIV-1 and HIV-2. This 9% HIV seroprevalence was significantly higher than the 1% seroprevalence observed in the same wards in 1987. The clinical WHO AIDS case definition had a sensitivity of 52%, a specificity of 95% and a positive predictive value of 50% for HIV seropositivity.
Conclusion : Symptomatic HIV infection is an increasing problem among hospitalized patients in Dakar. In 1989 more hospitalised patients were infected with HIV-1 than with HIV-2. This is in contrast with previous findings among asymptomatic population groups in Senegal and suggests that HIV-1 is more pathogenic than HIV-2.

F.C.603

PENETRATION OF HIV-1 IN A RURAL AREA OF SENEGAL

Kane, Fadel*, Joly, J.R.*, Coll E.M.**, Alary M.*, MBoup S.**, Kanki, P.***

*Faculté de Médecine, Université Laval, Ste-Foy, Québec, Canada.
**Centre Hospitalier Universitaire, Dakar, Sénégal.
***Harvard School of Public Health, Boston, Mass., USA.

Objective: To study HIV infection among senegalease expatriates traveling to Central Africa and transmission to their families living in a rural area.
Methods: In September 1989, a questionnaire was filled and serum samples were collected from all currently present expatriates living in 11 villages of Northern Senegal and from spouses of all expatriates (present or not) from this area. Information on sexual and non-sexual risk factors for HIV infection was collected from all 258 subjects. Serological analysis was performed for HIV-1 and HIV-2 and all positive and negative ELISA were confirmed by Western Blot.
Results: Sera from 39 subjects were confirmed as positive by Western Blot (17/63 males [27%] and 22/195 females [11.3%]). Of these subjects, 33 were infected by HIV-1, 4 by HIV-2 and 2 had a dual HIV-1/2 profile. In men, seroprevalence was associated with sexual risk factors (number of sexual partners and previous STD, p=0.02) whereas, in women, no such association could be found. Of the 22 seropositive female subjects, 13 (59%) were sexual partners of HIV infected expatriates and 5 (22.7%) were sexual partners of expatriates who died outside the country. Three sexual partners of infected women were outside the country at the time of the study and the sexual partner of the last infected woman was seronegative. Cultural practices (tatooing, scarifications, circumcision and clitoridectomy) were not associated with HIV infection.
Conclusion: Penetration of HIV-1 infection in a country where HIV-2 is endemic shows that the HIV-1 epidemic is currently spreading to rural West Africa.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.604 RISK FACTORS FOR HIV-I AMONGST STD CLINIC ATTENDERS IN DURBAN, SOUTH AFRICA.

O'Farrell Nigel*, Windsor I**, Becker P***.

* City Health Department, Durban, ** University of Natal, Durban, *** University of The Witswatersrand, Johannesburg, South Africa.

Objective: To investigate the relationship between STD'S and other risk factors for HIV infection amongst routine Zulu attenders at a busy STD clinic.
Methods: 1,745 men and 937 women were examined and tested for HIV-I and other STD's with informed consent.
Results: HIV seropositivity in women (3.2%) was higher (p=0.05) than men (1.9%), and significantly associated with the 15-19 age group (p=0.002), herpes genitalis (p=0.02), past syphilis (p=0.03), cervical inflammatory changes detected on Pap smear examination (p=0.02). HIV antibody in men was associated with genital ulceration (p=0.007), donovanosis > 12 weeks duration (p=0.0001) and > 6 week duration (p=0.001), herpes genitalis (p=0.05). The proportion of seropositive men with gonorrhoea and warts was less than in men without gonorrhoea (p=0.001), and warts (p=0.03).
Conclusion: These results support the causal hypothesis of HIV transmission whereby genital ulceration provides a portal of entry for the virus. The greater susceptibility of women to HIV-I via vaginal intercourse may be due to inflammatory changes and ulceration in the cervix facilitating viral transmission analogous to that for genital ulceration.

F.C.605 HIV-1 INFECTION IN JUBA, SOUTHERN SUDAN

McCarthy, Michael C.* and El Hag, A. El T.**

*U.S. Naval Medical Research Unit No.3, Cairo, Egypt; **Ministry of Health, Khartoum, Sudan.

To determine the prevalence of HIV-1 infection in southern Sudan and the risk factors associated with disease transmission a seroepidemiologic survey was conducted in Juba during one week of June 1989. Study subjects invited to participate in this study included medical outpatients ages 16 to 40 years, inpatients hospitalized for active tuberculosis and female prostitutes. All sera that were repeatedly reactive by ELISA were confirmed using Western Blot analysis. Proportions were compared using the X^2 test with Yates' correction or Fishers exact test. The prevalence of HIV-1 infection was 19% (8/42) among tuberculosis patients, 16% (8/50) among prostitutes and three percent (9/309) among outpatients. A significantly higher prevalence of HIV-1 infection was found among female prostitutes when compared to female outpatients 16% (8/50) vs. 2% (4/178); (p<0.001). Correspondingly, the prevalence of seropositives was significantly higher among male outpatients reporting a history of sexual relations with prostitutes during the prior ten years compared to male outpatients denying relations with prostitutes 14% (5/37) vs. 0% (0/94); (p=0.001). A history of a STD was also associated with HIV-1 infection among male outpatients 11% (4/31) vs. 1% (1/95); (p<0.05). The findings of this study indicate that HIV-1 infection is endemic in southern Sudan and that prostitutes and their sexual partners may represent a potential reservoir of HIV infection in this population. Further spread of HIV-1 to north Africa could occur because of travel between the North and South of Sudan.
This research was supported by the U.S. NMRDC, NMC, NCR, Bethesda, MD, Work Unit No. 3M463105H29.AA.335.

F.C.606 GEOGRAPHIC AND COMMUNITY DISTRIBUTION OF HIV1 INFECTION IN RURAL RAKAI DISTRICT, UGANDA.

Wawer, Maria J.*; Serwadda, D.**; Musgrave,S.*; Sewankambo, N.***; Musagara, M.****; Konde-Lule, J.***
*Columbia University, NY; **Mulago Hospital, Kampala; ***Makerere University, Kampala; ****AIDS Control Programme, Entebbe.

Objective: To assess the distribution of HIV infection in randomly selected population clusters enrolled in a longitudinal cohort study in rural Rakai District, Uganda.
Methods: 21 clusters of 40 households each (9 clusters in trading centers and 12 in rural villages) were randomly selected. All consenting household residents enrolled in a cohort study.
Results: Baseline KAB and serological results were obtained on 1290 adults aged 13 years and over. Great variation was found in the proportion of adults HIV positive in different communities, with a range of 1.2 to 24.7% in the rural clusters, and 14.0% to 52.8% in the trading center clusters. Multivariate analysis indicated that community characteristics, including distance from main roads, community socioeconomic level, predominant occupation, and the proportion of residents who had travelled outside the district, were predictive of community HIV level.
Conclusion: A wide range of HIV prevalence rates was demonstrated in communities within one district, even among rural communities. Classification of communities by their geographic and sociodemographic characteristics can help identify those at high risk: the information can be used to develop targetted preventive strategies. The wide variations in prevalence also have implications for sampling strategies for national serosurveys.

F.C.607 HIGH RISK BEHAVIOUR AMONG INDIVIDUALS WHO KNOW ABOUT AIDS IN RURAL RAKAI DISTRICT, UGANDA

Musgrave, S.*; Konde-Lule, J.**; Serwadda, D.***; Wawer, M.*; Sewankambo, N.**; Musagara, M.****
*Columbia University, New York; **Makerere University, Kampala; ***Mulago Hospital, Kampala; ****AIDS Control Programme, Entebbe.

Objective: To determine AIDS related knowledge and attitudes, and the association with serostatus, in a randomly selected population in a longitudinal cohort study in Rakai District..
Methods: 21 clusters of 40 households each were randomly selected (9 trading center clusters and 12 rural). All consenting residents were included in a baseline KAB/serosurvey.
Results: KAB and serological results were obtained on 1290 adults aged 13 and over. Knowledge of HIV infection was very high: 94% knew of AIDS and 86% knew of sexual transmission. HIV prevalence levels were higher among those who knew of AIDS (21%) than among those with no knowledge (3%). Among those knowing of sexual transmission, 10.2% reported 2 or more sex partners in the preceding year. HIV prevalence rates were higher among the educated: only 12.1% of those with no schooling were positive, compared to 22.7% with some primary and 29.7% with higher education. A greater proportion of persons with some education reported multiple partners than did those with no education.
Conclusion: Lower HIV levels among persons with no knowledge were attributable to their being older and more rural. However, individuals with AIDS knowledge and the better educated continue high risk behaviour and have substantial levels of infection. Programs are needed to improve individual motivation.

F.C.608

HIV SEROPREVALENCE AMONG NEW CASES OF PULMONARY TUBERCULOSIS STABLE BETWEEN 1987 AND 1989 IN KINSHASA, ZAIRE

Mukadi, Yadiul*, Perriens, J.*; Willame, J.C.**; Kaboto, M.***, Roscigno, G.****; Prignot, J.*****, Portaels, F.******; Piot, P.****** Ryder, R.*

* Projet SIDA; ** BNT; *** CDT, Kinshasa, Zaire; **** Merrell Dow Research Institute, Strassbourg, France; ***** UCL, Mont Godinne; ****** ITM, Antwerp, Belgium.

Objective: assess whether HIV infection is rapidly spreading in Kinshasa through serial seroprevalence studies among patients with tuberculosis (TB).

Methods: In 1987 and 1989 HIV serosurveys were done among consecutive outpatients with a first episode of sputum smear positive pulmonary TB in the same TB diagnosis unit in Kinshasa, Zaire. HIV tests were with Elisa, confirmation by indirect immunofluorescence (1987) or Western Blot (1989).

Results: HIV(+) cases (x/n(%))

	1987	1989	P
Age less than 25	10/182 (5.5 %)	33/282 (11.7 %)	0.04
Age 25-34	56/203 (27.6 %)	72/270 (26.7 %)	0.90
Age 35-44	23/102 (22.5 %)	40/139 (28.8 %)	0.34
Age over 45	3/41 (7.3 %)	7/57 (12.3 %)	0.64
Male patients	44/314 (14.0 %)	81/443 (18.3 %)	0.14
Female patients	48/214 (22.4 %)	71/305 (23.3 %)	0.90
Total	92/528 (17.4 %)	152/748 (20.3 %)	0.22

The 25-34 and the 35-44 year agegroups ($p < 10^{-5}$), and women were more likely to be HIV seropositive (1989: p = 0.11, 1987: p = 0.017).

Conclusion: The HIV seroprevalence increased slightly, but significantly in the less than 25's only. In this sentinel-population no massive increases in HIV seroprevalence were observed, indicating that HIV transmission may have reached a steady state in Kinshasa.

F.C.609

TRENDS IN HIV INFECTION IN BLOOD DONORS IN ZAMBIA

Luo, N.; Tembo, G.; Kapanda, S.; Siyambango, J.
University Teaching Hospital, Lusaka, Zambia.

Objective. To monitor trends in HIV infection in blood donors in some Zambian towns,"ensure safe blood transfusion as part of the National AIDS control programme.

Methods. Records of blood donors routinely screened for HIV infection were reviewed. Blood was screened by ELISA (Welcozyme). Demographic factors, risk factors were assesed.

Results. Studies differences in the seroprevalence rates in the three years were prominent. The HIV results were as follows.

	Town	Seroprevalence Rate (%) 1987	1988	1989
Urban	Lusaka	12.0	23.0	16.4
	Livingstone	12.9	15.9	13.3
	Kabwe	14.8	19.0	13.3
Urban/Rural	Mongu	6.4	9.9	10.2
	Monze	8.9	14.1	13.0

Conclusion. The drop in seroprevalence rates in 1989, may reflect the other supporting Aids control activities in Zambia which have been intesfied since 1988 (Health Education Councelling) and an already existing National STD control programe. This study indicates that HIV infection is still on the rise in this country and prevention strategies need to be employed to stymic this epidemic.

HIV Seroprevalence in Asia

F.C.610

EPIDEMIOLOGY OF HIV INFECTION IN HONG KONG

E.K. Yeoh, P.C.K. Li, W.L. Lim, Y.Y. Chan, S.H.Lee
Department of Health, Hong Kong.

Method : Between April 1985 and December 1989, a sero-epidemiological study was performed to assess the prevalence of HIV infection in Hong Kong. Blood specimen were first screened with a commercially available ELISA test and repeatedly positive results were confirmed by immunofluorescence and Western Blot methods.

Result : 171 of 147,763 (0.116%) specimens were positive by all three techniques. 165 samples were from males and 6 were from females.

Results of HIV Serological Screening

Source of Referral	No.Tested	No. (%) +ve
STD Clinics		
Male patients	98282	18(0.018%)
Female patients	23425	0(0 %)
Female prostitutes	9638	0(0 %)
IV Drug Users	3851	1(0.026%)
Haemophiliacs	174	55(31.6 %)
Health Care Personnel	647	0(0 %)
Semen Donors	201	0(0 %)
Government Clinics	9683	57(0.59 %)
Private Clinics	1862	40(2.15 %)
Total	147763	171(0.116%)

Risk Factors in HIV Seropositive Individuals

	AIDS	NO AIDS	TOTAL
Homo/Bisexual	20	51	71
Homosexual IV Drug User	1	1	2
Heterosexual IV Drug User	1	4	5
Heterosexual	3	18	21
Haemophiliac	3	52	55
Transfusion	0	3	3
Unknown	3	11	14
Total	31	140	171

Conclusion : Haemophiliacs, homosexuals and bisexuals constitute the main high risk groups for HIV infection in Hong Kong. In the past year there has been a significant increase in the number of individuals who acquired the infection through heterosexual contact. Most had contact with prostitutes both abroad and within Hong Kong. Of the seven infected intravenous drug users, three had injection exclusively outside Hong Kong while the other four had injection both abroad and locally.

F.C.611

PREVALENCE OF ANTI-HIV ANTIBODIES AMONG BLOOD DONORS IN BOMBAY

Apte,S.V.*, Joshi,S.H.*, Dumasia,A.N.*, and Patil,R.S.*
Institute of Immunohaematology, Bombay, India.

Objectives: To study the HIV seropositivity rate and time trend changes among blood donors in Bombay during 1989.

Methods: Voluntary and professional blood donors sera were screened by recombinant EIA (Wellcome Diagnostics) and repeatedly positive sera were confirmed by Western Blotting (Du Pont).

Results: Total 1,17,666 blood donors comprising of 99,361 voluntary and 18,305 professional/commercial blood donors sera were tested for anti HIV antibodies. Average prevalence rate among blood donors was 4.9/1000.

Conclusion: Voluntary blood donors showed a low prevalence rate of 1.4/1000, while commercial blood donors gave a higher prevalence rate of 24/1000. A significant exponential increase in HIV seropositivity during this period was observed.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.612 HIV SERO SURVEILLANCE IN PROMISCUOUS FEMALES OF BOMBAY INDIA.

Bhave Geeta G.*; Wagle U.D.*; Tripathi S.P.**
*Seth G. S. Medical College & K.E.M. Hospital, Bombay, INDIA.
**Indian Council of Medical Research, New Delhi, INDIA.

Objective: There are defined red light areas in Bombay. Objective of this study was to find out prevalence of HIV infection in promiscuous females of these areas.

Methods: Blood samples from promiscuous females were collected after motivating them by health education. Sera were tested for HIV antibodies by competitive ELISA using Wellcozyme Kits. Repeat ELISA positive samples were confirmed by Dupont's Western blot test kits.

Results: From September 1986 to January 1990 total 1919 sera of promiscuous females were tested and 145 were repeat ELISA positive. Hundred and twenty one samples were tested by Western blot method and 120 samples were confirmed (6.2%). Six monthly analysis shows that incidence of 1.6% by March 1988 has reached to 23% by January 1990.

Conclusion: If not checked at this juncture this alarming rise in HIV infection in promiscuous females will be a threat to INDIA.

F.C.613 SERO-EPIDEMIOLOGICAL STUDY OF HIV INFECTION IN AND AROUND MADRAS

JAYAPAUL, KANDASWAMI*; MdMeeran, M*; RaviNathan, R**; Manivannan, G *; Sathyakumari, R *.
*Institute of Sexually Transmitted Diseases; Madras Medical College, Madras**Stanley Medical College, Madras-India.

Objective: Serological study has been performed since Apr'86 to Nov'89 to assess and monitor the prevalence of Human Immunodeficiency Virus(HIV) infection in Madras: South India.
Methods: Individuals at risk of HIV infection were tested for antibody to the virus. Blood samples were collected from patients attending the Institute for the study of STD Govt. General Hospital, Madras. ELISA was used for screening. Western Blot assay was employed as a supplemental test.
Results: Upto Nov.'89, 222 persons were confirmed to be HIV seropositive. Of which 68(30.6%) were males and 154(69.4%) females. The risk categories being promiscuous heterosexuals; no haemophiliacs, no i.v. drug abusers, and no blood related transmissions. The seropositives were in the age group of 20-35yrs(20-24:22%; 25-29:35.9%; 30-34:11.46%). In this study there is a steady increase in the detection of seropositivity viz. 2.8%in87; 3.7%in88; 4.9%in89 among the prostitutes and 0.1%in87; 0.5%in88; 0.8%in89 among other women and 0.2%in87; 0.3%in88; 0.5%in89 among Men attending the Institute. All the confirmed positives were symptom free.
Conclusion: This study shows that HIV infection has already taken root in India and probably clinical AIDS may flourish in the years to come.

F.C.614 HIV SEROSURVEILLANCE IN AN AIDS REFERRAL CENTRE IN INDIA.

MALAVIYA ANAND NARAYAN, SINGH YN, TRIPATHY S, KUMAR A, CHAUDHURY K, VERGESE T, ADYA CM, KHARE SD, NEW DELHI INDIA.

This work aimed at studying the transmission pattern of HIV in India. Serosurveillance was carried out on a total of 33505 individuals over a period of 2½ years.

The study included 1) Indian nationals indulging in high risk behaviour for HIV infection (9409), 2) Indian nationals not indulging in high risk activities (22215, mostly voluntary blood donors), 3) Foreigners visiting India (1881) of whom 342 admitted having indulged in high risk activities while 1539 denied such activities.

There was 4.358/1000(41) HIV sero-positivity among 31624 Indians. All the HIV positive 41 individuals were from the high risk group, 5 of whom had clinical HIV disease. Therewas 29.24 per 1000(10) sero-positivity among 1881 foreigners. All the 10 individuals were again from the high risk group, 3 of whom had clinical HIV disease. Among the seropositive Indians 25 were promiscuous heterosexuals and 16 were multiply transfused. Patients of Hemophilia formed the major group in the multply transfused persons. Among 10 seropositive foreigners from Africa, all were promiscuous heterosexuals. Of the three whites, one was an intravenous drug user, the other two were bisexuals.

HIV infection in India seems to be evolving towards epidemiological pattern II. Foreigners with high risk activity still constitute to be a sizeable proportion of seropositive population in India.

F.C.615 EPIDEMIOLOGIC STATUS AND FUTURE PREDICTION OF AIDS/HIV IN JAPAN

Soda, Kenji[1]; Fukutomi, K.[2]; Morio, S.[3]; Shiokawa, Y.[4]; Adachi, K.[5]
1)Yokohama City Univ. School of Medicine, 2)The Institute of Public Health, 3)Tottori Univ. School of Med. 4)National AIDS Surveillance Committee, 5)Ministry of Health and Welfare

Objective: To describe the present status of AIDS/HIV infection from the epidemiological view point, and to predictthe future trend of HIV infection in the country.
Methods: The data used for this study are obtained from the official reporting by the national AIDS/HIV surveillance and partly from the results of epidemiological studies by the government sponsored research groups.
Results: 1. The latest incidence of AIDS cases by the end of 1989 is 110 in total, of whom 99 are males and 59 are dead. By risk category, hemophiliacs shares 49.1 %, homosexual males 29.1%, heterosexual contacts 13.6% and others 8.2%.
2) Total number of HIV seropositives so far reported is 1,130, of whom hemophiliacs accounts for 86.6%, homosexuals 6.0% and heterosexual contacts 5.4%. This prevalence pattern is quite different from that of AIDS as is the age distribution of HIV seropositives.
3) In the near future, no more new infection is expected to occur among hemophiliacs, while new cases among homosexuals and heterosexual contacts will increase mainly. It is estimated that at least 3,500 people will be HIV seropositive, and the cumulative number of AIDS patients will be between 330 and 400 by the end of 1992.

F.C.616 EPIDEMIOLOGY OF HIV INFECTION IN SINGAPORE

Chan, Roy*; Chew, S.K.**; Monteiro, E.H.**; Ong, Y.W.***

*National Skin Centre, Singapore, **Communicable Disease Centre, Singapore, ***Singapore General Hospital, Singapore.

Objective: To analyse the epidemiological pattern of HIV infection in Singapore.
Method: All Singaporean nationals with HIV infection were included for study.
Results: The first person with HIV infection in Singapore was diagnosed in 1985. Up till the end of 1989 44 persons have been confirmed to have HIV. Of these 15 had AIDS, 9 of whom have died. Forty-two were males, 2 were female. There were 23 homosexual males (52.3%), 8 bisexual males (18.2%) and 11 heterosexual males and females (25%). In 1989, 6 of 10 newly diagnosed persons were heterosexuals, 2 were bisexual males and 2 were homosexuals. There have been no infections so far in haemophiliacs, intravenous drug users or paediatric groups. Twenty persons were employed in the service industry, 7 each in administrative/managerial and production/transport industries. Thirty-eight were in the 20-39 year age group.
Conclusion: HIV in Singapore is overwhelmingly sexually-transmitted and affecting young persons. The pattern of risk groups seems to be changing from predominently homosexuals to one in which heterosexual transmission is becoming more evident. This trend if confirmed has potentially ominous implications for the future of the infection in Singapore.

HIV Seroprevalence in Europe

F.C.617 FOLLOW UP OF INFANTS BORN TO HIV1 SEROPOSITIVE MOTHERS TESTED BY PCR METHODS AFTER BIRTH

DENAMUR E.*, RAHIMY C.*, BRUN-VEZINET F.**, BLOT P.*, MATHERON S.**, BARRE F.***, DE CREPY A.**, ELION J., VILMER Etienne.
Hôpital Robert Debre Hôpital Claude Bernard Bichat *** Institut Pasteur PARIS

OBJECTIVES
To evaluate the clinical significance and the prognostic value of the detection of provirus using PCR analysis in infants born to seropositive mothers.
METHODS
PCR testing on lymphocytes was performed in 36 infants born to seropositive mothers within the 3 month post natal period and in 20 patients born to seronegative mothers. 30 cycles of amplification were conducted using 2 primer pairs specific respectively for gag (LAV1-LAV2) and env (SK68-SK69) HIV1 sequences. Amplified products were characterized by liquid hybridization with the ^{32}P labelling corresponding probes (TARG-LAV and SK70) followed by polyacrylamide gel electrophoresis and autoradiography. A positive result was defined as repeat detection of HIV1 DNA with at least one pair of primers on 2 separate samples. In parallel, viral cultures were performed. The outcome of these infants was classifed with the CDC case definition for HIV infection.
RESULTS
PCR analysis was positive for 20 infants, 3 (age 5-13 m) remained class Po, 6 children (age 3-24 m) progressed to the class P1 and 8 pts (age 14-17 m) developped an HIV symptomatic infection. 3 pts (19-21 m) repeatedly PCR positive seroreverted and remained healthy ; the viral cultures form their monocytes and lymphocytes did not isolate the virus. In the group of 16 PCR negative infants born to seropositive mothers, 6 children (age >15m) seroverted, 10 (age <15m) remained Po, no child presented clinical or virological signs of HIV1 infection. Viral cultures were always negative.
CONCLUSION
Our results suggest that the PCR analysis may be an earlier diagnostic test. Its clinical significance may be limited by the observation of seronegative, PCR positive children who remained well. A prospective study which sequentially compares the results of PCR and other viral markers will be presented.

F.C.618 HIV SEROPREVALENCE AND RISK BEHAVIOUR IN IV DRUG USERS IN A LOW HIV PREVALENCE CITY IN BELGIUM

Todts S.*'**, Avonts D.**, Vercauteren G.***, Piot P.***
* Free Clinic; ** IPAC and *** Institute of Tropical Medicine, Antwerp, Belgium

Objective: To determine HIV-seroprevalence among IV drug users (IVDU) in Antwerp, Belgium and to assess whether risk behaviour is similar to that reported in other European cities.
Methods: Sera and structured interviews were collected from 100 IVDU (August through November '89). 50 of these were street-recruited among IVDU not enrolled in drug treatment centres.
Results: HIV-seroprevalence was 4 % . 70 % of the sample injected daily (average 4.2 inj/d, range 1-20). 30 % injected less than daily (average 2.9 inj/day of use, range 1-7). Frequency of injection was associated with not being in treatment and injecting cocaine ($p < .001$), snowballs ($p = 0.002$) or amphetamines ($p = 0.042$). 84 % had shared needles in the 6 months prior to testing, half of which at least "half of the time". 43 % of sharers had shared with people they "do not know well". Needle sharing was associated with IV use of cocaine ($p < 0.05$) and with infrequent injecting (< 1 inj/d) ($p < 0.05$). 88 % of sharers cleaned equipment at least half of the time before sharing, but only 27 % used an effective method. Not cleaning shared equipment was associated to being male and homeless ($p < 0.01$).
Conclusion: Risk behaviour is similar as reported in other European cities. Cocaine users are more at risk, as are infrequent injectors. Explanations for low seroprevalence include relative immobility of Antwerp IVDU, small overlap with the homosexual community and partial protection by widely used ineffective cleaning methods.

F.C.619 Sexual behavior changes and HIV-seroprevalence in the french male homosexual population, 1985-1989.

Pollak, Michael* ; Schiltz, Marie-Ange*
*CNRS-GSPM, Paris, France

Objective : To evaluate trends in self reported sexual behavior in the french male homosexual population.
Methods : Yearly nationwide survey among male homosexuals (sample size 1200).
Results : Sexual behavior changes started with a reduction in number of partners, before giving up anal intercourse and/or condom use.

	1985	1986	1987	1988	1989
Less partners	29 %	29 %	34 %	36 %	34 %
No more anal intercourse	6 %	11 %	14 %	12 %	11 %
Condom use :					
regularly	-	12 %	28 %	39 %	47 %
sometimes	6 %	12 %	18 %	17 %	17 %
rarely	-	11 %	13 %	12 %	14 %

After rapid changes in between 1985 and 1987/88, one observes a certain slowdown of additional change. More regular condom use explains, after 1987/88, a slight increase in partner numbers and of anal intercourse. Variations according to social class, residence and age, still important in 1987, tend to disappear. At the same time seroprevalence measured in our surveys has stabilised around 17 %.
Conclusions : In the long term, regular condom use tends to become the exclusive means of prevention, reduction of partners and giving up anal intercourse are of a much lesser importance. Social class, age and cultural barriers to prevention can be significantly reduced by a non-moralistic approach to sexuality.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.620 TRENDS OF THE EPIDEMIC IN THE POPULATION OF TWO ANONYMOUS AND FREE HIV TESTING CENTRES-PARIS-FRANCE

Cavelier Annick*;Ancelle-Park R.**;Birkui P.*;Helal H.*;
Poinsard H.*;Pretet S* *D.A.S.E.S.,Paris,France,**WHO centre.,Paris,France.

OBJECTIVE:To appreciate the trends of the epidemic through 4 indicators based on available data from voluntar attendants to test counselling centres.
METHODS:Between April 1988 and November 1989, 15,850 new attendants were screened for HIV. Between April 1988 and July 1989, 11,413 self administered questionnaires were filled in by 85% of attendants.
RESULTS:1)Trends of seropositivity. 767 individuals were found to be seropositive (Western Blot+). A decrease of 0.1% per month ($p<0.05$) was noted. 2)Trends in features of attendants. Distribution of groups shows 12.6% of Homosexuals, 14.1% Bisexuals, 7% Injecting drug users, 34.5% Male Heterosexuals, 32.1% Female Bisexuals and Heterosexuals. Overall trends show a feminization of attendants ($p<0.001$). A significant, increase of the Heterosexual groups and decrease of bisexuals was noted. 3)Trends in transmission groups amoung seropositives. A total of 32.4% of Homosexuals, 22.7% Bisexuals, 24.6% Injecting drug users, 12.6% Male Heterosexuals, 9.5% Female Heterosexuals. Between 1988 and 1989 the proportion of Male Heterosexuals and Female Heterosexuals has increased and that of Bisexuals decreased ($p<0.05$). 92% of attendants lived in the Paris region. Compared to the distribution of groups recorded among AIDS cases, Injecting drug users and Heterosexuals(M+F) are 5 times higher, Homosexuals and Bisexuals are underrepresented by 25%.
CONCLUSION:Although attendants are not representative of the general population data collected gives a more up to date picture than do AIDS cases. Preventive messages for Injecting drug users and Heterosexuals(M+F) should be reenforced. Moreover pauperization of positive individuals without social protection is an increasing problem.

F.C.621 PROFILE OF H.I.V. INFECTED PATIENTS IN WESTERN PART OF FRANCE : SURVEILLANCE OF EPIDEMIOLOGIC TRENDS

Marchand, Sophie* ; Choutet, P.* ; et les membres du GERICCO**
* CHRU Bretonneau 37044 Tours Cedex, FRANCE.
** Groupe d'étude et de recherche en infectiologie clinique du Centre-Ouest.

Objective : To monitor trends in the epidemiology of HIV infected patients identified each year in our region.
Methods : An undergoing active surveillance of the new seropositive tested subjects is undertake in 6 teaching hospitals of the region from January 89.
Results : From January to August 1989, 235 patients tested positive for HIV antibody were studied. 78 % patients were male ; sex ratio (M/F) was 3,5. The transmission category was : homo and bisexual males = 48 % ; heterosexual = 24 % ; IV drug users = 18 % ; blood recipients = 7 % ; undeterminated = 3 %. Main risk factors for heterosexual contamination were : 1° for men (n=29) : sexual contacts with residents from Central Africa (n=10), multiple sexual contacts (n=10). 2° for women (n=27) : sexual contacts with intraveinous drug users (n=8), with contaminated blood recipients (n=5) and multiple partners (n=5). At the time of diagnosis, the CDC stage was : I for 9 patients (3,8 %), II for 101 patients (43 %), III for 33 patients (14 %), IV for 51 patients (21,7 %) and no precised for 41 patients (17,5 %). The risk of contamination was perceveid only by 68 % of the homosexuals and 63 % of the IV drug users. No regular condom use was noted in any groups.
Conclusion : These results show an elevated rate of heteroxual transmission ; but 87 % of these patients had a sexual risk behaviour. Despite informations compaigns, patients engaged in risk behaviour (sexuals or drug users) lack adequate knowledge about AIDS.

F.C.622 HOSPITAL-BASED SURVEILLANCE OF HIV INFECTION IN THE BORDEAUX AREA (AQUITAINE,FRANCE) : EPIDEMIOLOGICAL TRENDS, 1985-1989.

Morlat,Philippe*; Chêne, G.**; Dabis, F.**; Ragnaud, J-M.*; Salamon,R.**;
and the Groupe d'Epidémiologie Clinique du SIDA en Aquitaine (GECSA)*
* Centre Hospitalier Régional Universitaire, Bordeaux, France.
** INSERM, U. 330, Université de Bordeaux II, Bordeaux, France.

Objective: To examine the epidemiological trends of HIV-infection in the Bordeaux area.
Methods: A surveillance system of HIV-infection has been developed in the Bordeaux Regional University Hospital. The participating wards include their seropositive patients since 1985. Baseline epidemiological characteristics include: age, sex, date and circumstances of diagnosis, risk factor(s). The Centers for Disease Control classification system is used.
Results: As of November 1st, 1989, 1,089 adults have been included: 350 new cases are recorded each year since 1987. The sex ratio (M:F) is 2.7:1; it decreased from 4 :1 in 1985 to 2.4 :1 in 1989. The mean interval between serologic diagnosis and reporting of a case has increased from 1 month in 1985 to 7 months in 1989. Diagnosis was made by a private practitioner in 17% of the cases in 1985 and 46% in 1989. The initial clinical presentation is stable over time: group II (57%), group III (11%) and group IV (32%) (57% met the case definition of AIDS). Throughout the years, the proportion of intravenous drug users (41%; M:F=2:1) and transfusion recipients (11%; M:F=1.6:1) has remained stable. In contrast, the proportion of homo/bisexuals has dropped from 43% to 29% (global proportion: 31%) and the proportion of individuals contaminated through heterosexual contacts has increased from 3% to 16% (global proportion: 11%; M:F=0.5:1): these trends appeared essentially in patients that belong to groups II or III.
Conclusions: The use of parenteral drugs is now the main risk factor for HIV-infection in the Bordeaux area. Heterosexual contacts are the most increasing mode of contamination. The proportion of females recorded in the study is rising. The role of private practitioners in the early phase of management of HIV-infected patients is important. Our surveillance system provides earlier and more accurate epidemiological trends than the mandatory reporting of AIDS cases.

F.C.623 HIV-Infections in the Federal Republic of Germany

Estermann, Josef C.*, Maxeiner, H.G.**, Bunikowski, R.*, Habermehl K.O.**, Koch, M.A.*
* AIDS-Center, Federal Health Office, Epidemiology, Berlin, FRG
** Inst. f. Clin. and Exp. Virology, Free University Berlin, FRG

Objective: Description of the HIV-positive tested population in the FRG.
Methods: Since 1987, laboratories in the FRG have to report confirmed HIV-positive sera. These data, including retrospective data, are collected and analyzed by the Federal Health Office.
Results: Of the 36,007 confirmed HIV-positive sera in the FRG (31. December 1989) originate 70.3% from men, 14.6% from women, and of 15.1% the sex is unknown. Due to anonymous testing, informations on the suspected way of infection is not available in 67.9% of the reported cases. 13.7% originate from homosexuals, 10.3% from i.v. drug users, 4.6% from hemophiliacs, and only 2.1% from probably heterosexually infected persons. The mean age is 32.2 years (men: 33.2, women: 28.0) and differs between the risk-groups. The mean age of HIV-positive i.v. drug users is 6 years lower than that of homosexuals (29 and 35 years respectively). On average, HIV-positive recipients of transfusions are 40 years old, probably heterosexually infected persons are 31 years old. The mean age of homosexuals remains constant over time (since 1986) while i.v. drug users had a mean age of 27 in 1985 and 30 in 1989. Hemophiliacs were on average 25 years in 1985 and 31 years in 1989. This variance is mainly explained by the obviation of new infections in this group in the year 1985.
Conclusions: The collected data of HIV-positive sera in the FRG are suitable to characterize age and sex of the tested HIV-positive persons. The proportion of the risk-groups is not well known and has to be improved. Only the mean age of homosexuals remains constant over time, while the mean age of the other groups increases.

F.C.624 HIV-ANTIBODY PREVALENCE IN BLOOD DONORS IN THE FRG

Glück, Dorothee, Kubanek, B., Vornwald, A., Holzberger, G., et al.
Dept. Transfusion Medicine, University of Ulm and German Red Cross Blood Bank Ulm, for all Red Cross Blood Banks in the FRG, University of Ulm, Ulm, FRG

Objective: All Red Cross Blood Services in the FRG cooperate in a multicenter study to determine the epidemiology of HIV in blood donors and to document the HIV-safety of blood products.
Methods: From July 1985, prevalences and incidences are calculated quarterly from the number of Western blot (Wb) positive donors among the tested donations alltogether and for the subsegments male and female first time and repeat blood donors. Epidemiologic details of Wb-positive donors are recorded. The recipients of former donations were identified and tested for HIV in the "look back" study.
Results: From July 1985 to September 1989 9.95 million donations from about 1.6 million donors were tested. 261 donations were found to be positive in at least one Wb. The prevalence and incidence decreased rapidly in 1985/6 and further in 1987 and remain constantly low thereafter in less than 2 or less than 1 Wb-positive donation per 100,000 donations, respectively. More than 90% of the infected donors had had homosexual contact, i.v. drug abuse or heterosexual contact to AIDS-risk persons and their age- and sex-distribution is similar to the one in the registered AIDS-cases. Most recipients found in the "look back" to be HIV-infected had been given blood products before testing was introduced in 1985. The few cases thereafter confirm the estimate of the rest risk from the prevalences in about 1:1 million donations.
Conclusion: The measures of the transfusion services were effective to reduce the risk of HIV-infections by blood products. Transfusion-transmitted HIV-infections are rare and occurred mostly before testing was introduced. There is no indication of a generalized rapid spread of HIV infections in the low risk population segment blood donors. However, the incidence is not zero and the modes of infection turn to more infections acquired heterosexually from risk persons.
(Supported by grants from BMFT, FKZ: II-053-88)

F.C.625 HIV INFECTION IN INTRAVENOUS DRUG USERS IN BERLIN (WEST): RISK FACTORS AND TIME TRENDS

Stark, Klaus*; Müller, R.**; Guggenmoos-Holzmann, I.**; Deininger, S.*; Bienzle, U.*
* Landesinstitut für Tropenmedizin Berlin, FRG; ** Institut für medizinische Statistik und Informationsverarbeitung, FU Berlin, FRG

Objective: To determine risk factors for HIV infection and to study time trends of HIV seroprevalence in intravenous drug users (IVDU) in Berlin (West).
Methods: From 1984 to 1989 784 heterosexual IVDU were recruited anonymously from facilities for drug treatment and counselling. Serological tests were carried out for HIV, hepatitis A and B, lues and toxoplasmosis. Data on social and behavioural features were collected.
Results: 23.2% were seropositive for HIV. Seroprevalence rates of hepatitis B, hepatitis A and lues were 67.1%, 39.5%, and 3.9%, respectively. HIV seropositivity was significantly associated with sharing of injection equipment, imprisonment and intravenous drug use in prison. The crude time trend of HIV seroprevalence (concerning the year of the last iv drug use) shows an increase from 17.9% in 1983 to 29.1% in 1985, and decreases to 17.2% in 1988. The estimated HIV seroprevalence odds, adjusted for temporal changes in the study group, show an increasing trend over the last years.
Conclusions: The increase in the adjusted HIV seroprevalence odds suggests that continued efforts are necessary to reduce the spread of HIV among IVDA in Berlin (West). As more detailed data indicate, IVDU of young age and in prison should be main target groups for AIDS prevention.

F.C.626 PREVALENCE OF HIV INFECTION IN PROSTITUTES FROM FRANKFURT/W. GERMANY

Doerr, Hans W.*, Enzensberger,R.*, Bolender, C.*, van Laere-Fischer, S.**, Peters, M.**. - *Dept. of Virology, University of Frankfurt, and **Dept. of Public Health, Frankfurt a. M., W. Germany

Objective: Aim of this study was to assess the prevalence of HIV infection in prostitutes from the area of Frankfurt, W. Germany.
Methods: Between 1985 and 1988, blood samples from 3290 persons, 3137 women and 153 men, were screened for HIV antibodies by ELISA. Western blot or IFT were used to confirm positive results.
Results: 88 persons, 70 women and 18 men engaged in prostitution, were found HIV positive. The average yearly incidence of HIV infection was 2.2% in women and 11.8% in men. All HIV positive men were homosexuals. 74% of the women were i.v. drug users, 14% came from zones endemic for HIV. Among brothel prostitutes condom use was the rule.
The relatively low positivity rate found in registered prostitutes reflects only the tip of the iceberg. Studies in drug addicts reveal that drug-related prostitutes have a 20 times higher seroprevalence of HIV (20-27%) than registered prostitutes.
Conclusions: Our findings indicate that registered prostitutes are not at a higher risk for acquiring HIV than persons with highly promiscuous sexual behaviour. In drug-related prostitutes, however, the immunosuppressive effect of drugs, stress and cachexia as well as the neglect of protective measures for sexual activity contribute to the high risk for AIDS.

F.C.627 PREVALENCE OF HIV INFECTION IN IMPRISONED INJECTING DRUG USERS. AN EIGHT YEAR STUDY

Papaevangelou,George;Roumeliotou,A;Kotsianopoulou,M;Tricho-poulou,E.
National AIDS Reference Centre, Athens School of Hygiene, Greece.

Objective: Injecting drug users(IDU)is the fastest growing risk group for AIDS.The problem is more important in certain neighboring countries(Italy and Spain)and it was expected to spread in Greece too.We present HIV infection prevalence data for the period 1982 to 1989 among imprisoned Greek IDU.
Methods: Since 1985 all newly admitted IDU to the main prison of Greece are regularly interviewed and counselled by a team of the National Centre for AIDS.HIV screening is offered and the acceptance rate is over 98%.During the study period legal regulations regarding imprisonment of drug users have not changed.The data for 1982(table)derived from stored sera used for an HBV vaccination program.Commercially available reagents were used for HIV Elisa and Western blot testing.
*Results:*The table shows the annual HIV infection rate by year of imprisonment.

Year	No examined	No positive	%
1982	280	6	2.1
1986	443	12	2.7
1987	623	8	1.3
1988	235	6	2.5
1989	263	3	1.1

Conclusions: a)The prevalence of HIV infection is considerably lower than in neighboring countries.b)The rate remains low and stable during the last eight years.c)Educational campaign should be strengthened and availability of syringes should increase to avoid the expansion of the epidemic.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.628 EPIDEMIOLOGIC TRENDS IN HIV INFECTION IN THE GREATER TEL AVIV AREA.

Burke, Michael; Vardinon, N; Grunfeld R, Shaposhnikov M and Yust, I.
Henry Goldmann Clinical Immunology Unit, Tel Aviv Medical Center and Tel Aviv University Sackler Medical School, Israel.

Objective: To study the changes in prevalence of HIV infection in subjects attending the Clinical Immunology Unit.
Methods: During a three and a half year period (mid-1986 to end-1989) 18,000 subjects were examined for HIV1 antibody, using the ELISA method (Pasteur or Organon Teknika). Positive results were confirmed by Western Blot (DuPont). Clinical details were collected and supplemented by laboratory tests in seropositive cases.
Results: The examinees were divided into the following groups and the percentage of seropositives was estimated: (1) Prisoners - 0.4 %, (2) Prostitutes 7.5 %, (3) Homosexuals or Bisexuals 14.3 %, (4) Heterosexuals, subdivided into five subgroups: (a) Sexual partner of seropositive individual 13.3 %, (b) Drug abusers 3.6 %, (c) Recipients of blood transfusions 5 %, (d) Blood bank donors 0.01%, (e) Others 0 %. The principal epidemiologic changes in the past 18 months included cases of HIV seropositivity in females and the finding of indeterminate (p53, p55) results in 2.5 % of patients undergoing chronic dialysis. The seroconversion rate for homosexuals/bisexuals was 5 %.
Conclusion: Although Israel has a low overall incidence of HIV infection, this study shows that HIV1 infection has an emerging, variable epidemiological pattern. Several groups of individuals have an enhanced risk and these should be followed at regular intervals.

F.C.629 USING DIFFERENT INDICATORS IN ASSESSING HIV TRENDS IN INJECTING DRUG USERS.

Zaccarelli,Mauro*; Rezza,G.***; Girardi,E.*; Puro,V.*; Gattari,P.**; Pezzotti,P.***; Schito,S.*; Lelli,V.**; Valenzi,C.**; Narciso,P.*
*AIDS Unit USL-RM 10, Rome, **Drug Dependency Unit USL RM-10 and RM-11, Rome, ***Aids Unit, Istituto Superiore di Sanità, Rome, Italy.

Objective: To monitor the spread of HIV infection among injecting drug users (IDUs) in a large metropolitan area.
Methods: We studied over 1,000 IDUs attending two large drug dependency units in Rome in the period 1985-89. Annual prevalence of HIV seropositivity was evaluated in different groups of IDUs: new entrants, subjects in methadone treatment, seronegative IDUs retested each 6 months over the years. A seroconversion study was also carried out, in order to assess the incidence of new HIV infections in 346 IDUs attending the drug dependency units in the same period.
Results: Five-hundred fifty-seven out of 1,395 IDUs tested during the years 1985-89 were seropositive. The annual prevalence of HIV antibodies remained stable over the last years both among new entrants (33.9% in 1985, 32.1% in 1989) as well as in the methadone group (40% in 1986 and 45% in 1989). Three-hundred forty-six IDUs entered the seroconversion study, and were followed for a total of 589.5 person-years. The overall incidence of seroconversions was 6.9% person-year. The seroconversion rate was over 9% in the period 1985-87 and 5% in the period 1987-89.
Conclusion: The prevalence of HIV seropositivity remained relatively stable over the last years. However, we observed a continued occurrence of new infections among IDUs. The use of different indicators allows us to interpret the current spread of HIV among IDUs.

F.C.630 HIV 1 SEROPREVALENCE AMONG PREGNANT WOMEN IN GENOA ITALY FROM 1986 TO 1989.

Crovari Pietro*; Melica F.**; Gabutti G.*; Bruzzone MB.*; De Luigi MC.*; Ermiglia M.L.* *Inst of Hyg and Prev. Med.and **Obst. Clinics University of Genoa, Italy.

Objective: To evaluate the trend of HIV infection in a target group of pregnant women.

Methods: Starting from 1986 serum samples were collected from all pregnant women referring to the General Regional Hospital and to the Obstetrics Clinics of Genoa Univ. In particular, 811 samples were collected in 1986, 909 in 1987, 866 in 1988, 911 in 1989. A standardized questionnaire concerning demografic-anamnestic information (place of birth, behavioural habits, number of sexual partners, etc.) was filled up for every subject. All specimens collected at delivery were tested for anti-HIV1 and since 1988 for anti-HIV2 by EIA kits: reactive sera were confirmed by WB and Pepti-LAV 1-2.
Results: A prevalence of 1.1, 1.2, 1.1, and 0.3% for anti-HIV was detected from 1986 to 1989 respectively. Nineteen out of 32 anti-HIV positive subjects had declared to be drug-addicts, and 17 of them already knew about their seropositivity. The remaining 13 denied any risk behaviour for HIV infection and none of them had been tested before. Moreover VDRL was negative for all 13 women, whilst 2 were positive for at least one HBV marker. No positivity for anti-HIV2 was detected.
Conclusions: The trend of the infection was costant for the first 3 years, however during 1989 a dramatic decrease of seroprevalence was observed. Nevertheless, in the some period an increase in seropositivity among women willing to interrupt thier pregnancy was noted. It is noteworthy how about 50% of seropositive women we detected didn't know their state. That's why, the anti-HIV screening of pregnant women appears very important. Besides, since we must try to evaluate the importance of heterosexual transmission of HIV infection at present; pregnant women seem to fit this purpose. In fact, according to what is up to now reported in current literature, similar studies have shown how anti-HIV positive women belonged in most cases to one of the well-known risk categories.

F.C.631 THE ACTUAL PREVALENCE OF HIV 1 INFECTION IN COOLEY PATIENTS.

Scarà,Maria Teresa*;Miceli, M.*;Di Nuccio,A.*;Rosci,M.A.**; Pezzella,M.***; Mannella,E.*.
*National Centre for Blood Transfusion of Italian Red Cross, Rome Italy
**"L.Spallanzani" Hospital for Infectious Diseases, Rome, Italy.
***University of Rome "La Sapienza", Rome, Italy.

Objective: to evaluate the actual percentage of HIV infection in a Cooley population and blood screening program effectiveness.
Methods: on 170 Cooley patients, receiving 27-52 packed and deleucocyzed RBC/year for more 10 years, serologic tests (HIV 1 Ab by WB and HIV Ag by ELISA) were performed; the in situ hybridization (ISH) and HIV 1 cultures were performed on 20 seronegative subjects.
Results: 3 out of 170 patients (1.76%) showed full reactivity to WB (infection acquired before the anti-HIV 1 Ab screening blood introduction). The ISH was positive in 2 out of 20 seronegative patients tested. HIV1 Ag and HIV1 cultures were negative. The anti-HIV1 Ab prevalence in our healthy blood donors (198837) was 0.047%.
Conclusion: our data confirm the low prevalence of HIV 1 infection in Cooley patients in spite of the several years and large number of blood transfusions. The presence of HIV 1 genome in PBMC of two other patients demonstrated a higher percentage of HIV 1 infection in our study population than what showed by serological tests and the limits of the blood screening programs.

F.C.632

HETEROSEXUAL TRANSMISSION OF HIV: FOLLOW-UP 51986-1989) OF 142 COUPLES.

Tacconi Federica, Edo S., Gola T., Lopez S., Comolli G., Barbarini G.
Clinic of Infectious Diseases IRCCS S. Matteo University of Pavia Italy

Objective: To determine the seroconversion rate and high risk behaviours in HIV seronegative partners of HIV seropositive subjects.
Methods: We followed from June 1986 to December 1989 a group of 142 couples enrolled in 3 N.O.T. (Sanitary Structures fo i.v.d.a.). Couples consisted of seropositive patient i.v.d.a. and a partner not i.v.d.a. Both subjects always referred to be monogamous. At June 1986 in 36 couples women were i.v.d.a. and seropositive per HIV (group A); in 106 couples (group B) men were i.v.d.a. and seropositive. Adeguate information were gived to avoid heterosexual transmission of HIV. Every six months we tested seronegative subjects for determining HIVAb.
Results: At December 1989 we found 6 seroconversions in women of group B; none in men of group A. Only 10 couples always used contraceptive barriers, 32 at intervals, 100 never. All seroconversions were found in women who never used contraceptive barriers. During the same period we observed 7 pregnancies; 4 were interrupted.
Conclusions: Many couples rejected the idea of using any contraceptive barrier; this behaviour was refused expecially by women. Pregnancies observed testify the wish of many couples to generate a son.

F.C.633

DECREASE OF PREVALENCE OF ANTI-HIV AND ANTI-HBV AND SATISFACTORY COMPLIANCE TO HBV VACCINATION PROGRAM AMONG INTRAVENOUS DRUG ABUSERS (IVDA). PROSPECTS FOR A FUTURE HIV VACCINATION.

Lugoboni Fabio*, Mezzelani P., Venturini L., Menegazzi L., Bricolo R.*
Institute of "Patologia Medica" University of Verona - Italy.
* Center for Drug Addicts, Local Health District 26 of Veneto Region (LHD 26)Bussolengo, Verona - Italy.

Objective. To state the efficacy of sanitary education among IVDA, evaluating data of prevalence of anti-HIV and anti-HBV and seroconversion from 1985 to 1989 and analyzing the compliance to the HBV vaccination campaign in LHD 26.
Methods. Since August 1985 the Center tested the IVDA for the anti-HIV and for the markers of hepatitis B. Negative results were repeated every 4 months. From december 1988 the IVDA proved seronegative for the markers of HBV have been proposed for vaccination with a recombinant vaccine by means of three subsequent injections (0,1,6).
Results. In the table we present data about seroprevalence for anti-HIV and anti-HBV (HBC) since 1985.

	1985	1986	1987	1988	1989	TOTAL
#HIV TESTED	97	49	68	67	66	347
#HIV +	12	4	5	2	4	27
%HIV +	12.4	8.2	7.4	3	6.1	7.8
%HBV +	90	79.3	77.6	41.9	45.9	63.7
#HBV +	45	23	38	26	28	160
#HBV TESTED	50	29	49	62	61	251

In addition we examined data about the follow-up of seronegative IVDA. Among 248 HIV negative subjects checked between 1985 and 1988 we controlled 158 patients (64%) finding only 4 seroconversions; in the same period, among 58 HBV negative IVDA we controlled 37 subjects (64%) finding 3 seroconversions. In December 1988 51 IVDA (48% of HBV negative IVDA) started vaccination; 26 completed the program, 17 are still regularly in program, and only 8 (16%) dropped out.
Conclusion. These data show an extremely low rate of HIV seropositivity (the lowest in the nation) among the IVDA resident in the district. The decrease of seroprevalence both for HIV and for HBV may represent the result of the sanitary campaign of the last 8 years. Moreover the satisfactory compliance to HBV vaccination program confirmes that a sanitary education can be achieved also among IVDA, traditionally considered incapable of changing their behaviour and not concerned with their health. This result is encouraging in the prospect of an available HIV vaccine. Further results of this ongoing study will be presented and discussed at the Conference.

F.C.634

HIV INFECTION AMONG INTRAVENOUS DRUG USERS (IVDUs) IN TURIN, ITALY: COMPARISON WITH 1986.

Sciandra, Mauro; Raiteri, R.; Fora, R.; Sinicco, A.
Inst. of Infectious Diseases, Univ. of Turin, Turin, Italy

Objectives: To evaluate the trend of HIV diffusion among IVDUs and to compare the results with a study of 1986.
Methods : We screened all the clinical charts (1279) of IVDUs who referred to the social centers for detoxication (SCD) between June and September 1989. We also tested for AbHIV (ELISA, W.B.) 115 IVDUs who referred to SCD between August and September 1989.
Results : Out of 1279, 53% reported test for AbHIV. 170 (25%) were AbHIV+. The mean age and the mean drug use time were significantly higher in AbHIV+ compared with AbHIV- (P <.001). A drug use time > 6 years resulted significantly related to HIV infection (P = .000). We noticed no rise of AbHIV+ in the last 3-years period among IVDUs (1986 = 25.8% 1989 = 25.0%). Particularly, we observed a decrease of HIV seropositivity in IVDUs with 3 years of drug use time between 1986 and 1989 (20.6% , 8.2% respectively). The latter tested group showed similar data.
Conclusions : The HIV infection among IVDUs who referred to SCD showed no increase between 1986 and 1989. The low rate of AbHIV+ among IVDUs with a drug use time < 2 years confirmed this data.
Is this a success of preventing campaign ?
Acknowledgments : " Carlo Denegri Foundation "

F.C.635

SEROPREVALENCE OF HIV-1 AMONG SOUTH AMERICAN (S.Am.) AND ITALIAN (It.) TRANSVESTITES ACTIVE IN PROSTITUTION IN MILAN

Galli,M.; Antinori,Spinello; Esposito,R.; Giannelli,F.; Cargnel,A.; Quirino,T.; Innocenti,M.; Marozzi,F.; Cernuschi,M.; Moroni,M.
University of Milan and L. Sacco and Niguarda Hospital, Milan, Italy.

Objective:To evaluate the seroprevalence of HIV-1 among transvestites active in prostitution and their potential role in HIV-1 transmission.
Methods:All the transvestite male prostitutes (TMP) observed from 1986 to 1989 were included. The TMP referred to the City Morgue were also considered.
Results:Up to December 1989, 48 TMP were observed; 24 subjects were S.Am. (22/24 from Brazil); a diagnosis of AIDS was made in 10 patients (5S.Am. and 5It.). The table reports some of their clinical and epidemiological features:

	N°	HIV Ab+	(%)	Syph Ab+	(%)	Active TB	(%)	Drug addiction	(%)
S.Am.	24	18	75	22	91.6	11	45.8	3	12.5
It.	24	9	37.5	18	75	1	4.1	7	29.1

22 S.Am. and 1 It. had a previously untreated latent syphilis (Syph). During the period of the study, 6 corpses of TMP were received by the City Morgue (4 S.Am., 2 It.): the cause of death were heroin overdose in 4 cases, pneumonia in AIDS in 1, homicide in 1. HIV-1 infection was documented in 3 cases.
Conclusion:TMP may be an important source of TB (Tuberculosis), Syph and HIV-1 infection, also among heterosexual population.In fact, the majority of the customers of these TMP define themselves as heterosexuals and has regular relationship with women. I.V. drug addiction is very frequent and represents a further way of HIV-1 infection spread among different at risk groups.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.636 HIV INFECTION IN THE STD CENTRE OF MILAN - ITALY

Zerboni Roberto, D'Orso M., Cusini M., Muratori S., Mansi M., Alessi E.
1st Clinic of Dermatology, University of Milan, Milan, Italy

Objective: To evaluate the trends of HIV infection in the population observed at the STD Centre of Milan from 1985 to 1989.
Methods: Requesting and consenting patients were screened for HIV infection. Age, sex, motivation for testing, presence of risk factors, sexual behaviour and history of previous STD were considered for each patient.
Results: From 1985 to November 30th 1989, 7271 patients (2859 homosexual males, 1001 i.v.d.u., 3411 heterosexuals) entered the study. Thirteen-hundred and fortytwo patients (18.4%) were found seropositive to HIV. Percentages of seropositivity were respectively 22.3% in the homosexual group, 3.5% among heterosexuals and 58.6% among i.v.d.u.
The incidence of seropositivity in homosexual males rose from 20.8% in 1985 to 33.4% in 1989, in heterosexuals from 3.2% in 1985 to 5% in 1989. No increase of incidence (about 60%) was observed among i.v.d.u.
Conclusion: The increase of incidence of seropositivity in homosexuals, despite educational campaigns performed in our country, could be explained with occasional sexual intercourses with seropositive transvestites recently immigrated to our city from latin America. The slow increase of seropositivity among heterosexuals reflects the spread of infection through sexual contacts with i.v.d.u. in the general population of our country.

F.C.637 A DEMOGRAPHIC BASIS FOR ESTIMATION OF HIV PREVALENCE IN THE GENERAL POPULATION BY INTERPRETATION OF HIV PREVALENCE AMONG BLOOD DONORS

Los, Anton P.M.*; Lumey, L.H.**; Tymstra, T.*; Smit Sibinga C.Th.***
* Dept. of Health Sciences, Univ. of Groningen, ** Dept. of Epidemiology, RIVM, Bilthoven, *** R.C. Blood Bank Groningen-Drenthe, Groningen, NL.

Objective: To establish if HIV prevalence among blood donors can be used to estimate HIV prevalence in the general population a demographic description of both populations is required before appropriate controls can be selected in case control studies of sexual behavior of donors and non-donors.
Methods: Demographic variables (age, sex, and city size) of all donors (n=39,491 source: R.C. Blood Bank Groningen, NL) and all non-donors (n=636,832 source: population registers) were compared in a well defined geographical region in the North of the Netherlands.
Results: In logistic regression analyses all three variables were independently associated with donorship. In addition an interaction between sex and age was observed. For males, the odds ratios (ORs) for donors versus non-donors in the age categories 26-35, 36-45, 46-55, 56-65 are 4.22, 6.47, 5.72, and 3.12. In females the ORs are 2.10, 1.92, 1.24, and 0.62 (age 18-25 is reference category). All 95% confidence intervals are within 10% of the point estimates. Association of donorship with city size (5 strata) indicated overrepresentation of donors in the smallest (< 5,000 pop.) and largest (> 100,000 pop.) categories.
Conclusion: Because of the observed interaction between sex and age, men and women are best studied separately in future studies of behavioral differences between donors and non-donors. In addition stratification of cases and controls on age and city size should be considered to get adequate representation of relevant (sub)categories.

F.C.638 RISK FACTORS AND HEROIN AND COCAINE USE TRENDS AMONG INJECTING DRUG USERS (IDU) IN LOW THRESHOLD METHADONE PROGRAMS, AMSTERDAM 1985-1989.

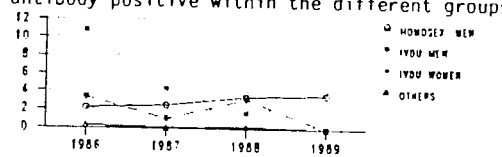
Hartgers Christina; van den Hoek JAR; Krijnen P; Coutinho RA.
Municipal Health Service, Amsterdam, the Netherlands.

Objective: To determine HIV risk factors and heroin and cocaine use trends among IDU in low threshold methadone programs in Amsterdam.
Methods: Fron Dec. 1985 to March 1989, 386 IDU enrolled in a HIV-study through low threshold methadone programs. Logistic regression models were used to determine independent HIV risk factors. Changes over time in drug use at intake were determined by calculating adjusted odds ratios (OR) and 95% confidence intervals (CI) to provide estimates of associations between drug use and time, with demographic variables held constant.
Results: independent risk factors were first and last time of injection, time living in Amsterdam, nationality and mainly heroin and cocaine injecting. When adjusted for by long term methadone use only first time of injection lost significance. Long term methadone users had an equal risk to be HIV-infected as other IDU. Oral cocaine use and oral heroin use increased over time (resp. OR=1.89, CI=1.46-2.44 and OR=1.51, CI=1.20-1.89). Current daily injecting decreased over time (OR=0.87, CI=0.70-1.09). This was most marked in oral cocaine users (OR=0.63, CI=0.38-1.04).
Conclusions: Mainly heroin and cocaine injecting was found as a new independent risk factor. Low threshold methadone programs in Amsterdam do not aim at stopping illicit drug use and are therefore able to contact many IDU. The present data suggest that HIV prevention efforts in these contacts have not led to a lower seroprevalence among long term clients. The increase in oral use and the slight (non-significant) decrease in current daily injecting may imply a gradual shift to oral use.

F.C.639 HIV-AB-TESTING AT AN HIV COUNSELLING CLINIC IN OSLO, NORWAY. AB-STATUS CORRELATED WITH DATA FROM 8000 RISK BEHAVIOUR QUESTIONNAIRES

Kittelsen, Peter; Jensen,F. ; Lid,R. ; Løkke,J. Section for AIDS Prevention, Oslo City Department for Health and Environment, Oslo, Norway.

OBJECTIVE: To determine the HIV seroprevalence in Oslo within groups with different risk behaviour.
METHODS: Section for Aids Prevention in Oslo has since the HIV ab test became available run a specialised HIV counselling and testing clinic. The clinic has emphasized confidentiality, availability and trust among people at risk. It has been possible to test anonymously. All testing has been accompanied by counselling. Since 1986 all who have had a test done have been asked to complete a form with questions about risk behaviour. We crosstabulate risk behaviour variables with HIV status. Changes over time are shown.
RESULTS: Approx. 7000 persons (4500 male, 2500 female) are included. More than half have specific risk (sex between men, IVDU, ...) The percentage found HIV antibody positive within the different groups is shown below:



CONCLUSION: The prevalence of HIV in Oslo, as far as it can be measured with self-reqruitment among people with high risk, has remained low. The Norwegian prevention policies seem to have had effect and should be continued.

F.C.640

HIV INFECTION IN INTRAVENOUS DRUG USERS IN POLAND

Stapiński Andrzej; Mazurkiewicz, W; Ochelska, B.

Institute of Venereology of Medical Academy, Warsaw, Poland

Objective: In the Institute of Venerology,5351 patients/75.1% of males,24.9%females/,IVDU,have been tested for the presence of HIV antibodies in the period from Jan 1986 to Dec 31,1989. They were patients of detoxication wards and/or pensioners of drug treatment centers.
Methods: HIV antibodies were determined by the EIA method /ABBOTT Recombinant HIV-1 EIA test/,and positive results were confirmed by the western-blot technique.
Results: HIV antibodies were found in 292 patients:228 males /78.1%/and 64 females/21.9%/,which accounts for 5.5% of tested IVDU.In 1986-1987,all test were negative,although the first HIV infection was confirmed in 1985 in homosexual group.The first positive HIV test in drug addicts was detected in Aug 1988 after testing of 2254 patients.In 1989 276 sera were positive to HIV antibodies /11.2%/ among 2471 patients studied.
Conclusion: Our study indicates that HIV infection is spreading rapidly in IVDU population.Infections of drug addicts with HIV represent 64% of total detected cases of HIV antibody-positive individuals in Poland;among 30 diagnosed AIDS cases 5 were drug users. Intensive education program have been performed among drug addicts,accompanied with the distribution of free disposible syringes and needles, as well as condoms.Furthemore,problems related to AIDS has been covered by special training program for staff of drug treatment centers in Poland.

F.C.641

PREVALENCE OF HIV-1 AND HIV-2 ANTIBODIES IN PREGNANT WOMEN AT RISK,IVDU AND STD PATIENTS:A THREE-YEAR STUDY

Pista,Angela*;Furtado,C.*;Benito-Garcia,A.*;Pâdua,E.*; Cardoso,J.**;Antunes,M.***;Ayres,L.*;Avillez,F.*
*Instituto Nacional de Saúde,Lisbon,Portugal,**Administração Regional de Saúde,Lisbon,Portugal,***Maternidade Magalhães Coutinho,Lisbon,Portugal.

Objective:Seroepidemiological studies were performed during three years to evaluate the prevalence of HIV infection among groups with risk behaviour.
Methods:During three years a total of 5072 sera from individuals attending a STD clinic,pregnant women at risk(a majority with contacts with Africa) and IVDU were tested for HIV-1 and HIV-2 antibodies by ELISA,confirmed by Western Blot.
Results:

	YEAR	S.T.D. CLINIC	PREGNANT WOMEN	I.V.D.U.
		NUMBER TESTED / % HIV POSITIVE		
HIV-1	1987	757 / 1.9	175 / 0.0	660 / 6.7
	1988	496 / 2.2	635 / 0.6	1079 / 6.4
	1989	535 / 1.5	709 / 1.0	966 / 5.1
	TOTAL	1788 / 1.8	1519 / 0.7	2705 / 6.0
HIV-2	1987	757 / 0.3	111 / 0.9	258 / 0.0
	1988	496 / 1.0	541 / 0.6	1079 / 0.2
	1989	535 / 0.7	709 / 1.1	966 / 0.1
	TOTAL	1788 / 0.6	1361 / 0.9	2303 / 0.1

Conclusion:The IVDU group has the highest percentage of HIV-1 and the lowest of HIV-2 infection.The highest percentage of HIV-2 infection is found among pregnant women.The prevalence of anti-HIV has not changed significantly for the last 3 years. Studies are in progress to acquire a better knowledge of the evolution of the situation as regards ways of transmission.

F.C.642

SEROLOGICAL MARKERS OF HIV-1, VHB AND SYPHILIS IN INNATES FROM A PENITENTIARY POPULATION.

Folguera, Dolores*; López, M*, García, J*, Peña, P*, Martínez-Zapico, P*.
*Servicio de Microbiología, Hospital "La Paz", Madrid, Spain.

Objetive to stimate the prevalence of markers against HIV-1, HVB and *T. pallidum* infection among inmates in urban prision in Madrid.
Methods. From May to June 1989 sera from 900 male inmates were tested for HIV-1 Ab (by EIA, IFA and/or WB test), HBs Ag, HBe Ag, HBc Ab, HBs Ab, HBe Ab (by EIA test) and *T. pallidum* (RPR, FTA-abs).
Sera from 900 voluntary blood donors as control group were tested for HIV-1, HBs Ag (by EIA) an *T. pallidum* (RPR).
Results 280 (29%) of 900 inmates tested were HIV-1(+). We found significant rates of VHB and *T. pallidum* infection markers in HIV-1 inmates.

	VHB		Syphilis	
	HBs Ag	Others markers	RPR	FTA-abs
HIV-1(+)	4,2%	80,4%	23,6%	10,7%
HIV-1(-)	3,1%	35,5%	4,6%	2%

In the control group 310,3% (of 900 voluntary blood donors were HBs Ag(+). The rest of the markers tested were negative.
Conclusion: The high prevalence of HIV-1 infection among inmates of our country is mostly due to drug-sharing and homosexual exposures.
The high frequency of VHB and *T. pallidum* infection HIV-1(+) inmates shows the necessary to adoption of risk reducing behaviours into penitentiary population.

F.C.643

RISK FACTORS FOR HIV-1 INFECTION IN PARENTERAL DRUG ABUSERS

Muga,Roberto;Tor,J;Jacas,C;Llibre,JM;Rey-Joly,C;Foz,M.
Hospital "Germans Trias i Pujol".Badalona,Barcelona.Spain.
Universitad Autónoma de Barcelona.

Objective: To know in a longitudinally study the epidedemiologic factors for HIV infection in parenteral drug abusers (PDA) attended in a General Hospital from Barcelona.
Methods: From June 1984 to June 1988, 382 PDAs (309 males, 73 females) were admitted for detoxification (232) or organic diseases (150). All of them underwent a standarized interview focused on sociodemographic data including antecedent of prison, history of drug use, sharing needle practices and sexual behavior. Sera was obtained for hepatitis B virus markers (HbcAc), syphillis (FTA-ABS) and HIV antibodies (ELISA, Immunoblot).
Results: All patients were white, heterosexual and active drug users;heroin was the main drug in 95% of them.The mean age was 24.22±4.27 years and the length of addiction 49.8±32.9 months. HIV antibodies (Ab) were positive in 264/382 (69.1%), HBcAc + in 316/382 (82.7%) and FTA-Abs in 18/290 (6.2%). The seropositivity for HIV infection was independent of sex (p=0.563). However, history of prison (p<0.01),prostitution in female PDA's p<0.05),amount (p<0.05) and frequency (p<0.05) of heroin administration, sharing needle practices (p<0.05) and heterosexual contacts with other PDA's p<0.05) were related to HIV infection.
Conclusions: Besides the length of addiction and sharing needle practices, sexual behavior and antecedent of prison are emerging factors for HIV infection in PDA's from Spain.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.644 HIV-1 INFECTION IN A DRUG CONTROL CENTER IN THE BASQUE COUNTRY, NORTHERN SPAIN, 1984-1989.

Merino, Fernando*; Aizpiri, J.**; Esparza, B.*; San Cristobal, E.**; Perez, B.**

* Universidad del Pais Vasco, Spain.
** Unidad de Drogodependencias, Servicio Vasco de Salud, Bilbao, Spain.

Objetive: The Basque Country is one of the main spanish regions where heroin abuse occurs and our objetive was to determine the frecuency of anti - HIV-1 antibodies in drug addicts from this country, during a period of 6 years 1984-1989.

Methods: We have studied at the Unidad de Drogodependencias, Servicio - Vasco de Salud, in Bilbao (Basque Country), sera from 1504 otherwise healthy heroin addicts and 18 sexual partners, for the presence of anti HIV-1 antibodies. These antibodies were determined by ELISA and confirmed by IFI and/or WB Determinations were performed at the Centro de Referencia de Microbiologia e Inmunologia of the Servicio Vasco de Salud.

Results: The overall HIV-1 seroprevalence detected in the 1504 sera was of 41.29%. A study aimed to determine the degree of specificity of the anti HIV-1 antibodies in these heroin users showed that 88.6% of the ELISA positive samples were also IFI positive and 78.4% were also WB positive. The anti HIV-1 frecuency in the studied years was: in 1984 of 42.4%, in 1985 of 41.59%, in - 1986 of 43.73%, in 1987 of 45.41%, in 1988 of 26.93% and of 29.8% in 1989. No differences in seropositivity according by sex was observed. 271 heroin addicts were secuentially studied over a period of 3 to 52 months later after the inicial anti HIV-1 determination. 21 of the initial 176 seronegative subjects - (11.93%), showed a positive result upon repeated determinations. Two of the 18 sexual partners to the heroin addicts studied (11.11%), were positive.

Conclusion: The anti HIV-1 frecuency showed a decrease tendency in otherwise healthy heroin users, during the studied years.

F.C.645 HIV AND HEPATITIS C VIRUS IN GROUPS AT RISK FOR AIDS

Tor, Jordi; Llibre, JM; Carbonell, M; Muga, R; Ribera, A; Soriano, V; Clotet B.
Hospital "Germans Trias i Pujol". Badalona, Barcelona. Spain.

Objective: To determine the prevalence and sexual transmission rates of hepatitis C virus (HCV) and its relationship to HIV and hepatitis B viruses in groups at risk for AIDS.
Methods: We investigated the prevalence of antibodies (Ab) against HCV in 243 intravenous drug abusers (IDAs), 143 of their regular sexual partners (sex partners) and 105 homosexual males (HM). HIV Ab were analized by ELISA or Western Blot; HCV Ab were screened with a second generation ELISA test.
Results: IDAs: 178/243 (73.3%) were HCV Ab positive and 183/243 (75.3%) were HIV+ after 43 ± 14.35 months of addiction. Although there was a clear association between hepatitis B virus (HBV) (anti-HBc Ab) and HIV seropositivities (p=0.012), the presence of HCV Ab was unrelated to either HIV infection or the CDC stage in the HIV infected group. Sex partners: 16/143 (11%) had HCV Ab and HIV Ab were found in 25/143 (17.5%) after a mean of 44.6 ± 20.21 months of sexual relationship. There was a strong association between HCV and HIV infection (p=0.001). HM: 17/105 (16%) tested positive for HCV Ab and 37/105 (35.7%) were HIV+ with a mean of 8.8 partners/month. The presence of HCV Ab did not correlate with HIV or HBV infection, whereas HIV and HBV were significantly associated (p=0.001).
Conclusions: Three patterns in the acquisition of HIV and HCV infection have been found. (A) IDAs carry a high risk for HCV, HIV and HBV infection but the HCV spread seems unrelated to neither HIV nor HBV viruses, (B) HM have a low prevalence of HCV infection and no association with HBV or HIV has been found and (C) sex partners of IDAs show low rates of HCV Ab but a strong correlation has been found between HCV / HIV and HCV / HBV infections.

F.C.646 Evaluation of true number of HIV infected persons in Sweden.

Böttiger Margareta, Blaxhult Anders
National bacteriological laboratory, Stockholm Sweden

Objectives: To make use of available data to estimate total number of individuals HIV-infected.
Method: Analysis of mandatory reports of HIV-infected persons, different survey programmes and information on previous HIV test results of AIDS patients.
Results: The successively enlarged coverage of HIV testings in Sweden (8.5 million inhabitants) amounted to 1.2 million tests in the general population and 2.3 million tests on 400.000 blood donors. At the end of 1989 30% of the most exposed age groups are estimated to be tested. The test results indicated that 0.01 % of new blood donors and of pregnant women were HIV infected. The seroconversion rate among i.v. drug users was in 1988-89 1-2% per year. Two thirds of the new AIDS cases sexually infected were known as HIV carriers > one year before the diagnosis. One quarter of new reported Swedish carriers (300 per year in 1988 and 89) could be estimated as recently infected.
Conclusion: Results of testings and reports now appear to allow estimations of the probable number of infected persons in the different categories at risk. The number of undiagnosed homosexually and heterosexually infected Swedes is thus estimated to double that of the reported number and 10% of HIV infected intravenous drug users may not be diagnosed. The conclusion thus drawn is that 1000 homosexually and 200-300 heterosexually infected Swedes may not be known, while the number of unknown infected i.v. users may be less than 50.

F.C.647 NO CORRELATION BETWEEN HEPATITIS C VIRUS (HCV) AND HIV-1 INFECTIONS IN I.V. DRUG USERS (IVDUs).

Chamot, E.*; Wintsch, J.*; Robert, C.-F.*; Gabriel, V.*; Hirschel, B.*; Déglon, J.-J.**; Zerli S.*; Perrin L.*.
* Internal Medicine Department, Geneva University Hospital, Geneva, Switzerland.
** "Ermitage" Therapeutic Center, Geneva, Switzerland.

Objective: compare the prevalence of HCV, Hepatitis B virus (HBV) and HIV infections in a population of IVDUs in a methadone-maintenance program.
Methods: IVDUs have been recruited and followed for a period of 2 to 5 years. Investigations reported here concern the last serum available. There were 59 females and 198 males (mean age 28.5). Twenty-four persons vaccinated against HBV were excluded from investigations concerning this virus. The serologic markers analyzed were: HCV antibodies, HBc antibodies, HIV-1 antibodies.
Results:

257 IVDUs	164 HCV +	→	56/164 HIV +	: 34 %	P = 0.6
	93 HCV -	→	28/93 HIV +	: 30 %	
233 IVDUs	170 HBV +	→	127/170 HCV +	: 75 %	P < 0.0001
	63 HBV -	→	23/63 HCV +	: 37 %	
233 IVDUs	170 HBV +	→	71/170 HIV +	: 42 %	P < 0.0001
	63 HBV -	→	7/63 HIV +	: 11 %	

Conclusion: there is no correlation between HCV and HIV infections, but a clear one between HBV infection and the 2 other viruses. These results are unexpected since in this population all 3 viruses are thought to be transmitted preferentially by the i.v. route. Evolution of HCV, HBV and HIV infections during the 1980ies will be analyzed using results from stored sera.

F.C.648 EPIDEMIOLOGICAL SURVEILLANCE FOR HIV-INFECTION IN THE USSR IN 1987-1989

Pokrovsky, Vadim V.; Eramova, I.; Arzamastsev, V.; Nikonova, V.; Mozharova, G.
Central Research Institute of Epidemiology, 3-a, Novogyreyevskaya, Moscow, USSR

Objective: To evaluate HIV prevalence among the aboriginal population of the USSR.
Methods: The reported data on the results of mandatory HIV antibody testing of groups of the USSR population were worked up by means of special automatized system. Every case of HIV-infection was investigated in order to identify risk factors.
Results: During the period from January 1987 up to October 1989 40150479 HIV-antibody tests were done in the USSR and as a result 402 Soviet citizens turned out to be seropositive in Western Blot. 23,8% of them were women. 22083871 blood donors' sera were tested and only 11 of them were positive. Only 9 of 10565181 tested pregnant women turned out to be seropositive. The most of the infected persons (72,8%) were found by epidemiological investigation, 40,5% were infected by reusing of contaminated syringes during the nosocomial outbreaks. The main risk factor for 25,3% of seropositive persons were heterosexual contacts. 11 persons were infected by blood transfusion before 1983.
Conclusion: The prevalence of HIV-infection is low in the USSR. However, HIV began to spread among groups of population which don't subject to mandatory HIV-antibody testing.

F.C.649 FIRST CASES OF HIV-1 INFECTION IN LENINGRAD,USSR

A.Kozlov,A.Lalykh,A.Emeljanov,T.Kurbatova,M.Traugott,A.Glebov,L.Gavrilenkova,P.Kolotvina,G.Volkova
AIDS Reference and Research Laboratory,Leningrad,USSR 193167
Research Institute of Pure Biochemicals,Leningrad,USSR 197110

Objective.To estimate the spread of HIV infection in the city.Methods and Results.After the beginning of the screening program in 1987 and up to the end of 1989 1800000 blood samples have been tested in 6 screening labs.45 seropositives were confirmed in the reference lab by ELISA and WB.They include 19 Africans,2 Italians,1 Cuban and 23 Soviet citizens.The majority of seropositive residents had multiple sexual contacts with foreigners.No increase in the incidence of new seropositive cases was noted in 1989 comparing with previous years. Seropositive patients are mostly asymptomatic carriers although all of them have decreased T4/T8 ratio.More than 70 persons with indeterminate WB were also found.DNA from cells of some of them was shown to contain HIV-1 sequences by PCR. The majority of anti-HIV(+) sera cross-reacted with HIV-2 WB but only some of indeterminate sera cross-reacted with HIV-2 p26.In several cases the virus with HIV morphology was isolated from the lymphocytes of seropositive patients which confirmed the diagnosis of HIV infection.
Conclusion.The occurrence of HIV infection in Leningrad was firmly established although HIV seroprevalence is extremely low.

F.C.650 INDIRECT ESTIMATES OF HIV PREVALENCE IN HOMO/BI MEN AND IDUs

Ellam, GA; Gill ON.
PHLS AIDS Centre, Comm Disease Surv Centre, London, UK

Objective: To estimate indirectly the total numbers of homosexual/bisexual males and injecting drug users (IDUs) infected with HIV-1 in England and Wales.
Methods: Laboratory reports of first confirmed HIV infection were used to estimate the total number of known HIV infections by exposure category. The numbers infected amongst those, who so far have chosen not to be tested were estimated indirectly in two ways. The first used the proportion of AIDS cases known to be HIV infected 4 months or more before AIDS diagnosis. The second used information on past HIV test history obtained from lifestyle surveys of representative samples of homosexuals and drug users.
Results: - estimates of HIV-1 infection at end 1988.

	Homo/bisexual male	IDUs
Known infections (laboratory reports)	5000 - 7000	900 - 1250
Total infections	9700 - 15600	1600 - 2500

Conclusion: The total numbers infected were lower than earlier estimates. These methods provide alternative estimates of the prevalence of HIV infection which complement transmission model and back projection approaches.

F.C.651 ADOLESCENTS AND YOUNG ADULTS INFECTED WITH HIV-1: THE PATTERN IN ENGLAND, WALES AND NORTHERN IRELAND.

Clarke, Sian; Evans, BG; Karunaratne, M; Kennedy, AR.
PHLS AIDS Centre, Communicable Disease Surveillance Centre, London, UK.

Objective: To describe the epidemic in adolescents and young adults by comparing and contrasting the pattern of infection in specific age groups.
Methods: Laboratory reports of newly confirmed HIV-1 infections, and reports of AIDS cases were analysed.
Results: To end 1989 -

		HIV-1	AIDS
	10-14y	86 (98% male, 2% female)	3
	15-19y	269 (86% M, 14% F)	15
	20-24y	1318 (87% M, 13% F)	131
	All ages	9947 (92% M, 8% F)	2698 (96% M, 4% F)
Major Exposure - (HIV-1)	10-14y	haemophilia 76 (93%)	
	15-19y	haemophilia 104 (44%), gay 82 (35%)	
	20-24y	gay 633 (57%), injecting drug use 205 (19%)	

The proportion infected through heteroseuxal contact was 9% in 15-19y, and 10% in 20-24y age groups, which was comparable to the dataset as a whole. Of all those infected heterosexually in the whole dataset 48% were female, but this increased to 82% in 15-19y, and 66% in 20-24y age groups.
Conclusions: Marked differences were apparent in the pattern of infection amongst young people compared with other adults. Health education needs to take account of these differences.

F.C.652 SEXUAL BEHAVIOUR CHANGE IN A PROSPECTIVE STUDY OF HETEROSEXUAL PARTNERS OF HIV INFECTED MEN

*Johnson A.M., **Mc Lean Kenneth A.; *Davidson S.J., *Petherick A., *Shergold C.; *Brettle R., et al. *UC & Middlesex School of Medicine, **West London Hospital, London UK. * Drug Addiction Study & City Clinic, Edinburgh.

Objectives: To assess risk of seroconversion and behaviour change in a cohort of heterosexual contacts of HIV positive men.
Method: In a multi-centre UK study, heterosexual partners of HIV infected men and women are assessed for evidence of HIV infection; complete a behavioural interview; and are followed 6 monthly.
Results: 110 couples have been studied, in which the only risk factor for infection in the female contact is heterosexual contact with the HIV positive partner. 69% of male partners are IDUs. 28 (25%) of female contacts were seropositive at recruitment. 43 negative partners have completed a mean of 11.3 months of follow-up. None have seroconverted. 6 couples separated and the remaining 37 substantially changed sexual behaviour as follows:-

Seronegative Partners	At recruitment	n=37	During follow-up	
Length of partnership	64.9 mths		11.3 mths	
Frequency intercourse/mth	7.8		3.1	p< .0001
Always use condoms	1/37		17/34*	p< .0007
Anal intercourse (ever)	4/37		1/37	p> .05

* 3 abstained from vaginal intercourse

Conclusions: Couples reported a marked decrease in frequency of intercourse and more condom use. This may explain the absence of new seroconversions. Nevertheless, despite intensive counselling, nearly half still practised some unprotected intercourse.

F.C.653 PREVALENCE OF HIV INFECTION IN YUGOSLAVIA AND TRENDS FROM 1985 - 1989

Vitomir, Burek; Maretić, T.; Zrinščak, J.; Borčić, D.
University Hospital for Infectious Diseases, Zagreb, Yugoslavia

Objective: To summarize overall HIV seropositivity among various groups of high risk for AIDS and others and to show dynamics of this positivity in the passed five years in North-West part of Yugoslavia.
Methods: Since the beginning of 1985. near 7.000 people have been tested for HIV antibody. All this individuals come through out-patient department of University Hospital for Infectious diseases, Zagreb. They were members of classical high risk groups for AIDS (I.V. drug users, haemophiliacs, homosexuals) and others with varying risk of infection.
Results: At the end of the reported period (1989.) anti-HIV positivity among I.V. drug users was 6.8% among homosexuals 4.1% and haemophiliacs 8.4%. No one positive was found among haemodialized patients. Among heterosexual populations we found only two positive men (both having sexual relations with prostitutes in central Africa). At the beginning of this period (end of 1985.) anti-HIV positivity among I.V. drug users was 5.0%, homosexuals 0.7% and haemophiliacs 6.4%.
Conclusion: Overall HIV seropositivity in groups of high risk for infection in North-West part of Yugoslavia is relatively low. With possible exception in homosexual group presented data do not indicate significant increase in percentage of positivity during five-year period among these populations.

HIV Seroprevalence in Oceania

F.C.654

EPIDEMIOLOGY AND EVOLUTION OF HIV INFECTION IN BLOOD TRANSFUSION RECIPIENTS

Cook LA, Learmont JC, Swanton Katherine N.
TRAIDS (Transfusion Related Aids Support Unit) Sydney, Australia.

OBJECTIVE: To Describe Demographic Patterns of HIV Infection in Blood Transfusion Recipients other than Haemophiliacs
METHOD: To December 1989, 112 cases of post-transfusion HIV infection reported or traced by the Blood Transfusion Service were followed-up.
RESULTS: As of 30 December 1989, 59 patients have developed Group IV AIDS (42 deaths), 11 Group III and 42 are asymptomatic. In a follow-up of 41 donations from known infected donors, 39 have become infected. The two patients not infected were transfused with triple washed red cells. It can be stated that there is an extremely high risk of HIV infection occuring in the recipient of blood from a HIV positive donor. We have identified 5 cases of heterosexual transmission from 53 male transfusion recipients over the age of 15. 3 transmissions occurred in post menopausal women who had only minimal sexual contact. There is evidence to suggest that infection has occurred in 2 infants via breast milk from infected mothers who received post-partum transfusions. The median time from infection to death from AIDS is 34.65 months. In patients undergoing AZT therapy the median time is 62.16 months.
CONCLUSIONS: Ongoing surveillance of HIV infection in blood transfusion recipients is essential for the monitoring of demographic changes over time.

HIV-2 Seroprevalence

F.C.655 SENTINEL SURVEILLANCE FOR HIV-2 INFECTION IN CLINICAL SETTINGS, UNITED STATES, 1988-90.

Onorato, Ida*; Schable, C.*; McCray, G.*, Allen, D.*; Pappaioanou, M.*; George, R.* and State and local health departments.
*Division of HIV/AIDS, Centers for Disease Control (CDC), Atlanta, GA., United States of America.

Objective: To determine the prevalence of HIV-2 infection in persons practicing behaviors that are associated with HIV transmission.
Methods: Since 1988, CDC, with State and local health departments, is conducting blinded surveys for HIV-1 infection in sexually transmitted disease clinics (STDC) and drug treatment centers (DTC) in 44 metropolitan areas. After testing blood for routine purposes, individual identifiers are removed and consecutive sera tested for antibodies to HIV-1. Sera from clinics in 12 metropolitan areas that are likely destinations of immigrants from HIV-2 endemic areas are also being tested for HIV-2. A total of 20,000 STDC sera and 5,000 DTC sera will be tested initially by HIV-2 enzyme immunoassay (EIA) (Genetic Systems). Repeatedly reactive sera are tested with HIV-1 and HIV-2 peptides (Pharmacia) and confirmed by HIV-1 and HIV-2 Western blots.
Results: By January 1990, we tested 10,614 sera from 5 metropolitan areas (Atlanta, Denver, Los Angeles, New Orleans, New York City). None were positive for HIV-2. Five hundred eleven sera were repeatedly reactive by HIV-2 EIA but were confirmed positive for HIV-1 by Western blot and peptides. HIV-1 seropositivity ranged from 2.0-7.5% in STDC and 1.4-31.4 % in DTC.
Conclusion: Transmission of HIV-1 has occurred among STDC and DTC attendees. Although no HIV-2 infections had been found by January 1990, continued sentinel surveillance of persons at increased risk of exposure to retroviruses is essential to detect the introduction of HIV-2 into the United States.

F.C.656

HIV-2 INFECTIONS IN THE UNITED STATES

O'Brien, Thomas R.*, Schable CA*, Polon C**, Stewart A**, VanDevanter N**, Schochetman G*, Cleary P**, Holmberg SD*. *CDC, Atlanta, GA, USA, and **Columbia School of Public Health, New York, NY, USA.

Objective: To summarize known cases of HIV-2 infections among persons residing in the United States and to describe the first case of HIV-2 infection in a native-born U.S. citizen.
Methods: Surveillance for HIV-2 infection has been conducted by State and local health departments and the Centers for Disease Control. We consider a person to be infected with HIV-2 if the HIV-2-specific Western blot (WB) is positive and the HIV-1-specific WB is negative or indeterminate.
Results: Fifteen cases of HIV-2 infection have been reported among U.S. residents. One person is a native-born U.S. citizen, 12 persons are originally from West Africa, and in 2 cases the person's national origin is not known. The known American case is a 26-year-old woman whose serum was reactive to HIV-1 enzyme immunoassay (EIA) when she attempted to donate blood. HIV-1 WB was indeterminate, while HIV-2 EIA, WB, and peptide tests were positive. Although she traveled to West Africa, it is unclear how she became infected with HIV-2. None of the HIV-2 infected persons is known to be an intravenous drug user (IVDU) or homosexual. Clinically, 3 persons have AIDS, 10 are asymptomatic, and the condition of 2 is unknown.
Conclusions: HIV-2 infection appears to be rare in the United States and has not been found among IVDU or homosexual men. HIV-2 infection should be considered in West Africans, persons who may have had sexual contact with West Africans, and persons with evidence of HIV infection whose HIV-1 WB is negative or indeterminate.

F.C.657

HIV-2 INFECTION IN CAMEROON.

Zekeng, L.* ; Pinay, P.* ; Barth, P.** ; Tapko, Jean-Baptiste*
Kaptue, L.*
* Service National de Lutte contre le SIDA Yaounde - Cameroon ; ** Projet de santé germano-camerounais Ministère de la santé Yaounde - Cameroon

Objective : Cameroon is between West Africa were HIV-1 and HIV-2 are present and Central Africa where HIV-1 is more common. Our aim was to monitor the trend of HIV-2 in Cameroon considering it's geographic location.
Methods : Since 1987, more than 10 000 blood samples from blood donors, general population, STD patients, TB patients, prostitutes, pregnant women have been screened. All samples were screened for HIV-2 by Elisa and confirmed by Western-blot.
Results : In 1988, 3 samples, and in 1989 5 samples were found HIV-2 positive. Among them, 2 were double infected HIV-1 + HIV-2 and one had done extensive travelling in West Africa.
Conclusion : HIV-2 virus is present in Cameroon although the prevalence is still low. Continual monitoring of HIV-2 infection is important in Cameroon especially since only HIV-1 is routinely checked. This will be useful later on to decide on what kind of diagnostic kits.

F.C.658

EPIDEMIOLOGY AND TRANSMISSION OF HIV-2 IN SENEGAL

Kanki, Phyllis*; M'Boup, S**; Marlink, R.*; ,Siby, T**;Travers, K.*; Essex, M*
*Harvard School of Public Health, Boston, MA, USA, **University of Dakar, Dakar, Senegal.

Objective: We have followed registered (practicing within the law) female prostitutes in 3 urban centers in Senegal to better understand the prevalence, risk factors, transmission and consequences of HIV-2 infection. The direct measurement of HIV-2 incidence may allow for a better understanding of HIV-2 population dynamics and biology.
Methods: Registered female prostitutes in Dakar (n=1460), Kaolack (n=224) and Ziguinchor (n=251) were included in the study. Physical examinations, questionnaires regarding risk and sexual behavior were administered and serum samples obtained for STD and retrovirus examination semi-annually. HIV serodiagnosis was performed with immunoblot, RIPA and vpx/vpu antigens.
Results: The overall seroprevalence in 1460 Dakar prostitutes was 9.5% HIV-2, 1.8% HIV-1 and 0.5% HIV-1/2. Through evaluation of sequential samples on over 900 of these women (>3200 samples) we determined the annual incidence for HIV-2 to be 13.7 per 1000 per year. This rate was found to be similar over the 5 year period, and assuming a constant rate, would predict a doubling time of 8-10 years. Incidence of HIV-1 in this population was 5.0 per 1000 per year; indicating a doubling time of less than 3 years.
The seroprevalence of HIV-2 in Ziguinchor prostitutes was 34.0% and 24.1% in Kaolack.The majority of women in all three cohorts were native Senegalese, with women from Ghana and Guinea Bissau as other well-represented nationalities. HIV-2 seropositivitiy was significantly associated with non-Senegalese nationality. The age-specific seroprevalence in all three groups was increasing, indicative of an endemic virus infection. The number of years of prostitution was not significantly related to serostatus, inclusion of all variables in a multivariate logistic model did not modify these results . History of transfusion, hospitalization, circumcision, tatooing and scarification were not found to be significant risk factors for HIV-2 infection. Previous history of cervicitis or genital ulcer disease was not found to be a significant risk factor for HIV-2 infection in contrast to HIV-1. Follow-up of 197 HIV-2 positive women to date, has failed to find evidence of the development of AIDS .
Conclusion: The epidemiology of HIV-2 in a high risk population followed over time appears to differ significantly from that of HIV-1. These differences include seroincidence in a high-risk population, age-specific seroprevalence, risk factors for infection, and clinical outcome.

F.C.659

SEROPREVALENCE OF RETROVIRUS INFECTION IN A POPULATION OF TANZANIA BORDERING HIV-1 ENDEMIC AREAS.

Brubaker, Glenn[1]; Kumbi, D.[1]; Konings, E.[2]; Alexander, S.[3]; Drummond, J.[3]; Clayton, Y.[2]; Scott, G.[2]; Sizo, Z.[1]; Kibauri, D.[1]; Shao, J.[1]; Blattner, W.[3]; Levin, A.[2]. 1. Shirati, Tarima, and Dar-es-Salaam, Tanzania. 2. London, UK. 3. Maryland, USA.

Objective: To study HIV-1, HIV-2, and HTLV-I seroprevalence in a population-based random sample of 2,500 subjects in the North Mara region of Tanzania.
Method: HIV-1 antibody was determined by a rapid screening test and two ELISA screening tests, with immunoblot confirmation of all reactives. HIV-2 and HTLV-I antibodies were determined by ELISA with immunoblot confirmation.
Results: Complete data are available from 657 rural subjects. HIV-1: 355 (54%) were reactive in one or both ELISAs; only 11 (1.2%) were unequivocally confirmed by immunoblot. 313 (47.6%) immunoblots had indeterminate patterns, mainly reactivity to core antigens, with. some instances there of reactivity to envelope or envelope precursor antigens. The rapid screening test indicated 13 (1.9%) reactives, including all seropositives confirmed by immunoblot. HTLV-I: 128 (19.5%) subjects were ELISA reactive, 9 (1.4%) subjects were confirmed by immunoblot. HIV-2: 141 (21.5%) were ELISA positive, none were confirmed by immunoblot. In 440 subjects in the urban area, the rapid screening test indicated a higher percentage of HIV-1 seropositives than in the rural area. Confirmatory tests are in progress
Conclusions: (1) HIV-1 seroprevalence in the rural study area is less than 2% HTLV-I infection is present, there is no confirmed HIV-2 infection. (2) The rapid screening test for HIV-1 yields few false positive results. (3) Some indeterminate immunoblot results may indicate HIV-1 infection or the presence of another retrovirus. Planned logitudinal studies should clarify this.

TRACK C: EPIDEMIOLOGY & PREVENTION

POSTER SESSION

F.C.660

SEROPREVALENCE OF HIV-2 IN ZAMBIA

Tembo, G., Luo, N., Hira, S., Kapanda, S., Syambango, J., Kasumba, K.

University Teaching Hospital, Lusaka, Zambia

OBJECTIVE: To determine the seroprevalence of HIV-2 infection at a major hospital in Zambia.
METHODS: 510 patients with various clinical symptoms but negative for HIV-1 and 124 patients with clinical features of immune suppresion and negative for HIV-1 were tested for HIV-2 by ELISA (ELAVIA, IDL and Diagnostic Biotechnology) reactive sera were confirmed by Western Blot.
RESULTS: Of the 124 immunosuppresed patients, 4 (3.2%) were positive for HIV-2 on ELISA but only one patient was positive by Western blot (p24, p31). Of the 510 patients, 40 (7.8%) were reactive to HIV-2 by ELAVIA and IDL-2. However, Western blot for HIV-2 was negative on all the samples.
CONCLUSION: Although HIV-1 is the predominant HIV infection in the country, HIV-2 does exist and may be a cause in cases of immunosuppression with an HIV-1 negative profile.

F.C.661

HIV 2 INFECTION IN MARSEILLES.

TAMALET Catherine*, ROUSSEAU S.*, GALLAIS H.**, PESTRE P.**, TAMALET J.*

*Virology, hôpital de la Timone, **Departement of infectious diseases hôpital de la Conception Marseilles, France.

Objective : To investigate the presence of HIV-2 antibodies (Ab) in subjects in Marseilles.

Methods : Between 1987 and 1990, 88.482 sera were collected in Marseilles and tested for HIV-1 and HIV-2 using the ELISA and Western blot (W.B) tests. HIV-1-HIV-2 discrimination was performed by synthetic peptide analysis.

Results : 5.730 sera (6,62%) were confirmed as HIV positive. 18 sera (0,32%) were confirmed as HIV-2 positive. Five patients were from Guina Bissau, 5 from Senegal, 1 from côte d'Ivoire, 1 from the Central African Republic, 4 from Marseilles, and 2 were from unknown origin. Clinically 12 were asymptomatic, 5 had ARC, and 1 had AIDS. Transmission was sexual (10 cases), perinatal (4 cases), from blood transfusion (1 case) and undetermined (3 cases). Eleven sera cross-reacted with at least 3 anti gag, pol or env HIV-1 Ab. W.B lanes are produced. Seven sera cross reacted with only one or two HIV 1 Ab. Four of these 7 patients were Europeans living in Marseilles and 3 were from Guinea Bissau.

Conclusion : The HIV-2 situation in the Marseilles area is intermediary between that of Italy were HIV-2 has yet to be detected and Portugal where HIV-2 detection is not inusual. The historical relations between southern France and the countries of western Africa are the reason for this phenomenon.

F.C.662

HIV-2 IN PORTUGAL: SITUATION IN 1990

Benito-Garcia, Ana*; Gonçalves, H:*; Pista, A.*; Furtado, C.*; Pâdua, E.*; Ayres, L.*; Avillez, F.*

Instituto Nacional de Saûde, Lisbon, Portugal.

Objective: To evaluate the HIV-2 infection among Portuguese population during 3 years (1987 to 1989). At the end of 1989 out of 348 notified cases of AIDS, 44 (12,6%) were caused by HIV-2. Thirty of this 44 cases were from Africa and fourteen were from Portuguese with no known contacts with Africa.

Methods: A total of 9305 sera were studied from many different groups. Groups, number of cases studied and number of positives are expressed in table 1.

Results: HIV-2 positive cases were detected in all groups. The incidence of HIV-2 being great in Portuguese with no known contacts with Africa.

TABLE 1

Groups studied	Portuguese with no known contacts with Africa		African origin or contacts with Africa	
	HIV-2+VE	%HIV-2+VE	HIV-2+VE	%HIV-2+VE
Homo/Bisexuals(390)	2	0,5	-	0,0
IVDU (2325)	4	0,2	1	0,04
Transfusion Recip.(384)	3	0,8	4	1,0
Heterosexuals (4742)	50	1,1	49	1,0
Haemophiliacs (29)	8	27,5	-	0,0
Child of HIV-2+mother(22)	-	0,0	2	9,1
Prostitutes (613)	6	1,0	4	0,7
ARC/AIDS (800)	31	3,9	10	1,3
TOTAL (9305)	104	1,1	70	0,8

CONCLUSION: HIV-2 infection is spreading among the non African people in Portugal.

F.C.663

HIV-2 INFECTION IS ASSOCIATED WITH TUBERCULOSIS

Gnaore Emmanuel*, Adjorlolo G*, Bretton G**, Coulibaly IM**, Coulibaly D**, Traore M**, Porter A*, Lafontaine M-F*, Ouattara D***, Braun M#, De Cock KM* #, Heyward WL#.

* Projet RETRO-CI, Abidjan; ** Centres Antituberculeux, Abidjan; *** Centre National de Transfusion sanguine, Abidjan; # Centers for Disease Control, Atlanta, USA.

Objectives: (1) To determine the prevalence of HIV infection in patients with tuberculosis (TB) in Abidjan; (2) to examine the association between HIV-2 infection and TB; (3) to determine the fraction of TB cases attributable to HIV infection.
Methods: In 1989, 1256 consecutive, newly diagnosed, ambulatory TB patients aged 15-49 years were examined. Serum was tested by ELISA, Western blot and synthetic peptide ELISA for HIV-1 and HIV-2. The prevalence of HIV reactivity in TB patients was compared with that in 929 consecutive blood donors recruited in the community, considered representative of the general population. The etiologic fraction was calculated indirectly, as in case-control studies.

Results:	HIV-1	HIV-2	HIV-1/HIV-2	Total Pos	Negative
Donors	7.2%	2.2%	0.9%	10.2%	89.8%
TB	22.5%	5.7%	9.5%	43.8%	56.1%

In all age groups 15-49 years, reactivity to HIV-1, HIV-2 and HIV-1/HIV-2 was significantly more frequent in TB patients than donors (for HIV-2, $p < 0.001$ for males, < 0.01 for females). The fraction of TB cases in HIV-positive persons that could be attributed to HIV infection was 85% .
Conclusions: (1) HIV-2 infection is a risk factor for TB; (2) 85% of HIV-positive TB cases in Abidjan are attributable to HIV infection.

HTLV-1 and HTLV-2 Seroprevalence

F.C.664 SEROPREVALENCE OF HUMAN T-LYMPHOTROPIC VIRUS TYPE I/II (HTLV-I/II) AMONG INTRAVENOUS DRUG USERS (IVDUs) AND SEXUALLY TRANSMITTED DISEASE (STD) PATIENTS IN THE U.S.

Khabbaz, Rima F.*; Onorato, I.M**; Hartley, T.M.*; Cannon R.O.***; Kaplan, J.E.*; and State and local Health Departments. * Retrovirus Diseases Branch, ** Division of HIV/AIDS, *** Division of STD/HIV Prevention, Centers for Disease Control (CDC), Atlanta, Ga, U.S.A.

Objective: To determine HTLV-I/II seroprevalence among IVDUs entering drug treatment (DT) and in persons seen in STD clinics in the United States. Methods: Since 1988, CDC, in association with state and local health departments are conducting blinded surveys for HIV in IVDUs entering DT and in STD clinic patients in 44 metropolitan areas. In 8 areas (Los Angeles; Denver; Atlanta; Seattle; Cleveland; Newark; New York; New Orleans), consecutive sera remaining after HIV testing were tested for antibodies to HTLV-I/II. Sera were screened by ELISA, and repeat reactive sera were confirmed by western blot and/or radioimmunoprecipitation assay. Demographic and other available data were examined. Results: Among 1593 IVDUs from 6 areas, HTLV-I/II seroprevalence rates ranged from 0.6% to 9.2%; rates did not differ by sex (59/1024 men, 5.8% and 31/535 women, 5.8%) but increased significantly with age (p<0.01) and were higher in non-whites (71/827, 8.6%) than in whites (22/752, 2.9%, p<0.01). Rates were highest when heroin was the primary injected drug (85/1136, 7.5% versus 6/373, 2.7%, p=0.03). Among 3487 STD clinic patients from 6 areas, HTLV-I/II rates ranged from 0 to 2.1%; HTLV-I/II seropositivity was associated with a history of IVDU (11/170, 6.5% versus 28/3240, 0.9%, p<0.01). Conclusion: HTLV-I/II infection was found among IVDUs in 7/8 areas; in STD clinics, HTLV-I/II was associated with IVDU. Among IVDUs, advanced age, non-white race, and heroin addiction were associated with HTLV-I/II infection.

F.C.665 HTLV I / II IN INTRAVENOUS DRUG USERS AND HOMOSEXUAL MEN IN SAN FRANCISCO: RISK FACTORS ASSOCIATED WITH SEROPOSITIVITY

Feigal, Ellen G.*; Murphy, E.**; Vranizan, K.**; Bacchetti, P.**; Chaisson R.***; Drummond J.****; Blattner W.*****; McGrath M.**; Greenspan J.**; Moss A.**. *Univ of Calif, San Diego, **Univ of Calif, San Francisco, ***Johns Hopkins Univ, Baltimore, MD, ****Frederick Cancer Research Facility, Frederick, MD, *****National Cancer Institute, Bethesda, MD, USA.

Objective: To investigate factors that influence the spread of HTLV I / II in intravenous drug users (IVDUs) and homosexual men.

Methods: We performed serologic assays for HTLV I / II in a cross-sectional study of 702 heterosexual IVDUs in San Francisco between 1985 and 1987. All sera were tested by western blot, enzyme linked immunosorbent assay (ELISA) and p24 radioimmunoassay (RIA). We defined a seropositive as being positive in a minimum of 2 out of 3 assays. Seroconversion rate was estimated from 154 IVDU's who had been tested more than once. 349 homosexual, non-intravenous drug using men were also tested for HTLV I / II antibodies.

Results: 165 IVDUs were positive by at least 1 assay for HTLV I / II. 69 were positive by all 3 assays 51 were positive in only 1 assay: 24 by western blot, 13 by ELISA, and 14 by RIA. Duration of IV heroin use was strongly associated with the risk of HTLV I / II seropositivity: 11-20 years odds ratio(OR) = 3.6 (95% CI 1.6, 8.5), 21 plus years OR = 6.1 (95% CI 2.2, 17.5), compared to < 10 years. Additional independent risk factors included black or Hispanic race, female sex, and the use of drugs in a shooting gallery in the past. In 154 IVDUs tested serially, the age-and race-adjusted seroconversion rate was 3.4% (95% CI 1.3, 8.9) per person year. This seroconversion rate is consistent with an observed increase in the cross-sectional seroprevalence over the 3 years of the study. In 1985 the seroprevalence was 8.7% (95% CI 4.7, 12.7); in 1986 13.2% (95% CI 9.5, 16.9), and in 1987 15.0% (95% CI 11.8, 18.2). 0/349 homosexual men were seropositive in 2 out of 3 assays.

Conclusion: While shooting gallery use, recent or past, is an HIV risk factor, only past use is a risk factor for HTLV I / II. Duration of heroin use is not correlated with HIV risk but strongly predicts HTLV I / II infection. Cocaine injection, a more recent drug behavior, is a risk factor for HIV, but not HTLV I / II. These findings are consistent with the hypothesis that HTLV I / II was present earlier in IVDUs although seroconversions are still being observed. None of the 349 homosexual men tested were HTLV I / II seropositive. This finding is consistent with other reports that non-IVDU homosexual populations are not at increased risk for HTLV I / II infection.

F.C.666 HTLV-I/II AND HIV-1 SEROPREVALENCE AND RISK FACTORS IN INTRAVENOUS DRUG USERS (IVDUs) IN A COUNTY IN THE SAN FRANCISCO BAY AREA

Gaudino, James A.*; Livermore, T.*; Cahoon-Young, B.*; Tempelis, C.*; Benjamin, R.*; Chandler, A.*.
*Alameda County Health Care Services Agency, Oakland, California, U.S.A.

Objective. To estimate and confirm the seroprevalence of and the risks for HTLV-I/II infection in IVDUs attending drug treatment centers in Alameda Co. Methods. Under a standard protocol, trained personnel administered questionnaires to and drew blood from consecutively recruited volunteer IVDUs attending four drug treatment centers in Alameda Co. during 3 months in 1988. Three ELISAs and one set of IFAs for HTLV-I/II; and one HIV ELISA were used for HTLV-I/II and HIV antibody screening, respectively. Reactive specimens were further tested with HTLV-I or HIV specific western blots. Specimens with discordant or inconclusive reactivity for HTLV-I/II were further tested by RIPA and a recombinant ELISA for HTLV-I/II env gene (gp46-ELISA). Results. The HTLV-I/II rate was confirmed as 32.6% (N=328) and the HIV rate was 3.4% (N=350) among these IVDUs. Neither rate differed by gender, but HTLV-I/II rates did by race. Race-specific HTLV-I/II rates followed by 95% confidence intervals are: Blacks, 52.8% (41.4-63.9); Whites, 24.7% (18.5-32.1); Hispanics, 31.5% (22.8-41.7); all others, 23.1% (5.0-53.8). HTLV-I/II rates also differed by age with rates of 9.1% (2.5-21.7) for <30 yrs, 30.6% (24.4-37.6) for 30-39 yrs, and 47.0% (37.5-56.7) for >= 40 yrs. More analysis will be done to confirm an earlier, unpublished finding of male to female sexual transmission of HTLV-I/II and to define other risk factors in IVDUs. Conclusion. While IVDU HIV rates remain lower in Alameda Co. than in San Francisco, significant retroviral transmission is continuing to occur in this population. Culturally relevant prevention efforts are, therefore, needed.

F.C.667 SEROEPIDEMIOLOGY OF HTLV-I AND HEPATITIS C AMONG IVDU

Jain Sunita*; Zeldis J*; Flynn N*; Holland P**; Richards C**, Kuramoto K**. *Univ. Calif., Davis, **Sacramento Medical Foundation, Center for Blood Research, Sacramento CA USA.

Objective: To study the seroprevalence of HTLV I and Hepatitis C among IVDU and their sexual partners enrolled in drug treatment programs (DTP). Methods: IVDU enrolled in various DTP in Sacramento were informed about their risks of acquiring HIV, its mode of transmission and methods of prevention. The subjects were tested for HIV-ab. The EIA positives were confirmed by Western blot. The sera were also tested by EIA for HCV-ab using Ortho kit, HTLVI-Ab, HBc-Ab, HBs-Ag and HBs-Ab using Abbott kit. Results: We tested a total of 669 individuals (392 male, 277 female). 584 of these were IVDU and 85 were sexual partners.

		HTLV 1	HCV	HBc	HBsAb	HIV
No. Positive		69 (11%)	425 (72%)	417 (71%)	297 (50%)	8 (1.3%)
Caucasian	426 (73%)	33 (8%)	297 (70%)	297 (70%)	208 (49%)	5 (1.2%)
Black	30 (5%)	9 (30%)	23 (77%)	22 (73%)	12 (40%)	2 (6.6%)
Hispanic	101 (17%)	22 (22%)	94 (93%)	79 (78%)	64 (63%)	1 (1%)
Asian	9 (2%)	0	6 (67%)	7 (78%)	5 (56%)	
Other	17 (3%)	4 (24%)	11 (65%)	10 (59%)	6 (35%)	
		p<.0001	p<.0001	p ns	p ns	p ns

Conclusions: 1. High prevalence of hepatitis C among IVDU, more common in blacks and Hispanics than in whites. 2. Higher rate of HTLV1 than HIV infection among black and Hispanic IVDUs than among whites. The long term consequences of HTLV1 and HCV are not fully known but this population appears to be a significant reservoir of multiple co-infections and can be followed longitudinally for transmission and disease.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.668

SEROPREVALENCE OF HTLVI/II AMONG MALE INTRAVENOUS DRUG USERS (IVDU) IN CHICAGO,AS DETERMINED BY COMBINED WESTERN BLOT (WB) AND RADIO IMMUNO-PRECIPITATION ASSAY (RIPA)

Lentino,Joseph R.*,Pachucki, C.T.*,Schaaff,D.*,Schaefer, M.,*Dorus,W.*, Holzer, T.**, Heynen, C.,**, Dawson, G.,**
Hines VA Hospital,Hines, IL.*, Abbott Laboratories, North Chicago, IL.**

Retroviral infection occurs with increased frequency in IVDU.We recently compared the results of WB to RIPA as the confirmatory tests for repeatedly reactive ELISA for antibody to HTLVI/II among a cohort of 390 male IVDU.
OBJECTIVES:I.To determine the seroprevalence of confirmed HTLVI/II retroviral infection among a cohort of IVDU in the Chicago area.2.To compare standard WB with RIPA as the confirmatory assay for repeatedly reactive ELISA.
METHODS:Serum from 390 IVDU enrolled in a drug treatment center at Hines VA Hospital was obtained after receiving informed consent.All patients were tested by ELISA for antibody to HTLVI/II and those which were repeatedly reactive were then tested by both WB and RIPA(Abbott Laboratories).Recovery of 3 different gene products as determined by either WB and/or RIPA was necessary to confirm a patient as positive.
RESULTS:Of the 390 patients tested,60 were repeatedly positive by ELISA. Of these 56 were indeterminant by WB and 2 were confirmed positive by this method.Forty-six patients were positive for 3 gene products by RIPA while 10 were indeterminate.Overall 58 of 60 ELISA repeatedly reactive sera were confirmed as positive by WB(2),RIPA(46),or the combination of WB and RIPA (10).
CONCLUSIONS:With the criteria of recovery of 3 gene products as confirmatory for HTLVI/II,WB lacks sensitivity. RIPA was more likely to confirm positive patients. Ten patients required both WB and RIPA. Overall, the prevalence of HTLVI/II infection in our cohort was 14.87%. We suggest that RIPA be utilized for those patients with indeterminant WB results.

F.C.669

EPIDEMIOLOGY OF HUMAN T-CELL LYMPHOTROPIC VIRUS TYPES I AND II (HTLV-I AND II) IN A GROUP OF INTRAVENOUS DRUG ABUSERS (IVDA).

Wiktor Stefan*, Weiss SH**, Shaw GM***, Alexander SA****, Shorty VJ*****, Blattner WA*. *NCI,Bethesda MD; **UMDNJ/NJMS Newark, NJ; ***U of Alabama, Birmingham, AL; ****Biotech Co. Rockville, MD; *****Desire Clinic New Orleans, LA

Objective: To study the prevalence of and risk factors for HTLV-I and II and to compare the sensitivity of two HTLV-I screening tests in a group of IVDAs.
Methods: In 1985, serum samples and questionaires were collected from 146 black and 78 white/other IVDAs attending two New Orleans methadone clinics. In 1989 samples were tested by two HTLV-I EIAs: a whole virus (WV) and a recombinant envelope (RE) and confirmed by Western blot (WB). Lymphocyte samples from 55 seropositve blacks obtained in 1986 were characterized by polymerase chain reaction (PCR) using common and type-specific primers for HTLV-I and HTLV-II.
Results: 99/146 (68%) of the blacks and 11/73 (16%) of the whites were HTLV positive. 79/110 (72%) confirmed seropositive samples were negative by WV. Three IVDAs seroreverted between 1985 and 86. PCR showed that 45/55 (82%) seropositive IVDAs were HTLV-II, 9 (16%) were HTLV-I, 1 was negative. PCR-confirmed HTLV-II infections could be distinguished from HTLV-I based on stronger p24 than p19 band reactivity on WB. HTLV-II infected IVDAs were more likely than seronegatives to have shared needles in the past 5 years (p=0.05), but otherwise did not differ in drug use, sexual or medical histories, or hematologic parameters.
Conclusion: HTLV-II is the predominant virus among HTLV seropositive New Orleans IVDAs, and can be distinguished from HTLV-I serologically. Certain HTLV-I tests have poor sensitivity for detecting HTLV-II, indicating that current screening of blood donors may not be adequate to prevent transufsion transmission of HTLV-II.

F.C.670

HTLV I and HTLV II Infection in HIV Infected Patients: Report of 45 Coinfected patients.

Kaplan, Mark*; W.H. Hall; H.C. Hsieh; M. Coronesi; C.R Liu. North Shore University Hospital/Cornell University Medical College Manhasset, N.Y., USA.

Objective: To study the effect of dual retroviral infection in patients with HIV Infection.
Antibody to HTLV I/II was found in 45/669 HIV positive patients (4/244 homosexual, 38/269 IVDU's, 3/75 heterosexual, and 0/81 other). Virus isolations were made in 23 patients and were found to be predominantly HTLV II (19 HTLV II and 4 HTLV I). Using Western blotting with HTLV I and HTLV II and gene amplification with specific probes to HTLVI and II, 40 patients were HTLV II, 4 HTLV I infected and 1 an uncertain retrovirus. IVDU's were uniformly infected with HTLV II especially those patients over the age 40 (45.9%). Two IVDU's infected their sexual partners with HTLV II as well as HIV and one homosexual had HTLV II infection. No children contracted HTLV II from their mothers. Unique disease patterns appeared in HTLV II infected patients: ichthyosis of the skin (4), CD-8 T cell infiltration of the skin (2), more Staphylococcal bacteremia, greater incidence of Kaposi's sarcoma and acute lymphoblastic leukemia. HTLV I occurred exclusively in homosexuals and was associated with CD8 T cell leukemia, and tropical spastic paraparesis.
Conclusion: HTLV II epidemic is occurring in HIV infected addicts over the age of 40. HTLV II can be sexually transmitted. Unique illnesses attributable to HTLV II are appearing.

F.C.671

HIV AND HTLV-I/II INFECTION AMONG OPIATE ADDICTS IN AND OUT OF METHADONE TREATMENT IN PHILADELPHIA

Metzger, D.* **; Abrutyn, Elias* ***; Stolley, P.**; and Woody, G.* **. VA Hospital*, Univ. of Pennsylvania** and Medical College of Pennsylvania***, Phila., PA, USA

OBJECTIVE: To compare HIV and HTLV I/II infection rates and risk factors for infection among intravenous opiate addicts in-treatment (InRx) and out-of-treatment (OutRx) in urban Philadelphia.
METHODS: Blood was obtained randomly from 148 and 375 persons enrolled in a methadone program and 78 opiate addicts not in treatment for 1 or more years.
RESULTS: InRx patients averaged 39 years of age; 72% were male; and 32% were white. They were InRx a mean of 36 months--36% shared needles within the last 6 months and only 17% used condoms regularly. Compared to InRx, OutRx patients were more often male, black, and shared needles (76%) more commonly ($p<0.001$). Whereas 13/148 (9%) InRx addicts were positive for HIV, 12/78 (15%) OutRx were positive, $p>0.05$. For HTLV I/II, 33 (22%) InRx and 21 (27%) OutRx addicts tested positive, $p>0.05$. Overall, infection with HTLV I/II was more common than HIV ($p<0.001$), however, statistically significant difference was found for those InRx ($p<0.01$) but not for those OutRx ($p>0.05$). 3 InRx and 5 OutRx addicts were positive for both viruses, $p<0.05$.
CONCLUSIONS: In addition to HIV, HTLV-I/II is circulating at considerable frequency among intravenous opiate addicts in and out-of-treatment in Philadelphia, and dual infection occurs. Screening programs for retroviruses in addicts should consider monitoring HTLV I/II infection as well as HIV.

F.C.672 PREVALENCE OF HTLV-I in JAPANESE AND IN OTHER RISK GROUPS IN ARGENTINA

Bouzas, Maria Belen*; Muchinik, G.*; Campestri, R.*; Maeda, H ** ; Hanson, C.***; Gallo, D.***
*Instituto de Investigaciones Hematologicas, Academia Nacional de Medicina; ** Centro Nikai, Buenos Aires, Argentina; ***Viral and Rickettsial Disease Laboratory, California Dept. of Health Services, Berkeley, CA, U.S.A.

Objective: To estimate HTLV-I infection prevalence in immigrant and first generation Japanese living in Argentina, in mothers at risk for HIV-I infection ,intravenous drug users (IVDU), and their newborns, and in lymphoma patients.
Methods: Serum samples from 135 Japanese (Jp), 34 mothers (25 HIV antibody (ab) positive (pos) and their infants, and 25 lymphoma patients were tested for HTLV-I ab. by ELISA (Abbott Laboratories), particle agglutination assay (Fujirebio Inc.) and immunofluorescence. Reactive samples were confirmed by Western Blot and by a radioimmunoprecipitation assay.
Results: Two of 135 Jp. sera were confirmed pos. for HTLV-I ab.; One of the patients was born in Okinawa and was diagnosed HTLV-I associated myelopathy; The other patient was born in Argentina. 1 of the 34 mothers was pos. for HTLV-I ab. and also for HIV ab.; HTLV-I ab. was not detected in any of the sera from the infants or the lymphoma patients.
Conclusion: HTLV-I infection prevalence in Jp. living in Argentina seems to be low, although it is unknown how many of those tested were from (or had parents from) HTLV-I endemic areas in Japan. HTLV-I ab. was found in an HIV-1 infected mother, which fact correlates with previous findings of HTLV-1 ab in HIV-1 pos. IVDU. HTLV-I contribution to disease in HIV-1 infected mothers, and its transmission and contribution to disease in children remains to be determined. More studies on HTLV-I seroprevalence and consequences on these populations in Argentina are in progress.

F.C.674 PREVALENCE OF HTLV ANTIBODIES IN BLOOD DONORS IN CONTINENTAL FRANCE

COSTE, Joliette*; LEMAIRE, J.M.*; COUROUCE, A.M.**; and the Retrovirus Study Group of the French National Society of Transfusion.
*Centre Régional de Transfusion Sanguine - 34010 Montpellier, France,
**Institut National de Transfusion Sanguine - 75015 Paris, France.

Objective : To establish the prevalence of HTLV antibodies in a population of unselected blood donors of Continental France.
Methods : Serum samples from blood donors (n = 45033) were screened by 12 Blood Centers located in different parts of France. Screening was realized with 4 ELISA (Abbott-Du Pont de Nemours-Organon-Pharmacia) and 1 agglutination test (Fujirebio). Confirmation of the repeatably reactive samples was realized by Western-Blot and 35S-RIPA.
Results :

Number Studied	Ethnic Origine	HTLV Positive	Prevalence %
44615	White	3	0.007
418	Black/Asiatic	2	0.48
(325)	. Black from endemic zones	(2)	(0.61)
(93)	. Black/Asiatic from non endemic zones	(0)	(0)
45033		5	0.011

Conclusion : The prevalence in Continental France (0.011 %) is one of the highest known in Europe. The Ministry of Health recommends to test all the donors of endemic zones or to use only their plasma for fractionation : these preventive measures seem incomplete, since 3/5 donors are white french subjects.

F.C.673 HTLV INFECTION IN GUAYMI INDIANS FROM CHANGUINOLA, PANAMA

Kaplan, Jonathan E.*; Gracia, F.**; Castillo, L.**; Cutler, J.R.*; Hartley, T.M.*; Levine, P.H.***; Lairmore, M.D.*; Reeves, W.C.* *Centers for Disease Control, Atlanta, Georgia, USA; ** Gorgas Memorial Laboratory, Panama; *** National Cancer Institute, Bethesda, Maryland, USA.

Objective: To characterize the epidemiologic and laboratory features of HTLV infection in Guaymi Indians, in whom previous surveys had suggested an HTLV seroprevalence of 9%, we performed a serosurvey of Guaymi residing on banana plantations in Changuinola, Panama in April 1988.
Methods: We determined the sample size needed to confirm a seroprevalence rate of 9% ±5% and selected the required number of houses randomly. Age and sex were recorded, and family relationships were ascertained. Blood samples were obtained; HTLV serology was performed by ELISA, western blot (WB), and radioimmunoprecipitation. Peripheral blood mononuclear cells (PBMC's) were obtained from 3 seropositive adult women in April 1989.
Results: Of 317 Guaymi subjects one year of age or older, 25 (8%) were seropositive for HTLV; of 153 ≥15 years of age, 24 (16%) were seropositive. Unlike studies in HTLV-I-endemic areas, seropositivity rates were higher in males (10%) than in females (6%), clustering of seropositivity in households and family units was not observed, and HTLV-I-associated disease was not identified. In HTLV-seropositive persons, gp68 (env) reactivity on WB was weak when compared with HTLV-I-seropositive controls. Polymerase chain reaction studies of PBML's from the 3 seropositive subjects revealed that all were infected with HTLV-II, not HTLV-I.
Conclusion: Seroreactivity in the Guaymi may be caused by HTLV-II, a virus closely related to HTLV-I, rarely reported outside the U.S., and rarely found in non-drug abusing populations.

Modelling and Research Methods: Projections and Forecasts

F.C.675 TEN YEAR PROJECTIONS OF HIV MORBIDITY, MORTALITY, AND COSTS IN A MILITARY ASSOCIATED POPULATION IN THE U.S.

Brundage, J.F.; Miller, Richard N.; McNeil J.G., Tramont, E. C.
Walter Reed Army Institute of Research, Washington, DC, USA.

Objective: To project the number of HIV infected individuals, the distribution of disease by clinical stage, the number of deaths, and associated costs, in a defined population.

Methods: The US military services have conducted HIV-Ab screening programs among its members since 1985. All individuals diagnosed as HIV infected have been routinely periodically evaluated to assess the stage of HIV disease (including T4 cells). Data from these programs permit empirical, population-based projections of infection prevalence, infection incidence, changes of incidence over time, distribution of disease (by clinical stage and by T4 cells), rates of disease progression, and associated costs in a simple model developed on a commercially available spreadsheet.

Results: Assuming steady state values of parameters that characterize epidemic dynamics and disease progression, the number of patients increases over the next 10 years, the spectrum of disease remains relatively stable (~20% < 200 T4 cells, ~60% < 500 T4 cells), and annual costs exceed $90 million. If no new infections were to occur in the population, direct medical costs to care for currently infected patients would exceed $50 million annually. Short term benefits are greatest when progression is slowed in the early stages, and long term benefits are greatest when new infections are prevented.

Conclusions: The epidemic of HIV disease will make significant demands on the health care system of the US Army over the next ten years. Successes in infection prevention now will affect health care demands over the long term. Changes in therapy (stages at which applied, efficacies, and costs) are the most significant determinants of resource demands in the near term. Projections such as these can help planners, policymakers, and care providers to budget and allocate scarce resources.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.676 HIV/AIDS INCIDENCE IN CALIFORNIA: BACK CALCULATION ESTIMATES AND PROJECTIONS BY REGION AND RISK GROUP

Hay, Joel*; Osmond, Dennis**.

*Hoover Institution, Stanford University, Stanford, California, USA, **University of California, San Francisco, California, USA.

Objective: Back calculation statistical techniques are used to estimate the time pattern of HIV infection in each of six major regions and seven adult/adolescent HIV transmission risk groups in the state of California through 1988. The results are used to develop AIDS incidence projections through 1992 by region and risk group.
Methods: Using regression with linear inequality restrictions, AIDS incidence is fitted to progression to AIDS among HIV seropositives to estimate the time pattern of HIV infections using several alternative estimates of the HIV incubation distribution. This methodology is applied to 1979-1989 California AIDS incidence data, aggregated by region and risk group. Statistical specification tests (i.e., parameter restrictions and heteroskedasticity adjustments) are performed. Adjustments for therapeutic intervention, case reporting delays and underreporting are made. Bootstrap techniques are used to establish confidence bounds on model estimates and projections.
Results: A median estimate of 82,900 cumulative HIV infections occurred in California (98% CI: 71,000 - 155,500) prior to 1989, with 80% or more of these infections occurring in 1983 or earlier. HIV incidence began relatively earlier in Los Angeles and San Francisco metropolitan areas with a major peaking in 1981-1982. The other metro/rural regions of California had their major waves of infection 12 to 24 months later. California annual AIDS incidence is projected to increase gradually from 5,750 in 1988 to 7,425 in 1992 (98% CI: 6,227 - 10,218).

Modelling and Research Methods: Model Sensitivity

F.C.678 HIV EPIDEMIOLOGY AND SEXUAL MIXING PATTERNS IN INTRAVENOUS DRUG USING COMMUNITIES

Blower, Sally*;Dowlatabadi,H.**;May,R***;Anderson,R****

*HIV Center for Clinical & Behavioural Studies & GH Sergievsky Center,Columbia University,New York,USA & Imperial College of Science,Technology & Medicine,London,UK **Rockefeller Foundation, New York,USA ***Oxford University,Oxford,UK ****Imperial College of Science,Technology & Medicine,London,UK.

OBJECTIVE: A data-based mathematical model of HIV transmission in intravenous drug users (IVDUs) and their heterosexual non-IVDUing sex partners has previously been developed. The model includes three transmission routes: infection through either needle-sharing, heterosexual or perinatal transmission. The epidemiological effects of parameter uncertainity in determining the future number of AIDS cases in New York City has previously been explored. The objective of this study was to investigate the HIV epidemiological effects of sexual partner choice (sexual mixing patterns) in the two interacting communities of IVDUs and their non-IVDUing sex partners.
METHODS: The subgroups within the model are linked by either needle-sharing and/or sexual partnerships. The model contains gender-specific mixing matrices; these matrices serve to allocate sexual partnerships. Each subgroup in the model may choose their sex partners from a different subgroup of the opposite sex. Since seroprevalence may differ considerably among the subgroups, sexual partner choice influences an individuals risk of acquiring HIV. A mixing continuum exists bounded by positive and negative assortative mixing. The epidemiological effects of model structure uncertainity was investigated by varying the mixing matices along the entire continuum of possibile mixing matrix space. The results were quantified by utilizing a sensitivity analysis technique specifically designed for this model.
RESULTS: The results of this study quantify the effect of model structure uncertainity on our ability to predict the future number of AIDS cases in New York City. The sexual mixing patterns determine which subgroups are infected, the seroprevalence level within specific subgroups and the transmission speed of the virus both within and among subgroups.
CONCLUSION: The results of this study can be used to focus data collection efforts. The results are also useful for developing targeted and effective behavioural intervention strategies.

F.C.677 SHIFTING AIDS BURDEN FROM LOS ANGELES AND SAN FRANCISCO TO OTHER CALIFORNIA COUNTIES: REGIONAL PROJECTIONS

Singleton, James A. and Capell F.J.
California Department of Health Services, Sacramento, CA USA

Objective: To describe patterns of projected AIDS incidence and of previous incidence of HIV infection in county regions of California (CA).
Methods: Back-calculation estimates of cumulative numbers of HIV infections in three regions of CA through June 1989 were obtained by unconditional maximum likelihood methods using the EM algorithm. HIV infection density was parameterized as a step function with future infections held constant at the last estimated rate. Quarterly AIDS incidence was adjusted for reporting delay. The incubation distribution estimated from San Francisco (SF) gays was used. Results were adjusted upwards assuming a 15% underreporting rate.
Results: By 1993, the projected cumulative number of AIDS cases is 16,080 (95% C.I. 15,200-18,300) in SF, 22,530 (95% C.I. 20,830-25,610) in Los Angeles (LA), and 28,260 (95% C.I. 21,840-51,311) in the rest of CA. The cumulative number of HIV infections through June 1989 was estimated at 26,940 (95% C.I. 24,260-34,940) in SF, 41,040 (95% C.I. 35,350-52,360) in LA, and 61,470 (95% C.I. 39,470-151,940) in the rest of CA. Of all cases diagnosed before 1990, 28% were from SF, 36% from LA, and 36% from the rest of CA. Of cases to be diagnosed from 1990 to 1993, 20% are projected to be from SF, 32% from LA, and 48% from the rest of CA. AIDS incidence in SF was estimated to peak at 136 cases/month by mid-1989 and then slowly decline through 1993, while in LA incidence is projected to peak at 200 cases/month by mid-1990. AIDS incidence in the rest of CA is projected to rise through 1993, reaching 336 cases/month at the end of 1993.
Conclusion: The apparent leveling of AIDS incidence in San Francisco and Los Angeles will be offset by increases in other California counties.

Modelling and Research Methods: Data Analysis Issues

F.C.679 CLANDESTINE COHORTS: ISSUES FOR DATA ANALYSIS

Segal, M.; Hauck, Walter; Neuhaus, J.; Gee, L.
University of California, San Francisco, CA USA

Objective: Appraise impact of and corrections for unknown degrees of overlap (a clandestine cohort) that occur in longitudinal studies of drug users. Such uncertainty arises because of difficulties in obtaining or relying on subject identifier information for such clandestine populations.
Methods: Approaches to such data are: 1) identify as many repeat and nonrepeat subjects as possible given the limitations of the study and its population; 2) consider whether inferences based on a naive, pooled analysis would be unchanged if a worst-case scenario is in effect; and 3) use some matching scheme to putatively identify replicates based on covariates and then analyze as a cohort study, possibly using outcomes in the matching as well to minimize or maximize effects.
Results: As a test dataset, we analyze the AIDS Behavioral Research Cohort that contains known subject identifiers. Discarding identifiers gives results from a clandestine cohort that can be compared to those obtained from a proper analysis using identifiers. The standard errors of 7 variables as predictors of any unprotected receptive anal intercourse in the previous month are too low by factors of 1.2-1.6 if the 5 waves are pooled, exemplifying the potential consequences of clandestine cohorts. For this analysis, the 3 significant predictors are so significant that no clandestine cohort effect, here at worst a factor of 2.3, could reverse that conclusion.
Conclusion: The presence of clandestine cohorts can result in seriously deflated standard errors in analyses that do not accommodate potential replication. Statistical techniques for both determining the extent of this deflation and, if necessary, correcting for it are illustrated.

F.C.680 SHARED NEEDLE USE AND HEALTH BELIEFS CONCERNING AIDS: REGRESSION MODELING OF ZERO-HEAVY COUNT DATA

Heilbron, David C.; Gibson, D.R.
University of California, San Francisco, California, USA

Objective: We compare some standard and newer approaches to regression analysis of count data with high proportions of zeros, on a previously analyzed set of risk behavior data.
Methods: D.R. Gibson et al obtained cross-sectional data from 226 heroin detoxification clients on reported counts of needle use within the preceding month and scales assessing health beliefs concerning AIDS. In analyzing data on shared needle use having a high proportion of zero counts (68%), they chose to develop a linear logistic model for the probability of any shared use. We have analyzed the counts of shared needle use, employing a simplified set of predictors from the logistic model including a scale assessing self-efficacy in reducing risk of AIDS. As a high proportion of zeros in combination with large counts (>50 in 5%) is inconsistent with standard regression models for count data (log-linear Poisson and negative binomial (NB) models were used for reference), we examined "zero-altered" and "two-part" generalizations of those models. The structure and interpretation of these recently proposed types of models will be presented.
Results: The following table summarizes a lack-of-fit statistic, -2 log likelihood, for each of these models, followed in parentheses by the number of parameters in the model.

Reference distribution:	Poisson	NB
Standard log-linear model	8067.6(4)	861.3(5)
Zero-altered model	4724.1(5)	846.4(6)
Two-part model (two equations)	4678.1(8)	812.9(9)

The NB models strongly reject their Poisson counterparts from consideration. Nominally significant improvements in fit (P<.001) are achieved by the more complex models.
Conclusions: Standard models may be inappropriate for risk behavior counts with high proportions of zeros. More complex models that deal explicitly with "extra zeros" may be more informative than models for an artificially dichotomized response.

F.C.681 NEW STATISTICS FOR AIDS RISK FACTOR ASSESSMENT THAT OVERCOME DISTORTIONS IN RISK RATIOS AND REGRESSION PARAMETERS.

Koopman J*; Jacquez J*; Simon C*; Longini I#; Martin W*; Haber M#; *University of Michigan & MABRC, #Emory University

Objectives: 1) Demonstrate how non-random contact patterns distort traditional risk factor assessment procedures such that assessments at one point in time cannot be expected to hold at other times and such that the relative importance of risk factors and even the order of their importance will be misjudged. 2) Illustrate how these distortions can be overcome through the development of procedures to assess contact patterns and to integrate these contact pattern assessments as well as transmission dynamic theory into the estimation of transmission probabilities. 3) Outline the new types of information that need to be collected in epidemiologic studies so that these improved risk assessment procedures can be used to analyse the data.
Methods: Simulation models are used to demonstrate how the combination of contact probabilities and transmission probabilities into one parameter creates the above distortions. Then both direct models of contact structure and indirect models based on "structured" and "selective" mixing assumptions are developed so that contact probabilities can be separated out. Three approaches are developed to use these contact models in the estimation of risk factor specific and stage of infection specific transmission probabilities: 1) weighted least squares regression on aggregate data, 2) maximum likelihood estimation on individual risk data, and 3) hybrid models. These methods are to be applied to the Chicago MACS and Coping and Change Study data to estimate transmission probabilities from oral and from anal sex.
Results: The aggregate data method will have generated transmission probability estimates by conference time and the importance of using the individual probability method as well as gathering additional data will have been assessed with simulations.
Conclusions: To have predictive value, risk factor assessment needs to take contact patterns into account. Epidemiologic studies that seek to assess the role of risk factors need to insure that they collect data on contact patterns that can be integrated into the analysis of their data.

F.C.682 THE EFFECT OF ERRORS IN MEASUREMENT OF IMMUNOLOGIC MARKERS ON ESTIMATES OF RELATIVE RISK WHEN MODELLING PROGRESSION TO AIDS

Raboud,Janet*; Farewell, V.T.**; Reid, N.*; Coates, R.A.*.
* University of Toronto, Toronto, Ontario, Canada,
** University of Waterloo, Waterloo, Ontario, Canada.

Objective: To investigate the magnitude of random variation in immunologic markers measured in prospective HIV studies and evaluate the effect of this variation on estimates of relative risk from the proportional hazards (PH) model.
Methods: If a linear representation for the true value of the marker is appropriate in the PH model, then it can be shown that a quadratic representation should approximate the dependence of the relative risk on the observed value. A likelihood ratio test was used to test the hypothesis that the significance of a quadratic term is due to errors in measurement.
Results: The within-individual variation of immunologic markers was measured in the 90 seronegative members of the Toronto Sexual Contact Study. Various immunologic markers were examined and alternative quadratic models were fit. The likelihood ratio test results were consistent with the hypothesis of errors in measurement. Some estimates were quite different in the quadratic model than in the linear model. For example, the relative risk associated with a decrease of 1 in the T4/T8 ratio was 8.5 in the linear model and 10.5 or 21.1 in the quadratic model according to whether the error in the observed measurement was estimated to be .2 or .3.
Conclusion: Estimates of relative risk may be biased if variability in covariates is ignored. The results of the likelihood ratio test are useful in determining if the errors in measurement account for the significance of the quadratic term.

Modelling and Research Methods: Data Collection Issues

F.C.683 COMPARISON OF HIV SEROPREVALENCE METHODOLOGIES IN A HIGH PREVALENCE POPULATION: BLINDED AND NON-BLINDED SURVEYS IN AN SEXUALLY TRANSMITTED DISEASE CLINIC

Bolan, Gail*; Kellogg, T.A.*; Geoghegan, C.*; Back, A.*; Lemp, G.F.*; Wilson, M.J.**; Rutherford, G.W.*
*San Francisco Department of Public Health, San Francisco, **California Department of Health Services, Sacramento, California, U.S.A.

Objective. To estimate and compare the HIV seroprevalence among clients attending a sexually transmitted disease (STD) clinic using both blinded and non-blinded survey methodologies.
Methods. Blinded and non-blinded surveys were initiated in 1989 at a municipal STD clinic in San Francisco. These surveys were conducted using research protocols developed by the Centers for Disease Control. A total of 2,277 consecutive, non-duplicated clients were blindly tested for HIV. During the same survey period, a random sample of 777 clients were recruited for participation into a non-blinded survey, of whom 515 (66.3%) were enrolled.
Results. Of the 2,277 blinded specimens, 345 (15.2%) were confirmed positive for HIV. A total of 507 of the non-blinded participants were tested for HIV, of whom 50 (9.9%) were confirmed positive. In the non-blinded survey, females were more likely to participate than males (73.7% vs. 63.9%, p<.05). Participation rates did not differ significantly by race/ethnic group or age-group. Seroprevalence rates in the blinded and non-blinded surveys differed significantly for homosexual/bisexual men (50.7% vs. 36.0%, p<.05), especially White homosexual/bisexual men over 40 years of age.
Conclusions. The non-blinded survey underestimated the prevalence of HIV in this STD population by 35%. The blinded survey provided a better point estimate of HIV seroprevalence.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.684

ASSOCIATION OF HUMAN IMMUNODEFICIENCY VIRUS SEROSTATUS WITH CONFIDENTIAL AND UNLINKED ANTIBODY TESTING IN AN STD CLINIC

Cabral-Evins, Daramola N.*; Stone, Susan**; Anderson, Laura**; Gaudino, James*. *Alameda County Health Care Services Agency, Oakland, California, USA and **City of Berkeley, Department of Health and Human Services, Berkeley, California, USA.

Objective: To ascertain if there is a significant difference in the seroprevalence rates between STD patients who decline and consent to confidential HIV testing.
Methods: At intake into the STD clinic all patients are asked to complete a risk assessment questionnaire. The purpose of the questionnaire is two fold: 1) to provide some basic STD/HIV prevention education and 2) to ascertain the HIV risk taking behavior of STD patients. Patients are asked in the questionnaire if they wish to know if they are positive or negative for the AIDS virus HIV. Those indicating a desire to know their HIV serostatus receive a confidential HIV test, including pre-test counseling. The specimens of patients declining to know their HIV serostatus is tested blindly for HIV according to standardized Seroprevalence Survey protocols.
Results: Between September, 1988 and March, 1989, 1008 specimens were tested for evidence of antibody to HIV. 81% of the seropositive specimens were from patients who declined confidential HIV testing. Of all HIV tests performed, 63% were blinded and those declining confidential HIV testing were 2.5 times more likely to be seropositive relative to those consenting to confidential testing (p=.03). Males made up 77% of the patient population and were 6.3 times more likely to be seropositive (p=.007). There were no race specific differences in those accepting and declining HIV testing.
Conclusion: These data support the hypothesis that among STD patients their is an association between declining HIV testing and being HIV seropositive.

F.C.686

SOCIAL NETWORK CHARACTERISTICS OF IV DRUG USERS: IMPLICATIONS FOR ETHNIC/NEIGHBORHOOD STUDIES OF HIV TRANSMISSION

Altmann, Michael*; Peterson D.; Willard K+**; Needle R.**University of Minnesota, Mpls, MN, + VA Medical Center, Mpls, MN, USA

Recent population simulation studies suggest that a key to understanding the significant variability in HIV prevalence across differing ethnic and geographic groups of IV drug users(IVDUs) is knowledge of the structure and dynamics of the drug-using contact network. This network is defined by the web of individuals (nodes) linked by shared injection paraphernalia. We have identified through simulation studies several network measures important in ordering the rates of HIV transmission through otherwise comparable IV drug using communities. This work is performed in the context of the observational requirements imposed through a design derived from snowball sampling/contract tracing methodology.

These network measures are 1) the informational centrality measure of Stephenson and Zelen, which measures the average risk in each node in a network; 2) the average new member fan-out, a measure of the multiple pathways in a network; 3) the distribution of clique size, which measures the distribution of the size of IVDU sharing groups; and 4) the correlation in contact number between adjacent nodes in the observed chain of IVDUs, which measures the degree of segregation of similarly behaving individuals.

We have studied the robustness of these network measures by simulating the effects of partial noncompliance and nonlocatability of subjects when observing the structure of the contact network. We have found surprising robustness for these measures with regard to the degree of compliance of the respondents. These results offer support for including relevant social network characteristics in studies seeking to understand the marked differences in HIV prevalence in differing ethnic/geographic communities.

Supported in part by NIH grants P41-RR01632, and R18-DA05763, and the Department of Veterans Affairs.

F.C.685

THE UNSEEN SAMPLE IN AIDS COHORT STUDIES.

Hoover,Donald; Munoz A, Carey V, Taylor J, Chmiel J, Odaka N, Vermund S, Armstrong J; for the Multicenter AIDS Cohort Study (MACS), Bethesda, MD, USA

Objective: Recruiting AIDS-free seropositives into cohort studies selectively excludes individuals with short incubation times. This excluded group is the unseen sample and may be different from the seen sample in other ways besides time of disease development. It is important to estimate the size of this group to determine the potential biasing impact of its exclusion on the study.
Methods: The unknown number (T) of willing participants excluded from MACS by developing AIDS before the entry date is estimated using data from 1905 seropositive men in the original MACS cohort. This is done using nonparametric maximum likelihood estimates of the AIDS incubation time distribution and imputation based estimates of time from seroconversion (SC) to study entry date (SED) based on markers of disease progression.
Results: T is estimated to be 89.5 making the ratio T/N=0.047. Breaking T and N down by predicted AIDS incubation time gives:

Aids Incubation Time by Semester

	1-2	3	4	5	6	7	8	9	10	>11	Total
Excluded from cohort	5.7	9.2	13.5	14.8	13.5	12.0	8.4	6.2	3.8	2.4	T= 89.5
Included in cohort	8.0	16.3	29.4	41.7	50.9	62.8	64.5	71.1	72.0	1488.4	N= 1905

Conclusions: The fraction of individuals excluded from the MACS cohort is small. However, an estimated 34%=(100 x 28.4/82.1) of those developing AIDS less than 2 years after seroconversion are excluded. This MACS cohort was obtained early in the AIDS epidemic when potential recruits were very likely to have short times from SC to SED and thus not be truncated by developing AIDS. Future AIDS-free cohorts will be obtained from potential recruits with longer times from SC to SED and thus be more strongly affected by truncation bias.

F.C.687

UNUSUAL STUDY OF HOMELESS IV DRUG USERS COMBINES QUALITATIVE AND QUANTITATIVE METHODS

Strug, David*; Lidz, V.**; Baxter, R***; Musikoff, H***; Iguchi, M**. *SUNY Health Science Center, Brooklyn, NY, USA; **UMDNJ, Camden, NJ, USA; ***New Jersey Department of Health, Trenton, NJ, USA.

Objective: To compare qualitative and quantitative methods for investigating drug use and needle sharing among a unique study population - 30 homeless IV drug users living as a community on a city lot.

Methods: Qualitative methods involved participant observation and the use of semi-structured questionnaires. Indigenous workers recruited these same subjects for the AIA (AIDS Initial Assessment) storefront interview, used nationally. Subjects' self-report responses to AIA structured questions were compared with observational field data.

Results: AIA and field generated data showed high concordance regarding individual drug use behaviors. The AIA yielded no data on high risk behaviors resulting from IVDUs social interaction in a group.

Conclusion: A primary value of qualitative research is its ability to observe and analyze high risk behaviors embedded in multifaceted social interactions of IVDUs with one another, a behavioral research topic neglected by the AIA.

F.C.688 WHAT IS A SEXUAL ENCOUNTER?

Hunt Andrew J*; Coxon, APM**; Davies, PM*, McManus, TJ***, Weatherburn, P****. Project SIGMA
*South Bank Polytechnic, London, UK, **University of Essex, UK, ***King's College Hospital, London, UK, ****University College of Wales, Cardiff, UK

Objective: Central to any study of sexual behaviour is the notion of a sexual encounter and the linked notion of a sexual partner. In epidemiological studies the terms are rarely defined, on the assumption that the categories are robust and well understood. Implicit in this assumption is the idea that there is only one way of having sex, namely vaginal (or anal) penetration. This paper examines what a cohort of gay and bisexual men mean by these terms.
Methods: 930 gay and bisexual men were interviewed in the UK having been recruited to Project SIGMA, an epidemiological study of HIV infection in a non-clinical based cohort. Each respondent was asked 'What must have happened sexually for someone to count as a sexual partner?' All respondents answered this question and results were analysed using content analysis.
Results: The responses fall into two distinct groups: either physical (pertaining to some form of physical contact) or affective (referring to contexts or to emotional states). About 25% fall into this latter group and the rest into the physical group. Specifically, anal intercourse was mentioned by just 5.3% of respondents. For 10% a hierarchy of acts was defined. Orgasm was specifically noted by 25.9%. There were no differences due to age or type of gay relationship.
Conclusion: Sex is not a uniform experience. Sexual studies and health education must acknowledge and reflect this to be affective.

F.C.689 RAPID ASSESSMENT OF SEXUALLY TRANSMITTED DISEASES (STD) IN DEVELOPING COUNTRIES

NDoye, Ibra*; Mboup, S.*; Moran, J.**; Van Dyck, E.***; Nkowane, B.****; Heymann, D.****; De Schryver, A.*****; Meheus, A.*****
*STD and AIDS Control Program, Senegal, **Centers for Disease Control, Atlanta, USA, ***Institute of Tropical Medicine, Antwerp, Belgium, **** Global Programme on AIDS and *****Programme of Sexually Transmitted Diseases, World Health Organization, Geneva, Switzerland.

Background: The potential for sexual transmission of HIV in a community can be estimated from the frequency of other STD. Prevalence data are the most suitable for rapid assessment of the magnitude of the STD problem.
Objective: To develop and validate standardized STD prevalence indicators and a rapid STD prevalence study methodology in selected populations.
Methods: To measure STD prevalence using a clinical case definition and/or simple laboratory tests and to determine sensitivity and specificity of this "rapid" indicator using more extensive and accurate tests as a standard.
Results: STD prevalence was assessed in 498 men considered at risk of STD in a West African country. The mean age was 27 years, with 33% of them married. Sexual activity was reported by 41% the week prior to examination and by 69% the month prior. On history, 6% had some symptoms of urethritis and 3% said they had a genital ulcer. On examination, 4.2% had urethral discharge, and 0.2% had ulcers. From the urethra, chlamydia antigen was detected in 3%, gonorrhoea in 0.6% and trichomonads in 0.4%. Syphilis was diagnosed in 2.4%. Signs and symptoms were not predictive of true STD prevalence.
Conclusion: Rapid assessment of STD prevalence based on signs and symptoms is not valid in this male population with low STD prevalence. Further investigations are needed in groups with higher prevalence rates.

F.C.690 DO CURRENT MORTALITY STATISTICS PROVIDE A VALID ESTIMATE OF AIDS INCIDENCE?

Tasco, Carolina; Chierchini, P.; Orchi, N.; Arcà, M.; Perucci, C.A.; Abeni, D. - Regional Epidemiology Unit, Rome, Italy.

OBJECTIVE: To evaluate the validity, with regard to the AIDS deaths occurred in Latium Italy, of the current mortality statistics (CMS) in view of their possible, future use as a proxi measure of the incidence of AIDS.
METHODS: The AIDS mortality data, collected on a mandatory base by the Regional AIDS Surveillance System (RASS) since 1985, were chosen as gold standard: sensitivity and specificity of the cause-specific CMS data (codes 279.0 - 279.9 of ICD-IX) were estimated. Temporarily, the analysis was restricted to deaths occurred in Rome, from 1985 to 1987, between ages 15-54 (approx. 2,800 total deaths per year). In the final version the 1988 data will also be analyzed.
RESULTS: A total of 74 AIDS deaths were recorded by RASS between 1985 and 1987: of these, 53 were coded as AIDS by CMS, for 19 were used codes other than 279, 2 were missing from the CMS files. CMS coded as AIDS 21 deaths in people who had not been notified as AIDS cases. Sensitivity of CMS rose from 50.0% in 1985 to 71.4% in 1986 and to 75.6% in 1987, while specificity decreased from 99.9% in 1985 to 99.5 in 1987.
CONCLUSION: Our preliminary results show a temporal trend for the validity parameters of CMS, with a sharp increase of sensitivity and a decrease of specificity. Possible incompleteness of RASS data will be more thoroughly studied. Time-specific validity estimates are always needed in view of a possible use of CMS to monitor the AIDS epidemic.

F.C.691 PRIMARY REASONS FOR NONRESPONSE IN THE DALLAS COUNTY HOUSEHOLD HIV SURVEY

Ezzati, Trena*; Visscher, W.**Masse, J.*McQuillan, G.*
*National Center for Health Statistics, Hyattsville, MD., USA
**Research Triangle Institute, Research Triangle Park, NC., USA

Objective: To determine characteristics of nonrespondents and primary reasons for nonresponse in the Dallas County Household HIV Survey.
Methods: A sample of adults 18-54 years were randomly selected in Dallas County, TX. to participate in a Pretest for the National Household Seroprevalence Survey (NHSS) by providing an anonymous blood sample and completing a self-administered risk questionnaire. A special followup quality assessment survey (QAS) was conducted with a sample of nonrespondents. Reasons for refusal were recorded by interviewers.
Results: Of persons identified as eligible for the regular survey, approximately 20% refused to participate. Preliminary data show that males 45-54 years old and married persons were least likely to participate. The primary reasons for refusal were not interested (52%), fear of giving blood (15%), and purpose of the survey (12%). Participation in the QAS was most likely among persons who initially refused due to fear of giving blood (81%) since providing a blood sample in the QAS could be declined, while less than 50% of those who initially expressed concerns about anonymity/confidentiality participated in the QAS.
Conclusions: Information on reasons for nonresponse is one of the quality assessment methods that can be used to help evaluate potential nonresponse bias in the data from the NHSS.

TRACK C: EPIDEMIOLOGY & PREVENTION

POSTER SESSION

Modelling and Research Methods: Progressional Models

F.C.692 NONPARAMETRIC ESTIMATION OF THE AIDS INCUBATION PERIOD FROM A PREVALENT COHORT WITH UNKNOWN INFECTION TIMES

Bacchetti, Peter, Jewell NP. University of California, San Francisco and Berkeley.

Objective: To obtain unbiased nonparametric estimates of the distribution of times from seroconversion to AIDS diagnosis using data from gay men who were already HIV seropositive at recruitment.

Methods: We use interval-censored seroconversion data from the Hepatitis B Vaccine Trial to estimate a prior distribution for the unknown seroconversion times of seroprevalent subjects in the San Francisco General Hospital (SFGH) Cohort and the SF Men's Health Study (SFMHS) Cohort. We use AIDS followup data through 1987 for both prevalent and seroconverting subjects to calculate a likelihood that reflects the censoring and truncation in the cohorts. To obtain plausibly smooth estimates, we subtract a roughness penalty from the raw log-likelihood and maximize the resulting function using an EM algorithm. Confidence bounds are estimated from 200 bootstrap samples.

Results:

Cohort	N	N w/ AIDS	Cumulative Proportion (95% Confidence Interval) Developing AIDS by 2 years	4 years	6 years	8 years
SFGH	301	66	.03 (.004, .05)	.12 (.06, .17)	.26 (.19, .31)	.39 (.32, .48)
SFMHS	424	78	.04 (.013, .09)	.13 (.07, .19)	.25 (.18, .31)	.38 (.30, .46)
Both	725	144	.03 (.014, .06)	.13 (.08, .17)	.25 (.21, .29)	.38 (.32, .42)

Conclusion: The method allows seroprevalent subjects to contribute to estimates of the incubation distribution as long as the distribution of their unknown seroconversion times can be estimated. Because there is good information on the distribution of seroconversion times of gay men in San Francisco, the estimates given here should be fairly accurate, and they are similar to other published estimates. The method could also be used with each subject having a different prior serconversion distribution estimated from baseline marker values. This would mitigate onset confounding in evaluation of potential cofactors.

F.C.694 PARAMETRIC MODELING OF THE HAZARD FUNCTION OF TIME TO AIDS IN SEROPOSITIVE HOMOSEXUAL MEN

Wright Paul; Muñoz A; Hoover D; Taylor J; Chmiel J; Zhou S; Graham N; Van Raden M; for the Multicenter AIDS Cohort Study (MACS), Bethesda, MD, USA.

Objective. To compare parametric models for the hazard of AIDS at different times after HIV-1 seroconversion in a cohort not receiving effective preventive therapies.
Methods. Using follow up times on subjects not receiving effective therapy (i.e., zidovudine and aerosol pentamidine), we compared the fit of three different parametrizations of the cumulative hazard (H) of AIDS: a Weibull model with $H(t)=(e^{-\beta}t)^{1/\sigma}$; a lognormal model with $H(t)=-\log[1-\Phi((\log t-\beta)/\sigma)]$ where Φ is the standard normal distribution; and an extended logistic model with $H(t)=e^{\gamma}\int_0^t(e^{\beta u}-1)du/(e^{\beta u}+e^{\alpha})$. Models were fit separately for seroconverters and the combination of seroconverters and seroprevalent participants after imputing the unknown time since seroconversion in the latter group based on hematologic markers at entry. Maximum likelihood methods incorporating truncation were used.
Results. Using semesters (i.e., 6 months) as the time scale, the table below provides the parameter estimates and -2 log likelihood as a goodness of fit measure for different models and data sets.

Seroconverters (N=269, AIDS=28)

	Weibull	Lognormal	Extended logistic
Estimates	β=2.96 σ=0.47	β=3.05 σ=0.92	α=2.90 β=0.90 γ=-3.35
-2 log lik	265.10	263.66	264.24

Seroconverters and seroprevalent (N=1905, AIDS=305)

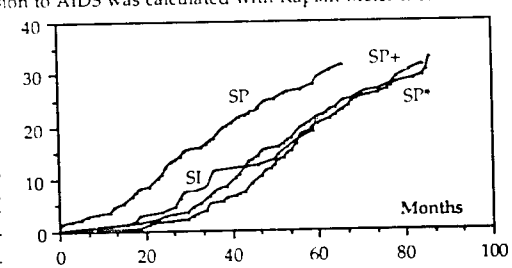
	Weibull	Lognormal	Extended logistic
Estimates	β=3.01 σ=0.49	β=2.90 σ=0.76	α=3.42 β=0.74 γ=-3.02
-2 log lik	2632.52	2616.50	2618.24

Conclusions. The models provide similar results up to approximately 4 years after which the lognormal and the extended logistic suggest that the hazard levels off between 7 and 9% per year. Using the full data, a better fit of the lognormal and extended logistic was supported by a higher -2 log likelihood for the Weibull in 98 of 100 imputations performed. Estimates of the incidence of AIDS based on times since seroconversion are useful for predicting sizes of seropositive populations and for an adequate evaluation of treatment effects.

F.C.693 IMPUTED AND CRUDE ESTIMATES OF LEAD TIME INFECTION IN A SEROPREVALENT COHORT OF HOMOSEXUAL MEN

Craib, Kevin JP*, Schechter MT*; Le TN*; Montaner JSG*; Sestak P*, Douglas B*; Weaver MS*; McLeod WA*; O'Shaughnessy M**.
*The Vancouver Lymphadenopathy-AIDS Study, University of British Columbia and St. Paul's Hospital, Vancouver, Canada; **Federal Centre for AIDS, Ottawa, Canada.

Objective: To determine the rate of progression to AIDS using imputed and crude estimates of lead time infection in a cohort of seroprevalent homosexual men.
Methods: We divided our cohort into 233 seropositives at entry (SP) and 119 who seroconverted under observation (SI). Lead time HIV infection was imputed for SP using a model based on serial IgG, IgA and CD4 counts obtained from SI: Imputed lead time (ILT) = exp (2.242 + 0.00097*IgA - 0.00037*CD4 + 0.00041*IgG). Progression to AIDS was calculated with Kaplan-Meier methods.
Results: The estimated mean ILT was 18.5 months (S.D. = 7.6, range = 8-80). AIDS progression curves are shown SP* (using ILT), SP+ (using 18 mos), SP (unadjusted), and for SI. Estimated progression at 7 years in SP* and SP+ were 29.5% and 31.3% respectively. Kaplan-Meier curves were similar for SP*, SP+, and SI. Use of imputed lead time in SP* allowed an estimate of 44.1% for cumulative progression at 101 months.



Conclusion: Most cohort studies involve large numbers of seroprevalent individuals. Use of seroprevalent cohorts yield biased progression rates. We have used a very simple model which has allowed our seroprevalent cohort to be incorporated into estimations of disease progression.

F.C.695 SIMULATION MODEL OF THE NATURAL HISTORY OF CD4 T-CELL NUMBERS IN HIV-INFECTED INDIVIDUALS

Taylor, Jeremy M.G.*; Tan, S-J.*; Detels, R.*
*UCLA School of Public Health and Medicine.

Objective: Develop a computer simulation model of the typical pattern of CD4 T-cell number changes in HIV-infected AIDS-free subjects.
Methods: Data from a cohort study (MACS) of 1637 gay men recruited in 1984/85 in Los Angeles and followed at 6 monthly intervals is analyzed. The real data is compared to the simulated data to estimate the parameters in the model.
Results: The model incorporates the following features: (i) within-person and between-person variability in CD4 measurements, (ii) Most subjects show declining trends in CD4 values, but the rates of decline differ greatly and can be very slow. (iii) variation in the CD4 values at which clinical AIDS is diagnosed, (iv) Subjects with higher CD4 values show more variability in their measurements than subjects with lower CD4 values. The model assumes there is a true underlying, time varying immunologic state and that CD4 values are measurements of this state plus some random fluctuation. The true state declines at a constant rate for one-year time periods. The rate of decline in each year interval differs between individuals; it is a random rate drawn from an exponential distribution whose mean depends on the current true state. In addition, AIDS is diagnosed when the true state first falls below a critical level. This model gives a good description of the real data. Applications of the model are to clinical trials; to assess the effects of entry or drop-out criteria, which depend on CD4 values, or to evaluate the sample size necessary for a trial. A further application is to assess the current and future spectrum of immunologic disease in the U.S. as measured by the CD4 values.
Conclusion: A computer simulation model of typical CD4 measurements is a flexible tool to assist in issues related to CD4 values in the AIDS and HIV epidemic.

Estimates of Prevalence

F.C.696 BACK-PROJECTION OF THE HIV EPIDEMIC FROM AIDS INCIDENCE: A MODIFIED APPROACH, THE INCLUSION OF COMPETING RISKS, AND IMPLICATIONS FOR THE HIV-TO-AIDS INCUBATION FUNCTION

Hamill, David N.*; Cooley, P. C.*; Liner, E. C.*; Reade-Christopher, S. J.*; van der Horst, C. M.**
*Research Triangle Institute, RTP, NC, USA, **UNC, Chapel Hill, NC, USA.

Objective: To present a modified approach to back-projection of the HIV epidemic, and to consider the implications of the result for IVDU infections and the HIV-to-AIDS incubation function.
Methods: Back-projection techniques have typically modeled the HIV epidemic as a step function which is highly sensitive to the intervals chosen. We use a more flexible shape, modeling the epidemic as a series of connected line segments. The break-points, and the slopes of segments are determined by a nonlinear fitting program that reproduces AIDS incidence. Back-projection requires an assumed incubation function, e.g., Bacchetti and Moss (1989). By accounting for competing risks in the incubation function, we estimate HIV incidence including infectives that are expected to die from non-HIV related causes.
Results: The back-projected HIV epidemic we estimate includes fewer recent infections than suggested by direct studies of new infections. The inclusion of competing mortality risks increases the estimate of total infections, especially among intravenous drug users (IVDUs).
Conclusion: The back-projection approach we present is flexible, allowing HIV epidemics that do not fit a step function. The under-projection of recent cases will result whenever an HIV-to-AIDS incubation function is too slow for some, or all, risk groups. We conclude that the Bacchetti and Moss (1989) incubation function under estimates the rates of progression to AIDS for IVDUs and possibly for other groups.

F.C.697 BACK-CALCULATION OF HIV INFECTION DISTRIBUTIONS: CONVOLUTION OF WEIBULL AND LOG-LOGISTIC

Byers, R.H., Jr.*; Hessol, N.A.**
*Centers for Disease Control, Atlanta, Georgia, USA; **Department of Public Health, San Francisco, California, USA

Objectives: To estimate by back-calculation the distribution of HIV infection necessary to generate an observed distribution of AIDS incidence and to investigate one such model and apply it to incidence from the San Francisco City Clinic (SFCC) cohort and the United States to demonstrate the problems with this estimation.
Methods: The model chosen is a convolution of a Weibull distribution for incubation and a log-logistic distribution for infection. Previously the log-logistic demonstration has well described the spread of infection in the SFCC cohort which gives us a means of comparing the results with collateral information.
Results: The back-calculation procedure estimated that 4472 of the 6706 men in the cohort were infected with HIV by December 1988. The asymptotic standard error (ASE) of this estimate is 264, 8.8% lower than the 4867 (±107 ASE) estimated previously by using serial blood tests. Although the cumulative incidence estimates are fairly similar, the log-logistic densities are quite different. For the same time, the U.S. cumulative incidence of HIV was estimated as 840,494 (±19,977 ASE). When the first 6 months of 1989 were added to the model, the estimate for number of HIV infections by June 1989 dropped to 782,812 (±15,039).
Conclusions: This formulation of the convolution model seems unsatisfactory because it was unable to reconstruct a known infection distribution (SFCC) and estimated a lower cumulative U.S. HIV incidence at a later date. Further investigation is needed.

F.C.698 ESTIMATION OF INFECTION/ONSET PATTERN OF SA-AIDS BASED ON PAST PATTERNS OF TA-AIDS

Holmes, William*; Greatbatch, Wilson**
*State University College, ** University of Buffalo, Buffalo NY

OBJECTIVE: An abstract presented by us at last year's conference in Montreal suggested an 18 year mean incubation time for transfusion-acquired AIDS (TA-AIDS). Our objective here is to apply the same Weibull distribution to establish an infection/onset pattern for sexually-acquired AIDS (SA-AIDS), where date of infection is, at best, uncertain. We test the assumption that both groups follow the same pattern.
METHOD: In our previous study of TA-AIDS we found a best fit to a Weibull distribution with a shape factor of B=2.2, and a mean incubation time of 18 years.

$$f(x)=1-\exp^{-(x^{2.2})/754.5}$$

SA-AIDS totals, as reported to CDC, were distributed vertically in the same proportion as the TA-AIDS cohorts in our previous study, and horizontally by the above Weibull distribution, into a "Rees Plot" matrix of year-of-onset (1981-1989) vs year-of-infection (1970-1989). The matrix was then projected thru to 2000AD.
RESULTS: The resulting matrix of expected onsets, when summed vertically, gave totals which matched CDC actual reported totals from 1984 thru 1989 within ±10%. This would suggest that our assumption of similarity of incubation pattern between TA-AIDS and SA-AIDS is valid.
CONCLUSIONS: Our analysis suggests that 1.45 million Americans were infected thru 1987; that HIV infections rose from about 1000/yr. in 1976 to a peak of nearly 500,000/yr. in 1984, and then fell precipitously to under 70,000/yr. in 1987. This suggests that educational efforts in 1982 to 1984 may have been far more effective than generally realized. Our analysis suggests that onsets from persons infected thru 1987 will continue to rise until 1998.

F.C.699 BACK-CALCULATION AS A TOOL TO ESTIMATE THE PREVALENCE OF HIV INFECTION IN FRANCE

Rude, Nathalie; Costagliola, D; Valleron, A-J.
INSERM U 263, Université Paris 7, Paris, France

Objective: To study the potential of the back-calculation method in estimating the HIV prevalence in France by risk group and globally.

Methods: We used a deconvolution technique to back-calculate the prevalence of HIV infection over time globally and in homosexuals, heterosexuals, IV drug users and transfusion recipients in France, using the notified AIDS cases diagnosed by 1 January, 1989 and assuming a Weibull incubation time with a mean of 9 years.

Results: The method is sensitive to the number of cases diagnosed in the most recent periods, enhancing the role played by the technique and the hypotheses used to correct for the delay of report. Recent infections (occurring in 1987 and 1988) are estimated with a very low precision. There is a good agreement between the global prevalence estimate and the sum of the estimates of the different risk groups and the form of previous HIV infection rate by risk group is a the line with independent epidemiological knowledge.

Conclusion: Detailed sensitivity analyses are a definite pre-requisite for publishing seroprevalence estimates derived from the back-calculation method due to the media impact of such figures.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.700 THE REST OF THE ICEBERG: THE ASSOCIATION BETWEEN RECENT AIDS CASES AND THE PREVALENCE OF HIV INFECTION AT U.S. SENTINEL HOSPITALS

St. Louis, M.*; Karon, J.*; Dondero, T.*; the Sentinel Hospital Group.
*Centers for Disease Control, Atlanta, Georgia, USA

Objective: To evaluate the association between recently diagnosed AIDS cases and the underlying rate of HIV infection in defined U.S. populations.
Methods: At each of 37 hospitals throughout the U.S., the rate of new AIDS cases was defined as cases newly diagnosed at that hospital and reported to CDC in 1988-89 divided by total admissions. HIV-1 seroprevalence in the population was determined by anonymous testing in patients treated for conditions unrelated to HIV. Using hospitals as the unit of analysis, logistic regression was used to model the association between AIDS cases and the prevalence of HIV infection.
Results: The rate of newly diagnosed AIDS cases at the 37 hospitals ranged from 0.1-11.1/1000 admissions (median 1.7/1000). HIV seroprevalence in patients admitted for conditions unrelated to HIV infection ranged from 0.1-7.5 (median 0.7). Seroprevalence was highly correlated with the AIDS rate ($p<0.001$). Factors also significantly associated with a higher overall seroprevalence in the hospital patient population included the proportion of AIDS cases associated with intravenous drug use, the proportion of AIDS cases among women, and the rate of subsidized care (Medicaid plus no insurance) among all patients at the hospital.
Conclusion: The epidemiologic patterns of HIV infection are associated with both the rate and characteristics of newly diagnosed AIDS cases. Analysis of AIDS cases and hospital characteristics may lead to an empirical basis for estimating HIV seroprevalence in a hospital population and may contribute to better informed decision-making about appropriate uses of HIV testing in hospitals.

F.C.701 DEVELOPMENT OF STANDARD PARAMETERS TO COMPARE MODELS OF AIDS EPIDEMIC AND ITS DEMOGRAPHIC IMPACT IN PATTERN II COUNTRIES

Palloni, Alberto*;Morrison,F.**;Heligman,L.***;Chin, J.****
*University of Wisconsin, Madison, Wisconsin, USA, **El Carrito, California, USA, ***Population Division, United Nations, New York, USA, ****Global Programme on AIDS, WHO, Geneva, Switzerland.

Objective: To develop standard demographic, epidemiological and behavioural input parameters and to use them to compare models of of the AIDS epidemic and its demographic impact in Pattern II countries.
Method: Models of the AIDS epidemic and its impact were reviewed and a list of required parameters prepared. Based on literature reviews, a consistent set of behavioural variables (risk group sizes and interactions, sexual partner relations, etc.), epidemiological variables (transmission probabilities, incubation periods, survival rates, etc.), and demographic variables (population by age, sex and residence, condom use, fertility and mortality, etc.) were developed. Selected modellers participated in a workshop to test and compare models using these standard parameters.
Results: Development of standard values is difficult due to model specificity of inputs and lack of data. Even using standard input parameters, different models indicated different potential demographic impact. Although this is due to many factors, different assumptions concerning the way members of risk groups mix sexually appear to play a dominant role.
Conclusions: The developed standard parameters provide an essential point of comparison for modelling efforts and should be used, inter alia, by researchers undertaking modelling exercises. More extensive data on the processes underlying the epidemic, especially those related to sexual behaviours, are crucial for understanding the potential demographic impact and the interventions that will affect the epidemic's size and characteristics.

F.C.702 ESTIMATING PEDIATRIC AIDS AND INFANT MORTALITY IN PATTERN II AREAS.

v.Sonnenburg, Falkner*, Rehle, T.**
* University of Munich, FRG, ** Gesellschaft fuer Technische Zusammenarbeit (GTZ)

Objective. To present a method by which to estimate the number of pediatric AIDS cases and the change of infant mortality due to the HIV epidemic in pattern II areas.

Methods. The number of deliveries of HIV infected mothers was back-calculated from sentinel surveys of pregnant mothers, population size, crude birth rate, growth rate and urbanization rate; current knowledge and assumptions of transmission rate, progression rate and excess infant mortality due to HIV infection of the mother were used. The method was applied to some regions in East-Africa where appropriate data sets were available.

Results. A computer spreadsheet illustrates how the number of pediatric AIDS cases and the change of the infant mortality can be back-calculated from the reported variables. The application of the method to existing data sets in East-Africa shows that pediatric cases contribute considerably to the total AIDS case load though only few cases of pediatric AIDS are reported. The infant mortality rises moderately due to the high baseline value. However, as the HIV epidemic turns towards rural areas, a considerable increase of the infant mortality can be expected.

Conclusion. The method provides estimates of pediatric AIDS cases using sentinel survey data and census data. This is especially beneficial in settings where the AIDS surveillance system is not well developed.

F.C.703 MODELS OF AIDS VACCINES

Struchiner, Claudio*; Halloran, M.E.**
*Oswaldo Cruz Foundation, Rio de Janeiro, Brazil. **Emory University, Atlanta, Georgia USA.

Objective: To delineate the potential epidemiological outcomes of current strategies for the development of AIDS vaccines which allow immunization to disturb the natural course of HIV at different detailed stages of its life cycle.
Methods: Mathematical models describing the main biological phenomena (i.e. incremental changes in immune response as infection progresses; antibody-dependent enhancement and cytotoxicity; induction of suppressive factors, etc.) as well as representing a diversity of vaccine action serve as a background for computer simulations.
Results: The mathematical models reproduce updated information on the behavior of immune cells (CD4+ helper cells, suppressor cells), antibody concentration and free viruses. Results simulated at the cell level are used to construct rates of transition among accepted epidemiologic compartments (susceptibles, infected, infective ARC and AIDS). These rates form the basis of a broader discussion about vaccination strategies involving different risk groups and demographic segments of a generic population.
Conclusion: Future vaccination strategies ought to consider the baseline level of transmission, the epidemiological role of each specific risk group, and the modes of action of the various AIDS vaccines.

F.C.704 The spread of AIDS in Pattern II and Pattern III countries

Stanley, E Ann[1], Seitz, S T[2], Way, P O[3], Curry, T F[4], Johnson, P D[3]
[1]Los Alamos National Lab, NM, [2] University of Illinois, Champaign, IL, [3]Center for International Research, Washington DC, [4]US Air Force Academy, Colorado Springs, CO USA

Objectives To compare the transmission dynamics for and impact of HIV in Pattern II and III countries.
Methods We have developed a comprehensive model of the transmission dynamics of HIV for the US State Department Interagency Working Group. Our age-structured, two region, deterministic model includes demographic processes, transmission of HIV by all major modes of spread, a "generic" cocirculating sexual transmitted disease, and condom use. We account for pair formation and variations in risk. We apply the model to illustrative pattern II and III countries, and compare their patterns of disease spread. We examine the importance of different processes to the spread of the epidemic.
Results The model is sensitive to assumptions about the transmission probability and sexual contact rates among the young, high risk population. A "worst case" scenario quickly saturates the population, infecting all those older than 25, and creating negative population growth. Under a "best case" scenario the epidemic cannot be sustained. For mid-range scenarios, it takes several decades before AIDS has a significant effect on population growth rates, but death rates quickly increase, especially among infants, children under 5, and adults over 40, gradually changing the age-structure of the population. Sex in marriage is a significant risk for women: a younger age of marriage increases the numbers infected. In Pattern III countries, we see the epidemic move from homosexual and IV drug populations into the rest of the population. Effects of condom programs are noticeable only over 10-15 year intervals: preliminary studies suggest that condom usage has to be very large to significantly slow the epidemic, while small increases in the incubation period without decreases in infection rates can dramatically increase spread.
Conclusions Our model provides new and detailed insights into the epidemic and allows different social histories to be easily compared.

Determinants of Risk Behavior: Heterosexuals and Bisexual Men

F.C.706 5-YEAR TRENDS IN SEXUAL BEHAVIORS AMONG SAN FRANCISCO GAY AND BISEXUAL MEN.

Hughes, Gail*; Henne, J.C.**; Lemp, G.F.*; Payne, S.F.*; Frutchey, C.D.***; Bye, L.L.**. *San Francisco Department of Public Health; **Communication Technologies; ***San Francisco AIDS Foundation.

Objective. To describe trends in risk behaviors in a series of cross-sectional surveys of gay and bisexual men in San Francisco.
Methods. We randomly sampled and interviewed by telephone 401 self-identifying gay and bisexual male residents living in San Francisco in 1989. Thirty-minute telephone interviews were conducted, utilizing random-digit dial sample methodology. Results from 1989 were compared to results from surveys using similar methodologies in 1984 (n=500) and 1987 (n=300).
Results. The mean number of sexual contacts during the 30 days prior to the survey among men in both primary (1°) and casual (2°) relationships for the survey years 1984 through 1989 follows:

	1984		1987		1989	
Behavior	1°	2°	1°	2°	1°	2°
Anal sex, without condom; with semen	4.0	1.1	1.4	0.1	1.0	0.1
Anal sex, without condom; no semen	1.3	0.7	0.5	0.2	0.6	0.3
Anal sex, with condom	0.8	0.6	1.5	1.2	2.0	1.4
Oral-anal contact	2.0	0.9	0.4	0.3	1.4	0.7
Oral sex, with semen	3.9	1.6	0.8	0.5	2.2	0.5
Oral sex, no semen	4.9	2.8	3.8	2.7	5.6	3.2

Conclusion. There has been a significant ($p<.01$) decline in unprotected anal intercourse within both primary and casual relationships between 1984 and 1989, and a concurrent increase ($p<.01$) in protected anal intercourse. We observed an early decline in oral sex, followed by an increase ($p<.05$); this may be due in part to the perceived low risk of salivary transmission.

Modelling and Research Methods: Infectivity

F.C.705 STATISTICAL METHODS FOR ESTIMATION OF HIV INFECTIVITY FOR PARTNER STUDY DATA.

Stephen Shiboski, N. Jewell. University of California, Berkeley.

Objective: To develop parametric and nonparametric statistical methods for analysis of data on HIV transmission in partners of infected individuals. Emphasis is placed on estimation and inference regarding the infectivity or per contact transmission probability.
Methods: Data from studies of partners of infected index cases often include time of exposure in addition to the number or rate of contacts in the partnership. Nonparametric estimates of the change in infectivity over time since index infection are developed for such data. Generalized linear models which allow inclusion of explanatory covariates are also introduced. Effects of partnership heterogeneity and measurement error on the estimates are addressed.
Results: The methods are applied to data on 210 female partners of male index cases from the California Partners Study. Infectivity estimates rise in the first 2 years after index infection, and remain relatively stable thereafter. Diagnostics indicate substantial heterogeneity and/or measurement error may be present in the data leading to bias in the magnitude of the estimates
Conclusions: Results provide limited support for the hypothesis that HIV infectivity varies with time following index infection for the California Partners Study data. Both heterogeneity and measurement error can bias the scale of infectivity estimates, and failure to control for these can produce misleading results. Accurate estimates of the infectivity will require extensive data on exposure history in partnerships.

F.C.707 BISEXUAL MEN IN SAN FRANCISCO: ARE THEY A VECTOR OF HIV DISEASE TO HETEROSEXUALS?: THE SAN FRANCISCO MEN'S HEALTH STUDY

Ekstrand,Maria L.*,***; Coates, T.J.*, Cheng, Y.T.**, Hulley, S.B.*
* UCSF Center for AIDS Prevention Studies , San Francisco; ** UCB Survey Research Center, Berkeley, *** Scholar, American Foundation for AIDS Research, CA, USA

Objectives. 1. To examine, among bisexual men, the prevalence of unprotected sex with men and women. 2. To study psychosocial characteristics of risk takers.
Methods. We interviewed 140 self-identified bisexual men from a probability sample of single men in San Francisco, examining sexual behaviors with both men and women during five 12-month periods from July,1984 to June, 1989.

Results.

	1984-5		1988-9	
BEHAVIOR (all Ss)	ab.pos.	ab.neg.	ab.pos.	ab.neg.
	(n=69)	(n=71)	(n=57)	(n=62)
Had sex with men	93%	83%	72%	64%
Unprotected anal sex (men)	89%	65%	24%	18%
Had sex with women	23%	37%	6%	26%
Unprotected vaginal sex	16%	29%	2%	22%
Unprotected anal sex (women)	2%	4%	0	4%

Discriminant analyses show that those who practiced unprotected anal or vaginal sex in 1989 drank more alcohol, had less confidence in their ability to practice safe sex and prevent HIV transmission, and were less likely to know their antibody status.
Conclusion. Although bisexual men report having unprotected sex with women, nearly all of these men are antibody negative. Future research needs to examine whether this holds true for less openly bisexual men as well. Prevention campaigns for this population need to address belief systems and the connection between alcohol use and risky sex.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.708 SOCIAL SETTINGS AND AIDS-RISK SEXUAL BEHAVIOR AMONG INNER-CITY MINORITY HOMOSEXUAL MEN.

Jimenez, D.,* McKirnan, D.J.*, & LaBoy, Felicity*
*Midwest AIDS Biobehavioral Research Center and The University of Illinois at Chicago, Chicago, Il., USA.

Objective: Few data are available regarding AIDS-risk behavior among minority homosexual men. We used ethnographic and structured interviews to assess levels AIDS knowledge and risk behavior, and the role of high risk behavioral settings Hispanic and Black homosexual men in Chicago.
Method: Using an outreach interview approach developed for studies of IV drug users, we conducted ethnographic interviews among self-identified homosexual and bisexual inner-city minorities. Interviews were designed to assist psychosocial measurement development, and to assess the role of behavioral settings.
Results: Whereas in the white gay community settings for high risk or anonymous sex such as bar "back rooms," baths, or public parks have significantly decreased in use, there appears to have been far less such change in minority communities. Key informants and preliminary structured interview data suggest that many social settings for minority gay communities have not participated in the "safer sex" cultural shift found in white gay communities, and may even have "pro-risk" social norms. The socio-economic and cultural distance from the white gay community is a strong predictor of continued high risk behavior.
Conclusion: Homophobia and the lack of a visible "gay community" in minority areas may contribute to the continued importance of high risk social settings such as bars as meeting places for minority gays. We discuss the role of such settings in outreach preventive intervention design.

F.C.709 HOMOSEXUALITY AS A RISK FACTOR FOR HIV INFECTION IN ZAIRE

Bomboko Bombelenga*, Bertrand W.E.**, Moore Melinda***, Kashala T.D.*.
* Ecole de Santé Publique (University of Kinshasa) Zaire;
** Tulane University USA; *** Center for Disease Control USA.

Objective : The purpose of the study was to determine if homosexuality can be considered as a Risk factor for HIV infection in Zaire.
Methods : From a list of 10 293 registered students of the academic year 1988-89 of the University of Kinshasa, 2000 students selected randomly received a self-administered questionnaire.
Results : The average age was 23 years old, (ranging from 17 to 33 years) of the 1483 respondant. Eighty percent were male and 20 % female. Overall we had 7 % of reported sexual contact with a person of the same gender (at least once) but 5 % of male homosexuality. The age of homosexuality ranging from 5 to 22 years of age, 3[illegible] % did it before the age of 10, 25 % between the age of 10 to 15, 14 % between the age of 16 to 20, and 14 % after the age of 20. Students who had their first sexual contact earlier have more tendancy than other students to have had sexe of homosexual contact (16 % vs. 5%, p < 0.005). Less than 1 % stated that they will do it again. The main reason for not engaging and not wanting to engage again in this activity, was religion. Among the seropositive, none of them had sexe with a person of the same gender.
Conclusion : Although this study show that the homosexuality exists in Zaire, it cannot be considered as a risk factor for HIV infection. It seems to be a sexual practice done very early in once life. Further researches should investigate the cultural meaning of the age distribution of homosexuality.

F.C.710 PILOT STUDY OF PSYCHOLOGICAL SYMPTOMATOLOGY IN A BIRACIAL COHORT OF HIV-SEROPOSITIVE INNER-CITY GAY MEN

Fisher, E.*; Ostrow, D.**; Frasier, K.*; Whitaker, R.**
MABRC & *Dept. Infectious Diseases, Henry Ford Hospital, Detroit, MI, USA; **University of Michigan, Ann Arbor, MI, USA.

Objective: To describe and discuss a pilot study of a biracial, inner-city cohort of gay men, that aims to examine and develop instrumentation for the assessment of psychological symptomatology and psychosocial resources appropriate to the creation of primary and secondary psychological and behavioral interventions.
Methods: A pilot cohort of 20 Black and 20 White seropositive (non-AIDS) gay men from Detroit attending a major inner-city infectious disease clinic were given a physical examination and interviews to assess social resources and coping strategies, specific stressors and vulnerabilities (e.g. specific sexual and drug use behavior patterns): they also completed a modified Diagnostic Interview Schedule and a neuropsychological battery.
Results: Preliminary analyses reveal significant racial differences in tensions reduction expectancies and sexual disinhibition associated with the use of alcohol and marijuana, as well as with the actual degree of such usage. Tendencies towards racial differences were also noted in the reporting of primary partners (i.e., lovers) versus steady sex partners, as well as with the use of drugs in the sexual setting. Self-reported depressive symptomatology was similar in both groups.
Conclusions: While the data in this pilot study are preliminary, the experience gathered so far points up important issues regarding racial differences in psychosocial functioning and their relevance to culturally and behaviorally appropriate interventions in such populations. There is a need for further assessment of such differences in order for greater understanding and effective interventions in racially diverse HIV-infected populations.

F.C.711 MARGINAL MEN, MAINSTREAM RISK

Beeker, C.; Rose, D. Thomas; Ames. L.
AIDS Institute, New York State Department of Health, Albany, New York USA

Objectives: to assess the need, in a low-incidence area for AIDS, for targeted intervention with MSMs (men who have sex with other men but do not gay-identify).
Methods: Using CID (Community Identification*), a structured protocol for conducting ethnographic research with hard-to-reach populations, we developed a taxonomy of MSMs and collected information on population size, composition, geography, and sexual patterning.
Results: We documented considerable MSM activity at specific parks, public bathrooms, bars, and peepshows. Such locations are used as settings for multiple-partner and/or high-risk sex, or as points of purchase for later sexual encounters. Participants vary widely in age, are primarily closeted, heterosexually-identified men who use such settings for recreational sex, social contact with like-minded men, or monetary gain. Sites tend to be ethnically segregated.
Conclusions: Despite substantial behavior change report for urban gay men, HIV may continue to be transmitted through homosexual activity among men who do not identify as gay or bisexual. Marginal to gay-related conduits of information and support, such men may either fail to recognize their risk or be unable to maintain safer sex practices. We are currently designing site-specific interventions tailored to the special needs of each group.

* LTG Associates, with Center for Prevention Services, Centers for Disease Control

F.C.712

HETEROSEXUAL BEHAVIOUR IN A COHORT OF HOMOSEXUALLY ACTIVE MEN IN ENGLAND AND WALES

Davies, PM*; Coxon, APM**; Hunt, AJ*; McManus, TJ***; Weatherburn, P****. Project SIGMA,
*South Bank Polytechnic, London, UK, **University of Essex, UK, ***King's College Hospital, London, UK, ****University College of Wales, Cardiff, UK

Objective: To describe the heterosexual behaviour of a predominantly homosexaully active cohort and to assess their risk behaviour.
Methods: 930 homosexually active men were recruited to Project SIGMA, a study of homosexual behaviour and sero-prevalence of HIV. Respondents were also asked about their sexual behaviour with women.
Results: 61.6% reported women sexual partners in their lifetime, 52.5% reported vaginal penetration and 10.7% anal intercourse. In the year before interview 109 (11.7%) reported partners. Of these, 86 had also had male partners and 59 of these were penetrative. Men having sex with women and men were significantly younger than those exclusively homosexual ($p<0.05$). In the month before the interview 5.4% reported sex with a woman, 90% of whom reported vaginal penetration and 3 (0.3%), anal penetration. Although vaginal intercourse predominates in sex with women, masturbation, fellatio and conninglingus also feature in the repertoire. Condom use in vaginal intercourse is less common than by the same men in anal penetration with men. 80% of those with women partners in the past month report that they never used a condom compared with 50% for anal intercourse with men.
Conclusions: A significant proportion of homosexually active men also report heterosexual behaviour and the great bulk of this is vaginal penetrative sex. Thus there is a significant cross over in terms of risk. Condom use is less common in penetrative sex with women.

F.C.713

POPULATION PREVALENCE AND DEMOGRAPHIC DISTRIBUTIONS OF MALE SAME GENDER SEXUAL CONTACT IN THE U.S., THE U.K. AND FRANCE

Sell, Randall*; Wells J*; Valleron A**; Will A*; Cohen M**
*Project HOPE, Washington, D.C., U.S., ** Universite Paris, Paris, France.

OBJECTIVE: To determine: 1) the prevalence of same gender sexual contact, 2) the demographic distribution of such behavior and 3) cross-national comparisons of prevalence and demographic distributions.
METHODS: A survey of nationally representative samples in the U.S. (N=2263), the U.K. (N=2204) and France (N=2294) used a self-administered questionnaire to collect information on same gender sexual contact.
RESULTS: Weighted prevalence estimates by country for males are as follows:

	ATTRACTION TO SAME GENDER (AGE 15+)	EVER (AGE 15+) SAME GENDER SEXUAL CONTACT	PREVIOUS 5 YEARS SAME GENDER SEXUAL CONTACT	PREVIOUS 1 YEAR SAME GENDER SEXUAL CONTACT
U.S.	18.1	11.6	4.7	2.7
U.K.	14.8	7.8	3.6	2.3
France	11.8	7.7	7.2	2.5

In the U.S./U.K./France, among males reporting same gender sexual contact in the previous 5 years, 43/41/23% report anal sex with a man, 56/39/31% report providing oral sex to a man, 71/54/77% report sex with women, and 21/8/33% report anal sex with a woman. Demographic distributions and additional sexual practices and cross-national comparisons also will be presented.
CONCLUSIONS: Male same gender sexual contact has played an important role in the spread of HIV. This survey is the first ever to obtain international prevalence estimates detailing specific sexual behaviors. Results will be useful in targeting these populations and developing models of HIV spread.

F.C.714

HIV-1 TENDENCIES AND RISK FACTORS IN 5040 HOMO AND BISEXUAL MEN IN MEXICO (1985-1989).

Garcia Maria de Lourdes., Izazola, J.A., Loo E. R., Magis C., Valdespino, J.L., Sepulveda A. J.
General Directorate of Epidemiology. Ministry of Health. Mexico.

OBJECTIVE: To analyze HIV-1 seroprevalence, sociodemographic profile, sexual practices, knowledge and attitudes towards AIDS, condom usage and HIV risk factors among homo and bisexual men in Mexico.
METHODS: KAB and epidemiological serosurveys were performed on 5040 men who referred having had sexual practices with other men between 1985-1989 in 15 cities which include big, medium and small urban concentrations. Investigated variables included sociodemographic data, health status, sexual practices, usage of condom, knowledge and attitudes towards AIDS, and HIV-1 seroprevalence (WB or IFA confirmed). Recruitment was done on HIV detection centers, public baths, bars, and streets. Free testing was done on voluntary and confidential basis. Pre and post-test counselling was offered.
RESULTS. Sociodemographic profile: 87% of studied men were between 16 and 44 years old, 35% had had stable relationships with women, 24% had children younger than 10 yrs of age, 56% had 6 or fewer years of elementary school. Sexual practices :73% referred anal receptive coitus, 57% fellatio, 34% anal insertive coitus, 11% oro-anal coitus, 15% active fisting, 26% passive fisting 40% rectal douches , 45 average lifetime male partners, 49average lifetime female partners. Bisexuality: 56% (Mexico City) 51% (other big cities) 67% (medium and small cities) .Usage of condom 43% (big cities) and 25% (medium and small cities) . HIV-1 seroprevalence and trends. HIV prevalence has had a growing trend between 1985-1989. Higher prevalences were observed in Mexico City (6 to 35%), than in the rest of the country (0.1 to 30.2%).HIV risk factors:Anal receptive coitus (RR=1.88, CI:0.8-4.58 $p<0.05$), rectal douches (1.79, CI:1.12-2.35 $p<0.05$), previous STD's(1.53, CI:1.11-2.11 $p<0.05$) and having more than 10 male partners (3.37, IC:1.93-5.94 $p<0.05$).Knowledge and attitudes towards AIDS: In general, knowledge about transmission mechanisms and preventive measures and attitudes were adequate.
CONCLUSIONS: Even though knowledge and attitudes towards AIDS are adequate, risky practices are frequent and usage of condom is low. Bisexual practices are frequent among men having sex with men. HIV prevalence is ascendant. Educational interventions on these groups are urgent.

F.C.715

THE MEN WHO GOT AWAY: CHARACTERISTICS OF GAY/BISEXUAL COHORT VOLUNTEERS LOST TO FOLLOW-UP

Ames, Lynda; Beeker C.
AIDS Institute, New York State Department of Health, Albany, New York USA

Objective: to assess the likely direction and strength of biases in estimates of risk reduction within a non-random sample of gay/bisexual men.
Methods: Using contingency tables with first-contact data from a 4-year cohort of gay/bisexual volunteers in an Upstate New York community, we compared men who remained enrolled through 1989 (n=208) to men who dropped out after 1986 or 1987 (n=134).
Results: Cohort drop-outs were more likely than men who returned for follow-up to report anonymous sex in public places, higher levels of risky sex practices, greater alcohol use, and greater AIDS anxiety. The men we lost were more likely to report recent sexual contact with women and to be marginal to the gay community, as measured through membership in gay organizations, involvement in long-term gay relationships, and access to gay-sponsored AIDS resources.
Conclusions: Measured levels of risk reduction may overstate changes in the wider community. Marginality to effective social support networks reduces the likelihood of consistently safe behavior. Moreover, because of their risky sex with both men and women, the lost men may also serve as a "bridge" between the homosexual and heterosexual communities in terms of HIV transmission. More effective means of engaging these high-risk men in both research and intervention efforts must be found.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.716

REACTIONS TO THE THREAT OF AIDS: COPING AND SEXUAL BEHAVIOR IN A COHORT OF HOMOSEXUAL MEN.

De Wit, John*, De Vroome, E.*, Sandfort, T.*, van Griensven, G.**, Metselaar, C.* & Tielman, R.*
* University of Utrecht, ** Municipal Health Service Amsterdam, Netherlands.

Objective: To assess how homosexual men coped with the threat of AIDS (AIDS-coping) in relation with their serostatus and how this was related to changes in sexual behavior. Methods: 274 homosexual men (73 seropositive, 97 seronegative and 104 not tested) who participated in a larger cohort study were interviewed during 3 consecutive 6 months periods. Dependent variables were measures of behavior change between intervals. Predictors used were AIDS-coping and demographic characteristics. Principal component analysis was used to identify AIDS-coping responses. The relations between the predictors and the outcome measures were investigated using multivariate analyses. Results: Behavior change occurred mainly with respect to casual partners. Four AIDS-coping responses were found: problem solving, avoidance, distraction and social support. Problem solving was related to stopping having anogenital contact with casual partners. Avoidance was related to the continuing having casual partners. Distraction was related to stopping having anogenital contact. Social support was not related to changes in sexual behavior. Serostatus was not related to AIDS-coping. Conclusion: The results point at the importance of addressing the issue of safe sex within a steady relationship explicitly. They also indicate that health education should address the issues of avoiding information and seeking distraction.

F.C.717

RELAPSE FROM SAFER SEX AMONG HOMOSEXUAL MEN: EVIDENCE FROM FOUR COHORTS IN THE AIDS COMMUNITY DEMONSTRATION PROJECTS.

O'Reilly, Kevin R.*, HIGGINS, DL*, GALAVOTTI, C.*, SHERIDAN, J.**, THE CDC AIDS COMMUNITY DEMONSTRATION PROJECTS *Centers for Disease Control, Atlanta, GA U.S.A., **Professional Management Associates

OBJECTIVE: To examine correlates of relapse from safer to risky sexual behaviors in longitudinal cohorts of homosexual men.
METHODS: Homosexual and bisexual men were recruited to participate in HIV/AIDS intervention programs between November 1987 and August 1989 in Seattle, Denver, Dallas and Long Beach. 2306 men completed a questionnaire on self-reported sexual and drug risk behaviors, and attitudes, beliefs and intentions about sex and HIV prevention following intervention; 1122 men (49%) have returned so far to complete a six-month follow-up questionnaire. Using measures of sexual behavior (i.e., receptive anal intercourse with occasional partners) and condom use outside a monogamous relationship, we examined the attitudinal, belief and behavioral variables that correlated with relapse among seronegative men (N=803).
RESULTS: Relapse in six months was relatively rare: only 4% of seronegative men increased their exposure (increased number of partners without consistent condom use). Factors significantly associated with relapse included low self-efficacy ($p<.0001$), poor perception of community support for sexual risk reduction ($p=.02$), excessive alcohol consumption ($p<.0001$) and alcohol and/or drug use in conjunction with sexual activity ($p<.0001$).
CONCLUSION: The high seroprevalence among homosexual men may make relapse, although low in these cohorts, an important source of new infections and justify continued interventions to reinforce behavior changes. The results suggest that some components of interventions should focus on increasing perceptions of self-efficacy, supportive community norms and decreasing alcohol and drug use among homosexual men.

F.C.718

FROM LOW-RISK TO HIGH-RISK: DISTINGUISHING AMONG GROUPS OF GAY MEN ON THE HIV RISK RELAPSE CONTINUUM.

Bartholow, Brad*;Cohn,D*;Cole, V*;Judson,F*;O'Reilly, K**; *Denver Disease Control Service, Denver, CO;**Centers for Disease Control, Atlanta, GA, USA.

Objective: To develop a predictive model of HIV high-risk behavioral relapse (HRR),stable high-risk (SHR), stable low-risk (SLR), and protective behavior change (PBC) in a longitudinal cohort of gay and bisexual men.
Methods: A questionnaire assessing HIV risk behavior and KAB,was administered to study participants at initial visit and 6-month intervals. Two hundred subjects who had responded to the questionnaire at initial, 6-month, and one year visits were categorized according to semen exchange behaviors at each time point as either HRR,SHR,SLR, or as making PBC. Discriminant function analysis (DFA) using initial visit KAB date was used to develop predictive models of group membership. Univariate analyses were conducted on longitudinal sexual behavior data to evaluate group differences over time.
Results: The DFA correctly classified 86% of the subjects into each of the 4 risk groups. Discriminating factors included sexual behavior self-perceptions; perceptions of risk regarding sexual behaviors with monogamous, nonmonagamous, and occasional partners; use of drugs and alcohol; reasons for sex; practice of health seeking behaviors; Hispanic ethnicity; age; number of partners prior to learning about AIDS; and # of years having known about AIDS.
Conclusion: 23% of the subjects were categorized as HRR, 17% as SHR, 37% as SLR and 25% as PBC. DF's efficaciously predicted risk behavior status at one year follow-up using initial visit KAB system variables in this population of gay and bisexual men. Prospective analysis using this model should be applied to other populations to further evaluate intervention triage strategies, and to specifically focus on high-risk relapse behaviors.

F.C.719

GAY MEN IN SMALL CITIES: HOW RISKY ARE THEY?

Ames, L.; Beeker, Carolyn
New York State Department of Health, Albany, New York USA

Objective: to document and analyze high-risk sex practices among single and coupled gay and bisexual men in a low-incidence area for AIDS.
Methods: Detailed behavioral data were collected in 1989 from cohort volunteers in Upstate New York. Contingency table and logit analyses were used to assess the relationship between the practice of anal receptive intercourse, commitment to and beliefs about monogamy, and knowledge of serostatus.
Results: Of the first 300 men interviewed in 1989, 139 reported at least one episode of anal receptive sex during the past year, 78 without condoms. However, men engaging in unprotected anal receptive sex were more likely to be in long-term primary relationships, to have lovers with known negative serostatus, and to be in relationships closed by agreement to outside sex. Men in open relationships or men who suspected their partners were unfaithful were more likely to use condoms during anal receptive sex.
Conclusions: Aggregate data in this study, while consistent with published reports of persisting risk activity among gay men in smaller cities, overstate risk and the source of risk. Closer examination of the context of sexual activity indicates that men are reducing their risk by confining their anal receptive activity to specific, arguably low-risk situations. Behavioral measures must be sufficiently detailed and specific to establish actual risk and allow formulation of effective intervention programs.

F.C.720 A TELEPHONE SURVEY OF GAY AND BISEXUAL MEN IN MINNESOTA

Isensee, Jill*; Bye, L.**; Henne, J.**; Beniak, J.*; Danila, R.*; *Minnesota Department of Health, Minneapolis, Minnesota, USA; **Communication Technologies, San Franscisco, California,USA

Objective: To assess HIV-related knowledge levels, attitudes, beliefs, and practices among a random sample of Minnesota gay and bisexual men.
Methods: 35-minute telephone interviews were administered to a random probability sample of 404 gay and bisexual men (18 and over) residing in Minneapolis and St. Paul census tracts selected on the basis of number of single never-married adult men, and the number of reported gay/bisexual AIDS cases and HIV infections. To qualify, a respondent had to report at least occasional sex with other men or identify himself as gay or bisexual.
Results: Seventy-nine percent of respondents considered themselves to be homosexual, 12% bisexual, and 7% heterosexual. Respondents indicated having sex within the last year with only males (75%), both males and females (9%), or only females (6%). A current primary relationship with a man was reported by 39% of respondents with 52% of these defining their relationship as monogamous. Of 120 men reporting to have sex outside a primary relationship in the last 30 days, 3% reported engaging in receptive anal sex without a condom, 17% receptive anal sex with a condom, 7% insertive anal sex without a condom, and 31% insertive anal sex with a condom. The majority of respondents (74%) reported having been tested for HIV antibody (AB), with 11% of those tested reporting to be AB-positive. Of those not tested, 33% reported that they would likely be tested in the next year.
Conclusion: Continued HIV prevention efforts which are sensitive to the diversity within the gay community are needed to reach men who continue to engage in high-risk behaviors, and to reinforce healthy sexual choices.

F.C.722 WHY ARE YOUNG GAY MEN ENGAGING IN HIGH RATES OF UNSAFE SEX?

Hays, Robert B*; Kegeles, SM.*; Coates, TJ.*; *Center for AIDS Prevention Studies, University of California, San Francisco, California USA

Objective: Alarmed by the consistent finding that young gay men have not decreased their sexual risk behaviors to the same extent that older gay men have, we sought to identify factors associated with unsafe sex among 18 to 25 year old gay men and generate ideas for intervention approaches with this population.
Methods: Self-report questionnaires regarding HIV-related behaviors and attitudes were distributed to men aged 18 to 25 in settings frequented by young gay men (e.g. gay bars, university events, parks) in three medium-sized communities (Eugene, Santa Cruz, Santa Barbara). 35% of the surveys were returned, by mail, providing data on 99 young men.
Results: 43% of the respondents reported having engaged in unprotected anal intercourse during the previous six months. Multivariate analysis of variance and Chi square analysis showed that these individuals reported greater enjoyment of unprotected anal intercourse ($p<.001$), perceived less risk of unprotected anal intercourse ($p<.02$), reported poorer communication skills with sexual partners ($p<.05$), labeled themselves as more at risk for AIDS ($p<.001$), and were more likely to have a boyfriend/lover ($p<.01$) than men who had not engaged in unsafe sex. Respondents perceived the likelihood of acquiring HIV from young gay men to be significantly lower than from older gay men ($p<.001$). Prominent reasons given for engaging in unsafe sex included being "in love" with one's partner, using drugs/alcohol and being too "sexually turned on" to stop.
Conclusion: Risk-reduction programs tailored to the unique needs and subculture of young gay men are urgently needed. Such programs must reduce the perception that sex with younger men is "safer" than with older men, suggest ways to increase enjoyment of low-risk sex, improve sexual communication skills, emphasize danger of combining drugs/alcohol with sex, and address issues pertinent to the developmental (e.g., feelings of invulnerability) and social (e.g., dating and relationships) context within which young gay men's sexual behavior occurs.

F.C.721 CURRENT REASONS FOR HAVING UNSAFE SEX AMONG GAY MEN IN SAN FRANCISCO: THE AIDS BEHAVIORAL RESEARCH PROJECT

Pollack, Lance*; Ekstrand, M.L. *; Stall, R*; Coates, T J.*
*UC-SF Center for AIDS Prevention Studies, (CAPS), San Francisco

Objective To examine reasons given by gay men in San Francisco in 1988 and 1989 for having unprotected anal intercourse.
Methods This describes data from a 6 year prospective study of gay men in San Francisco. In both Nov. 1988 (N=540) and Nov. 1989, subjects were presented with a list of possible reasons for having unprotected anal intercourse during the previous year. Rates of agreement with these reasons are given.

Findings Each year, 40% of the cohort reported having had unprotected anal intercourse during the previous year. In 1989, the most common reasons among men in mutually monogamous relationships (n=85) included having the same serostatus as one's partner (71%), being in love (55%), and responding to the partner's request (32%). In contrast, men who were either in non-monogamous or non-primary relationships (n=271) reported a different set of reasons for risk-taking. These included being sexually turned on (60%), responding to a partner's request (60%), that unprotected sex felt better (51%), and assuming that one's partner did not want to use condoms (45%).

Conclusion Eight years into the AIDS epidemic there continues to be substantial risk-taking behavior among gay men in San Francisco. Interventions need to consider both relationship status and current reasons for taking risks to prevent new HIV infection among gay men. Safer sex needs to be eroticized, communication and resistance skills need to be taught, and community norms should be strengthened in support of condom use.

F.C.723 SEXUAL BEHAVIOUR IN A GROUP OF YOUNG HOMOSEXUALLY ACTIVE MEN IN ENGLAND AND WALES.

McManus, Thomas J***, Coxon, APM**, Davies, PM*, Hunt, AJ*, Weatherburn, P****, Project SIGMA,
*South Bank Polytechnic, London, UK, **University of Essex, UK, ***King's College Hospital, London, UK, ****University College of Wales, Cardiff, UK

Objectives: To examine the sexual behaviour of a group of young homosexually active men in England and Wales and to examine their risk behaviour.
Methods: As part of Project SIGMA 111 men ages under 21 were recruited and interviewed about their sexual behaviour. The legal age of homosexual consent in the UK is 21 years of age.
Results: These men were more likely than older men to have engaged in masturbation, fellatio and less likely to have performed less common acts (such as oro-anal contact, body rubbing and fisting). For receptive anal intercourse they were significantly more likely to have performed the act than older men ($p<0.05$) and further more they are likely to have done so more times in the previous month 14.4 times compared with 3.3 for those over 21, ($p<0.01$). Condom use by under 21s, although higher than for older men is not significantly higher (48% always used a condom compared with 40% for older men for receptive anal intercourse).
Conclusion: Homosexually active men under the age of 21 (the legal age for homosexual sex in the UK) are doing sex which is likely to put them at a higher risk than older groups. This may reflect the access of this group to health education because of legal prohibitions and also the lack of non-judgemental sex education during schooling.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.724 RELAPSE IN SAFER SEXUAL PRACTICES AMONG HOMOSEXUAL MEN: tWO YEAR FOLLOW-UP FROM THE CHICAGO - MACS

Adib, Maurice*, Joseph, J.*, Ostrow D.*
*University of Michigan, Ann Arbor, Michigan, USA

Objective: Describing maintenance and relapse in safer sexual practices among homosexual men.
Methods: Homosexual men, in a longitudinal study in Chicago, who reported safer sexual practices in 1986 are followed up at 6 month intervals, for 1 year. Results are reported for receptive (RAS) and insertive (IAS) anal sex separately. Those who relapsed to either inconsistent condom use or no condom use at all are compared to those who maintained safer practices. The outcome was stratified by sociodemographic, HIV serostatus and types of sexual relationships.
Results: Of 212 men initially reporting either not engaging in RAS or consistently using condoms when engaging in RAS, 82.5% maintained such safer practices 1 year later while 17.5% relapsed. Of 189 men reporting the same initial behavior in IAS, 87% maintained safer practices while 13% did not. Relapse was more likely in seropositive men compared to seronegative men (OR=4.33; 95%CI:0.82-7.84 in RAS, OR=4.40; 95% CI:0-8.91). The two groups did not differ on other variables.
Conclusions: Relapse rates did not differ in any significant way between IAS and RAS. The persistence of relapse, with higher likelihood among some seropositives, indicates the need to focus educational messages on the possible risks of continued exposure to HIV in accelerating the course of AIDS.

F.C.725 FACTORS WHICH PREDICT RELAPSE TO UNSAFE SEX BY GAY MEN

St. Lawrence, Janet S., Brasfield, T.L., & Kelly, J.A.
University of Mississippi Medical Center, Jackson, MS U.S.A.

Objective: The purpose of this study was to examine factors which predict success or lack of success in the long-term maintenance of sexual behavior changes by gay men who earlier attended AIDS risk reduction sessions.
Methods: Behavioral, psychological, and demongraphic data were obtained from men at high risk for HIV infection before they participated in a group AIDS risk reduction program. Participants (n=68) were followed prospectively for a 16-month postintervention period to ascertain long-term risk patterns. Men were classified as relapsers if they resumed unprotected anal intercourse by the 16-month postintervention point, and relapse predictors were examined.
Results: 60% of men consistently refrained from unsafe behavior while 40% had relapsed on some occasion by long-term followup. Factors significantly ($p<.05$ or less) predicting relapse were younger age, lower education level, history of frequent past receptive anal intercourse with a larger number of different partners, higher past reinforcement value of unsafe sex and lower reinforcement value of using condoms, self-rating of "outness," and sex when intoxicated. Discriminant analysis revealed that this predictor set could correctly classify relapsers or maintainers with 86% accuracy ($p<.003$).
Conclusions: Consistent with findings from other health behavior areas, AIDS risk relapse is strongly predicted by strength, frequency, and reinforcement value of past unsafe behavior. Research is needed to better identify situational factors surrounding relapse episodes, methods to teach persons to successfully handle relapse temptations, and supports that can help to better sustain behavior changes over time.

F.C.726 RECREATIONAL DRUG USE AND HOMOSEXUAL BEHAVIOR: THE ROLE OF VOLATILE NITRITES ("POPPERS") IN EXPLAINING THE ASSOCIATION

Ostrow, David*; Beltran, E.*; Wesch, J.**; Joseph, J.*
*University of Michigan, Ann Arbor, Michigan, USA, **Howard Brown Memorial Clinic, Chicago, Illinois, USA.

Objective: To explore the nature of the association previously observed between recreational drug use and continuance of high risk sexual behavior among cohorts of homosexually active men.
Methods: Data obtained from semi-annual visits of the Chicago MACS/Coping and Change Study cohort regarding recreational drug use (interview) and self-reported sexual behaviors over the course of 4 1/2 years of observation (1984-1988) were used. Outcome measures included a 4 level sexual risk index as well as number of unprotected sexual exposures. Subgroups characterized by differing patterns of drug use and sexual behavior were compared utilizing bivariate and multivariate analyses of the full range of demographic, psychosocial and mental health predictors from the C & CS.
Results: Frequencies of both recreational drug use and high risk sexual behavior decreased markedly and were consistently inter-correlated ($p<.0005$ for Kendall's tau) across all 9 visits. Men who used poppers plus other drugs for 6 or more visits were at highest risk of continuing unprotected anal receptive intercourse, and differed from non-users in being younger ($p<.0001$), having higher self-perceived AIDS risk ($p<.0001$) but higher levels of denial-fatalism ($p<.0005$).
Conclusions: Continued use of multiple recreational drugs including "poppers" is related to continued high risk sexual behavior in a cohort of homosexual men. Demographic and psychosocial characteristics of consistent multiple drug users suggest potential target subpopulations for behavioral interventions.

Determinants of Risk Behavior: Heterosexuals

F.C.727 CONDOM USE AMONG HETEROSEXUALS IN A SEXUALLY TRANSMITTED DISEASE [STD] CLINIC IN SAN FRANCISCO

Weinstock, Hillard*; Lindan, C.**; Bolan, G.** ***; Grant, P.**; Johnson, D.**; Kegeles, S.**; Hearst, N.**.
*Division of STD/HIV Prevention,CDC, Atlanta, Georgia;**University of California, San Francisco, California;***Department of Public Health, San Francisco, California, USA.

Objective: To identify factors contributing to condom use in an STD clinic population.
Methods: A random sample of 300 heterosexual patients, ages 18-65, attending the San Francisco STD clinic from September until December 1989 completed a confidential interviewer administered questionnaire.
Results: Mean age was 29; 50% were male; 43% were white; 36% were black. 60% reported a prior STD. 99% knew that condoms could prevent transmission of STDs, including HIV. Only 18% used condoms more than 90% of the time during the previous 2 months; 40% used condoms less than 10% during that period. Patients used condoms 50% of the time with casual partners compared to 28% with their most important partners ($p<0.0001$). When a patient's most important partner was considered, multivariate analysis identified white race (Odds ratio [OR]=4.5, $p=0.01$) and the perception that condoms do not detract from sexual pleasure (OR=7.0, $p=0.002$) to be associated with their use. When casual partners were considered, patients were more likely to use condoms if these partners endorsed their use (OR=12.5, $p=0.003$) and if they believed condoms do not impede sexual spontaneity (OR=4.3, $p=0.04$). Perceived risk for HIV was not associated with condom use.
Conclusion: Rates of condom use and reasons for using condoms differ depending upon a patient's sexual partners. Understanding more about partner relationships is necessary if behaviors surrounding condom use are to be successfully modified.

F.C.728 UNDERREPORTING RISK BEHAVIORS FOR HIV INFECTION AMONG STD CLINIC PATIENTS: CASE-CONTROL STUDY OF COINCIDENT MORBIDITY

Ellis, Bernard H.*; Cox, K.**; Federspiel, C.***
*Tennessee Dept. of Health, Nashville, TN,**Memphis/Shelby County Health Department, Memphis, TN, *** Vanderbilt University, Nashville, TN

OBJECTIVE: Between 14-88% of the HIV-infected STD clinic patients identified through CDC-sponsored HIV surveys in 1988 did not report high-risk behavior (gay/bisexual activity, IV drug use) for HIV infection. This case-control study assessed levels of coincident morbidity suggestive of high-risk behavior among STD clinic patients who participated in the 1988 survey.
METHODS: Stored sera from each HIV-infected STD patient (n=43) was matched with sera from two "high-risk" patients, matched by age, sex, race and self-reported risk behavior (n=86); and two "low-risk" controls, matched by age, race and sex (n=86). Sera were tested for hepatitis B infection (via total core antibody and surface antibody assays) and syphilis infection (via RPR and MHA assays). Sera was grouped according to reported risk behavior and compared, using Mantel-Haenszel chi-square analysis.
RESULTS: Self-reported gay/bisexual men were significantly more likely to have evidence of past or present hepatitis B infection (RR=4.0, CI=2.0, 8.1) and syphilis infection (RR=11.2, CI=2.8, 44.7) than male STD patients who self-reported as heterosexual and were not HIV-infected. Sera from HIV-infected males who did not report gay/bisexual activity or IV drug use were also significantly more likely to test reactive for hepatitis B infection (RR=4.9, CI=2.4, 10.2) and syphilis infection (RR=10.0, CI=2.2, 45.4) than sera from self-reported heterosexual males who were not HIV-infected. No significant difference in coincident morbidity were found between self-reported gay/bisexual men and HIV-infected men with "unknown" risk.

F.C.729 SEXUAL BEHAVIOUR OF LONG-DISTANCE TRUCK DRIVERS AND THEIR CONTRIBUTION TO THE SPREAD OF SEXUALLY TRANSMITTED DISEASES AND HIV INFECTION IN EAST AFRICA

Mohamed Ali. Omari*, Bwayo, J.J.*, Mutere, A.N.*, Jaoko, W.*, Plummer, F.A.*,**, Kreiss, J.K.***.
*University of Nairobi, Nairobi, Kenya; **University of Manitoba, Winnipeg, Canada; ***University of Washington, Seattle, Washington, USA.

OBJECTIVE: To establish the role of long-distance truck drivers in the spread of STDs and HIV infection in the eastern and central Africa region.
METHOD: The study was carried out at a site near Nairobi, Kenya, where trucks in transit to neighbouring countries in eastern and central Africa are required to stop to formalise travel documents and await police escort. A questionnaire to elicit demographic data and information on sexual behaviour was administered. Blood for HIV serology was drawn, and urethral and genital ulcer swabs taken from those with clinical evidence of urethral discharge or genital ulcer disease (GUD). Appropriate treatment for STDs was provided.
RESULTS: Two hundred and fifty men were enrolled in the study. Of these, 21.2% (49/231) reported visiting prostitutes at least once per week and 64.1% (169/252) reported at least one prostitute contact during the past year. Awareness that condoms could be used to prevent STDs was reported by 89% (224/246), but only 25.2% (62/244) reported ever having used them. Past history of GUD was reported by 46.0% (116/244) and of urethral discharge by 52.8% (130/246). HIV prevalence overall was 23.2% (55/237).
CONCLUSION: This population has a high prevalence of HIV infection and represents a source of HIV transmission within countries and across borders. Health education should be strengthened among long-distance truck drivers in an effort to reduce transmission of HIV and other STDs.

F.C.730 THE INFLUENCE OF ACCULTURATION ON THE PERCEIVED RISK FOR AIDS AMONG MEXICAN AMERICANS

Fernandez Esquer, Maria E.*; Estrada, A. L.*
University of Arizona, College of Medicine, Tucson, Arizona, USA

Objective: This study proposed a model for the influence of acculturation level on the perceived risk for AIDS among Mexican Americans.
Methods: Data were collected as part of a larger statewide survey on AIDS knowledge, attitudes and beliefs among Blacks, Hispanics and Native Americans residents of Arizona. Face-to-face interviews were conducted with 600 Hispanic respondents, primarily of Mexican or Mexican American origin. Sampling was conducted using a multistage random selection process. Specific items measuring perceived risk, AIDS knowledge and misconceptions, attitudes toward risk groups and perceived social network impact were summated to yield composite measures. An acculturation scale was used to differentiate among less or more acculturated Mexican Americans. Multiple regression analyses entered acculturation and mediating informational factors as predictors of perceived risk.
Results: Data analysis indicates that the influence of acculturation on perceived risk is mediated by level of education. AIDS knowledge and misconceptions, and attitudes toward risk groups significantly predict perceived severity of and fatalistic views about AIDS.
Conclusion: Further research is necesary to explore the nature of perceived risk for AIDS among Mexican Americans and other ethnic populations. Educational campaigns must consider perceptions of AIDS as a personal risk as well as within-group variation in cultural adaptation. The Spanish monolingual and the bilingual/bicultural Mexican American must be targeted appropriately to make educational interventions effective.

F.C.731 RACIAL DIFFERENCES IN RISK BEHAVIOR, CONTRACEPTIVE USE AND HIV SEROPREVALENCE AMONG WOMEN IN FAMILY PLANNING CLINICS IN LOS ANGELES COUNTY

Hill, Deirdre*; Rose, T.*; Kerndt, PR.*
*Los Angeles County Department of Health Services, AIDS Epidemiology Program, Los Angeles, CA, USA

Objective: To determine HIV seroprevalence and assess risk behavior, contraceptive use and acceptance of confidential HIV testing at six family planning (FP) clinics in Los Angeles County (LAC).
Methods: HIV risk assessment questionnaires were administered and confidential HIV testing offered to 9,109 women attending six LAC FP clinics between May and December, 1989. Routinely drawn blood samples were linked to the questionnaires and tested for HIV after patient identifiers were removed.
Results: HIV risk behavior (RB) (including traditional risk factors, STD's since 1978 and multiple partners in past year) was reported by 24.1%. Confidential HIV testing was chosen by 43.7%. Acceptance of confidential testing was associated with HIV RBs (OR=2.1; 1.8, 2.3), and was higher among either white (OR=1.7; 1.5, 2.0), or black (OR=2.1; 1.8, 2.5) women than Hispanic women. Hispanic women with RB were less likely to consider themselves at risk than either white (OR=4.3; 3.1, 5.9) or black (OR=2.5; 1.9, 3.4) women with RB. Condom use, reported by 23.4%, was associated with RB, (OR=3.5; 3.1, 3.9) and was more prevalent among white (OR=4.0; 3.4, 4.6) or black (OR=6.6; 5.8, 7.6) women than Hispanic women. However, of women reporting RB, 55% had not utilized condoms or foam in the past year. Ten women (0.1%) were HIV positive; the prevalence for whites was 0.03%, 0.03% for blacks, 0.05% for Hispanics, and 0.03% for Asians/Others.
Conclusion: Women at risk for HIV infection were more likely to choose confidential HIV testing and to utilize condoms, but practices differed by race. Considerable RB persists, which emphasizes the need to convince women of their risk and the need to protect themselves against sexually transmitted diseases including HIV.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.732 HETEROSEXUAL BEHAVIOUR IN CENTRAL AFRICA -- GEOGRAPHIC AND SOCIOCULTURAL VARIABLES IN THE USE OF CONDOMS FOR SAFE SEX.

LOUIS, J.P.* ; HENGY, C* ; SALLA, R** ; HAMONO, B*** ; GARDON, J* ; TREBUCQ, A* ; * OCEAC : Organisation de Coordination pour la Lutte contre les Endémies en Afrique Centrale, Yaoundé, Cameroun ; ** Service National de Lutte contre le SIDA, Yaoundé, Cameroun ; *** Ministère de la Santé Publique, Libreville, Gabon.

Objective : To identify variations in sexual behavior in homogenous subgroups geographically distributed throughout the OCEAC sub-region (Central African Republic, Cameroon, Congo, Gabon, Equatorial Guinea and Chad).

Methods: open-questionnaire KAP surveys. Target-population : farmers, truck-drivers, teenaged students, health personnel.

Results : Six surveys were made of the sexual behavior of 1,478 people as to sexual precociousness, frequency of sexual relations, number and status of sexual partners, taking into account variables of age, sex, religion, socio-cultural origin. Use of condoms varies : farmers 2 %, truck-drivers 12 %, students 36-54 %, health personnel 68 %.

Discussion/Conclusion : Condoms are being used more than before ; this is a function of socio-cultural development, and at present its motivation is contraception and prevention of STD's more than prevention of AIDS. Analysis shows that use of condoms is encouraged by publicity, wide accessibility, and low cost.

F.C.733 HOW DO HISPANIC AND WHITE ADOLESCENT WOMEN DIFFER IN SEXUAL RISK BEHAVIOR AND IN THEIR ANTECEDENTS?

Kegeles, Susan*; Greenblatt, R**; Cardenas, C*; Catania J*; Ontiveros, T***; Coates TJ.* *UCSF Center for AIDS Prevention Studies; **UCSF Department of Medicine, San Francisco, CA;***Planned Parenthood of Santa Cruz, CA

Objectives: To examine differences in sexual risk behaviors between Hispanic and White adolescent women attending a family planning clinic in Watsonville, California, a semi-rural town.
Methods: Unmarried adolescent women (age 14-21; mean=18.1; for Whites; 17.8 for Hispanics) completed anonymous self-administered 118-item questionnaires in the clinic waiting room in 1988-89; there was a 97% consent rate, resulting in 122 Whites and 74 Hispanics.
Results: Although there was no significant age difference between the ethnic groups, Hispanics had less education than Whites (median=10th and 12th grades, respectively), and came from poorer socioeconomic backgrounds. More Hispanics than Whites had children (17% vs. 7%, p=.05). More Whites than Hispanics had more than one sex partner in the past two months (21% vs. 10%, p<.05), and more than five partners in their life (31% vs. 17%, p<.01). There was no significant difference in the proportion of time condoms were used (mean=30% for Whites; 36% for Hispanics); 30%-40% of both groups had never used condoms. 10% of Whites and 12% of Hispanics reported anal intercourse. 19% of each group had a primary partner who had or may have used IV drugs, and 15% of each believed that their primary partners may have sex with other women. Whites felt more susceptible to AIDS and other STDs than did Hispanics (p=.001). Hispanics were more likely to stereotype the type of person who has HIV (e.g., to believe that they can guess who is seropositive; p=.03); stereotypical thinking is inversely correlated with perceived susceptibility (r=-.30, p<.01 for Hispanics).
Conclusion: White adolescent women have more sex partners than do Hispanics; nevertheless, both groups engage in substantial amounts of high risk behavior. Hispanics feel less vulnerable to HIV and other STDs, perhaps due to having fewer partners, but incorrect and dangerous stereotyping also contributes to this reduced perception of risk. Hispanic and White adolescent women must continue to be targeted by prevention programs that take into account differences between the two groups. Latinas from this semi-rural town (predominantly Mexican-Americans) may be quite different from other subgroups of Hispanics (e.g., east coast urban Puerto Ricans).

F.C.734 NOT STRESS, BUT HOW YOU COPE WITH IT, IS RELATED TO SEXUAL RISK BEHAVIOR AMONG GAY MEN

Phillips,Constance*; Folkman, S*; Pollack, L *; Chesney M*; * Center for AIDS Prevention Studies, University of California, San Francisco, California, USA

Objective: To determine the association between unprotected anal intercourse and coping, stress, and religious/spiritual activities among gay men.
Method: Five hundred and fourty HIV + and HIV - and untested gay men living in San Francisco were surveyed as part of the 5th wave of the AIDS Behavioral Study. Stress was assessed with 10 items that asked about the extent of stress in each of 10 life domains (e.g., primary relationship, work, health). Six types of coping were assessed with a shortened version of the Ways of Coping: self-controlling, escape-avoidance, distancing, planful problem-solving, seeking social support, positive re-appraisal Five items measured the frequency of religious/spiritual activities, including meditation, attending services, and religious/spiritual reading.
Results: The data were analyzed cross-sectionally using stepwise logistic regression. Frequency of unprotected anal intercourse was the dependent variable. Stress, six types of coping, and religious/spiritual activities were independent variables. Total stress is not associated with unprotected anal sex. However, how one copes is: subjects who cope by keeping their feelings to themselves are more likely to engage in unprotected anal sex, whereas subjects who participate in religious/spiritual activity are less likely to engage in this risk behavior
Conclusion: The findings suggest that teaching people to communicate their feelings about stressful situations in their lives and supporting participation in religious/spiritual activity may help reduce risk behavior.

F.C.735 PHYSICIANS' PERCEPTIONS OF THE RISK FOR HIV TRANSMISSION

Nadeau, Denise; Boyer, R.; Fortin, C.; Duval B.; Godin, G.*
Unité de Recherche Clinique sur le Traitement du SIDA, Centre Hospitalier de l'Université Laval; * Université Laval; Québec, CANADA

Objectives: To measure Quebec physicians' perceptions about (1) the HIV contamination risk for health professionals and in their medical practice and (2) the risk for a seropositive physician to transmit HIV to his patient.
Methods: In collaboration with the "Corporation Professionnelle des médecins du Québec", an anonymous postal survey was realized during summer 1989 among a stratified sample of physicians practicing and living in the Province of Quebec. Perceptions were controlled by sociodemographic and professional variables with multiple regression analysis.
Results: 879 physicians completed the survey (57.5%). 63.3% of the respondants estimated the risk for health professionals to be infected with a contaminated needle between 2 and 12% (average 5.9); they were mostly female older physicians, french speaking and paid on a fee for service basis (R^2=.25, p<.0001). The HIV infection risk in their medical practice is perceived as very high by 12.3% of respondants, in particular, by those who are french speaking surgeons remunerated on a fee for sevice basis (R^2=.25, p<.0001). The risk for a seropositive physician to transmit HIV to his patient is perceived as very high by 7.6% of respondants; again, the surgeons paid on a fee for service basis estimate the risk to be highest (R^2=.28, p<.0001).
Conclusion: Those results indicate that the risk of HIV transmission by a contaminated needle is perceived as ten times greater than the CDC estimated risk of 0.5%. Like in other studies, surgeons perceived themselves as a group at high professional risk of HIV transmission.

F.C.736 SEXUAL PRACTICES AND STD'S IN FEMALE DOMINICAN SEX WORKERS

Guerrero, Ernesto*; Quinones, M*; Spegman, D**; Spegman, P**; Rosario, S*; Quinn, T**; Shah, K**; Ruff, A**; Hook, E**; Halsey, N**.
*Centro de Orientacion e Investigacion Integral, Santo Domingo, Dominican Republic, **The Johns Hopkins University, Baltimore, MD.

Objective: To determine sexual practices and the rates of STD's in female sex workers by smoking status.
Methods: Sex workers were interviewed to determine sexual beliefs and practices and were examined for STD's including human papilloma virus (HPV) and HIV. HPV was tested by Virapap and chlamydia by Microtrak.
Results: Data from the first 35 of 200 women tested have been analyzed. The mean age was 25.8 yrs. Sex workers who smoked reported higher rates of prior treatment for STD's than non-smokers (36% vs 20%). Exams revealed Trichomonas in 9%, GC in 15%, Chlamydia in 6%, and high seropositivity for syphilis. High risk practices included anal sex (8.6%), drying of the vagina (14.3%), sex during menses (30%), and use of cocaine. Although 94% of women knew about AIDS, only 51% reported using condoms intermittently. 74% used oral contraceptives.
Conclusions: Female sex workers who smoked reported higher rates of STD's. Analysis of additional women will determine true differences in behavior and prevalence of STD's by smoking status.

F.C.737 FACTORS WHICH INHIBIT SAFE SEXUAL BEHAVIOR IN AN OLDER HETEROSEXUAL POPULATION

Davis, Arlene M.
Peoria City/County Health Department, Peoria, Illinois, USA and Illinois State University, Normal, Illinois, USA.

Objective: The purpose of this study was to identify the factors which inhibit heterosexual adults over the age of 35 from practicing techniques which reduce sexual exposure to HIV.
Method: One hundred and thirty-nine heterosexual men and women over the age of 35, who were never married, divorced, or widowed, completed written questionnaires to determine their ability to identify high risk sexual behavior, their practice of techniques which reduce sexual exposure to HIV, and their reasons and rationales for participation in high risk sexual behavior. Statistical tests performed included chi square, t test, and analysis of variance
Results: The study found seven situations, rationales, or attitudes that inhibited the practice of risk reducing techniques: 1. A perception that risk reduction techniques are ineffective; 2. The interference of condoms with pleasure; 3. Embarrassment; 4. A desire not to offend a partner; 5. Unplanned sex; 6. An accurate perception of risk; and 7. An inaccurate perception of risk.
Conclusion: Older heterosexual adults who are sexually active with a variety of partners are not managing their risk of HIV infection effectively. The factors identified by this study should be addressed by educational campaigns directed toward this population.

F.C.738 HIV RISK BEHAVIOUR AND STD INCIDENCE IN LONDON PROSTITUTES

Ward, Helen*, Day S*, Donegan C*, Harris JRW. Jefferiss Wing Clinic;*and Academic Dept Public Health, St Mary's Hospital, London W2, UK.

Objective To investigate sexual behaviour and STD incidence as markers of HIV risk in London prostitute women.
Methods STD and HIV infection in relation to risk are being studied in a cohort of 129 women. Participants attend repeatedly for interview and clinical examination. Initial structured interviews are followed by seven day recall of risk behaviour at each subsequent visit.
Results Data are available from 755 visits since 1986, covering 151 woman-years of follow-up. The mean number of visits was 5.8; mean duration of follow-up 14 months. Over the total number of visits, condoms were reported for 84% of client contacts for vaginal sex, 70% of contacts for oral sex. During follow-up, all women reported reduced risk behaviour at work. 18% of women with private male sexual partners reported condom use with them for vaginal sex. Eighteen episodes of gonorrhoea, 24 of trichomoniasis and 34 of cervical chlamydia were recorded, giving incidences of 0.09, 0.12 and 0.17 respectively per 100 women per year. These infections were not significantly associated with number of clients or place of work.
Conclusion A low incidence of STD and low levels of risk activity during commercial sex are seen in prostitutes working in a variety of ways. Reduction in risk activity at work has been much greater than in private sexual relationships. This reflects a highly differentiated sexuality among prostitutes, where knowledge about HIV risk reduction is used selectively. Since STDs are primarily acquired from private partners, preventive campaigns directed towards prostitutes cannot restrict themselves to the working environment.

F.C.739 SEXUAL BEHAVIOR AND KNOWLEDGE ABOUT AIDS AMONG BLOOD DONORS IN QUITO, ECUADOR.

Reyes, Oswaldo*; Lindan, C**; Merino, M*; Leoro, G*; Weilbauer, F*; Hearst, N*.
*Ecuadorian Red Cross, Quito, Ecuador;
**UCSF Center for AIDS Prevention Studies (CAPS), San Francisco, California.

Purpose: To assess knowledge about AIDS and high risk activity among donors at the Red Cross Blood Bank in Quito, Ecuador.
Methods: An anonymous self-administered questionnaire was given to 678 consecutive donors in March, 1989. Respondents were 81% male, 19% female; mean age = 26.8.
Results: Mean knowledge scores were 5.4 out of 7 for men and 5.0 out of 7 for women ($p<.02$). Misconceptions about AIDS were common. Fifty% of subjects did not know that AIDS can affect people in Ecuador, 34% did not know that a healthy looking person can be infective, 20% believed that only homosexuals can get AIDS, and 17% did not know that condoms can prevent HIV transmission. Many men had multiple partners (29% >5 lifetime partners) and 23% had visited prostitutes. Fifty-eight% of all men had never used condoms. Women were less likely to have multiple partners (5% >5 lifetime partners), but 75% of sexually active women had never used condoms. Most common reasons for not using condoms included unfamiliarity with them and beliefs about decreased sexual pleasure. Married men were more likely to admit to additional partners than married women (22% vs 2%). Eight subjects (1%) had used IV drugs. Five men (1%) admitted to bisexual activity and one of these was married.
Conclusions: Serious gaps in knowledge about HIV transmission are common in this population; many people incorrectly believe they are not at risk for AIDS. Educational efforts must directly address these misconceptions. Current patterns of sexual behaviour and lack of condom use suggest the potential for spread of HIV in Ecuador.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.740 ACCEPTABILITY OF CONDOM USE AMONG PATIENTS AT A SEXUALLY TRANSMITTED DISEASE CLINIC

Farr, G.*; Magruder, Charles**; Foldesy, R.*; Staab, R.***.
*Family Health International, Durham, NC, USA, **Womack Hospital, Ft Bragg, NC, USA, ***Schmid Labs, Little Falls, NJ, USA.

Objective: To assess patterns and perceptions of condom use among patients at a sexually transmitted disease (STD) Clinic.
Methods: The hospital at Ft Bragg operates a centralized STD Clinic to which the vast majority of soldiers come to be treated for a STD. A confidential questionnaire which obtained basic demographic information and asked about condoms, current sexual activity and AIDS was offered to each male with a newly diagnosed STD (N=253).
Results: The study participants were representative of the usual clinic population. Fifty-five percent of these patients stated they currently use condoms though only 17% said they used a condom the last time they had sex. This was seen despite the fact that 96% felt condoms reduced the possibility of contracting the AIDS virus. The most common reason given for not using condoms was that one was not immediately available. Individuals who worry a lot about AIDS were more likely to use condoms than those who were less concerned (O.R.=3.09 (95%C.L.-1.42, 6.76)). Blacks were more likely than whites to agree that condoms break during intercourse (O.R.=4.14 (95%C.L.=2.12, 8.20)) and that condoms come off during sex (O.R.=5.02 (95% C.L.=2.32,11.09)).
Conclusion: Even though the majority of these patients were convinced that condoms help reduce the likelihood of HIV transmission, they chose not to use them. Availability appears to be a concern and the level of concern about acquiring AIDS is also an important factor. Novel educational and behavioral intervention methods need to be developed to increase condom usage.

F.C.741 PROSTITUTE USE BY HETEROSEXUAL MALES IN THE U.S., 1982

Kanouse, D.E., Rogers, W.H., Carson, S., and Lever, Janet.
The RAND Corporation, Santa Monica, California, USA

Objective: To test hypotheses about demographic and behavioral characteristics that predict use of female prostitutes (Px).
Methods: Drawing on a 1982 national survey of 80,434 readers of Playboy magazine, we examined data on 52,527 exclusively heterosexual men age 18 and older who answered a question about having sex with a Px in the last five years. Univariate and multiple regression techniques were used.
Results: In all,10,191 men (19.4%) reported experience with Px. Associated with Px use were: high school education or less (23.5% vs. 18.2%); annual income of at least $40,000 (25.4% vs. 18.5%); divorced or widowed (24.7%) or single (21.7%) vs. currently married (15.2%); between ages 21-49 (20.0% vs. 14.1%); Catholic (20.6%) or Jewish (24.2%) vs. Protestant (18.1%); and residence in a city or suburb (20.2%) vs. small town or rural area (17.2%). Px use was negatively associated with duration of current relationship and satisfaction with current sex life. Behavioral measures associated with Px use included: loss of virginity before age 16 (26.0% vs. 17.2%), 25 or more lifetime partners (34.1% vs. 14.7%); participation in group sex (29.8% vs. 14.6%). Those who masturbate frequently, have intercourse more than twice in an evening, or use drugs with sex were also more likely to report Px use. Some specialized tastes (anal sex, and humiliation fantasies) were associated with Px use, but others (e.g. bondage, transvestism) were not.
Conclusion: Men who use Px appear to have stronger sexual appetites and more sex partners than men who do not. Certain specialized tastes are also associated with Px use. As a group, men who use Px are likely to engage in other behaviors that place them at elevated risk of acquiring HIV infection.

F.C.742 THE EFFECTS OF GENDER AND CRACK USE ON HIGH RISK BEHAVIORS

Golden,Eve[1], Fullilove,M.[1], Fullilove, R.[1], Lennon, R.[2], Porterfield, D.[3], Schwarcz, S.[4], Bolan, G.[5] 1.Multicultural Inquiry and Research on AIDS, UCSF Center for AIDS Prevention Studies, Bayview Hunter's Point Foundation, San Francisco, CA. 2. University of Northern Colorado. 3. UCSF School of Medicine. 4. Centers for Disease Control. 5. San Francisco Department of Public Health.

Objective: This study was undertaken to examine the relationship between gender, sexual behavior and the use of crack cocaine; to clarify the role that crack has played in putting Black teens at high risk for infection with sexually transmitted disease (STD) including HIV.
Methods: Two sampling strategies were employed. The first sampled 222 Black teens aged 13-19 contingent on the use of crack cocaine. The second sampled 136 Black teens aged 15-19 on the basis of being sexual activity and denial of history of gonorrhea in the 3 months prior to recruitment and current gonorrhea symptoms. These were collapsed into a single sample of 340 Black, sexually active teens aged 15-19 years. A stepwise multiple regression analysis was performed, stratified by sex, evaluating the importance of sexual and drug behaviors in prediction of total number of STDs and total number of pregnancies.
Results: Total number of drugs used predicted number of STDS among both male (R^2=.03) and female (R^2=.20) crack users and among male non-users (R^2=.12). Engaging in the exchange of sexual favors for drugs and having sex under the influence of drugs or alcohol were significant predictors of pregnancies for female crack users(R^2=.18). Among female non-users, only age at first intercourse predicted number of pregnancies (R^2=.11).
Conclusion: Among young women, crack use appears to be associated with variables predicting negative outcomes; this relationship does not appear to hold for young men. These data indicate that crack use may be an important risk factor for HIV infection particularly in young women, and the development of programs for prevention of HIV infection targeting female crack users deserves prompt attention.

F.C.743 VALIDATION OF A QUESTIONNAIRE ON SEXUAL ACTIVITY AMONG AN HETEROSEXUAL PARTNERS IN MEXICO.

Romieu I., Herrera E , Hernández M. Ramirez G, Avila Sepulveda J. Directorate of Epidemiology, Secretariat of Health, México.

Objetive: To validate a questionnaire on sexual activity among stable heterosexual partners in México city.
Method: We used data collected during a follow up study on the risk factors for heterosexual transmission of AIDS. We compared agreement of sexual histories obtained among couples. To obtain sexual histories each participant was interviewed individually by a psychologist, who applied a standarazied questionnarie. At the time of the interview, all male participants knew their serostatus (HIV+), 70% of the females knew the serostatus of their partners and none of the female knew their own serostatus.

# Sexual relations per week	MALE % #	FEMALE % #	CONCORDANCE RATE %
>=2	37(8)	35(17)	24
3-5	17(8)	20(10)	22
5+	13(6)	21(1)	0
Use of condom			
yes	40(20)	26(13)	25
no	46(23)	62(31)	65
Anal intercourse			
most time	6(3)	6(3)	0
rarely	16(8)	14(7)	29
never	60(30)	54(27)	57

CONCLUSION: Although the number were relativey small, these results raise the issue of missclasification of questionnaire information on sexual practices.

F.C.744 SEXUAL ACTIVITY AMONG WOMEN IN THE UNITED STATES AND NEW YORK CITY IN 1988.

Fordyce, E. James; Balanon, A.; Stoneburner, R.
New York City Department of Health, New York City, New York.

Objective: To compare the proportion of sexually active women and their number of sex partners by marital status in the United States and New York City in 1988.
Methods: A probability sample of 843 adult women in U.S. households were surveyed regarding their number of sex partners during the 1988 General Social Survey. A probability sample of 1842 women of childbearing age in New York City (NYC) were interviewed using comparable questions in 1988 by the NYC Department of Health.
Results: Women in New York City were equally likely to be sexually active (71%) as women in the U.S. (73%), but the proportion of women with multiple partners varied by marital status. The percentage of women with 2 or more sex partners in the U.S. and NYC are as follows:

	Never Married	Married	No Longer Married	Total
U.S.	23.7 (P=.05)	1.9 (P=.001)	12.1 (P=NS)	9.1
NYC	17.5	5.6	15.2	11.0

U.S.-NYC differences in the proportions of women with multiple sex partners are explained in part by differences in the racial/ethnic and marital status composition of the two populations. Among NYC women 18% of whites, 12% of blacks and 8% of Hispanics had two or more sex partners in 1988.
Conclusion: AIDS prevention messages regarding the risk of multiple sexual partnerships should continue to include currently married women. Further investigation of the relationship between number of sex partners and risks of HIV infection among women is needed.

F.C.745 RISK FACTORS AMONG WOMEN IV AND NON-IV DRUG USERS IN A NATIONAL AIDS PREVENTION PROGRAM-U.S., PUERTO RICO, AND MEXICO

Young, Peggy*; Sowder, B.*; Weissman, G.**
*NOVA Research Company, Bethesda, Maryland, USA, **National Institute on Drug Abuse, Rockville, Maryland, USA

Objective: To describe differences in demographic characteristics and risk behaviors among IV and non-IV drug using women who are sexual partners of IV drug users prior to their participation in ongoing AIDS street outreach and intervention research programs funded by the National Institute on Drug Abuse.
Methods: All female sexual partners were interviewed prior to intervention. Detailed information was obtained on drug use and sexual practices that place individuals at risk for HIV/AIDS; data were obtained also on demographic characteristics, health, AIDS knowledge, and social/family variables.
Results: Baseline data were collected on 2626 IV and 1414 non-IV drug using women from 42 sites nationwide; both groups tend to be in their childbearing years, to belong to a minority group, and to be unemployed. Substantial numbers have child care responsibilities. Only small percentages always use a condom; 42% of the IVDU women and 32% of the non-IVDU women trade sex for drugs or money; substantial percentages of both groups engage in non-IV drug use; and 72% of IVDU women are at high risk for HIV/AIDS through unsafe needle/"works" practices.
Conclusions: Both groups are at risk and appropriate targets for the types of AIDS prevention interventions offered by this national program of outreach and intervention research.

F.C.746 A DESCRIPTION OF HIV RISK FACTORS AMONG 17,655 WOMEN

Robbins, Susan*; Spence, M.*; Armstrong, K.**; Marks, S.**; Lauver, D.***
*Hahnemann University, Philadelphia Pennsylvania, USA, **Family Planning Council of Southeastern Pennsylvania, Philadelphia, Pennsylvania, USA, ***University of Wisconsin, Madison, Wisconsin, USA

Objective: To assess risk factors for HIV acquisition in women attending family planning clinics.
Methods: HIV risk status was determined in 17,655 women between May 1988 and June 1989 using a risk assessment questionnaire developed by the Centers for Disease Control (CDC). Risk factors were separated into high-, moderate- and low-risk groups. Chi-square analysis was used to determine differences in demographics and risk categories.
Results: Screening determined that 14% were at high risk, 31% at moderate risk, and 55% at low risk for acquiring an HIV infection. Major risk factors in the high-risk group were: 1) history of two or more sexually transmitted diseases (STD's) in the last five years (5%); 2) sex with an intravenous drug user (IVDU) (5%); or 3) six or more different sexual partners in the last year (3%). In the moderate risk group, risk factors included: 1) two to five sex partners in the last year (32%); and 2) a history of one STD in the last five years (14%). STD's were reported in 25%.
Conclusion: Based on the defined risk factors, a large number of women attending family planning clinics are at high or moderate risk for acquiring HIV infection. Health care providers should make an effort to identify these persons and counsel them regarding testing. Additionally, since these risks are preventable, attention should be focused on safer sex counseling and the provision of condoms.

F.C.747 Condom Use By Women Seeking Family Planning Services:

*Aral SO, **Soskolne V, ***Magder LS and *Bowen GS.
*Centers for Disease Control, Atlanta, Georgia, U.S.A.
**Hadassah Medical Organization, Jerusalem, Isreal
***Johns Hopkins University, Baltimore, Maryland, U.S.A.

Objectives: To determine levels of condom use with regular and casual sex partners among women, and to evaluate the effects of demographic and sexual behavioral characteristics on condom use.
Methods: 16,632 heterosexual women attending Pennsylvania Planned Parenthood family planning clinics responded to an anonymous self administered questionnaire. Questions included number of sex partners, sex partner characteristics, drug use and current condom use. Variables predictive of condom use were analyzed using multiple logistic regression.
Results: Most responding women never used condoms with regular partners (67%) or casual partners (72%). Few women always used condoms with regular (10%) or casual (14%) partners. Condom use with casual partners and condom use with regular partners were highly correlated (X^2=2646, df=4, p<0.0001). Non-white race, not-married status, more than high school education, and previous history of STD were predictive of condom use with both regular and casual partners after controlling for other factors. Women with regular or casual IVDU sex partners reported significantly lower condom use; OR=.57, CI=.66-.71; and OR=.66, CI=.49-.90 respectively. Having 2(OR=2.26, CI=1.90-2.70) and 3 or more (OR=2.99, CI=2.50-3.57) sex partners were predictive of condom use with casual partners but not with regular partners.
Conclusions: Interventions should emphasize consistency in condom use, and direct special attention to target women with sex partners who inject drugs.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.748

PERCEIVED RISK OF DEVELOPING AIDS AMONG A COHORT OF HETEROSEXUALS IN SOUTHEASTERN NEW ENGLAND

Feingold Lisa, Zierler S, Laufer D, Mayer K.
The New England Behavioral Health Study, Brown University, Providence, Rhode Island, USA

Objective: To describe perceived risk of developing AIDS among heterosexuals at varying levels of risk for HIV infection.
Methods: Cross sectional analysis of risk perception and risk assessment interviews from the first 631 enrollees in a population-based study of heterosexual transmission of HIV infection.
Results:

	Risk of HIV Infection		
Perceived Risk	Low (n=128)	Moderate (n=132)	High (n=371)
None/slight	67%	66%	36%
50/50 chance	9	14	28
High	2	3	29
Don't Know	21	17	7

Among those defined as high risk for HIV infection or AIDS (IVDU, HIV seropositives and those engaging in sex with a high risk partner), 36% underestimated their risk of developing AIDS, while 16% of those at moderate risk perceive themselves at no risk at all. Among those at moderate or high risk, males were slightly more likely to underestimate their risk (Prevalence ratio=1.3 95% c.i.=1.0,1.6). Non-white women were 2 times less likely to underestimate their risk relative to white women while no such difference existed among men. Age and sexuality (hetero/ bisexual) were not predictive of underestimation. Twelve percent of the cohort reported not knowing their risk of getting AIDS. Non-white race and age<=35 were predictive of those unable to classify their risk. Individuals who reported infrequent condom use were 2 times more likely to not know their risk of getting AIDS than those using condoms.
Conclusions: High levels of misperception and inability to classify one's risk of developing AIDS exist among heterosexually active adults at risk of acquiring and transmitting HIV infection.

F.C.749

SEX EDUCATION,EXPERIENCES AND BELIEFS IN ZAMBIA: IMPLICATIONS FOR AIDS CONTROL

Matondo Patrick, Tembo G.,Jungu G.,Sikazwe N.,Hira S.K.
University Teaching Hospital, Lusaka. Zambia.

OBJECTIVE:- To collect information about sex education, experiences and beliefs of Zambian adults which may provide basis for behavioural interventions.

METHODS:- Between March and June 1989, an anonymous structured questionnaire was administered to 300 randomly selected subjects at the University Teaching Hospital, Lusaka, Zambia. Subjects comprised 100 each of female family planning clients, female and male STD patients.
RESULTS:-

	MALE STD (%)	FEMALE STD(%)	P VALUE	FAMILY PLANNING	P VALUE
First learnt about sex from peers	77	78	NS	31	0.0001
First learnt about sex - 7-14 years	76	77	NS	27	0.0001
Had first intercourse 15-19	63	56	NS	27	0.0009
Had sex before marriage	97	88	0.02	64	0.00007
Had sex for money or gift	2	7	NS	15	NS
Should have sex before marriage	57	37	0.0046	26	0.094
Alcohol can cause unplanned sex	74	80	NS	47	0.0000
Schools should teach sex education	90	90	NS	90	NS

CONCLUSIONS:- There is need and support for sex education in schools to mould sexual behaviour positively. Sex education should begin in primary schools before child-to-child learning takes place, and strengthened in secondary schools before most children have their first sexual intercourse.

F.C.750

HIV-1 INFECTION OF THE LOWER FEMALE GENITAL TRACT.

Donegan, S.Patrick*; de la Monte, S.**; Steger, K.A.*; Dewees-Dunk, B.*; Byington, R.**; Hirsch, M.S.**; Craven, D.E.* *Boston City Hospital and **Massachusetts General Hospital. Boston, Massachusetts, U.S.A.

OBJECTIVE: To determine the presence of HIV-1 in tissue of the vagina and cervix in comparison to other sexually transmitted diseases.
METHODS: We studied secretions and tissue from 4 HIV-seropositive women, 2 high-risk seronegative women and 1 autopsy control. Cervical cultures were performed for Neisseria gonorrhoeae, Chlamydia trachomatis, herpes and cytomegalovirus. Vaginal and cervical biopsies were obtained for HIV-1 culture and were stained with immunohistochemical probes for HIV-1 (p24, gp41, gp120, open reading frame, Dupont, Inc.).
RESULTS: All 6 subjects were high-risk, multiparous women with a history of drug use; 4 were black and 2 were white; none had evidence of a current sexually transmitted disease. The 4 seropositive women had marked infiltration of the submucosa of the cervix with mononuclear cells that stained with the HIV probes (p24 (4/4), gp120 (3/4) and open reading frame (2/4)), as we previously reported (Pomerantz, Ann Intern Med, 1988); all 4 biopsies were HIV-1 culture negative. One high-risk seronegative subject had positive staining of the cervix with gp41. The second high-risk seronegative subject and the autopsy control were negative. In comparison to the positive cervical specimens, no immunohistochemical markers of HIV-1 infection or cultures for HIV-1 were found in the vaginal tissue.
CONCLUSIONS: These data provide no immunohistochemical or culture evidence for HIV-1 infection of the vagina and suggest the cervix as a more likely reservoir of HIV-1 infection. The data may be helpful in explaining the transmission of HIV-1 to sexual partners and its vertical transmission.

F.C.751

CANADIAN MULTICENTER STUDY OF HETEROSEXUAL HIV TRANSMISSION IN HEMOPHILIACS: RISK BEHAVIORS

Poon, Man-Chiu; Akabutu, J.; Card, R.; Gill, J.; Growe, G.; Marion, S.; Mathias, R.; Ramsum, D.; Tsoukas, C. Universities of Calgary, Alberta, Saskatchewan, British Columbia, and McGill, Canada.

Objective: To analyze risk behaviors in hemophilia HIV+ population who previously have been counseled on the transmission of HIV and importance of "safer sex" practice.
Methods: 53 couples in whom the male hemophilia partners were HIV+ were recruited into this prospective study in 1989. Each male (M) and female (F) participant independently completed a coded questionnaire in separate room. Questions asked include sharing of household items, sex, safer sex, and its relevance to the participants and genital infection. Additional questions for the females include assistance in home infusion, spills and needle sticks.
Results: At enrollment: the cohort had a high frequency of risk acitivity; 4 F partners were HIV+.
I.

	All frequencies (rare/sometimes/often/always)		Often to always	
	according to M	according to F	according to M	according to F
deep kissing	33/37 (89%)	36/39 (92%)	15/37 (41%)	13/39 (33%)
sex during menses	16/37 (43%)	15/38 (39%)	6/37 (16%)	7/38 (18%)
oral sex F to M	22/36 (61%)	27/40 (68%)	14/36 (39%)	7/40 (18%)
semen in mouth	--	8/40 (20%)	--	0
anal intercourse	5/36 (14%)	2/39 (5%)	0	0
no condom use	9/36 (25%)	15/34 (44%)	(15/36 M & 11/34 F always use condom)	

II. 20 F had 40 pregnancies with 33 children; 13 born in 1985-89; 2 pregnant at enrollment.
III. 7 F share razors, 10 F share toothbrushes with husband.
IV. None of 13 F helping with home infusion had needle stick; one had blood product spillage.
Conclusion: These initial visit data suggest that the standard "safer sex" counseling approach in this population has not been successful. Newer approaches which take into account the complex issues of sex, safer sex and procreation in this population is urgently needed for reduction of HIV transmission risk.

F.C.752 HEALTH PERSONNEL, TEACHERS AND STUDENTS KNOWLEDGE AND ATTITUDES ABOUT CAUSES, TRANSMISSION AND PREVENTION OF AIDS.

Ojofeitimi, Ebenezer O., Department of Community Health, Obafemi Awolowo University, Ile-Ife, Nigeria.

Open-ended as well as a multiple choice questionnaires were employed to access the knowledge and attitudes of randomly selected health personnel, teachers and students in Ile-Ife, Nigeria in connection with causes, transmission and prevention of AIDS. The levels of awareness among the respondents were scored cooded, grouped and statistically analysed.

As expected, there was a significant difference in the levels of awareness between health personnel and teachers (P/0.05): health personnel and student (P/0.0001): teachers and students (P/0.01). More than 30% of the students listed sin as one of the causes of AIDS and more than 90% of the respondents were not aware that AIDS could be transmitted to the foetus. Of significant finding was that more than two-thirds of the participants did not know that one could be infected without showing overt signs or symptoms. Less than 25% of the respondents listed having one sexual partner, using a condom during sex with causual friends or discouragement of polygamy as means of reducing risk of HIV transmission. Attitudes of respondents to AIDS patients was very negative. Based on poor knowledge of causes, transmission and prevention of AIDS and negative attitudes of students toward AIDS patients intensive and effective national education campaign on prevention & control of AIDS at the secondary school level should be given high priority in AIDS prevention programme in Africa.

F.C.753 KNOWLEDGE, ATTITUDE, BEHAVIOR AND PERCEPTION RELATED TO AIDS : THE FRENCH SURVEYS 1987-1990

Dab, William*; Moatti, J.P.**; Serrand, C.***; Menard, C.****; Pollak, M.*; Jayle, D.*
*Observatoire Régional de Santé d'Ile-de-France **INSERM U.240 ***AFLS ****CFES *****EHESS ******CRIPS.

Objectives : To assess the evolution of french public opinion about social perception of AIDS since the 1st survey (dec. 1987). To measure informational impact of national AIDS and condom promotion campaigns. To test the relationship between individual proximity with the disease and change of behavior.
Methods : Representative sample of France (n = 1000), Paris region (n = 900), Marseille region (n = 500). Quota sampling (age, sexe, occupation). Stratification by region and size of towns. Subjects of 18 years old and more. One hour face to face interview at home and a self questionnaire in written form on sexual behavior. Data collection feb. 1990.
Results : Good general knowledge of the main modes of transmission but persistence of false beliefs (20 - 30%). Negative correlation between the level of knowledge and coercive attitudes. No correlation between knowledge and protective behavior. Change of sexual behavior specially within the multipartner group. Support to mandatory screening is either related to coercive and preventive attitudes. Proximity to disease, voluntary HIV testing, antecedent of STD, number of partner are key factors related to condom use.
Conclusion : implication of the french KABP surveys for the public policy will be described. The discussion will emphasize the trade off between technical effectiveness (modification of individual behavior) and social effectiveness (solidarity with sick people) in AIDS prevention campaigns.

F.C.754 AIDS RELATED KNOWLEDGE, ATTITUDE AND INFECTION-RISK INDEX NUMBERS IN LOW AND HIGH-RISK PRACTICE GROUPS

DEL-RIO, AURORA, IZAZOLA, J.A., BASANEZ, R., PALACIOS, M., VALDESPINO, J.L., SEPULVEDA, J.
General Directorate of Epidemiology. Ministry of Health. Mexico.

OBJECTIVE: To compare the statistical behavior of index numbers for AIDS related knowledge, attitudes and infection-risk through sexual transmission, based on data obtained through surveys on low-risk sexual practices groups (general population, graduate level students, and health personnel) and high-risk sexual practices groups (female prostitutes and homosexual or bisexual males) interviewed in 6 Mexican cities.
METHODS: Based on data obtained through knowledge, attitude and behavior surveys (KAB), we designed 3 index numbers, individual results were submitted to ANOVA by group and into each group by socio-demographic variables and condom use frequency. Each index was calculated as follows: KNOWLEDGE: Proportion of correct answers of actual number of responses. ATTITUDES: Seventeen items were processed giving each possible answer a value either negative, neutral or positive, according to a scale. INFECTION-RISK through sexual transmission: we used a modified version of Cumulative Infection Probability (CIP) (Fineberg, Science 239).
RESULTS: Significant differences ($p<0.01$) on the 3 variables were found among subgroups. Knowledge levels were highest in male homosexuals (87.4%) and lowest in female prostitutes (79%). Attitude index was higher for high risk sexual practices groups (30.1 female prostitutes, 29.8 male homosexuals) and lowest in health personnel (27.5). These two variables showed significant differences ($p<0.01$) also into the groups. Knowledge levels were associated to age and education levels both in low and high risk groups and were also associated to sex and marital status in low risk groups. Attitude index was only associated to sex and education levels among general population, it also was associated to condom use frequency and education levels in both groups of high risk practices. Infection-risk index only pointed out female prostitutes with a significantly higher value. However when we modified seroprevalence value among potential sexual partners according to serologic results obtained in Mexico City homosexuals, the value increased from 3.3 to 19.7 (per 100,000).
CONCLUSIONS: Proposed index numbers permit a more comprehensive analysis of knowledge, attitudes and sexually transmitted infection risk as well as their interactions. These could be used in policy definition and educative strategy's design as well as in impact assessment designs. Also, the application of modified CIP shows that infection prevalence is one of the main explicative variables.

Determinants of Risk Behavior: Drug Users

F.C.755 RISK BEHAVIORS OF INFREQUENT IV COCAINE USERS

Snyder, Frederick R.*; Nemeth-Coslett, R.**; Myers, M.*; Young, P.*
*NOVA Research Company, Bethesda, Maryland, USA, **National Institute on Drug Abuse, Rockville, Maryland, USA

Objective: To examine the risk behaviors of infrequent IV cocaine users with respect to the length of time they have been injecting cocaine.
Methods: A homogeneous group of IV cocaine users (N=690) who inject once a week or less, and no other IV drug use, was obtained from over 14,000 intravenous drug users (IVDUs) participating in an AIDS demonstration research project sponsored by the National Institute on Drug Abuse. Injection duration was defined as : < 2 years, 2-4 years, 5 or more years. Data were analyzed using the chi-square test for trend.
Results: More recent cocaine injectors generally exhibit less risky behaviors than those who have injected for 2 or more years. Percentages of persons engaging in specific needle risk behaviors, going from < 2 years, to 2-4 years, to 5 or more years injection duration, respectively, are: shooting gallery use-10%, 19% and 21%; sharing needles with 2 or more persons - 50%, 60% and 64%; borrow used "works" - 54%, 69% and 67%. In all cases the chi-square test for trend was significant.

Over 40% of these IVDUs report engaging in sexual relations with non-IV sexual partners, placing the partner(s) at risk of infection. The extent to which these partners are knowledgeable of the IVDUs' injecting practices is unknown.
Conclusions: The data suggest that needle risk practices of low frequency IV cocaine injectors present considerable risk of HIV infection. Levels of risk increased as duration of cocaine injection increased, suggesting that AIDS prevention could be most effective early in a cocaine injector's career. An additional concern is that, due to the infrequent cocaine injection rate, sexual partners of these IVDUs may be unaware of this needle-use risk and thus allow themselves to be at risk for HIV infection.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.756

EXAMINING RISK FOR AIDS AMONG MINORITY INTRAVENOUS DRUG USERS (IVDUs)

Erickson, J.R.*; Estrada, A.*; Stevens, S.**
*University of Arizona, Tucson, Arizona
** Amity, Inc., Tucson, Arizona

Objective: Purposes of the study were to 1) document/examine AIDS risk behaviors among Black and Hispanic IVDUs; and, 2) compare risk for AIDS and AIDS knowledge among Black, Hispanic and Anglo IVDUs.
Methods: A convenient sample of adult IVDUs (n=472) who used IV drugs in the last six months were recruited through community outreach. Data on risky needle, sex practices and AIDS knowledge were obtained using the National Institute on Drug Abuse's AIDS Initial Assessment. Data were analyzed for frequencies (study purpose 1) and by analysis of variance (purpose 2).
Results: All ethnic minority IVDUs reported very little use of condoms regardless of the number of sex partners and number of IVDU partners. Needles were cleaned about half the time with the most frequently used cleaning method being a water rinse, especially by Hispanics. All ethnic groups had knowledge of AIDS with Hispanics having less knowledge than Anglos. Ninety-five percent of all IVDUs correctly identified sex without condoms and not cleaning needles with bleach as risky practices.
Conclusion: Ethnic minority IVDUs participate in high risk behaviors despite knowledge of AIDS. Interventions aimed at AIDS risk reduction must focus on other factors significant to behavior change among minorities.

F.C.757

HIV RISK BEHAVIORS AMONG NATIVE AMERICAN IVDU's

Estrada, Antonio L.*; Erickson, J.R.*; Stevens, S.**; Fernandez, M.*
*University of Arizona College of Medicine, Southwest Border Rural Health Research Center, Tucson, Arizona
** Amity, Inc., Tucson, Arizona

Objective: To examine HIV risk behaviors among Native American intravenous drug users in order to determine their prevalence and differences with Hispanics and Anglos.
Methods: A community-based outreach program (COPASA) consisting of a street outreach component was employed to identify and recruit IVDU's, using a convenience and focused (minority IVDU's) sampling procedure. Behaviors measured include both needle use and sexual practices. These areas were measured using a structured interview format (AIA-AIDS Initial Assessment). Univariate and multivariate analyses using Analysis of Variance were employed.
Results: Findings indicated that Native American IVDU's in our study have a high prevalence of needle and sexual behaviors which place them at risk for HIV infection. Comparisons made with Hispanic and Anglo IVDU's revealed no significant differences in the prevalence of risk behaviors.
Conclusion: The results of this preliminary study clearly show that Native American IVDU's have similar risk behaviors as other IVDU's in our study. Because very little is known about risk behaviors among Native Americans, the findings reported here add to our knowledge regarding HIV risk among this minority group.

F.C.758

RISK FACTORS FOR TRANSMISSION OF HIV AMONG INTRAVENOUS DRUG USERS IN LOS ANGELES, CALIFORNIA

Kerndt, PR*; Rose, T*; Mohilef, E*; Strantz, I**; Keasler, J**; Onorato, IM***; Ford, WL*.
*Los Angeles County Department of Health Services (LACDHS), AIDS Epidemiology Program, Los Angeles, CA, USA; **LACDHS, Drug Abuse Program Office, Los Angeles, CA, USA; ***Centers for Disease Control, Atlanta, GA, USA.

OBJECTIVE: To determine risk factors for transmission of HIV among intravenous drug users (IVDUs) in methadone treatment in Los Angeles County (LAC).
METHODS: Between March and October, 1989, a total of 1,072 IVDUs in methadone treatment at six clinics in LAC were interviewed to determine drug use practices and sexual behavior (in the previous 12 months) and confidentially tested by ELISA for HIV antibody (Ab); repeat positives were confirmed with immunofluorescence Ab and Western blot tests.
RESULTS: Overall, 2.4% (26/1072) were confirmed HIV Ab positive; rates were 2.3% (16/694) in men, and 2.4% (9/376) in women. Seroprevalence has been stable in these clinics over the past 1 1/2 years and in similar treatment settings in LAC since 1986. Only 1.2% (13/1066) identified themselves as homo/bisexual, and 2 (15%) of 13 were positive. Needle sharing was reported by 77% (782/1001); 40% reported having used bleach to clean their needles. Seventy percent (688/1004) reported never having used IV drugs outside LAC since 1978; however, seropositivity among those who did use drugs outside LAC was 4.0% (12/303) and this was strongly associated ($p<0.005$) with drug use in New York state. IVDUs who had used drugs in New York had a seroprevalence rate of 29.2% (7/24) and were more likely to report having shared needles with a homo/bisexual drug user, OR=4.2 (2.0,8.5).
CONCLUSIONS: HIV seroprevalence among IVDUs in methadone treatment in LAC has been low and stable over the past several years. Transmission may be related to drug use in other areas of the county and to needle sharing with other high risk groups. In LAC a history of IV drug use in New York state is strongly associated with HIV infection. Intervention efforts should be conducted with studies to evaluate the "slow" rate of HIV transmission in LAC.

F.C.759

HIV RELATED BEHAVIORS AMONG COCAINE USERS

Kowalewski, Mark R.*; Khalsa, Hari K.*; Anglin, M. Douglas*
*UCLA, Drug Abuse Research Group, California, USA

Objectives: To increase our understanding of the relationship between cocaine and crack use and HIV risk knowledge, attitudes and behaviors. Needle sharing is not the only risk for HIV infection among cocaine abusers. The disinhibiting effects of cocaine use may predispose abusers to HIV infection through high-risk sexual behavior.
Methods: Data for this study were collected between November 1988 and March 1989 from all male cocaine dependent patients admitted to a VA Hospital drug dependence ward. Interviews covered self-reported cocaine use and mode of administration, sexual behavior and attitudes regarding AIDS.
Results: Of 167 admissions, 29% reported taking an HIV test; 10% of these reported a positive result. Approximately 20% used IV cocaine in the past year and 95% of these shared needles. One quarter of the IV cocaine users used drugs with strangers or in shooting galleries; 20% reported always using bleach to clean needles. With regard to sexual practices, 7% of the sample reported sex with other males in the past year and 71% of these had anal sex; 86% reported having sex with females; 20% of these reported having anal sex with their partners; 80% of those having anal sex stated they never used condoms; 94% of those reporting sex with females noted they never used them during vaginal sex. Half the respondents reported being high on drugs or alcohol always or nearly always during sex; 21% reported paying for sex with drugs; 13% paid for sex with money; 7% reported being paid for sex. Behavioral change because of AIDS was reported by 73% and 42% of these stated they reduced the number of sex partners or were more selective about partners. Three-quarters of respondents stated that they were at the same or less risk of contracting AIDS than the general population.
Conclusion: Respondents generally did not believe they were at high risk for HIV infection. Yet they continued to engage in high risk sex and drug use behavior. Internalizing the danger of infection among this high risk population remains a challenge for AIDS education efforts.

F.C.760 PROCESS EVALUATION TECHNIQUES TO ASSIST IN ASCERTAINING INFORMATION REGARDING HIGH-RISK INJECTION DRUG USERS

Bowser, Benjamin*; Evans, P.**; Hembry, K.**; Gross, S.*; Dasher, T.*
*Bayview-Hunter's Point Foundation, San Francisco, California, USA, **San Francisco Department of Public Health, San Francisco, California, USA.

Objective: To utilize process evaluation techniques to better define and describe the social structure of injection drug users within an urban area with a high prevalence of injection drug use and a high proportion of African-Americans.
Methods: Interviews were conducted with outreach workers, who were engaged in an ethnographic community study, and with interviewers, who were administering a questionnaire to injection drug users from the same community.
Results: Based on these interviews, IDUs in this community were distributed as follows: (1) Street IDUs who "hang out" on the streets and in "shooting galleries" during the day; (2) IDUs who sleep during the day and are out in the street at night; (3) "Indoor" IDUs who shoot up at home alone and intentionally maintain little to no contact with street IDUs; (4) IDUs who maintain regular jobs and lead ordinary public lives; and (5) IDUs who occasionally "shoot up" once a month or on some irregular schedule. It is estimated that groups (2) through (5) comprise over half of the IDUs in this community.
Conclusions: Street-based outreach programs in this community of San Francisco reach those IDUs, who are more visible during the day. Additional strategies must be developed to reach the less "visible" IDUs. Such strategies can include general public education campaigns(including churches), media campaigns, and door-to-door programs, especially within public housing.

F.C.761 PREDICTORS OF CONDOM USE AMONG WOMEN SEXUAL PARTNERS OF INTRAVENOUS DRUG USERS

Choi, Kyung-Hee, Wermuth, L., Sorensen, J.
University of California, San Francisco Center for AIDS Prevention Studies (CAPS). San Francisco, California, U.S.A.

Objective: To identify predictors of condom use and to suggest appropriate prevention strategies for intravenous (IV) drug users and their sexual partners.
Methods: We interviewed 77 women sexual partners of IV drug users, excluding women who currently injected drugs. The outcome variable was any use of condoms vs. no use of condoms. Univariate analyses were used to examine individual effects of sociodemographics, relationship characteristics, risky behaviors, having received HIV antibody testing, AIDS knowledge, and perception of AIDS risk. Multiple logistic regression was then used to identify which of these was independently associated with condom use.
Results: The following variables were significantly associated with condom use in the multivariate logistic analysis: recent discussion of condom use with partner ($p = 0.04$), partner's neutral or positive reaction to suggestion of condom use ($p = 0.03$), and perception of AIDS risk ($p = 0.02$). Variables not associated with condom use were race, age, HIV antibody testing, and AIDS knowledge.
Conclusions: These findings suggest that individual counseling and health education alone may not be sufficient to bring about condom use in at-risk heterosexual couples. Future research should examine the efficacy for this group of existing interventions, and creative outreach strategies and effective models of couples counseling should be developed.

F.C.762 SEXUAL BEHAVIOR AND SEXUAL SELF IDENTITY IN MALE BISEXUAL AND HETEROSEXUAL IV DRUG USERS

Lewis, Diane K.* ** and Watters, J.K.** ***
*University of California, Santa Cruz, California, USA, **Urban Health Study, San Francisco, California, USA, ***University of California, San Francisco, California, USA.

Objectives: To determine the prevalence of high risk sexual behavior and the sexual self identity of male IV drug users with heterosexual and bisexual contacts.

Methods: Three hundred thirty-six male IV drug users with female sexual contacts, 43 (13%) of whom also reported male sexual contact, were interviewed as part of a 1989 cross-sectional study of risk factors for HIV transmission among 569 male and female IV drug users. Subjects were recruited using a targeted sampling technique.

Results: During the previous six months, 30 (70%) of the men engaging in bisexual behavior reported at least 1 male partner and 27 (63%) reported at least 1 female partner. Fourteen (33%) of those reporting bisexual activity and 121 (41%) of the 293 with heterosexual contacts only reported 2 or more female partners. Five (12%) of the men engaging in bisexual contacts reported heterosexual anal intercourse and 14 (33%) reported homosexual anal intercourse. Heterosexual anal intercourse was also reported by thirty-six (12%) of the men with exclusively heterosexual contacts. During the same period, 24 (56%) of the bisexually active men and 181 (62%) of the heterosexually active men said they never used condoms. Men with heterosexual and homosexual contacts were significantly more likely than men without homosexual contacts only to report exchanging sex for drugs or money (51% vs 16%, respectively, Rel. Prev. = 3.255, C.I. 2.196-4.835). Of the 43 men with male and female sexual partners, 21 (49%) self-identified as heterosexual, 16 (37%) as bisexual and 6 (14%) as gay. Virtually all men reporting exclusively heterosexual activity self-identified as heterosexual.

Conclusion: This study demonstrates that concerted sexual risk reduction outreach is needed to target male IV drug users. Those reporting sexual activity with men and women require special attention, since a substantial number may self-identify as heterosexual. They may be inadequately served in heterosexual AIDS prevention campaigns and unresponsive to strategies targeting self-identified bisexual/gay men.

F.C.763 TRENDS IN CRACK USE IN AN AIDS EPICENTER: SAN FRANCISCO, 1986-1989

Abramowitz, Al*; Guydish, J.**; Woods, W.**; and Clark, W.*
* Community Substance Abuse Services (CSAS), DPH, San Francisco, CA, USA.
**UCSF Center for AIDS Prevention Studies, San Francisco, CA, USA

Objective: To analyze trends in smokable cocaine (crack) use which is thought to be associated with higher risk of HIV infection.
Methods: CSAS collected standard admission data on all clients entering drug treatment from 1986 to 1989. Chi square analyses compared admits from a six month period ending Sept. 30, 1986 (n=3673) with admits in six months ending March 30, 1989 (n=4446).
Results: Thirty one percent reported some cocaine use in 1986, compared to 44% in 1989 ($p<.001$). As the primary drug, cocaine use increased from 11% in 1986 to 20% in 1989 ($p<.001$). For primary cocaine users, the proportion reporting smokable cocaine increased over time from 53% to 78% ($p<.001$), reflecting a major change for route of administration among all cocaine users entering treatment.
Conclusion: Smokable cocaine (crack) use more than tripled (222%) from 1986 to 1989. Latinos and youths under 26 account for increasing proportions of crack users, and Blacks constitute the majority of users in this sample. Crack may be associated with increasing rates of syphilis and may contribute to HIV transmission through immunosuppressive drug effects, unsafe needle use and unprotected sex. There is a clear and present danger of HIV infection associated with crack cocaine use, particularly among minority youth, and an urgent need for preventive interventions targeting these groups.

TRACK C: EPIDEMIOLOGY & PREVENTION
POSTER SESSION

F.C.764 COCAINE USE ASSOCIATED WITH INCREASED RISK BEHAVIOR FOR IVDUS WHO SHARE NEEDLES

Clark, W*; Guydish, J**; Abramowitz, A*; Woods, W**; Sorensen,J**
*Community Substance Abuse Services (CSAS), Department of Public Health
**UCSF Center for AIDS Prevention Studies, San Francisco, California, USA

Objective: Prior studies have demonstrated that, among IVDUs, those who also use cocaine are more likely to report needle sharing. To further explore the role of cocaine use in this population, we compared cocaine using to non-cocaine using needle sharers on demographic and drug use behavior variables.
Method: Standard data are collected for all individuals entering public funded drug treatment programs in San Francisco. We selected all IVDUs entering treatment in Fiscal Year 1988-89 who reported sharing needles in the month prior to treatment. In univariate analyses, we compared those who reported using cocaine (n=422) with those who report not using cocaine (n=775).
Results: Needle sharing cocaine users did not differ from non-users in terms of age, sex, education, living situation, or number of prior drug treatment admissions. However, cocaine users reported more frequent drug use (p< 001) and were more likely to report multiple needle sharing partners (p< .001). Black (p< .001) and Latino (p< .05) sharers were more likely to use cocaine than other ethnic groups.
Conclusion: In this sample of needle sharers, already at high risk of HIV infection, cocaine users incur additional risk associated with using drugs more often and sharing with more partners. HIV prevention strategies should specifically target IVDUs who also use cocaine.

F.C.765 SEXUAL BEHAVIOR AND HIV INFECTION AMONG WOMEN INTRAVENOUS DRUG USERS

McKay, Carolyn*; Chitwood, D.D.*, McCoy, H.V.**, Comerford,M.*
*University of Miami School of Medicine
**Florida International University, Miami, FL, USA

OBJECTIVE: To describe the sexual behavior and risk for HIV infection among women intravenous drug users.
METHODS: Intravenous drug users from drug networks in Miami, Florida were recruited to participate in an outreach study which measures the effectiveness of two intervention programs to reduce risk of HIV infection. As part of this study, 150 women IVDU's were interviewed to assess sexual and drug using behaviors. In addition, blood samples were drawn for HIV testing and pre- and post-test counseling was conducted.
RESULTS: Of the women who reported sexual activity, the majority (70%) reported sex with multiple partners and were more likely (78% condom use, 22% no condom use) to use condom than women who reported sexual activity (30%) with single partners (20% condom use, 80% no condom use). Women with single partners as well as women with multiple partners tend to have partners who are also IVDUs. Rates of seropositivity were in excess of 30% for women with single partners and women with multiple partners.
CONCLUSION: In developing guidelines for intervention programs, individuals involved in monogamous relationships should be a major focus for safer sex education.

F.C.766 AIDS RISK BEHAVIOR CHANGE IN FEMALE SEXUAL PARTNERS OF IVDUs

McCoy, H. Virginia*; McCoy, C.B.**; Trapido, E.**; Chitwood, D.**; McKay, C.**; Vogel, J.** *Florida International University, Miami, Florida, **University of Miami School of Medicine, Miami, Florida.

Objective: An intervention program was conducted to change high risk sexual behaviors of female sexual partners of IVDUs. Factors which influenced these behavior changes were analyzed.
Methods: Sexual partners of IVDUs were recruited into a community outreach demonstration project which evaluated the efficacy of intervention programs in changing high risk behaviors of IVDUs and sexual partners. A baseline assessment was conducted upon enrollment in the study and participants were randomized into a standard or an enhanced intervention program. They were reassessed after a six-month interval to ascertain changes in risk behaviors. 148 female sexual partners who had never used IV drugs were assessed at baseline and at 6-month follow-up. Multiple linear regression analysis was used to determine the influence of perceived and actual behavioral changes which influenced risky sexual behavior change.
Results: Almost half of the subjects made positive changes in sexual behaviors; about 10% made changes which increased their risks for AIDS; but the remainder made no changes at all. The most significant change was made in the number of sexual partners who used IV drugs--two-thirds of subjects reduced the number of partners. The intervention program assignment was also significantly different for enhanced and standard groups. Multiple linear regression analysis resulted in an R of 0.30 (p < .05).
Conclusion: Perceived behavioral changes were as important influences as actual behavior changes in reducing AIDS risk behaviors in female sexual partners of IVDUs.

F.C.767 COCAINE INJECTION AS A PREDICTOR OF HIV RISK BEHAVIORS

Wiebel, W.; Guydan, Cheryl; Chene, D.
University of Illinois at Chicago, Chicago, Illinois, USA

Objective: To examine the association between the frequency and number of HIV risk behaviors in a street-based sample of cocaine injectors vs. injectors of other drugs.
Methods: We conducted face-to-face structured interviews in 4 U.S. cities with 1,887 active intravenous drug users (IVDUs) not in treatment. Subjects were asked about drug use, needle sharing and cleaning, and shooting gallery activities during the prior 6-month period.
Results: Compared to IVDUs not injecting cocaine, cocaine injectors who shoot 4+ times a day, not surprisingly, are more likely to inject in a shooting gallery, share needles, rinse water, and a cooker/cotton. They also are more likely to use bleach as a needle disinfectant. Analysis of associations between risk behaviors and a multivariable discrimination of non-cocaine and coke injectors, controlling for frequency of injection, is in progress.

	inject shooting gallery	clean with bleach	shoot alone >half time	share used needles	share rinse water	share cooker/ cotton
non-cocaine	27%	63%	51%	50%	69%	75%
daily+ coke	52%	76%	43%	63%	81%	89%

Conclusion: Although cocaine injectors tend to use bleach more to clean their needles than non-cocaine injectors, they expose themselves to relatively greater risk by using shooting galleries and sharing paraphernalia more frequently. These findings suggest the need to tailor intervention strategies to groups of drug injectors who may engage in differing patterns of risk behaviors.

626

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

Community Organization and Advocacy

F.D.768 ORGANIZATION OF A HEALTH CARE AND EDUCATION CENTER FOR HIGH RISK GROUPS IN ECUADOR.

Brito, Germania.*; Jara, R.**; Betancourt, M.*; Montoya, O.**; Ruiz, P.* and Sempertegui, R.*
* Ministry of Public Health, Quito, Ecuador.
** Centro Medico Entre Amigos, Quito, Ecuador.

Objective. To establish an accesible and confidential health care and AIDS education center directed towards high risk groups as part of the National AIDS Prevention and Control Campaign.
Methods. Initial contact was made within the homosexual-bisexual community of Quito, by offering educatonal courses on AIDS and safe sex. Two thousand eigh-hundred individuals participated in a total of 70 seminars. One-hundred male homosexuales volunteered to be community leaders each being responsable for informing and educating 10 other homosexuales on AIDS and safe sex. The "Entre Amigos Center" was created as a pilot project, due to the need for specific treatment and counseling which could not be provided solely by the group leaders such as STD treatment, epidimiological follow-up, confidential AIDS testing, psicological treatment, as well as social and economic aid. Funding was by the Ministry of Health from donations by USAID, the project directors are from the Ministry, all other personal including medical, paramedical and socialworkers are volunteers from the community. Prostitutes are now interested in the project and participating as well. The Center opened in November 1989.
Results. Due to the project's acceptance there are now 30 group leaders with a total of 3000 high risk behavior participants. Three seminars on safe sex for group leaders have been given. A total of 1300 AIDS tests have been performed as well as atention to numerous medical and psicological cases.
Conclusion. Voluntary community based centers are an effective means for establishing AIDS prevention and control campiagns without discrimination and in turn provide not only health care but solidarity, self-sufficiency and selfestime within the community.

F.D.769 WORKING WITH NON-GOVERNMENTAL ORGANIZATIONS (NGOS) TO IMPLEMENT A NATIONAL HIV PREVENTION STRATEGY

Fernandez, M. I.; Dietz, Susan, E.; West, G. R.; Bowen. G. S; Cahill, K.
Centers for Disease Control, Atlanta, Georgia, U.S.A.

Objective. To describe and review the progress of a program to promote and strengthen the participation of NGOs in targeted, culturally relevant efforts to prevent the spread of HIV among persons at risk of infection.
Methods. Implementation of a national strategy to prevent the spread of HIV requires mobilization, coordination, and integration of public and private organizations. Governmental agencies have the monetary resources and public health expertise necessary to mount prevention programs, but may lack access to and credibility with persons at risk of infection. NGOs often have access to and can effectively provide culturally relevant prevention services, but may lack the fiscal and human resources necessary to implement these programs. To assure implementation of a comprehensive national HIV prevention strategy, CDC launched 4 initiatives to provide financial and technical assistance to assist NGOs in planning, implementing, and evaluating HIV prevention programs. Interventions funded include: street outreach, peer education, materials development, theatre, mass media etc.
Results. In 1989, more than 600 NGOs received approximately $33 million in financial assistance. A significant proportion direct efforts towards "hard to reach", high risk populations. For instance, NGOs funded under one of the initiatives are serving youth (45%), drug users (31%), men who have sex with men (16%), women at risk (13%), sexual partners of persons who infected (9%), homeless (8%),and prostitutes (8%). Technical assistance in organizational development, program implementation and evaluation, and other areas were provided to more than 90% of NGOs. Analyses of organizational variables, type of intervention, demographic characteristics, behavioral risk data, number of persons served, program impact and type of technical assistance provided will be presented. Preliminary data suggest organizational variables (e.g. size, budget, experience) are strongly correlated with successful program implementation. The implications of these findings for the comprehensive national strategy will be discussed.
Conclusion. An effective assistance program should include both financial and technical support. If the preliminary results are sustained, technical assistance efforts should focus greater attention on organizational variables.

F.D.770 THE LOCAL HEALTH DEPARTMENT AS THE FOCAL POINT IN THE COMMUNITY RESPONSE TO AIDS

Werdegar, David; Peters, T.; Rutherford, G.W.
San Francisco Department of Public Health (SFDPH), San Francisco, CA, USA

Objective: To describe the role of the local health department in the design and delivery of HIV prevention and health care programs.
Methods: We reviewed the development and integration of community-based and institutionally based AIDS services in San Francisco with respect to the role of SFDPH in the planning and delivery of these services.
Results: Early in the epidemic, SFDPH assumed responsibility for leadership and coordination of the community's response to AIDS by serving as the focal point for (1) gathering epidemiologic data necessary for resource planning, (2) development of education/prevention programs, (3) organization of treatment and support services, and (4) coordination of funding for the overall effort. Externally, SFDPH coordinated with public, private, volunteer, advocacy, professional, and University entities to assure a combined response. Internally, SFDPH coordinated traditional public health services (communicable disease and STD control, maternal-child health, substance abuse, mental health, planning) and public institutions (community-based primary care centers, tertiary hospital care) to supplement and expand existing services. SFDPH also provided a natural linkage to other city agencies, such as the school district, social services, and jails.
Conclusions: This experience demonstrates the central role that a local health department can play in the AIDS epidemic, not by providing all services but by serving as the focal point for coordinating, and thereby maximizing, the community response. As local health departments throughout the world have similar basic characteristics, the opportunity for playing this central role exists elsewhere as well.

F.D.771 DRUG ABUSE AND AIDS COMMUNITY EDUCATION PROGRAM: ORGANIZING THE COMMUNITY TO BECOME INVOLVED

Ferguson, Leona D*; Link W E **
*National Institute on Drug Abuse, Rockville, Maryland, USA. **R O W Sciences, Inc , Rockville, Maryland, USA

Objective: Assist local and national organizations/coalitions to plan and conduct public education programs regarding the relationship between drug abuse and AIDS.
Methods: The program elements are: 1) Skills building/enhancing workshops to assist local communities develop and promote community education about drug abuse and HIV infection; 2) Conferences for ethnic groups designed to empower individuals and organizations to become involved in reducing drug abuse-related HIV infection in their communities; 3)Technical assistance to individuals and groups representing local, regional, national constituencies in the areas of: message/product development; community education and communications strategies; and drug abuse related HIV/AIDS materials assessment and utilization.
Results: Since this is a program effort rather than a research project, traditional measures of impact are not possible. However, since October '87 20 city-wide networks/coalitions have been formed as a result of the training workshops. Many are now conducting their own education activities. A national Drug Abuse and AIDS Community Education Network has also been formed to support these local groups. Regional conferences for the African-American and Latino communities and a national conference for Asian Pacific Americans will be held prior to September 30, 1990. Technical Assistance statistics and results of the ethnic conferences will be presented.
Conclusion: Local organizations can be organized to effectively reach the general public and high risk groups with drugs and AIDS education

F.D.772 A COMMUNITY BASED EFFORT TO ESTABLISH LEGAL NEEDLE EXCHANGE IN THE STATE OF HAWAII

Schouten, Jeffry *; Thorburn, K.**; Diamond, M.**; Kendro, B.***; Partika, N.****; Peak, A.*; Starbuck, G.**
*Life Foundation, Honolulu, Hawaii, U.S.A. ** John A. Burns School of Medicine, University of Hawaii, Honolulu, Hawaii, U.S.A., *** Hawaii Medical Association, Honolulu, Hawaii, U.S.A., **** Governor's Committee on AIDS, Honolulu, Hawaii, U.S.A.

Objective: To overcome public, law enforcement and legislative opposition to sterile needle and syringe exchange, representatives from community-based public and private agencies formed The Hawaii Sterile Needle Exchange Coalition to establish such a program for Hawaii.
Methods: The Coalition met regularly prior to the 1990 Hawaii Legislative session to address four areas: legislative strategy, law enforcement concerns, public education and program development and evaluation.
Results: The Coalition's efforts made needle exchange a legitimate issue regarding the public's health. It developed language for a new needle exchange bill for the 1990 session. It established a wide base of support in the medical and public health community, enlisted backing among lawmakers and communicated in depth with the law enforcement community. Due to the Coalition's efforts, needle exchange has received excellent media coverage and public discussion, enlisting wide community support.
Conclusions: Despite a State anti-drug paraphernalia law , it appears that a pilot needle exchange program became politically and socially viable for Hawaii. The Coalition has been successful in broadening public discussion, enlisting promotion among the public health and medical community , lobbying legislators and reducing opposition among law enforcement representatives. If the Coalition's efforts are successful, Hawaii will be the first state in the nation to have a state approved needle exchange program coexisting with an anti-drug paraphernalia law.

F.D.773 COMMUNITY-BASED LEGAL SERVICE DELIVERY TO HIV-AFFECTED COMMUNITIES OF COLOR

Hansell, David*; Calabrese, Teresa
*Director of Legal Services, Gay Men's Health Crisis, New York

Objective: To reach HIV-affected communities of color in New York City with legal services in such areas as public benefits, estate planning, insurance, housing, family law, debt problems, discrimination and immigration.

Method: The project pairs the expertise in legal service delivery of a major AIDS service organization (Gay Men's Health Crisis) with access to underserved communities of color through organizations offering other supportive HIV services (Minority Task Force on AIDS and AIDS Center of Queens County). GMHC provides technical assistance in establishing legal programs based at these organizations. Programs are staffed by volunteer attorneys in the community, and overseen by advisory committees also composed of volunteer attorneys. Legal program is integrated into overall service delivery through agency intake and referral process.
Results: Project is in progress. Advisory committees have been formed, educational forums for clients on legal issues have been initiated, and one-on-one legal clinics are soon to begin.
Conclusion: Preliminary success indicates that cooperative approach of this sort offers the opportunity, with limited resources, to incorporate legal services into spectrum of services provided by AIDS organizations in communities of color.

F.D.775 AIDS PREVENTION, SERVICE DELIVERY AND EDUCATION THROUGH COMMUNITY-BASED ORGANIZATIONS IN THE SOUTH BRONX, NEW YORK CITY"

Lee, Jacalyn; Freudenberg, N.; Trinidad, U. Hunter College Center For Community Action To Prevent AIDS

Objective: To assist community groups in the Mott Haven section of the South Bronx, an area of high seroprevalence, in integrating AIDS prevention, education and service delivery into their existing programs.
Methods: 32 community and religious leaders and staff of community health and social service agencies were interviewed using a semi-structured questionnaire. Respondents were asked about their group's AIDS-related activities and obstacles to future activities. In response to obstacles identified, technical assistance was provided.
Results: Interviews identified many obstacles to community groups taking on AIDS prevention including lack of funds and appropriate materials, and staff resistance. 5 groups were given technical assistance in these areas. All groups interviewed identified lack of AIDS services in the community as a major obstacle. Technical assistance was given on forming a network to determine an agenda for AIDS prevention in Mott Haven and to sponsor community AIDS projects. As a result, groups increased the number of AIDS prevention and education activities sponsored.
Conclusion: With technical assistance and support, community groups can play an effective and significant role in increasing community awareness and advocacy on AIDS education, prevention and service delivery.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.776 YOU CAN GET THERE FROM HERE: A CITY'S STRATEGIC RESPONSE TO AIDS

Getzenberg, Joy; Lenihan, P.; Salem, E.
Chicago Department of Health, Chicago, Illinois, USA

Objective: The AIDS Strategic Plan was developed to set a direction for a comprehensive response to HIV infection and AIDS and focus public and private efforts to implement that response.
Methods: A highly participatory 8-month planning process was used, directly involving an advisory council of over 100 community leaders, government representatives, service providers, and persons with AIDS. Each member worked with the Health Department to draw a 5-year profile of HIV in the City, identify the needs created by the epidemic, and make over 200 recommendations.
Results: The Plan and the planning process represent a case study as to how diverse interests can be effectively integrated behind a comprehensive overall agenda. Not only did the process result in the City's best thinking on AIDS, but also unified disparate interest groups. As a product of the community, the Plan represents the City's best thinking on AIDS and thus can guide the actions of area service providers, philanthropies, and government agencies.
Conclusions: An implementable plan must be developed through the broad-based participation and commitment of organizations and individuals. The planning process used was as important as the plan itself; it created a coalescence of over 100 service providers, many of whom had never before met, and created a forum for the open exchange of ideas. The extent to which the collaborative process mitigated community divisiveness was not expected. New working relationships were forged, not just between the City and service providers, but also among the providers themselves. These potential partnerships will prove invaluable as needs continue to exceed available resources.

F.D.777 MODEL SYSTEM FOR AIDS PLANNING AND PROGRAM DEVELOPMENT IN A MEDIUM SIZED CITY WITH HIGH NUMBERS OF MINORITY INTRAVENOUS DRUG USERS

Miller, Laurel A., Bellefeuille, D. New Bedford Aids Consortium, New Bedford, Ma., USA

Objective: To develop a model system for needs assessment and service delivery which can be used by medium sized cities faced with growing populations of HIV-infected persons who are predominantly minority intravenous drug users(IVDU) with the goal of providing comprehensive medical and educational services and avoiding duplication of effort.
Methods: New Bedford(NB), a city of 100 thousand is a port city in southeastern Ma. with a varied ethnic/minority population including Hispanics, Portuguese, Cape Verdeans and Blacks. Approximately 1200-1500 IVDU live in the area; as many as 30-35% may be infected with HIV. Given the magnitude of this problem NB received a grant from the Ma. Health Dept in July 1989 to be used for AIDS planning and program development. The NB AIDS Consortium(AC) was created; members include the mayor's Office of Human Services, the NB Department of Health, St Luke's Hospital (the only hospital in the city), the NB Area Center for Human Services (mental health services, substance abuse treatment and Project CARE, the local AIDS advocacy group), and the Greater NB Community Health Center (medical clinic). The AC employs two part-time staff, a health care planner/grant writer and a physician/AIDS specialist. The AC meets monthly or biweekly.
Results: 1) The AC has prepared a report estimating numbers of HIV-infected persons in the NB area and has used these numbers to project service needs in 1991. 2) The AC has identified social service agencies and health care providers in the area who may provide medical and educational services to HIV-infected individuals and those at risk. 3) The AC has prepared a questionnaire to be sent to service providers to assess numbers of clients/patients being served, to identify gaps in existing services and to determine need for education and training. 4) The AC provided technical assistance to the Community Health Center which resulted in funding a program for AIDS education for health care providers and patients.
Conclusion: In order to adequately meet current and future needs of HIV-infected persons and to prevent further spread of this disease, coordinated broad-based community planning and program development is essential; this should be implemented before crises in service delivery develop and should be ongoing.

F.D.778 PUBLIC BENEFITS ADVOCACY SERVICES FOR PWAs

McCormack, Thomas P.*
*Whitman-Walker Clinic, Washington, D.C., U.S.A.
*Yale University Press, New Haven, CT, U.S.A.

Objective: A review of U.S. public income and health programs; their eligibility rules; planning, organizing, and training for benefits advocacy; skills and methods in securing coverage for PWAs; and discussion of reform and expansion opportunities in program coverage.
Methods: Presentation and review on Social Security Disability Insurance, Supplemental Security Income, welfare, Medicaid, Medicare, and other programs' eligibility rules; in-depth discussion of skills, methods and problems in advocating for PWAs in securing program benefits; questions and answers and open discussion with attendees on programs, methods and problems; and, finally, presentation on, and open discussion about, prospects for program reform and expansion.
Results: Education of PWAs, health care workers, social services staff, volunteers and other interested advocates to bring about fuller PWA access to existing and broadened health and income assistance programs.
Conclusion: More timely, skilled, and thorough use of public health and income programs for PWAs through strengthened skills and knowledge of these programs throughout the AIDS services community; and the development of a detailed program eligibility data base which will then permit "fine-tuned" program reform and expansion agendas to better meet PWA health and income needs.
(The author is open to the Conference staff's suggestions for/designation of possible co-panelists, or the consolidation of this abstract proposal with similar proposed presentations.)

F.D.779 COMMUNITY-BASED HIV PREVENTION IN NEW YORK CITY: LESSONS LEARNED AS YEAR FOUR APPROACHES

*Omi, Joanna, *Lance, J., *Hayes-Cozier, R., *Rautenberg, E.
*New York City Department of Health, Division of AIDS Program Services, USA

Objective: To describe administrative, political and evaluation issues which arose in the implementation of a complex initiative to support community-based HIV prevention services in a high-incidence metropolitan area.

Methods: Since 1987 the New York City Department of Health (NYCDOH) has provided financial support and technical assistance to community-based agencies for the provision of HIV education and outreach by and for ethnic and racial minorities. In FY 90, over $5.6 million will be directed toward approximately 60 organizations selected through a competetive bid process.

Results: Funds were distributed over a wide range of service organizations, including long-standing to newly-formed organizations, AIDS-specific and comprehensive service delivery models. A variety of program designs and educational methods have resulted. Managment of this effort required the development of a comprehensive, yet flexible administrative infrastruture within NYCDOH.

Conclusions: Prevention efforts which encourage the adoption of risk-reducing behaviors can effectively be supported through public-private partnerships. Discussion will include a review of lessons learned and implications for the future. Specific examples of barriers and conducive factors, programs and local responses will be provided.

F.D.780

THE AIDS HEALTH PROMOTION WORKER:
A COMMUNITY BASED VOLUNTEER

Mwilu, Roy*; Rader, A.; Campbell, I.; Towani, C.
*Chikankata Hospital, Zambia

Objectives: 1) To define a group of community selected volunteers known as AIDS Health Promotion Workers (AHPWs); 2) to discuss the role of an AHPW in extending a home based care and prevention program into a strategy for control of AIDS in a rural district in Zambia.

Methods: Several groups of community selected volunteers have been trained at The Salvation Army Chikankata Hospital. A description is given of: 1) selection criteria and process; 2) curriculum and training approach; 3) evaluation of skills development through a) training units, b) field assessment by hospital team, and c) community response; 4) issues raised during re-entry to community after training.

Results: The role of an AHPW is discussed in relation to 1) a home based care and prevention program; 2) community counselling; 3) the Village Health Advisory Committee.

Conclusion: The definition of a nonprofessional volunteer as part of a strategy for control of AIDS includes support and advocacy for the patient and family, and the maintenance of initiative/momentum for prevention and control measures within the community.

F.D.781

PROMOTION OF SOCIAL MOBILIZATION IN THE FIGHT AGAINST AIDS

Ornelas, Gloria*; Alcántara, V.*; Chávez-Peón, F.*; Sepúlveda, J.*.
* National Council for Prevention and Control of AIDS (CONASIDA), Ministry of Health of México.

Objective: One of the objectives of CONASIDA is to promote, coordinate and support the participation of the community in activities in the fight AIDS through combined efforts to increase effectiveness.
Methods: AIDS has been increasing social problems because its characteristics cannot be confronted institutionally in addition to the growing magni' rde of the problem and because government actions are insufficient to control the dissemination of the disease which requires the participation of all members of society. CONASIDA is the entity at the national level in charge of coordinating governmental and non-governmetal actions in the fight against AIDS and its promotes the interaction of the public, private and social sectors to achieve a consensus and congruency in the measures adopted to confront this disease.
Results: At present there exists more than 30 non-governmetal civil associations or groups which participate in activities for the prevention and control of AIDS, and the majority maintain close relations with CONASIDA.
CONASIDA has supported civilian groups with assessment, training courses, and providing educatic nal material, among other activities, as well as involving them with a major role in national congresses and events for them to express their experiences, ideas and opinions. One example of this was the realization of the First National Encounter on AIDS and Social Participation undertaken in May of 1989 in Mexico City.
Conclusion: Non-governmental civilian groups and associations are an invaluable resource for the social penetration in the prevention of AIDS, mainly in difficult to reach grups such as homosexuals, male and female prostitutes, and street children, this being because they are able to communicate in the same language3 and have more credibility with them.

F.D.782

BRENDA LEE'S HOUSE: A PLACE FOR COUNSELLING HIGH RISK POPULATION

Brenda Lee;Fernandes,M.E.;Inglesi,E.;Grandi,J.L.;
Kakihara,R.H.;Ferreira,A.C.
The Reference and Training Center for Aids - Sao Paulo

Since 1984,Mr. Cicero,a well known transvestite in the city of Sao Paulo,by the name of Mrs. Brenda Lee,started to give in her own house, assistance to HIV/AIDS patients with social problems. In the 2nd semester of 1988,she changed her house, a shelter for transvestites,in a home care for HIV/AIDS patientes.A formal agreement with the State Health Department was signed in order to give multiprofessional assistance by the health team from the Reference and Training Center for Aids and to give financial support each month.The house has 3 floors,9 bedrooms and 20 beds for Aids patients with social problems.From october,1988 until january,5,1990,68 patients were sent to the house:26 died on treatment,20 are still living there and the other 23 got better and left the house.Results:We indentify important positive points in the operation of the house:1)Close cooperation and assistance of the Reference and Training Center for Aids;2)Brenda Lee's special involvement and compromise;3)the acceptance,tolerance of prostitution, use of drugs,homosexuality,heterosexuality;4)The cooperation and integration with religious communities and non-governamental organizations;5)The house is a meeting point of high risk people (H.R.P.).
Conclusion:The routine home care is well established we are going to create a couselling center for H.R.P. in the house .

F.D.783

OVERCOMING OBSTACLES TO PROJECT IMPLEMENTATION:
A RURAL ZAMBIAN PERSPECTIVE

Rader, Alison*; Campbell, I.
*The Salvation Army Chikankata Hospital, Zambia

Objective: To explore the question: How does a good idea for service to people become a good program--well implemented, so that goals and objectives can be met and evaluated?
Method: Problems encountered in implementation are listed. Problem solving is discussed in terms of task analysis and process analysis. Examples are drawn from the development of the AIDS Care and Prevention program at Chikankata Hospital in rural Zambia. The program includes: 1) home based care and prevention, and community counselling; 2) hospital intervention and training for community selected AIDS Health Promotion Workers; and 3) AIDS Management Training Seminars.
Results: The principles underlying successful task achievement are described as follows: 1) team approach; 2) sustainability of people, programs and finance through which the key themes of management are implemented (decentralization, integration, skills building, consensus on major goals); 3) hope, based on the capacity of the community to realistically incorporate AIDS into normal life, to share information respectfully and confidentially, and to reach consensus about significant change in lifestyle.
Conclusion: Obstacles will be overcome if: 1) strengths of communities are defined; 2) strengths of teams are defined; 3) there is respect for the balance between task and process; 4) it is realized that any community which successfully deals with AIDS will deal with the other important problems of its life.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.784 THE ROLE OF A PARTICIPANT ADVISORY BOARD IN THE MANAGEMENT OF PROSPECTIVE COHORT STUDIES IN HIV RESEARCH.

Mattison, Andrew, Weinrich J., Atkinson, H., Grant, I., Graham, B., Chandler, J., University of California, San Diego, USA.

Objectives: To encourage enrollment of research volunteers. To maintain satisfactory levels of participation of volunteers. To provide researchers with guidelines for demonstrating a high level of concern for the individual's well being of volunteers and to provide a formal mechanism for volunteers' input to researchers with regard to their participation as study subjects.
Methods: A four-month Participant's Advisory Board pilot was designed and consisted of study subjects from an existing HIV longitudinal study. Individuals were selected by research staff recommendations. Participants reflected the full range of HIV disease CDC status and included controls. This pilot Board identified multiple areas of concern with regard to themselves as study subjects.
Results: A formal report was submitted to the HIV Center Director and Council of Investigators with numerous recommendations which are being considered or implemented such as : 1) development of a Participant's Research Handbook; 2) a videotape for volunteers which explains the scope of the research and the procedures they will undergo. Investigators have utilized recommendations in developing the Center's Policies and Procedures Manual.
Conclusion: Researchers found the pilot Board as representing them and empowering them as study subjects whose concerns are heard and dealt with in an organized fashion. The establishment of an ongoing Board for the HIV Center has been approved. The Board's current functioning reflects the Center's high priority for humane and considerate care of its volunteers.

F.D.785 PEER PARTICIPATION IN POSTER PRODUCTION.

Graves, Genevieve. QuIVAA. Brisbane, Queensland. Australia.

The Queensland Intravenous AIDS Association (QuIVAA) is a community group comprised of users and ex users of injecting drugs, health professionals and other interested people. QuIVAA uses a peer education model similar to other user groups world wide, aimed at empowering users to take control of their own AIDS prevention.
The method of production of all QuIVAA resources is similar to this poster. QuIVAA convenes focus groups of users to design and where possible, produce resources. Four focus groups,(a total of 27 people) were involved in the design and production. The first focus group discussed various options and suggested the initial format. The images were then drawn by a member of QuIVAA The second group designed layout and captions for the posters. The ideas and drawings were then given to a graphic artist for layout. The third focus group examined and changed the layout, and the fourth evaluated the posters and made changes after the first print run.
The process has a remarkable effect on the self esteem of participants. Also, each focus group is preceded by an AIDS prevention workshop, thus directly educating the group invoved. The involvement in the design of the posters promotes a sense of ownership of the organisation and of the message. The posters are culturally relevant and therefore are well received.
QuIVAA is successful in promoting user ownership because of our commitment to appropriate processes and the fact that the majority of both the management committee and staff are users and ex users. The concept of government funding of organisations such as QuIVAA represents a radical departure from the more traditional forms of health promotions. While this has been a gamble for the Queenland Health Department it has been one that has paid off and should be considered an important element in AIDS prevention strategies.

F.D.786 PEER SUPPORT FOR PEOPLE WHO ARE HIV POSITIVE - AN EVALUATION OF AN INNOVATIVE PROGRAM

Giblett, Terence
AIDS Council of NSW, Sydney, Australia

Objective: Poster outlines the development and implementation of a comprehensive peer support program conducted by the AIDS Council of NSW. The first twelve months of the project are detailed and an analysis of both the cost and benefits of the program is undertaken. The specific program areas evaluated are:
Peer support groups for gay men who have been HIV positive for some time
Peer support groups for young gay men
Peer support groups for women
An information dissemination program.
Results: An evaluation is conducted on the recruitment of and training provided to volunteer peer support group facilitators. Evaluations were collected from participants of the support groups and those attending the information dissemination program. The economic viability and the educative benefits of developing peer support programs are investigated.
Conclusion: Peer support programs appear to be a cost effective way of providing support to HIV positive people. Our evaluation demonstrates that education provided by persons perceived of as peers provides the positive role model to enable achievable behaviour change and also provides emotional support.

F.D.787 THE MALE OUTREACH PROJECT: REACHING THE HISPANIC COMMUNITY

Hernandez, Ramon A.*
* Greater Lawrence Family Health Center, Lawrence, MA, USA

Objective: To develop a cultural, age, and sex specific AIDS education/outreach project within the Hispanic community, with a focus on the male population.
Methods: As the AIDS crisis becomes increasingly more widespread in the Hispanic community, the need to implement targeted educational efforts has become more evident, so as to reach those who have been overlooked in past efforts. The Hispanic male is such a case. To construct a workable structure and timeframe the project was divided into three age specific levels: 1) teenage/high school, 2) young adult/college, and 3) middle age. Staff was accordingly hired to fit this model. Peer leaders at the high school were trained in AIDS education and staffed an afterschool AIDS resource room. ESL classes were the focus of the young adult group as were the many cultural/civic clubs for the middle age group. In addition to these targeted locales, traditional and nontraditional outreach methods were used with area churches, the large number of Hispanic owned businesses, and the housing projects.
Results and Conclusions: The project has been able to overcome cultural, linguistic, and intergenerational barriers which have hampered past educational efforts. This has led to increased community awareness and at the same time stressed the importance of male responsibility in sexual matters.

F.D.788 THE BROADENING OF COMMUNITY ADVOCACY INTO AN EFFECTIVE LEGISLATIVE COALITION

Jones, David C., North Carolina AIDS Service Coalition, Chapel Hill, North Carolina.

Objective: To asses how community-based advocacy organizations can affect legislation and regulation.
Methods: The three-year campaign to enact an AIDS anti-discrimination law is examined. Legislative and regulatory events are examined which illustrate the political maturation of an advocacy coalition.
Results: Seven AIDS Service Organizations (ASO) limited political activity for two years to criticism of policy. In response to the state Department of Health's withdrawal of support in 1987 for an AIDS anti-discrimination law, the coalition expanded significantly to include established organizations with political influence, medical schools, county health departments and others, while ASO's maintained leadership through negotiating objectives and strategies. In 1989 an AIDS anti-discrimination/informed-consent law was enacted that also makes HIV a reportable communicable condition while preserving anonymous testing.
Conclusion: Community-based advocacy organizations acting alone are ineffective in influencing legislation and regulation. Effective coalitions require: (1) common objectives shared by parties with standing in the issue; (2) broad constituencies and interests (some of which may conflict); (3) demonstrated political effectiveness; (4) education and support of participants; (5) direction toward specific goals in which consensus can be sustained. Effective legislative coalitions are often created in response to a failure of public health and/or political leadership.

F.D.789 ACT-UP SURVEY (SOCIOLOGY OF AIDS ACTIVISM)

Elbaz, Gilbert. City University of New-York, N.Y., USA

This paper is part of an ongoing doctoral dissertation whose thesis holds that AIDS activism is not only a health movement, but a multidimensional one. **Objective**: This paper deals with the politicization process of members of a New York City-based AIDS activist group called AIDS Coalition To Unleash Power (ACT-UP). **Method**: The research focuses on a survey, self-administered between June 15 and July 15, 1989. A core measure of the survey, the politicization index, includes types and number of meetings attended as well as organizations and actions-both AIDS- and non AIDS-specific-in which members participated. The population, 500 individuals, is represented by members who regularly attend the general meeting.413 returns (high response rate) were obtained. **Hypothesis**: Women, lesbian and heterosexual, constituting 20% of the group, are hypothesized to be the most politicized. **Results**:Factor analyses and ANOVAs show that level of politicization correlates strongly with participation in specialized groups. Our hypothesis is verified in so far as women are compared to the population as a whole. However, when compared to men involved in specialized groups, women have a similar rate of politicization. **Conclusion**: Study shows that 1)specialized groups, e.g. committees or caucuses represent the main source of political activism in ACT-UP, regardless of race, education, income and earlier political involvement. Women, more readily involved in those specialized groups, display an overall higher rate of politicization. 2)more generally, the sizeable involvement of women in ACT-UP supports our dissertation thesis that the AIDS movement is not only a health movement, but also a movement raising gender-based issues as well as many others. 3)the AIDS movement is the crossroad of many other social movements. This research is then instrumental to policy-makers's understanding of this fast-growing international movement.

F.D.790 THE WORKSHOP APPROACH OF THE DEUTSCHE AIDS-HILFE FOR PEOPLE WITH HIV AND PEOPLE WITH AIDS

Hengelein, Hans, Deutsche AIDS-Hilfe, Berlin, West-Germany

The Deutsche AIDS-Hilfe (D.A.H.), the umbrella organisation of the approximately 85 local AIDS service organisations in the Federal Republic of Germany, offers about 300 workshops and seminars throughout the Federal Republic per year; of those, 60 are for people with HIV and people with AIDS.

The workshop approach of the D.A.H. differs radically from the approach used in other countries. Based on the local AIDS service organisations, the D.A.H. offers regional and state-wide further education, exchange of experience, leisure activities, a political network for representing interests, and much more.

Events of this sort are possible because in the Federal Republic of Germany there is no clear division between the self representation of people with HIV and people with AIDS on the one hand, and the local AIDS service organisations on the other. The spectrum of meetings reaches from those with specific topics (e.g. new developments in medicine and research, meditation on dying) to completely open ones. The workshop approach will be described in detail at the conference.

F.D.791 BURNOUT IN VOLUNTEER AND COMMUNITY BASED AIDS ORGANIZATIONS.

Crooks, L. * University of Wollongong.

Objective: Assess the extent of and strategies for dealing with burnout in Community Based and Volunteer AIDS organizations in Australia.

Methods: Interviews and survey questionaires employed before and after trial intervention strategies. Comparison to Burnout scales and research investigating burnout in other health care areas and professional AIDS workers. Financial analysis of the merit of volunteer labour in caring for people with AIDS and an analysis of the cost effectiveness of employing preventative structures.

Results: Support structures are demonstrated to provide preventative benefits to AIDS workers. Adequate organizational review can minimise the cost of implementing support and provide inovative avenuse for the development of broad based community participation.

Conclusion: The volume of work undertaken by volunteers in response to the Aids pandemic is too large to be met by government alone. For volunteer services to continue to meet this increasing need an inovative approach to care for volunteers is essential. This report outlines a program of response other developed countries.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.792 SOCIAL COGNITIVE THEORY APPLIED TO RECRUITMENT OF VOLUNTEERS FOR FAMILIES OF CHILDREN WITH HIV INFECTION

Bartholomew, K., Chacko, M., Knutson, K., Probst, Deborah, Saunders, A., Baylor College of Medicine and Texas Children's Hospital, Houston, Texas, USA

Objective: This paper addresses the systematic development of a program to recruit volunteers to work with families of children with HIV infection. The need for supportive services for these families has been well documented. This program applied a sound theoretical framework to the problem of recruiting volunteers.
Methods: A list of "barriers to volunteering" with pediatric AIDS was proposed based upon potential volunteer behaviors and related self-efficacy and outcome expectations (constructs from Social Cognitive Theory, Bandura, 1986). To validate the barriers, a focus group methodology was used to elicit community (Hispanic, Black and Anglo) opinion regarding barriers to volunteering.
Results: Proposed barriers included: protecting against HIV transmission; dealing with bereavement and grief; using personal resources; relating positively with both the child and caretakers; caring for a sick or developmentally compromised child; and maintaining personal security. These issues were confirmed by the focus groups. However, the groups also emphasized the importance of considering barriers specific to individual social and economic groups (e.g., constraints on the use of personal resources and the conceptual and operational definition of "volunteer"). The group most experienced in AIDS volunteer activities discussed the positive aspects of volunteer experience and had difficulty focusing on "barriers".
Conclusion: Any program attempting to recruit volunteers for pediatric AIDS must confront the barriers listed above. In addition, it must address specific concerns of social or ethnic groups from which volunteers are needed. (Project funded by MCH HRSA Grant #BRHPB0601-01-0)

F.D.793 THE ROLE OF HERBALISTS IN HIV/AIDS INFORMATION AND PREVENTION IN KENYA

ODERO THERESA A.
Provincial Medical Office, Nairobi, Ministry of Health, Republic of Kenya.

OBJECTIVE: Assess knowledge, attitudes and practices of herbalists about HIV/AIDS and assess to what extent, if any, they enlighten others/clientele and change the latters' attitudes. Educate herbalists on HIV/AIDS. Encourage presentation of their herbs for scientific analysis for therapeutic qualities. Foster collaboration of herbalists with medical scientists.
METHOD: There are 4000 herbalists registered in Nairobi consulted for diverse curable/incurable health problems by varied clientele. Awareness workshops/seminars/interviews and discussions were held with them. Statements they issued before and after the workshops etc were analysed and compared. Discussions of efficacy and limitation of use of herbalists in the prevention of HIV infection.
RESULTS: Among herbalists changes of scores of knowledge, attitude and practices were significant: (i) Recognition of sexual transmission of HIV/AIDS. (ii) Recognition of skin cutting and ash/dung applications and circumcission as possible transmission vehicles for HIV infection. (iii) Fear of contact with HIV/AIDS cases decreased and improved methods of handling the patients. (iv) Undertaking to discuss AIDS/HIV infection as sexually transmitted with their clients; include role of condom use for the anxious and giving them courage to seek scientific tests to ascertain their HIV status and the advantages of these tests to the worried and HIV sero-positive persons.
CONCLUSION: Knowledge of herbalists of HIV/AIDS considerable. Attitudes and practices can be improved/changed with education. They may present herbs for scientific analysis. Collaboration with medical scientists is achieved.

F.D.794 UNION OF AMERICAN HEBREW CONGREGATIONS COMMITTEE ON AIDS: A MODEL FOR RELIGIOUS DENOMINATIONAL RESPONSE

Rankin, R. Michael; Gilson, I. Union of American Hebrew Congregations (UAHC) Committee on AIDS, New York, NY, USA

Objective: To describe a committee which has fashioned a response by Reform Judaism to the AIDS crisis.
Methods: The UAHC Committee on AIDS was formed in 1985 to provide AIDS education and leadership to the Reform Jewish movement. It is composed of health care and social service professionals, rabbis, interested lay leaders, attorneys, and surviving family members of Jews with AIDS, representing all regions of the U.S.
Results. The Committee has provided resource material on AIDS to all 840 affiliated congregations, including material relevant to the needs of rabbis, temple educators, social action committees, and youth group leaders. It has had a major role in two national biennial UAHC conventions, including proposing social action resolutions, planning and staffing workshops, arranging addresses by national leaders in AIDS policy, and leading a Havdalah service dedicated to Jews who have died of AIDS. It has produced several AIDS-related liturgies and an AIDS issue of the national UAHC youth magazine Keeping Posted. It has promoted an enlightened approach to AIDS based on Jewish ethical principles such as "bikur cholim (caring for the sick)" and the "mitzvah (good deed) of safe sex." Human and material resources have been provided for many regional and congregational forums.
Conclusion: The UAHC Committee on AIDS has provided progressive leadership to Reform Judaism as it confronts the AIDS crisis.

F.D.795 CHURCH-BASED AIDS INTERVENTION PROGRAMS

Wilson, Mary; RW Tobin & Christ Church Cambridge AIDS Concern Committee, Christ Church Cambridge (CCC) Parish, Cambridge, MA

Objective: In response to a perceived need in the community, CCC parish established an AIDS Concerns Committee to develop a church-based AIDS education program, to assist existing groups in meeting the material needs of those affected by AIDS and to provide spiritual support for these same individuals.
Methods: Current AIDS-related books, pamphlets and video recordings were made available in the church library. Education and discussion sessions were organized based on audiovisual presentations and lectures by invited speakers. Parishioners were also invited to donate non-perishable food and other items for storage at CCC. Distribution was coordinated by visting nurses. A monthly prayer and meditation service, followed by open discussion, was established at CCC.
Results: AIDS-related library materials have circulated widely and all scheduled education sessions have been well attended. An increased demand for new programs is currently being addressed. The establishment of a storage facility to answer urgent material needs has also been successful. We have become one of the major suppliers for the Cambridge area and have staffed a volunteer delivery service. The monthly services and discussion groups have offered care and comfort for many individuals affected by AIDS.
Conclusion: We believe that church-based AIDS intervention programs constitute a very important part of a community's response to AIDS, addressing needs not currently met by established institutions. We encourage other church groups to set up committees similar to ours.

F.D.796 THE EFFECTS OF RELIGIOUS TOLERANCE UPON CONVICTIONS TO PROTECT THE CIVIL RIGHTS OF PEOPLE OF COLOR LIVING WITH AIDS

Homer D.C. Garcia*/** Lourdes Arguelles*/**, Gilbert R. Cadena*****, Gloria Romero**/***, and Anne M. Rivero****
*Pitzer College, Claremont, CA U.S.A.
**Avance Human Services, Inc., Los Angeles, CA U.S.A.
***California State University, Los Angeles, CA U.S.A.
****Pomona Valley Mental Health Center, Pomona, CA U.S.A.
*****Pomona College, Claremont, CA U.S.A.

Objectives: 1. To examine the effects of demographic, socioeconomic (SES), and religious affiliation upon AIDS-related religious tolerance. 2. To examine the effects of AIDS-related religious tolerance upon the convictions to protect the civil rights of people of color living with AIDS. Method: A 98-item questionnaire was administered by telephone to 906 African-American and Latino adults in Los Angeles County. Direct and indirect effects were derived from a path analysis model. Results: Although little variation can be explained in AIDS-related religious tolerance, it appears that higher SES subjects tend to be more religiously tolerant towards people living with AIDS. Most importantly, such tolerance promotes beliefs that the civil rights of people living with AIDS ought to be protected. The amount of variation in civil rights views is quite high (the R Square equals .81).

F.D.797 PROMOTING HIV PREVENTION OUTREACH ACTIVITIES VIA COMMUNITY-BASED ORGANIZATIONS

Thompson, P. Imani; Jones, T.S.; Cahill, K; Medina, V.
Centers for Disease Control, Atlanta, GA, USA

Objective: To describe the programmatic activities and interventions of community-based organizations (CBOs) providing street outreach programs to change and reduce high risk behaviors such as intravenous drug use, sex for money or drugs, or sex with persons at high risk to curtail the spread of HIV infection among these groups.
Methods: In 1989, the Centers for Disease Control (CDC) provided funds and technical assistance to 64 minority and other community-based organizations to carry out local HIV prevention programs to persons at risk for HIV infection. Twenty-eight of these programs included street outreach as a major component of their proposed HIV prevention activities. We selected four CBOs serving different at-risk populations for case studies. We have reviewed available data, conducted extensive telephone interviews and will make site visits to each of the programs in order to observe the operations and data collection systems.
Results: Preliminary surveys have revealed that of the 28 programs, 14 (50%) serve IVDUs and their sex partners, 16 (56%) serve high risk teens, 6 (21%) serve prostitutes, and 10 (35%) serve men who have sex with men (some programs serve more than one high risk group). Additional data to be collected include: strategies used, numbers of persons reached, HIV prevention messages and items disseminated, referral systems to HIV antibody counseling and testing and services, as well as reporting mechanisms and evaluation systems used.
Conclusions: These case studies as well as a review of outreach programs funded by the National Institute of Drug Abuse (NIDA) will be useful in the development of technical assistance and training relevant to the needs of CBOs providing street outreach. More specific conclusions related to the case studies will be presented.

F.D.798 AIDS AND THE CHURCH CLERGY

* Ankrah, E. Maxine; Nkumbi, S; Kisembira, M.
* Makerere University, Kampala, Uganda.

Objectives: To asses the perceptions of clergy about AIDS and to examine the policy and programmic measures introduced by the church to combat the spread of HIV and AIDS.
Methods: Forty-two protestant pastors and cathecists of the four-million-strong Church of Uganda (Anglican) were studied in 1989. All currently worked in randomly sampled clusters of 91 villages in 8 districts selected for a national social survey on AIDS. Their knowledge and beliefs about the care of patients, universal screening, use of condoms and counselling, as well as their policy and program initiatives were considered. An ethnographic analysis of responses was undertaken. These views will later be compared with a sample of laity.
Results: Pastors as a group lacked factual knowledge about the disease, most having never heard of the virus, HIV. Over 50% believe that promiscuity is rampant and the major means of transmission; few knew about other modes. The group was uncertain about universal screening, but favored premarital testing, although opinions differed about what to recommend to persons who tested HIV positive. None were trained to counsel patients. While few believed AIDS to be God's curse, all advocate sympathetic care. Most reported no need in their locality for special programs to widows or orphans!
Conclusions: Protestant pastors, to be a force in programs for service or behavioral change need intensified health education. National AIDS policies which target this group for program implementation at district and village level are indicated.

Cost and Financing: Models

F.D.799 NATIONAL PROJECTIONS OF HOSPITAL COSTS OF PATIENTS WITH AIDS (PWAs) IN THE NETHERLANDS 1990-1991

Dijkgraaf, Marcel G.W.*; Borleffs, J.C.C.*; Jager, J.C.**; Poos, M.J.J.C.**; Jong, J.T.L.**; Schrijvers, A.J.P.***
*University Hospital Utrecht, The Netherlands, **National Institute of Public Health and Environmental Protection, Bilthoven, The Netherlands, ***State University of Utrecht, The Netherlands.

Objective: Projecting the national costs of hospital care for PWAs in The Netherlands by combining data on costs of hospital care for PWAs, national AIDS surveillance data and mathematical models.
Methods: Extrapolating exponentially from observed AIDS incidences over a three-year period (1986b-1989a), future incidences are estimated. Assuming different mean survival times for PWAs, expected AIDS incidences are translated into AIDS prevalence data at any point in time during 1990-1991. These prevalence data are used to calculate the total number of person-years PWAs are controlled by the hospital during that particular period. This total number is multiplied by the mean costs of hospital care for PWAs per person-year found in another study of our group.
Results: Assuming a mean survival time of 1.5 years, the expected costs of hospital care for PWAs in The Netherlands during 1990 and 1991 will amount to 1987 US$ 31.3 millions. In case of a mean survival time of 2 years, this number will rise to 1987 US$ 38.9 millions.
Conclusion: The figures present estimates of hospital costs for PWAs in 1990 and 1991. They may contribute to budgetting of hospital health care for PWAs.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.800 METHODS, STRENGTHS, AND LIMITATIONS OF PRIVATE HEALTH PLAN DATA FOR HIV COST, UTILIZATION, AND OUTCOME RESEARCH

Durbin, M*; Kahn, J*; Shimasaki, Gary, **; Benjamin, AE*; Lee, PR*
*University of California, San Francisco;**Blue Shield of California; San Francisco,CA,USA

Objective: To describe methods, strengths, and limitations of private health plan data sources for HIV cost, utilization, and outcome research.
Methods: Protocols were developed to identify HIV infected persons from claims files of 1 of the largest private 3rd party payers in California, Blue Shield. Patient identifiers included international diagnostic and procedure codes, drug codes, and medical review files. Other requirements were: age < 60 y and male gender for the less HIV-specific identifiers; continuous insurance coverage; and absence of other immunocompromising diseases. Due to delays in claims resolution, files were searched for at least 6 months following service dates. Specially constructed subject code numbers protected subject anonymity. Subjects were categorized hierarchically (acute infection, asymptomatic, lymphadenopathy, constitutional disease/ARC, and AIDS). Extraction protocols were developed for costs (billed, allowed, and paid charges), utilization (type, number and duration of service, date, geographic location, facility type, and provider) and vital status. Race and HIV risk group were not available.
Results: Subject identification was most precise for AIDS, less so for certain other categories, because some diagnoses (including Kaposi's sarcoma) lacked specific codes. With proprietary concerns over contracts with designated providers, health plans could not routinely release all types of charges. Vital status was inconsistently recorded, although death confirmation was obtainable through the State Death Registry.
Conclusion: Payer claims files are vital sources of detailed HIV cost and utilization data. They are hampered by vague HIV diagnosis categories, incomplete death records, and absent race and risk group information. However, they cover a longitudinal spectrum of health care across locations and providers. As the epidemic grows, links between health plan and other data sources that can respect patient confidentiality will enhance their utility.

Cost and Financing: Hospital Inpatient and Ambulatory

F.D.802 TRENDS IN HOSPITAL UTILIZATION FOR PATIENTS WITH AN HIV DIAGNOSIS, UNITED STATES, 1984-1988.

M. Moien
National Center for Health Statistics, Hyattsville, Maryland, USA.

Objective: To describe the increasing use of hospitals by patients with HIV diagnoses.
Methods: Data were obtained from the National Hospital Discharge Survey. Results are national estimates based on a representative sample of discharges from nonfederal short-stay hospitals throughout the United States. Included in this analysis were records which contained a diagnosis of AIDS or HIV infection, as defined by ICD-9-CM codes 042-044.
Results: In 1988, there were an estimated 86 thousand discharges with an HIV diagnosis. This resulted in a rate of 3.5 discharges per 10,000 population. These patients utilized 1.2 million days of inpatient hospital care. Although increased hospital use is seen, the rate at which the estimates are increasing is at a slower rate since 1986 than for the 1984-86 period. In addition, average length of stay has been on the decline. In 1985 the average stay for an HIV patient was 17.1 days. By 1988, it had decreased to 14.1 days. This is still, however, twice the average stay for all patients. The percent of women patients has gradually increased. However, men still represent approximately 90 percent of all hospitalizations. From the source of payment perspective, public funds still provide a significant part of payments for the hospital stay.
Conclusion: These data present the latest national U.S. estimates of hospital utilization by HIV patients. Although the increases have slowed somewhat, these patients still represent a growing segment of the hospital population, often requiring public assistance to meet hospital costs.

F.D.801 ABOUT THE COST OF AIDS IN FRANCE : A META-ANALYSIS ON ECONOMIC RESEARCH

Flori, Yves A.*; Souteyrand, Y.**, Triomphe, A***
*Université de Bourgogne, Dijon, France, **Agence Nationale de Recherches sur le SIDA, Paris, France, ***Université de Paris I, Paris, FRANCE.

OBJECTIVE : To evaluate the financial impact of HIV infection in France, and assess the nature and volume of health system resources involved in dealing with this pathology, as well as the modalities of their distribution among the various health providers.
METHODS : Several studies have been carried out in France, aiming at assessing the various components of direct costs of HIV infection. Synthesis of these studies gives a broad overview of the financial charges to the community, and modes of care.
RESULTS : Direct financial charges currently attributable to HIV infection remain relatively modest relative to all health expenditures : approximatively 0.5 billion U.S.$ annualy and around 1% of all hospital expenditures. These costs are likely to increase although this increase may be attenuated by the transformations which are underway in terms of management of the disease, both within the hospital organization itself, and in the relation between hospitals and the out-patient sector.
Preliminary results show the following : if the patient's medical characteristics determine the protocol of their care, there remains a great variability in the manner this care is delivered, and thus the cost relative to the same level of care. This variability is all the greater as the severity of the illness is slight. Hospital costs predominate but to a large degree it includes costs which do not correspond to the classical inpatient care (external consultations, day hospitals ...).

F.D.803 AIDS HOSPITAL CHARGES IN WASHINGTON STATE: 1985 - 1988

Shields, Anne Wesling; Lafferty, W.; Harwell, J.; Kim To, T.; Nelson, W.; Sandwith, F.; Tyree, P.
Washington State Office on HIV/AIDS, Seattle, Washington, U.S.A.

Objective. To describe statewide trends and stabilization in AIDS hospital utilization between 1985 and 1988.
Methods. Statewide hospital discharge data were evaluated for 119 AIDS patients with 228 discharges in 1985, 174 AIDS patients with 263 discharges in 1986, 419 AIDS patients with 839 discharges in 1987, and 451 AIDS patients with 856 discharges in 1988. Data on 256 discharges for P. carinii pneumonia (PCP) in 1988 were compared to 124 discharges for PCP prior to 1986.
Results. For all AIDS hospitalizations, mean length of stay (MLOS) was 13.2 days in 1985, 11.3 days in 1986, and 9.7 days in 1987 and 1988. Mean admission charges were $9,022 ($8,135 in 1982 dollars), $7,009 ($6,159), $6,696 ($5,704), and $7,775 ($6,410) respectively. Mean charges and MLOS for PCP hospitalizations decreased from $13,696 ($12,350) and 16.0 days for discharges prior to 1986 to $11,338 ($9,347) and 12.3 days for 1988 discharges. Mean charges and MLOS for all other discharges decreased from $6,318 ($5,697) and 11.4 days in discharges prior to 1986 to $6,252 ($5,154) and 8.6 days in 1988 discharges.
Conclusions. For all hospitalizations, constant 1982 dollars suggest decreases in per admission charges prior to 1988 and increases in per diem charges in 1987 and 1988. Decreased charges for PCP admissions due to decreased MLOS could eventually be offset by increasing per diem charges. As MLOS for all AIDS hospitalizations stabilizes, further reductions in inpatient charges can only be achieved by avoiding hospitalizations.

F.D.804 ESTIMATION OF AIDS TREATMENT COST THROUGH A PROSPECTIVE STUDY

Tapia-Conyer, R*; Martin, A**; De La Rosa, B*; Garcia, A*.
* CONASIDA, México, D.F., México; ** FHI/AIDSTECH, Durham, NC, USA.

Objective: To estimate the accurate costs of resources, personnel and procedures involved in the treatment of AIDS patients, to validate and/or adjust the direct medical costs calculated by the retrospective studies.
Method: A time and motion study was implemented during a four month period in two hospitals. A total of 94 AIDS patients and 20 patients with comparable diagnoses were observed during their entire admission. During eight hour shifts, survey personnel registered all contacts, activities, procedures and resources. Costs involved in each element were obtained.
Results: The group had an average age of 33 years; 70% were single and the remaining were married or divorced. 77% were diagnosed in the same year of the study. Average length of stay was 17.4 days. During an average admission there was some personnel contact 59% of the time. Nurses spent an average of 13.5 hrs per day/patient; laboratory, X-ray, nutritionist and other technical personnel spent 2.9 hrs per day/patient; physicians spent an average of 8 minutes per day/patient. For the remaining time, the patient was alone. The amount of resources (syringes, gloves, etc.) varied by hospital and patient's severity. An average of 5.2 laboratory procedures were performed per patient during the admission.
Conclusion: A) Medical attention to AIDS patients was mainly provided by nurses and technicians. Physicians spent less time with patients than previously estimated. B) AIDS medical costs estimated through the retrospective study need to be adjusted by the amount of time health personnel were in contact with the patient. C) The hospital per diem is the most important cost component of the total AIDS direct treatment costs.

F.D.805 THE IMPACT OF THE HIV EPIDEMIC ON HOSPITAL COSTS OF AN INFECTIOUS DISEASE DEPARTMENT, 1982-1989.

Marasca, Giuseppe; Cambieri, G; Camilli, G;
Damiano, F; Bevilacqua, N; Fantoni, M.
Università Cattolica Sacro Cuore, Rome, Italy.

Objectives: To assess the economic impact of hospital treatment of HIV patients and to predict the future economic issues.
Methods: We analyzed the overall annual expenditure of the Department of Infectious Diseases (DID) of our Institution over a period of eight years. The budget was subdivided into six major cost items: antibiotics, other drugs (including AZT, from 1987), blood products, diagnostics, disinfectants, miscellaneous (IV sets,etc.). Three diagnostic groups were considered: HIV infection, viral hepatitis and other conditions.
Results: The overall annual expenditure increased 6.8 times, from 90 M Italian lire in 1982 to 608 M lire in 1989. The highest increase was observed for antibiotics (7.5 times) and for the AZT group (22 times). AZT accounted for 35% of the total pharmaceutical costs. HIV admissions increased from 1.6% of the total admissions in 1985 to 48.3% in 1989.
Conclusion: In 1986, together with the expansion the HIV epidemic, a dramatic increase of the hospital costs of DID was observed. The increase in the number of patients and the introduction of new anti-retroviral drugs will further increase expenses, urging new assessment of cost effectiveness.

F.D.806 INCREASED HOSPITAL REVENUE ASSOCIATED WITH ADMITTING HIV POSITIVE PATIENTS TO A RURAL ZAIRIAN HOSPITAL

Bertozzi, Stefano*; Mposo, N.**; Green, S.***;
Mandiyangu, M.***; Walker, D.****; Ryder, R.**
*Massachusetts Institute of Technology, Cambridge, Massachusetts, USA, **Projet SIDA, Kinshasa, Zaïre, ***IME, Kimpese, Zaïre, ****University of Pennsylvania, Philadelphia, Pennsylvania, USA

Objective: To evaluate whether a growing percentage of AIDS patients adversely affects the financial health of a rural hospital which, like many in Zaïre, depends upon patient revenue for a great majority (72%) of its operating budget.
Methods: We retrospectively identified a cohort of hospitalized patients who had been found ELISA positive for anti-HIV antibodies from January through October, 1989 at a rural hospital on a major transport route in Western Zaire. A control cohort consisted of each subsequent patient admitted to the same ward who did not have an HIV-related diagnosis. Where possible, for each patient we collected his or her length of stay (LoS), total charges paid and source of funds (personal or employer).
Results: The average LoS was 28 days for 33 cases and 17 days for 33 controls ($p<.05$); an average increase of 70%. The average total charges per admission were US$81 for 24 cases and US$17 for 24 controls ($p<.05$) for whom charge data were available; an average increase of 370%. Charges were paid by an employer for 30% of the cases and 10% of the controls ($p<.05$). The price schedule for employers was 3 to 10 times higher for the same services than that for individuals.
Conclusion: The results of this study suggest that in this hospital, HIV positive patients improved rather than compromised cost recovery. These patients, on average younger and more likely to be company employees, paid higher total and higher average daily charges. A prospective study should be done in several rural sites to determine whether these results can be generalized to other hospitals with different pricing structures or to hospitals located in areas where a smaller percentage of the population is employed. Our results also emphasize the need to examine the economic impact of HIV infection on industry.

F.D.807 COSTS DERIVATED FROM HIV INFECTIONS IN A GENERAL HOSPITAL IN SPAIN.

Arribas, Jose L.; Carreter C.A.; López J.A.; Rabasa I.; Amorín M.J.; García J.R.
Servicio de Medicina Preventiva, Hospital Miguel Servet, Zaragoza, Spain.

Objective: The aim of this study is to evaluate the cost of Hospital stays and mean stays due to patients sumitted to Hospital because an HIV infection associated to a infecious disease not AIDS criteria and to campare them with a disease frequently associated, lung tuberculosis (TBC).
Methods: All patients included in this study were admitted in the Infectious Ward during 1987, 1988 or 1989 and the two groups were as follows: 1st, patients with any infectious disease and HIV infection; and 2nd, patients with pulmonary TBC. For all groups we have analyzed mean hospital stay for each admission and each patient. We have used hospital stay mean cost, because in our center Diagnostic Related Groups cost is not available.
Results: The total number of VIH patients was 173 and they originated 247 admissions. The ratio admission/patien was 1.4. The total number of stays was 3469. The total number of TBC patients was 143 and they originated 152 admissions. The ratio admission/patien was 1.1. The total number of stays was 2311. The global cost for each group was: HIV 86,204,650 pesetas and TBC 57,428,350 pesetas. The mean cost for all admissions was: HIV 349,006 pesetas and TBC 377,818 pesetas. The mean cost for all patients was: HIV 498,292 and TBC 401,597. The number of VIH patients hospital stays for each year was 816 in 1987, 1306 in 1988 and 1347 in the first 10 months of 1989.
Conclusion: The ratio admission/patient is greater in the HIV group, and we think it is better to use the mean hospital stay for patient in the evaluation of hospital stay costs. The number of HIV stays has increased each year, and so, the hospital cost of HIV is going to increase.

F.D.808

HOSPITAL COSTS DERIVATED FROM HIV INFECTIONS.

Gómez, Luis Ignacio.*;,Aibar,C*; Alonso, J.*; Febrel,I;* Rabanaque, M. J.*; Tomás, C*;
*Servicio de Medicina Preventiva, Hospital Universitario, Zaragoza, Spain.

Objective: The aim of this study is to evaluate the cost of mean hospital stays due to patients with HIV infection associated to a infectious disease, not an AIDS criteria, and to compare them with two diseases more frequently associated, lung tuberculosis (TBC) and viral hepatitis (VH).
Methods: The study was conducted during 1987, 1988 and 1989 in the Infectious Unit, with three groups of patients: 1st HIV infection plus other infection, 2nd patients with pulmonary TBC and 3dr patients with VH, obtaining for each one mean hospital stay and its cost for admission and patient. We have applied t-test and ANOVA as statistical tests.
Results: The 227 included patients originated 292 admissions. The admission/patient ratio was as follows: HIV 1.5, TBC 1.1 and VH 1.0. Out of admissions, 175 (59.9%) were due to HIV, 85 (29.1%) to TBC and 32 (10.9%) to VH. Total number of stays was 6463, 2549 (39.5%) due to HIV patients, 3390 (52.4%) to TBC and 524 (8.1%) to VH ones.Their global cost was 169,466,323 pesetas (1,513,092 $), the mean cost (m) for all patients was 580,364 pesetas. The cost for each group was: HIV 66,837,329 pesetas (m=381,927); TBC 88,889,190 pesetas (m=1,045,752) and HV 13,739,804 pesetas (m=429,369). HIV admission costs for each year were 9.0% in 1987, 30.0% in 1988 and 57.6% in 1989.
Conclusion: The ratio admission/patient is greater in the HIV group.We think it is better to use the mean hospital stay for patient in the evaluation of hospital stay costs. The number of HIV stays has increased greatly each year and it could be interesting to think about new systems of inpatient care.

F.D.809

PATTERNS OF DISCHARGE DELAY AND RESULTING FINANCIAL IMPACT FOR AIDS RELATED ADMISSIONS

Hunter-Young, N*; Ricardi, M**; Gallagher, D**; Daley, J**+; Graf, L*; Makadon, H**+.
*Clinical Partners, Boston, MA, US; **Beth Israel Hospital, Boston, MA, US; +Harvard Medical School, Boston, MA, US.

OBJECTIVE: To assess potentially unnecessary hospital days, describe patterns of discharge delay, and estimate the financial impact of such delays, for persons with AIDS and HIV infection admitted to a large Boston teaching hospital.
METHOD: HIV-related admissions were analyzed over a 30 day period. Data on total length of stay (LOS) and hospital charges were obtained upon discharge. The Discharge Delay Tool (Selker, et al) was used to identify unnecessary hospital days.
RESULTS: Thirty AIDS-related admissions (970 hospital days) were analyzed during the study period. The average daily census of AIDS/HIV patients was 17. The average LOS was 32 days with a range of 2-168 days (SD+/-38).Of the days studied, 164.5 (17%) were determined to be potentially manageable in an out-of-hospital setting. Causes of discharge delay included: difficulty coordinating out-of-hospital care-137 days (83%); delays in scheduling tests-22 days (14%); and delays associated with research protocols-5.5 days (3%). Delays related to difficulty coordinating out-of-hospital care included: awaiting sub-acute facility placement-30 days (22%); awaiting psychiatric facility placement-32 days (23%); awaiting hospice placement-7 days (5%); difficulty obtaining insurance coverage information-16 days (12%);delay in clinical decision-making-6.5 days (5%); resistance to plan by patient or family-45.5 days (33%). The average charge per day of hospitalization was $1006. The cost of the delayed days totaled $165,487.
CONCLUSIONS: These data suggest that limited access to out-of-hospital care settings contributes to the cost of care associated with AIDS and HIV-related disease. Future studies evaluating the impact of case management and patient and family education on discharge delays and associated hospital costs would prove useful.

F.D.810

CARE OF AIDS PATIENTS IN GENEVA, 1981-1989

Vanhems, Philippe, Paradisi, S., Gabriel, V., Wintsch, J., Hirschel, B.
Division of Infectious Diseases, Hôpital Cantonal Universitaire, CH-1211 Geneva, Switzerland

Objective: To identify hospital resources used particularly by patients with AIDS.
Methods: All 111 Aids patients admitted 1981 to 1988 were matched with other patients admitted the same day to the same hospital services. Use of hospital ressources was determined by chart review. During 1989, a similar study was done prospectively.

Results: see Table. All differences are significant ($p < 0.002$)

	Quantitiy measured	AIDS Patients	Controls
Mean age	years	35	61
Mortality/admission	percent per admission	18%	10%
Mean length of stay (d)	days per admission	22.5	13.3
Brain CTs	N/100 admissions	64	19
Bronchoalveolar lavage	same	31	7
GI endoscopy	same	29	5
CSF examination	same	46	9
Blood cultures	same	340	57
Lymphocyte typing (CD4/CD8)	same	35	0
Anxiety	percent per admission	35%	12%
Needing help with feeding	same	27%	14%
Needing exam preparation	same	26%	11%

Conclusions: Patients with AIDS differ from general medical patients in the types of services they need in the hospital. The data we have collected will permit more precise planning, and comparisons of care across different hospitals and time periods.

F.D.811

CHANGES IN HIV CARE ORGANIZATION. COMPARISONS BETWEEN HOSPITALS FOR MEDICAL SERVICES AND COSTS IN FRANCE :

Gabriel BEZ - DEMEULEMEESTER .NADAL. NIKIPARACHVILI
MINISTRY OF HEALTH. FRANCE.

OBJECTIVES : Since 1988 the french public hospitals and the health administration use the same HIV hospital discharge database. The purposes of this system is to procure valuable and up to date information on HIV patients charactéristics, use of services, diagnosis and treatment procedures and related costs.
METHODS : In 24 pilot hospitals (covering 65% of HIV related hospital cares) standardized information is collected by a specially trained staff. Those basic data are registred and treated at a local level by a devoted software available in each hospital. All data registred are sent regularly to feed the national data base and to permit comparisons with the national average.
RESULTS : 1. CHANGES : Analysis of 20,000 discharges during 88/89 shows : a) An increase in ambulatory services (day hospital + 62%). b) A decrease in average LOS -13%). c) A decrease in of average direct medical cost of stay (for PWAS -22 %).
2 COMPARISON : Since the french public hospital have the same status, the same organization and the same financing system and even in comparing only hospital receiving the same type of users, the study of hospital profiles shows great discrepancies in the type of medical structures used, the average LOS, the medical management of the desease and in the costs.
CONCLUSION : The french HIV hospital discharge database constructed and used in common by hospitals and Ministry of Health supplies for doctors and administrators a valuable instrument of help in decision making. Its transfer to other specific areas of cares is now under study.

F.D.812 AIDS COSTS AND UTILIZATION: TRENDS AMONG 8,775 CASES INSURED BY EMPIRE BLUE CROSS AND BLUE SHIELD

Padgug, Robert A.*; Eisenhandler, J.*
* Empire Blue Cross and Blue Shield, New York, U.S.A.

Objective: To determine trends in the costs and utilization associated with treating AIDS.
Methods: People with AIDS were identified by examining hospital claims data from all of EBCBS's 10,000,000 subscribers for the past 8 years. A complete claims history was created for those identified as having AIDS. Cases were placed into cohorts based on the year in which they were identified. The costs and utilization of cohorts were compared, including costs and utilization from the third year prior to identification through the present. Special emphasis was placed on comparing the utilization associated with different stages of the disease.
Results: 8,775 individuals were hospitalized with AIDS related illnesses and there are complete hospital claims histories for them. For another 825 there are complete physician and other nonhospital data. Lifetime hospital utilization appears to be stabilizing at 60 inpatient days. Noninstitutional utilization is rising rapidly due to earlier and more intensive treatment. Improved survival has also contributed to increased lifetime utilization.
Conclusion: The lifetime costs and utilization associated with treating people for an HIV infection are rising significantly and may approach $150,000 per case diagnosed in 1990.

Cost and Financing: Non-hospital Service

F.D.814 Outpatient consumption and patient occupation : an economic analysis for France.

TRIOMPHE, Annie* ; FLORI, Y.A.**; LIVROZET J.M.**
* University of Paris I-Pantheon-Sorbonne, FRANCE
**Hospices civils of Lyon, FRANCE

Objective: Economic consequences analysis of HIV infection on the outpatient care and the patient occupation.
Methods: The data was gathered from a 120 patients sample living in the Paris and Lyon areas, classified by severity level and recruited in outpatient and G.P. consultations. Regression analysis was performed on the quantity of visits to G.P.s, drugs prescribed and outpatient appointments.
Results: The main results are :
1) The outpatient appointments depend on severity : from 2 to 7 G.P. visits per 3 months.
2) The link between hospital and outpatient consultation increased with severity, due to the hospital monopoly on AZT treatment in France
3) The average number of patients retaining their employment is high (69%) but the percentage is decreasing with severity. Perhaps this may be due to the specificity of the French medical system in which the G.P. is the front line of care while hospital units deliver specialized treatments.
Conclusion: The high rate of HIV-patients remaining in active work in FRANCE may result of the complementarity between the different health care services and their high level refunding rates. This allows the society to take advantage longer of the generally good socio-professional competences of these patients.

F.D.813 Changing Patterns in Annual Resource Utilization and Costs for Patients with AIDS: 1985 - 1989.

Coltin,Kathryn; Wurtman,D.; Kuvin,L.; Goldberg,J.; Saxberg,B.
Harvard Community Health Plan, Boston, MA USA

Objective: (1) To examine the effects of changing care patterns for patients with AIDS on the types of services required and the annual costs of providing those services; and (2) To identify key factors which influence the annual costs of caring for patients with AIDS. Methods: Medical record and claims data for all patients treated for AIDS at an HMO during the 5 year period ending 9/30/89, were abstracted and analyzed. The study population consisted of 225 patients, who received 3,555 patient months of care over the 5 year observation period. Annual cohorts were created for each of 5 fiscal years. A patient was included in a cohort if s/he were alive and had received any prior treatment for AIDS as of the start date of that fiscal year OR if s/he were newly treated for AIDS during that year. For each patient, data were collected for: demographics; risk category; primary diagnosis; number, type and cost of services used in each year; number of months under treatment in each year; and survival in months. Results: There were increases in the numbers of patients treated, months of treatment, treatment contacts, costs of care/patient and mean survival, in each succeeding cohort. Costs per patient-month declined steadily. Between FY85 and 86 there was a marked shift from inpatient care to home care, reflecting an emphasis on early discharge planning. Between FY86 and 87, care was shifted from the inpatient to the outpatient setting, reflecting an emphasis on improved symptom recognition by patients and early diagnosis and treatment of opportunistic infection by primary care physicians. Between FY87 and 89, inpatient days decreased even further. While outpatient contacts increased, the proportion which were face-to-face visits declined. This reflected a heavy emphasis on prophylaxis and greater comfort in providing and receiving care over the telephone. Mean survival nearly tripled over this period. Conclusions: The savings reported here would be difficult to achieve under current FFS reimbursement policies.

F.D.815 INPATIENT HOSPITAL UTILIZATION BY PARTICIPANTS IN A STATEWIDE HIV HOME CARE PROGRAM

Merzel, Cheryl*, Crystal S.*, Karus D.*, Kurland C.**
*AIDS Research Group, Institute for Health, Rutgers University, New Brunswick, New Jersey, USA
**Office of Home Care Programs, New Jersey Department of Human Services, Trenton, New Jersey, USA

Objective: To examine inpatient hospital use by persons with AIDS/ARC enrolled in a state Medicaid case managed home care program designed to reduce utilization of acute care services.
Methods: Medicaid reimbursed hospital utilization was examined for participants in a New Jersey Medicaid home care program for persons with AIDS or ARC and HIV+ children under age five requiring care at the nursing home level. 81% of all clients had a diagnosis of AIDS upon enrollment. Among the 675 program clients enrolled as of 2/28/89, the majority (53%) had a history of IVDU; 23% were non-IVDU homosexual males; 46% were black. These distributions are very similar to those of cases on the New Jersey state AIDS registry. The data reported here are based on Medicaid claims for inpatient hospital care covering the period 3/87 through 1/89 for all 522 participants with paid claims in the Medicaid files actively enrolled during some or all of this period.
Results: Among the 253 (48%) home care program participants with at least one hospital admission paid for by Medicaid, the average length of stay (ALOS) during the entire period of observation was 12.7 days and the average number of hospital admissions for these clients was 2.3 stays for a total of 29.2 hospital days per patient. These figures yield an average of 15.2 total days in hospital per patient per year and 1.2 admissions per patient per year. ALOS for AIDS patients was 20.9 days in a State Health Department study of 1986 discharge data from seven New Jersey hospitals (Coye et al., Results of a Statewide Strategy to Contain Hospital Costs of AIDS Patients. Unpublished report). Home care program participants also appear to use less acute care services than other PWAs in the northeastern United States and nationwide. As reported by Andrulis et al. (The 1987 US Hospital AIDS Survey. JAMA 262(6):784, 1989), ALOS for PWAs in the Northeast was 20.8 days and the nationwide average for PWAs was 16.8 days during 1987.
Conclusion: While comparisons of data from studies with diverse methods must be made cautiously, ALOS among participants in a New Jersey Medicaid home care program which includes large numbers of IVDUs, appears to be lower than available estimates of acute care utilization by PWAs in the state, region, and nationwide. This finding may be related to program effects or population characteristics or to some combination of these factors.

F.D.816 RESOURCE USE FOR AIDS CARE IN NURSING HOMES

Swan, J.H., Calif. State Univ. Long Beach, USA
Benjamin, A. Edward, Lee, P.R., Univ. of Calif., San Francisco, USA

OBJECTIVES. Persons with AIDS (PWAs) increasingly need nursing home care. We report data on nursing home days of care, length of stay (LOS), and nursing time per day for PWAs. Longer LOS, more days of care, and greater daily nursing time were expected to be associated with dementia and intravenous drug use (IVDU).
METHODS. Data were collected on 41 PWAs in a hospital-based and 52 PWAs in a free-standing SNF, the 93 PWAs having 102 admissions. Nursing times were collected for 1770 days of care of 45 PWAs. Days of care, LOS, and average daily nursing time were separately regressed on IVDU status, dementia, and controls: age, race, and facility.
FINDINGS. In one year (July 1987-July 1988), PWAs averaged 67 days of care. LOS averaged 64 days. PWAs averaged very high daily nursing time, 6.5 hours in the free-standing and 7.0 in the hospital-based SNF. IVDUs and PWAs with dementia had more days of care and longer LOS; but these factors did not explain nursing time.
CONCLUSIONS. LOS and days of care are related to dementia and IVDU, which make SNF placement more likely and discharge home less likely. AIDS demographics may accelerate AIDS SNF costs, higher prevalence of IVDU and dementia in PWAs translating into larger increases in SNF admissions, LOS, and days of care. Sample-SNF charges suggest costs of $13,000 to $17,000 in a one-year period in 1988 dollars for SNF users with AIDS; but this must be balanced against much higher costs of acute hospital care.

F.D.818 PROJECT HOME CARE: COST SAVINGS THROUGH OUTPATIENT AIDS TREATMENT.

Liekweg, Richard; Adinolfi A.; Dideriksen, P.; Waskin, H.; Bartlett, J.A. Duke University Medical Center

OBJECTIVE: To compare the per diem charges between strict inpatient (inpt) treatment, inpt and outpatient (opt) treatment, and strict opt treatment of AIDS patients with similar opportunistic infections (OI's).
METHODS: Twenty-two patients were grouped according to OI and treatment modality, and matched with 10 controls treated as inpts:CMV: (2 controls, one inpt/opt and 5 opts); PCP: (4 controls, 4 inpt/opts, and 2 opts); crypto meningitis (CM) :(3 controls and 4 inpt/opts); and wasting: (1 control, 1 inpt/outpt, and 5 outpts). Hospital, clinic, home health care, and pharmacy charges were collected for each patient. Average per diem charges and average days of acute illness were calculated. Forty patients will be added.
RESULTS: Average (avg) per diem for CMV inpts/opts was $502x21 days. Avg per diem for CMV opts was $203x21 days. Control CMVs had avg per diem of $649x14 hospital days. Avg per diem for PCP inpt/opts was $700x20 days care. PCP opts averaged a per diem of $261x18 days care. PCP controls averaged a per diem of $1067x24 hospital days. Inpt/opt cm's averaged a $473x49 per diem acute. There were no cm strict opts, but controls averaged 24 hospital days x $771 average per diem. Average inpt/op per diem for wasting was $431x37 days. Average op per diem was $149x29 days. Wasting controls had per diem of $678 x 24 hospital days.
CONCLUSION: Preliminary data shows that total and per diem charges for treating patients with AIDS complications correlate directly with where therapy is delivered. Our data suggests that when outpatient therapy can be substituted for inpatient, total and per diem charges can be significantly reduced. These findings have profound implications on health care policy.

F.D.817 THE ECONOMIC SIGNIFICANCE OF VOLUNTEER SERVICES IN A COMMUNITY-BASED ORGANIZATION

Rodriguez, Maria R. *; Toro-Alfonso, J.**; Meaux, A. **; Nigaglioni, A. **. * University of Puerto Rico, San Juan, P.R., U.S.A.; ** Fundación SIDA de Puerto Rico, S.J., P.R.

Objective: To assess the economic value of services provided by volunteers in a Community-Based Organization (CBO).
Methods: A record review of professional and non-professional services rendered to clients enrolled during 1989 at Fundación SIDA de Puerto Rico was performed. This is the largest volunteer CBO in P.R. which coordinates and provides services to HIV+/AIDS clients, their families and significant others. Monetary value is assigned to each service based on equivalency market value on the local economy, in accordance to nature of the service and type of professional, on a per-hourly basis.
Results: The total monetary value of services amounted to $130,930, which represents 30% of the agency's 1989 budget. Services were provided to a total of 420 clients, as follows:

SERVICE CATEGORY	HOURLY RATE	HOURS	TOTAL	%
Counselling & Therapy	$40-50	403	$16,280	12.4
Education & Training	15-60	1,182	23,210	17.7
Medical Services	10-60	460	22,600	17.3
Technical Consulting	35	766	26,810	20.5
Non-professional serv.	5	8,406	42,030	32.1
TOTALS		11,217	130,930	100.0

Conclusion: A variety of volunteer services will significantly lessen the economic burden on goverment and the private sector.

Cost and Financing: By Age, Sex, Risk Group, Payer, and Severity of Illness

F.D.819 VARIATIONS IN INPATIENT AND OUTPATIENT HOSPITAL USE BY CLASS OF ILLNESS AMONG HIV-INFECTED CHILDREN

Boland Mary, Conviser R, Kelly, Connor E., Oleske, J.
Children's Hospital, United Hospitals, Newark, NJ, USA

Objective. This study looks at differences in inpatient and outpatient resource consumption among HIV-infected pediatric patients by class of pediatric infection, as defined by the Centers for Disease Control (CDC).
Methods. Inpatient and outpatient records were examined for all 171 children treated for HIV infection at children's Hospital from 1984 through 1988. Patient resource use was keyed to modified CDC criteria for class of illness--indeterminate, asymptomatic, symptomatic, or AIDS. Inpatient resource use measures include probability and frequency of hospitalization, length of stay, cost, and charges; outpatient measures include frequency of visits, cost, and charges.
Results. The median age at diagnosis was 1 year and the mean was 33.9 months. On average, patients were followed for 16.8 months. Key differences by class of illness:

Measure	Indeterminate	Asymptomatic	Symptomatic	AIDS
Initial Diagnosis	20%	7%	44%	29%
μDays Hospitalized	0.7	5.8	11.0	70.9
μTotal Hospital Cost	$ 197	$1406	$3204	$24809
μOutpatient Visits	3.8	2.5	7.4	10.9
μTotal Outpatient Cost	$ 794	$ 747	$2953	$4425

Conclusion. CDC class was predictive of resource consumption, with inpatient care 20% of the total cost of care for indeterminate patients and 86% for patients with AIDS. For the study period, the mean total cost of care was $21,078. Use of outpatient services can keep costs of care down, particularly for children who have not yet developed AIDS.

F.D.820 VARIATION IN COST OF AIDS RELATED TO GENDER AND RISK STATUS

Seage, G.*; Hertz, T.*; Stone, Valerie*,**; Epstein, A.***.
*Boston Department of Health & Hospitals, ** Harvard School of Public Health, *** Harvard Medical School, Boston, MA, USA

Objective: At present limited data exist describing the hospital utilization patterns of women and intravenous drug users (IVDU) with AIDS. Our objective was to determine if cost and length of stay (LOS) varied by gender and risk status.
Methods: We performed a population-based study of all incident AIDS cases among women and/or IV drug users diagnosed in 1987 in Massachusetts. A random sample of all male, non-IV drug users diagnosed in 1987 was selected as a control group. Inpatient utilization and payor status were obtained from billing records for 1987 and 1988. Two linear regression models, with LOS and cost as dependent variables, were used to control for confounding.
Results: As of January, 1990, billing data were available for 553 discharges, representing 214 of 313 subjects (68%), and 35% of all AIDS cases diagnosed in the state in 1987. After adjusting for confounding, regression analysis showed significantly longer LOS for IVDU and heterosexual risk status, and patients who were new Medicaid applicants. Significantly shorter LOS was observed for Blacks and Hispanics, and at hospitals with more experience treating AIDS patients. Higher cost per hospitalization was associated with in-hospital mortality, IV drug use, and Medicaid applicant status, while lower cost per hospitalization was associated with Hispanic ethnicity, and longer time since diagnosis.
Conclusion: AIDS patients' ethnicity, insurance status, and risk status affect hospital utilization. At present no differences in hospital utilization are observed by gender. These data will be reexamined for the full cohort and presented after controlling for severity of illness.

F.D.821 HOSPITAL RESOURCE CONSUMPTION OF ADULT AND ADOLESCENT PWA BY RISK FACTOR AND PAYER

Coye, Molly Joel*; Conviser, R.**; Grant, C.***
*Johns Hopkins University, Baltimore, MD, USA, **Children's Hospital of New Jersey, Newark, NJ, USA, ***New Jersey Dept. of Health, Trenton, NJ, USA.

Objective: To examine differences in hospital resource consumption by risk factor and payer of all PWA over 12 hospitalized in New Jersey during 1987.
Method: All 1987 New Jersey hospital discharge abstracts from 1987 were scanned for AIDS diagnoses and matched to the state AIDS Registry to find those corresponding to adults and adolescents with AIDS. Matches were found for 3,153 admissions corresponding to 1,619 PWA. Lengths of stay and costs per visit and per year were analyzed by demographic variables, risk factor, and payer.
Results: Patients averaged 18.46 days and $10,929 per stay, 1.95 admissions per year, and 36.25 days and $21,269 per year. Those infected through heterosexual contact had the longest average stays (21.54 days) and costs ($13,286); intravenous drug users also had significantly longer average stays (19.27 days) than gay men (16.23 days) but not significantly different costs. Medicaid patients had the highest average number of admissions (2.44), total days of hospitalization (44.84), and total hospital costs ($24,780).
Conclusion: As HIV positive drug users and Medicaid recipients increase, federal policy must change to improve access to reimbursable ambulatory services.

F.D.822 CARE AND TREATMENT OF PEDIATRIC AIDS PATIENTS IN CHILDREN'S HOSPITALS

Hintz, Elizabeth A.*; Allbritten, D.**; Weslowski, V.*; Spolarich, A.*; Andrulis, D.*; *National Public Health and Hospital Institute (NPHHI), Washington, D.C., USA; ** National Association of Children's Hospitals and Related Institutions (NACHRI), Alexandria, Virginia, USA.

Objective: To examine the utilization patterns and treatment and cost of providing care to pediatric AIDS patients in children's hospitals and to compare with the utilization patterns and cost of treatment for all persons with AIDS (PWAs) in 1987.
Methods: NPHHI, in collaboration with NACHRI, disseminated a survey to the 90 member hospitals of NACHRI. The survey gathered information on the level of care provided to children with AIDS (CWAs) and the costs to hospitals of treating CWAs. Study findings were compared to results from another NPHHI study, "The 1987 U.S. Hospital AIDS Survey," to examine differences in the level of care required by PWAs and CWAs. Independent t-tests were performed to test the significance of differences in CWA and PWA means.
Results: The paper presents results on 151 CWAs treated in 44 NACHRI hospitals. Statistical comparisons of the average daily loss to hospitals treating CWAs compared to all pediatric medical/surgical patients found significantly higher losses for CWAs. Comparisons of children and all persons with AIDS indicate that CWAs have significantly more admissions per year and higher average daily costs than PWAs.
Conclusion: These findings suggest that CWAs utilize more inpatient hospital care than PWAs and at a higher cost. These figures begin to suggest that hospital utilization patterns and cost of care for CWAs demonstrate the difference between CWAs and PWAs and further indicate the need for continued studies on these differences.

F.D.823 MEDICAL CARE USE AND CHARGES FOR PERSONS WITH ARC IN 6 CALIFORNIA HOSPITALS

Kahn, James*; Moss, N.**; Benjamin, A.*; Wolfe,H.*
*University of California, San Francisco, California, USA,
**National Institutes of Health, Bethesda, Maryland, USA.

Objective: This state-funded study was undertaken to examine use of and charges for medical services for patients with ARC attending hospital-based outpatient clinics in California.
Methods: We selected all patients with ARC (n=74) from a larger sample of HIV-infected patients enrolled in the outpatient clinics of 4 public and 2 non-profit community hospitals. Patient demographics, diagnoses, and presenting symptoms at each visit were abstracted from medical records for the study period, January to December 1987. All outpatient and inpatient medical services and charges were coded from billing forms.
Results: Mean time of study participation was 8.1 months. Inpatient admissions were uncommon (x=.03/month); outpatient visits averaged 0.95 per month. Mean total charges were $375 per month. Monthly charges were $202 for outpatient services and $148 for inpatient services (54% and 39% of total charges, respectively). Components of outpatient charges included laboratory (31%), pharmacy (24%), clinic fee (23%), and radiology (16%). Variation in outpatient charges among hospitals was minimal (F=.696).
Conclusions: Total medical charges for persons with ARC may be considerably higher than previously reported ($41/month, Seage, 1988) and may represent a significant part of the total HIV bill. Most medical charges are associated with outpatient care.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

Cost and Financing: Financing

F.D.824 SOURCES OF PAYMENT FOR SELECTED SERVICES FOR HIV-INFECTED PATIENTS IN 21 U.S. CITIES.

Matheny, Samuel; Paquin, N., Hostetter, C. Health Resources and Services Administration, United States Public Health Service (USPHS), Rockville, MD, USA.

Objective: To analyze principal sources of payment for selected services for HIV-infected patients in 21 cities in the United States.
Method: The USPHS has funded cities with the highest rates of AIDS cases to assist in providing various types of essential health and social services since 1986. In 1988, aggregate data was collected and analyzed for 29,000 patients in 21 cities concerning the numbers, ages, and types of patients served, as well as information on sources of payment for 8 categories of services (inpatient, outpatient, ambulatory, hospice, and residential care; subacute skilled nursing, dental services and drug therapy).
Results: Wide variations existed in principal sources of payment depending on the services. The federal Medicaid program was the major source of payment for only 1 service (subacute skilled nursing, 64% of patients). State funds were the primary source of payment for drug therapy (35.5%), and dental services (41%). There were no categories in which private insurance paid for the majority of patient services. Services for which no resources of payment were cited were most significant in residential care (58%), home health (15%), and inpatient care (11.1%).
Conclusions: The first national data on sources of financing of care from PHS-funded programs shows considerable variation in major sources of funding. High levels of self-pay/no pay in areas such as residential, ambulatory care, home health and inpatient services may need further investigation.

F.D.825 ENHANCED MEDICAID RATES FOR THE TREATMENT OF HIV

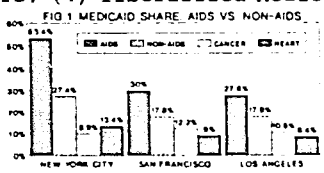
Rango,N.,M.D.*;Feldman,I.*;Burke,G.,M.D.*;Anderson,E.*; Anderman,S*;Kelly,S*. *AIDS Institute, New York State Department of Health, Albany, New York.

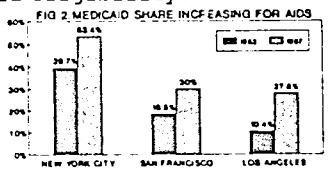
Objective. To describe the continuum of services with associated medicaid rate enhancements initiated by the New York State Department of Health.
Methods. A series of regulatory initiatives have been approved with related incremental rate enhancements in order to establish a continuum of HIV services in the acute, long term care, primary care areas.
Results. New York State's initial response, in January 1986, was the establishment of the AIDS center program. This initiative reimburses hospitals for the provision of 13 standards of care including a hospital-based case management system. Inpatient reimbursement rates are set approximately 30-50% over existing exempt unit per diems while outpatient care is reimbursed through a 7 tiered structure with prices ranging from $33.00 to $265.00. In July 1988 regulations were approved for AIDS skilled nursing and health related facilities. These facilities provide for increased physician coverage, case management, drug treatment and ongoing relationships with AIDS centers. Rates for these facilities are approximately two to three times existing nursing home rates in New York City and range from $170.00 per day to $265.00. In response to CDC recommendations for primary prophylaxis utilizing drugs such as AZT and aerosolized pentamadine, new primary care rates for the treatment of early HIV disease were approved in August 1989. Prices reflecting five visit type range from $44.00 to $318.00.
Conclusion. The New York State Department of Health's regulatory initiatives have established a basis for incremental HIV services with associated medicaid enhancements resulting in an established continuum of services for persons with HIV.

F.D.826 FINANCING AIDS MEDICAL CARE COSTS IN NEW YORK, SAN FRANCISCO AND LOS ANGELES: 1983-1987

Green, Jesse* ; Arno, P.**
*New York University Medical Center, New York, New York, USA
**Montefiore Medical Center/Einstein Coll. of Med., NY, NY, USA

Objective: Compare the payor distribution for HIV related hospital care with other diseases and examine five year trends.
Methods: Hospital discharge data for all 3 cities were analyzed.
Results: Hospitalized AIDS patients were much more likely to have Medicaid coverage than other patients (figure 1). These differences remained significant after adjusting for patient demographics. A marked trend toward an increased Medicaid share (figure 2) and declining private insurance share was noted.
Conclusion: Medicaid's disproportionate share of AIDS treatment costs implies that AIDS is strongly associated with poverty. Yet, patient demographics do not fully account for Medicaid's large and growing share. Other explanations include: (1) loss of employment based insurance; (2) impoverishment due to longer survival and high medical costs; (3) avoidance of AIDS patients by some private insurers; (4) liberalized Medicaid eligibility.





F.D.827 Differential Eligibility for Public Health Care Financing Programs by Persons In Various Stages of HIV Infection

Smith, Elmer W.*; Klemm, John; Pine, Penelope;
Health Care Financing Administration,
Baltimore, Maryland

Objective: Review the implications of changing models of care and extended testing on the likely sources of financing of medical care for HIV individuals with special emphasis on the Medicare and Medicaid programs.
Methods: An analysis of (a) HIV incidence and AIDS prevalence statistics among groups with various high risk behaviors (b) the emerging model emphasizing the efficacy of care at earlier stages of HIV infection and (c) eligibility requirements of the Medicaid and Medicare programs reflect significant implications for financing health care for the individuals involved.
Results: The source of HIV infection or the type of high risk behavior resulting in infection has important ramifications for Medicare and Medicaid eligibility. Low income HIV infected pregnant women, infants and children present the best chance of being covered by the Medicaid program at all stages of HIV infection. Low income male IV drug users and homosexual and bi-sexual men with frank AIDS or advanced ARC are likely to be eligible for Medicaid, and if they have a significant work experience, for Medicare. Persons in these latter groups in early stages of HIV infection will ordinarily not be eligible for either Medicare or Medicaid.
Conclusion: Depending upon the age and sex of the infected individuals, broad public financing programs for health care like Medicare and Medicaid will play a greater or lesser role in financing care, thus placing greater responsibility on other sources of payment or subsidies for uninsured care. Health care costs of single persons or childless couples who are in the early stages of HIV infection and who are uninsured persons or persons with low income will to a significant degree not be publicly financed under current Federal programs.

F.D.828 WILL DEVELOPING COUNTRIES' AIDS PROGRAMMES GET THEIR MONEY? EXTERNAL ASSISTANCE AND NATIONAL AIDS PROGRAMMES IN DEVELOPING COUNTRIES, 1987-1990

Drager, Nick; Tarantola, D.; Mann, J.
World Health Organization, Geneva, Switzerland.

Objective: To review current developments in external financing of national AIDS programmes (NAPs) in developing countries. To discuss lessons learned in both the areas of resource mobilization and donor coordination at the country level and present some challenges for the future.
Methods: The medium term plans of 55 national AIDS programmes and final communiqués of donor meetings are analyzed to present resources required and mobilized in support of NAPs. Personal experiences of governments, both donors and recipients, and WHO officials are used to present lessons learned and future challenges.
Results: Since the establishment of the WHO Global Programme on AIDS in 1987, 55 developing countries have held donor meetings to mobilize external financial and technical assistance in support of their NAPs. The outcome of these meetings was a mobilization of over US$100M in external assistance. Approximately 51% of the assistance was bilateral and 49% multilateral support, a large part of the latter through WHO. Future external resource requirements will exceed currently available external assistance for NAPs.
Conclusion: Should current trends continue, developing country NAPs will not receive adequate external financial assistance. This presents a challenge to the international community to provide a firm financial basis to ensure sustainability of NAPs in developing countries.

Cost Effectiveness of Early Drug Treatment

F.D.829 ECONOMIC IMPACT OF EXPANDED AZT CRITERIA IN A LOW INCIDENCE AREA

Miedzinski, Lil; Otten, N.; Kunimoto, D.; Samuels, S.; Shafran, S.; Taylor, G.
University of Alberta, Edmonton, Alberta, Canada.

Alberta is a low incidence area of AIDS in Canada with 6.5% (220/3360) of the total national cases reported as of December 31, 1989. Edmonton is the northern provincial distribution centre for AZT and supplies some 30% of the eligible population. AZT, not yet licensed in Canada, has been available for investigational clinical use in this Province since 1986 for patients with previous Pneumocystis carinii pneumonia or symptomatic HIV infected patients with a T4 count less than 300/mm^3. In August 1989 Canada's Health Protection Branch and Burroughs Wellcome, on the basis of data from NIH, AIDS Clinical Trials Group, expanded the clinical indications for AZT use to include patients with T4 counts of 500/mm^3 or less. With this, our centre experienced a dramatic increase in new enrollments. Assuming the same rate of identification of eligible recipients and projecting figures forward to December 1990 suggested a major increase in our drug budget expenses from a predicted $379,000 Cn/yr based on the original criteria to $532,000 Cn/yr with the expanded criteria. The latter figure reflects the fact that lower doses appear to be as efficacious in patients with T4 counts between 200 and 500 mm^3 and that approximately 70% of patients will require the lower dose. Nonetheless our AZT costs account for about 5% of the pharmacy drug budget of a regional referral hospital and represent only 1/3 of the total provincial AZT costs. The recent 25% cost reduction for AZT will help our health care budget, but is only a partial alleviation of the economic burden.

F.D.830 **COST-EFFECTIVENESS OF AEROSOLIZED PENTAMIDINE (AP) PROPHYLAXIS AGAINST PNEUMOCYSTIS CARINII PNEUMONIA**

Smith, Mark D.; Murray, RB; McAvinue, S; Suldan, M; Chaisson, RE. Johns Hopkins University, Baltimore, Maryland, USA

Objective: Analysis of cost implications of AP and AP's percentage of total medical costs at Johns Hopkins Hospital (JHH) for patients meeting current indications.
Methods: Review of charges for outpatient AP and for inpatient hospitalizations for PCP at JHH from March 1988 to July 1989.
Results: 164 patients received AP prophylaxis (94 primary prophylaxis, 70 secondary) with an overall PCP breakthrough incidence rate of 9.5%. 148 patients were admitted for 172 episodes of PCP; average charge was $12,212. Based on current charges at JHH for drug, professional fee, and procedures associated with AP, AP may be expected to produce savings of $97,000 per 100 patients per year compared to anticipated hospital charges for PCP. In a subset of patients for whom all JHH in- and outpatient hospital, professional, and other charges were available, AP accounted for <5% of total annual charges. Sensitivity analysis demonstrates that for current estimates of PCP breakthrough rates, AP is cost-effective even if the drug is priced at up to $350 per 300 mg. dose; at current JHH charges, AP is cost-effective for breakthrough rates as high as 17% per year.
Discussion: AP, despite its considerable cost, provides substantial savings over a wide range of drug prices and breakthrough rates.

F.D.831 ECONOMIC AND POLICY IMPLICATIONS OF EARLY INTERVENTION IN HIV DISEASE: AN UPDATE

Amo, Peter*; Green, J**
*Montefiore Medical Center/Einstein College of Medicine, New York, USA
**New York University Medical Center, New York, USA

Objective: Early intervention in HIV disease has become an accepted standard of medical practice. In August 1989, a large clinical trial was halted when findings indicated that low-dose AZT was effective in slowing progression from asymptomatic HIV disease to AIDS. In addition, primary prophylaxis of opportunistic infections, particularly Pneumocycystis carinii pneumonia, has been shown to be effective. These scientific developments carry major economic and policy implications which we have analyzed.

Methods: A cost model developed for an earlier study was revised to incorporate new data on the CD4 cell count levels of the infected population, changes in the price of AZT, other drugs found effective in preventing opportunistic infections, and the need for monitoring the infected population prior to treatment.

Results: To deliver needed services to all HIV-infected persons who could benefit from them will require $1.85 billion per year ($0.6 billion for monitoring, $1.25 billion for treatment). Pharmaceuticals comprise 79% of early intervention treatment costs.

Conclusion: Not only can early intervention forestall disease progression and reduce premature morbidity and mortality, but it also provides an unprecedented opportunity to integrate prevention, education and treatment services. To provide needed services, resources must be allocated to enhance primary care delivery systems, particularly in our inner cities. Despite lower effective dosages and recent price reductions among certain drugs such as AZT, policies designed to reduce the price of pharmaceuticals remains an important strategy for assuring access to early intervention.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.832 ARE AZT AND PROPHYLAXIS FOR PNEUMOCYSTIS CARINII PNEUMONIA (PCP) COST-EFFECTIVE?

Freedberg, Kenneth*; Tosteson, ANA**; Cohen, CJ**; Cotton, DJ**. *Boston City Hospital and **Beth Israel Hospital, Boston, MA, USA.

Objective: To estimate the impact on life expectancy, direct costs, and cost-effectiveness of AZT and prophylaxis for PCP in asymptomatic HIV-infected persons with CD4 counts below 500/mm3.
Methods: A decision-analytic model, utilizing published natural history data and randomized trial results, was used to compare the following strategies: no therapy (NO RX), AZT alone, PCP prophylaxis with aerosol pentamidine (PRO), or both (AZT+PRO). Total costs included costs of medication (AZT $3,240/year, PRO $1,200/year), monitoring, complications, and treatment. We did separate analyses for those with CD4 counts <200 and 200-500 (1-year probability of PCP 18% and 3%, respectively).
Results: For CD4<200, PRO increased life expectancy by 0.44 years, and saved $500 per person compared to NO RX. AZT+PRO increased life expectancy an additional 1.95 years, at an added cost of $23,900; the cost-effectiveness ratio was $12,200 per year of life saved (YLS). For CD4 200-500, AZT increased life expectancy by 1.94 years, at an added cost of $24,700 compared to NO RX; the ratio was $12,800 per YLS. AZT+PRO further increased life expectancy by 0.05 years for an added $2,100; the ratio was $44,300 per YLS. Results were most dependent on the impact of AZT on life expectancy after AIDS diagnosis, and the 1-year probability of PCP. If trimethoprim-sulfa was used as PRO, it was more cost-effective than aerosol pentamidine.
Conclusion: We conclude that AZT+PRO for persons with CD4<200, and AZT alone for CD4 200-500 have substantial impact on life expectancy and are very cost-effective. AZT+PRO may be reasonable for selected subgroups of persons with CD4 counts from 200-500.

Cost Effective Means of Prevention

F.D.834 PREVENTION SCENARIOS: SWISS AIDS PROGRAMME

Cameron, Charles*; Shepard, Julia*; Mann, Jonathan*; Somaini, Bertino**; Dubois, Jean-Alain**; Billo, Nils**; Zwahlen, Marcel**; Samuel, Michael**
* Global Programme on AIDS, World Health Organization, Geneva, Switzerland, ** Federal Office of Public Health, Switzerland

Objective: To examine potential epidemiologic and economic impacts of prospective scenarios concerning the HIV/AIDS epidemic in Switzerland.
Method: Establish baseline epidemiologic and economic data: number of projected new HIV infections for 1989 through 1991 and direct personal cost per case. Modified-delphi technique was used with Swiss public health officials for epidemiologic projections and selection of scenario. Economic information was collected in Switzerland.
Results: The baseline of projected new HIV infections for the three years 1989 through 1991 is estimated between 2,050 to 10,300. A scenario hypothesizing a 10% reduction in baseline estimates (assuming programme activities are expanded beyond current levels) would decrease these estimates to a range of 1,850 to 9,300 new infections. Using an estimate of SFr 100,000 as the individual discounted lifetime direct personal cost, the avoided cost, or decrease in total direct personal costs, would be between SFr 20 million to SFr 100 million.
Conclusion: The scenario test suggests that additional investment of between SFr 20 and 100 million would be cost-effective if an additional 10% reduction in transmission is achieved. In addition, the investment would result in saved lives and an even greater potential savings in avoided indirect costs. This emphasizes the need to spend money on prevention now rather than later.

F.D.833 THE RISING COSTS OF DRUG THERAPY IN AN HIV TREATMENT UNIT IN SOUTH EAST LONDON

Fitt, Sarah; Moxham, J.; McManus, T.J.
King's College Hospital, London England.

Objective: To show the increasing costs of HIV related drug therapy in an HIV unit in Camberwell Health Authority, London
Method: All drug issues to the HIV inpatient unit and outpatient clinic are recorded through the pharmacy computer system. In addition, all drug therapy administered to HIV inpatients is recorded by a clerical officer on a daily basis to give analysis of individual patient costings.
Results: The total cost of HIV related drug therapy has increased by 70% over the last financial year. Data will be displayed in the form of graphs and pie-charts to show the areas of increased expenditure, the effect of introduction of new therapies and individual patient costings.
Conclusion: Improved drug treatment of opportunistic infections means that HIV related patients are living longer. However, expensive long term therapy is required to prevent future relapses. This increase in drug costs will put large demands on drug budgets and possible ways of dealing with this problem will be discussed.

F.D.835 ESTIMATED PUBLIC COSTS OF HIV COUNSELING AND TESTING, USA

Hedlund, Kathleen*; Spencer, J.*; Schalla, W.*; Johnson, L.;* Fehd, R.*
*Centers for Disease Control, Atlanta, Ga., U.S.A.

Objective: To determine the average national public costs of HIV counseling and testing (CT) for both seronegative and seropositive individuals. These figures are needed to plan budgets and justify funding allocations for the CDC-funded HIV Prevention Cooperative Agreements.
Methods: We computed laboratory, counseling, and partner notification (PN) costs separately according to CDC-recommended guidelines for these processes. Laboratory costs were based on manufacturers' volume discounts for test kits, estimated productivity of technicians, and average direct and indirect costs. Average salaries for each health care worker category were derived from a CDC HIV Cooperative Agreements database. Counseling costs were based on a 15-minute pretest session for all clients and 30- and 90-minute posttest sessions for HIV negative and positive individuals, respectively.
Results: Our data showed minimum CT costs of $43 for HIV-negative and $115 for seropositive individuals. PN activity costs an additional $43 per HIV-positive person. These costs do not include program evaluation, quality assurance, or staff training expenses.
Conclusion: Costs per test will vary depending on the positivity rate of the at-risk population being tested: in testing sites with a 20% positivity rate, costs for HIV CTPN will be about $66 per test. Conversely, in sites with only a 4% positivity rate, costs will be about $47 per test. Although costs vary by region, health care setting, and laboratory protocols, this information will provide State and local programs with a benchmark against which to compare their CTPN costs.

F.D.836

COST PROJECTIONS FOR ADDING CD4 TESTING AND PROPHYLACTIC TREATMENT FOR HIV INFECTED INDIVIDUALS SEEN AT PUBLICLY FUNDED COUNSELING AND TESTING (CT) SITES, U.S., 1990-1993

Moore, M.*, Spencer, Jack*, Bowen, G.S.*, West, G.*, Francis, D.P.**
* Centers for Disease Control, Atlanta, Georgia and ** San Francisco, CA, USA

Objective. To estimate potential costs for different types of management of infected persons seen at publicly funded CT sites.
Methods. The number of infected persons seen at CT sites was projected based on trends from 1985-9/1989. The cost of CD4 testing was based on the South Carolina Department of Health's (SCDH) costs for their own CD4 testing program. Costs for AZT prophylaxis (500 mg/d for persons with CD4 < 500) was based on manufacturer's cost plus 10% mark-up. Estimates of T4 cell distribution among infected persons was based on reports from U.S. Army studies and from the SCDH. Costs for pentamidine prophylaxis and for "comprehensive medical care" [CMC] (initial screening for TB and syphilis; 4-monthly: testing for CD4, B2 microglobulin, p24Ag, medical examination and intensive counseling) are from the California State Health Department.
Results. Estimated costs (unadjusted for inflation) are as follows:

	HIV+ (Thous.) NEW	PREVIOUS	COSTS ($ MILLIONS) CD4 ONLY	CD4+AZT	CD4+AZT +PENTAM	CMC,NO AZT	CMC+ AZT	CMC+AZT +PENTAM
1990	54.0	58.3	11.2	146.0	202.2	112.3	247.1	303.3
1991	68.4	112.3	18.1	235.0	325.3	180.7	397.6	488.0
1992	85.7	180.7	26.6	346.3	479.6	266.4	586.1	719.3
1993	100.8	266.4	36.7	477.4	661.0	367.2	807.9	991.5

Conclusions. CD4 testing and prophylactic treatment are now available and desirable, though the potential cost for these is high. Health policy makers and legislators could use these data to help plan HIV control activities.

F.D.837

COST-EFFECTIVENESS OF AN STD/AIDS CONTROL PROGRAMME FOR HIGH FREQUENCY STD TRANSMITTERS IN NAIROBI, KENYA

Moses, Stephen*,***, Ngugi, E.N.*, Nagelkerke, N.J.D.**, Bosire, M.**, Waiyaki, P.**, Plummer, F.A.*,***
*University of Nairobi, Nairobi, Kenya; **Kenya Medical Research Institute, Nairobi, Kenya; ***University of Manitoba, Winnipeg, Canada.

OBJECTIVE: To evaluate the effectiveness and cost-effectiveness of an STD/HIV infection control programme among a cohort of female prostitutes in Nairobi, Kenya.
METHODS: Since 1985, a cohort of approximately 1,000 female prostitutes residing in the Pumwani area of Nairobi, most of whom are HIV-1 positive, has been involved in an STD/HIV control programme operated by the University of Nairobi's Department of Medical Microbiology in collaboration with the Nairobi City Commission's health unit. The major elements of the programme, which have been described in previous publications, include promotion of condom use, treatment of STDs, general health education, and counselling related to the treatment and prevention of STDs and HIV infection.
RESULTS: Using conservative estimates regarding numbers of sexual contacts, susceptibility of clients, HIV transmission efficiency and rates of condom use, it is estimated that a minimum of 12,000 new cases of HIV infection per year are prevented among clients and contacts of clients. The total annual operating cost of the programme, including facilities, staff salaries, laboratory investigations and therapeutic drugs is approximately $70,000 U.S., or about $6.00 for each case of HIV infection prevented.
CONCLUSION: Programmes to reduce HIV transmission which are targeted at high frequency STD transmitters can be highly cost-effective. More such programmes should be undertaken and evaluated in different settings.

Financing and Resource Allocation: Other

F.D.838

PREMATURE MORTALITY RELATED TO HUMAN IMMUNODEFICIENCY VIRUS INFECTION IN CALIFORNIA 1980-1992

Singleton J.A.*; Otten M.W.**; Doebbert, Gwendolyn*
*California Department of Health Services, Sacramento, CA USA **Centers for Disease Control, Center for Prevention Services, Atlanta, GA USA

Objective: To use the number of years of potential life lost (YPLL) before age 65 to compare the impact of HIV on premature mortality with that of other causes of death in California from 1980 to 1992.
Methods: HIV-related YPLL before age 65 for 1980-1987 was calculated from California AIDS case surveillance data. Mortality data for other causes of death were obtained from 1980 to 1987 California vital statistics files. HIV-related YPLL for 1988-1992 was projected using the age at death distribution for 1987 AIDS decedents and estimates of the future number of AIDS deaths for 1988-1992 (these AIDS case projections accounted for leveling of incidence in San Francisco and Los Angeles).
Results: YPLL associated with HIV rose from 556 lost years from 20 deaths in 1981 to 69,994 lost years from 2,782 deaths in 1987, and is projected to reach 189,148 lost years from 7,349 deaths in 1992. In 1987 HIV ranked sixth behind unintentional injuries (282,944 YPLL), all malignant neoplasms (184,719 YPLL), suicide/homicide (177,939 YPLL), all heart diseases (128,983 YPLL), and congenital anomalies (80,540 YPLL). By 1992, HIV is projected to rank first as a single cause of YPLL before age 65 ahead of motor-vehicle-related mortality (172,788 YPLL in 1987), all malignant neoplasms, and all heart diseases, if mortality in non-HIV causes continues to remain stable.
Conclusion: These YPLL calculations illustrate the unfavorable impact of HIV on premature mortality in California. YPLL before age 65 is useful when assessing the impact of HIV for planning and allocation of resources.

F.D.839

THE ECONOMIC IMPACT OF AIDS AT THE HOUSEHOLD LEVEL IN MEXICO.

TAPIA-CONYER,R.*,MARTIN,A.**;REYUELTA,A.*;RODRIGUEZ,S*.
*CONASIDA, México, D.F. México,**FHI/AIDSTECH,Durham,NC. USA.

OBJECTIVE: To measure the impact of AIDS on income, expenditures and family environment at the household (HH) level, to guide the development of the community intervention programs.
METHOD: A group of 23 AIDS patients were visited at their HH every month during a period of 9 months. The selection criteria were: a) AIDS patients discharged from two important hospitals in México, City ; b) to have residence in the metropolitan area and; c) to sign on inform concent to participate in the study. During each visit, trained personnel,interviewed the patient and relatives to gather information on demographics, changes on income and salaries, type and amount of expenditures, and source of payment. In addition 21 control HHs, were selected within the same block or building. Trend analysis and comparative statistics were applied.
RESULTS : All the patients were males, 75% were single, 25% married or divorced. On average an AIDS patient lives in the same household with three other relatives. In 55% of the HHs the income decreased 18% on average. The patients were the main source of income in 60% of the HHs. In only 11%, the main source of income, was derived from other family member. 52% of the HHs expenditures are related to the patient's treatment and well-being, which increased over time.
CONCLUSION: a) The existence of an AIDS patient among a family has an overwhelming impact, first on the structure of the source of income, secondly, on the income per se and third, on the increase of expenditures. b) Within the family 's expenditures food, laboratory studies, drugs and transportation are the main expenses. c) The study points out the secondary consequences of the disease in terms of the opportunity costs on the family's health, productivity and emotional condition .

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

Media and Dissemination of Information

F.D.840 THE SOCIAL IMPACT OF AIDS IN NEWSPAPERS. SPAIN, 1984-87.

Feijoo, Rosa; Marcos, G. ; Aibar, C.; Gómez L.
Departamento de Medicina Preventiva. Universidad de Zaragoza

Objective: The aim of this study is to analyze the AIDS articles related, his temporal evolution, social impact and their influence in health education.
Methods: We have studied 1166 articles published in the most important newspapers in national and local level (Spain and Aragón).
We have analyzed the following variables: Author, contents, headlines, location, extension, sources of information, and others. We have applied the Kolmogorow-Smirnoff, Chi-Square, and Fisher statistical tests.
Results and discussion: The AIDS is the infectious disease that appear with most frecuency in the newspaper in relation with others.
Impact aspects (Actors, legal problems,...) are more frecuently subject in the articles than epidemiologic and scientific advances information. Nevertheless, the frecuency of catastrophic and anguised articles is decreasing.
The educative orientation most common is negative and promote false expectations and defeatism feeling.

F.D.841 AIDS AND CANCER. WHERE DO PEOPLE OBTAIN INFORMATION.

Fisman Noemí*,Santarelli M.T*,Volonteri C.#,Sylwan R.#
* G.A.T.L.A.(Grupo Argentino de Tratamiento de la Leucemia Aguda), # ARGENTUM (Grupo de Prevención,Investigación y Asistencia Psicosocial). Buenos Aires, Argentina.

Objective:To know the sources of information our population use regarding AIDS and Cancer in order to design prevention and educational programmes.
Methodology: We compare the results of two psychosocial surveys, which goal was to evaluate behaviours, knowledge and attitudes of the population facing AIDS (300 subjects interviewed) and Cancer (1191 subjects). In both of them we took stratified samples of people between 15 to 75 years of age, distributed by sex and socioeconomic class according to the last National Survey.
Results: To the question:"Do you use to read or inform yourself about the subject? and "if Yes, How ? (multiple response) the answers were:

	YES	NO	JOURNAL	RADIO	NEWSPAPER	TELEVISION
AIDS	74%	26%	35%	14%	59%	56%
CANCER	42%	58%	66%	19%	17%	47%

Conclusions:Only 42% of our population looks for information about Cancer,but a high percentage (74%) is interested in AIDS and informed mainly through newspapers and television. These facts point out:a)The responsability that those means of communication should consider as part of their activities,b) The need of experts in this field of health in order to up-date information and design clear, simple and real approches in prevention and education programmes.

F.D.842 THE BRAZILIAN LAY PRESS AND AIDS REPORT COVERS: INCOHERENCE ?

ADEODATO FILHO, SÉRGIO*, LONGO, PAULO H. **.
*JORNAL DO BRASIL; **INSTITUTO BRASILEIRO DE INOVAÇÕES EM SAÚDE SOCIAL (IBISS) - Rio de Janeiro, Brazil.

Objective:To analyse the AIDS report covers at the largest brazilian newspapers, aiming to prove the reduction of publications in contraposition to the increasing number of cases.
Methods:Statiscal study of the AIDS report covers produced in 3 years at the 4 largest brazilian newspapers, verifying:
a)Abordage adopted - treatment, research, prevention, etc. -;
b)Information Sources; c) Geographical provenance of information.
Results: Monthly, the newspapers published an average of 25 reports about AIDS each one. Among those, 71% came from international agencies; more than 70% of thereports used as information sources governmental organizations and research institutes. The number of publications about AIDS reduced 58.9% from 1987 to 1989.
Conclusion: In spite of the significative increase of AIDS cases the lay press has been reducing the detach for the subject and has not been considering the importance of local abordage and contributions; giving much more detach to statistics and to scientific terms inacessible for the general public.

F.D.843 EVALUATION OF AIDS EDUCATION THROUGH MASS MEDIA IN NIGERIA

Ogunyankin, O. + and Jinadu MK++, +Department of Disease Control, Ministry of Health, Akure, ++Faculty of Health Sciences, Obafemi Awolowo University, Ile-Ife, Nigeria.

Objectives: To identify different types and appropriateness of AIDS messages in Nigerian mass media, to describe factors constraining the media from achieving the objectives of educating the 'grassroots' about AIDS and to recommend solutions for overcoming the constraints.
Methods: A survey of AIDS message in newspapers, radio, television and various print materials in the country between 1986-1989 was carried out, their contents analysed. Opinion survey of randomly selected 250 urban and 300 rural dwellers about AIDS messages in the mass media as well as the credibility of the channels of communicating the messages was also conducted in June 1989.
Results: Mass media messages in the various mews media in the country were gensrally non-informative, non-prescriptive and fear-ladden. The radio channel was the most commonly used. However, about 60% of rural inhabitants have not heard the messages simply because they had no radio. About 85% of the rural inhabitants and 48% of the urban dwellers rated the credibily of the radio as a channel of communicating health information poorly since the information does not often come from a credible source. Most stories about AIDS in the newspapers were sensational. They have led to negative attitudes and unfounded fear about the disease.
Conclusion: There is a need to develop innovative, culturally-sensitive and well-pretested AIDS educational materials for the mass media in the country.

F.D.844 EVALUATION OF THE AIDS INFORMATION PROGRAM, USING MASS MEDIA CAMPAIGN, IN LUBUMBASHI - ZAIRE

Dr. RUKARANGIRA *; NGIRABAKUNZI K **; BIHIMI Y **; Dr. KITEMBO M. **
* HARVARD School of PUBLIC HEALTH, Boston, USA ** Project CONNAISSIDA Lubumbashi-Zaïre

Objective: To assess the impact of mass media campaigns by comparing KAPB studies results done in Lubumbashi before and one year after the intervention.

Methods: A questionnaire survey was conducted in 234 Lubumbashi residents in 1987 and in 235 Lubumbashi residents in 1988. The sample was choosen from interviewers' networks with whom a personal relationship has been developed. The questionnaire included four sections: (a) socio-demographic factors, (b) perceived economic and health problems, (c) biomedical knowledge or misunderstanding and (e) knowledge about prevention. T-test and CHI-square analysis were used for comparison between individuals with different caracteristics. The linear regression model was used to investigate predictors of the respondents and knowledge of AIDS. Analysis was done using the SAS statistical package.

Results: In 1987 only 25 % of participants recongnized AIDS as fatal while in 1988 85 % of participants did it.

Comparison of the score of AIDS related knowledge between individuals with different caracteristics

		TRANSMISSION		PREVENTION		SYMPTOMS	
		Means	S.E	Means	S.E	Mean	S.E
EDUC.	HI	4.8***	0.2	2.5**	0.1	5.3***	0.25
	LO	3.9	0.1	2.0	0.15	3.9	0.3
MARRY	I	4.5	0.2	2.4	0.1	4.8	0.25
	O	4.4	0.1	2.2	0.15	4.9	0.3
HASAIDS	I	4.8**	0.1	2.6*	0.1	5.6***	0.3
	O	4.1	0.2	2.1	0.1	3.9	0.3

*** P < 0.001
** P < 0.01
* P < 0.05
For t-test

Conclusion: 1) In 1988 aids has to be perceived as a major health problem in Lubumbashi. 2) Community-based interventions using interpersonal communication must be established in different communities and make up deficiency of mass media. 3) In future interventions, emphasis should be put on condoms, to make them available and affordable.

F.D.845 MASS MEDIA AND AIDS EDUCATION IN NIGERIA

M.K.Jinadu, Department of Community Health, Faculty of Health Sciences, Obafemi Awolowo University , Ile-Ife, Nigeria.

OBJECTIVES: (1) to evaluate AIDS education programmes in mass media in Nigeria,(2) to identify factors constraining the mass media from achieving the objective of educating the 'grassroots' about AIDS and (3) to recommend solutions for overcoming the constraints.

METHODS: A survey of AIDS messages in newspapers, radio, television and various print materials in the Country, between 1986 and 1989, was carried out and their contents analysed. An opinion survey of randomly selected 250 urban and 300 rural dwellers about AIDS messages in the mass media and the credibility of channels for communicating the messages was also conducted.

RESULTS: Mass media messages about AIDS in the Country were generally non-informative and fear-ladden. Most of the stories about AIDS in the newspapers were often sensational and have confused rather than informed the general public.They have led to rumours, and negative attitudes about the disease. The radio channel was the most commonly used. Although all the urban dwellers have heard at least one radio message about AIDS, majority of the rural dwellers (60%) have not heard any message. About 85% of the rural dwellers and 46% of the urban dwellers rated the credibility of radio as a channel of communicating health information poorly.

CONCLUSION: The paper conluded with a need for better AIDS messages.

F.D.846 THE IMPACT OF AN AIDS TELEVISION CAMPAIGN ON AN URBAN AUDIENCE: THE KINSHASA EXPERIENCE

M.Kyungu*, R.Eiger*, Kaombo K.**, Kambamba S.A.*, J. Convisser
*PSI's (Population Services International, Wash D.C.) PEM-SIDA
**Bureau Central de Coordination de la Lutte Contre le SIDA

CONTEXT: In a country where every major urban center has television coverage through satellite relay, the use of television is proving to be an effective means of mass communication in Zaire's mass media AIDS campaign.

OBJECTIVE: To change the behavior of Zaire's urban population through the intensive use of television.

METHOD: - Multiple daily broadcasts of a series of AIDS television spots.
- Periodic broadcasts of television dramas performed by a popular drama group.

RESULTS: According to a study among five hundred residents of Kinshasa, 57% of the interviewees had seen the television spots two months after the beginning of broadcast. A second study of a representative sample of the population of Kinshasa found that 69% of those interviewed had seen at least part of a twice-broadcast television drama. Furthermore, these two studies indicated that the large majority of those having seen the spots and dramas retained the key AIDS messages.

DISCUSSION: Contrary to current belief, television can be a useful health education tool for reaching a large urban African audience.

F.D.847 THE IMPACT OF INTERPERSONAL AND MASS COMMUNICATION ON RISK BEHAVIOR AND AIDS KNOWLEDGE IN FRANCE

Cohen, Mitchell*, Guiguet, M.**, Wells, J.***, Valleron, A-J.**.
*INSERM Unite 21, Villejuif, France, **INSERM SC4 and U263, Paris,
***Project HOPE Center for Health Affairs, Chevy Chase, MD, USA

METHODS: In 1988 a French national survey (N=2295) was conducted on health behaviors and knowledge related to AIDS among the general population, with an oversample of youth.

FINDINGS: Mass media are reported far more than interpersonal contact and targeted media as sources of information about AIDS. About 90% mention television and over half mention newspapers, magazines and radio. About a third mention doctors, friends, and leaflets, brochures and posters. Within these overall rankings, groups differ. The young are more likely than those over 24 to mention interpersonal sources and more targeted media. Those over 24 are more likely to mention radio. Homosexual and bisexual respondents are more likely to mention interpersonal sources.

While there is no evidence that level of mass media use is related to level of unprotected anal and vaginal sex, there is a positive relationship ($p < .05$) between these behaviors and knowing someone with AIDS and naming a friend as a source of information. This relationship holds for both the general and at-risk populations. A possible explanation is that those seeking information from interpersonal sources may also be already engaging in risky behavior.

There is evidence that changing to less risky activity is related to interpersonal and targeted media use. Reducing multiple partners and starting condom use are positively related ($p < .05$) to reporting friends, sexual partners, and brochures as a source of AIDS information. Electronic media use is not significantly related to behavior changes.

CONCLUSION: While most persons name the electronic media as their main source of information, there is evidence that interpersonal communication and targeted print communication such as brochures and pamphlets may have greater impact on behavior.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.848 THE IMPACT OF THE MICHIGAN MASS MEDIA CAMPAIGN ON HOTLINE CALLS, KNOWLEDGE LEVELS, AND REQUESTS FOR HIV COUNSELING AND TESTING.

Bryce, Jennifer*; Pope, R.S.**; Ruff, J.A.**
*International Health Program Office, Centers for Disease Control, Atlanta, Georgia, USA, **Center for Health Promotion, Michigan Department of Public Health, Lansing, Michigan, USA.

Objective: Assess the impact of the state-wide HIV prevention mass media campaign.
Methods: The major sources of data were (1) a series of questions asked of each caller to the Michigan toll-free AIDS hotline; (2) standard data reports on each client at HIV counseling and testing centers supported by the Michigan Department of Public Health; (3) a retrospective record review of anonymous data records in 14 counseling and testing programs statewide; (4) television impression data reported by stations and based on Arbitron estimates; (5) random surveys of the general public; and (6) two non-random surveys of intravenous drug users.
Results: High levels of campaign exposure were documented among the general public and intravenous drug users. Exposure was found to be associated with increases in the number of hotline calls and requests for HIV counseling and testing, particularly among campaign target populations, and with higher rates of recognition for the major routes of HIV transmission among the general public.
Conclusions: The media campaign successfully motivated people to seek further information about HIV and to obtain services. The evaluation methodology demonstrated the potential of routine service statistics to serve as sources for impact data. The results were used both to make design modifications in later campaigns and to refine the evaluation methodology.

F.D.849 CRACK COCAINE AND THE RISK FOR HIV INFECTION: MEDIA PORTRAYAL AND SCIENTIFIC EVIDENCE

Miller, Kim S; Darrow, W.W.; Centers for Disease Control, Atlanta, Georgia, USA

Objective: To examine how the relationship between "crack" cocaine and risk for HIV/AIDS is reported in the scientific literature and by the news media.
Methods: Using LEXIS NEXIS and MEDLINE, articles with AIDS/HIV and "crack" in their search language were retrieved. The LEXIS NEXIS search was confined to The New York Times, The Washington Post and The Los Angeles Times from January 1, 1985 through December 1989. The MEDLINE search was conducted from January 1, 1983 through December 1989. Quantitative methods were used to generate frequencies and percentages; content analysis was performed to determine if the article was based on scientific data.
Results: Thirty-one articles were retrieved and examined from the LEXIS NEXIS search and 4 articles from MEDLINE. Of the 31 articles presented in the news media, only 4 (13%) were based on scientific data. Of the 4 articles retrieved from the scientific literature, 3 (75%) were based on scientific data.
Conclusion: While most media articles contain little or no scientific data, they are stimulating scientific inquiry into the relationship between "crack" and HIV/AIDS infection. The media has demonstrated the need for more systematic research into the relationship between "crack" and HIV/AIDS infection.

F.D.850 SOCIAL MOVILIZATION IN THE PREVENTION OF AIDS

Helguera, Gabriela; Acuña, M. Luisa; Chávez-P, Federico; Sepúlveda, Jaime.

OBJETIVES: 1) To reach general public by making accesible the scientific language through different media. 2) to target groups that were not originally considered as highly populated poor zones. 3) Trainning of medical and civil groups to expand the net of trained people in the prevention of AIDS in the whole country.

METHODOLOGY: 1) Induction with participative methologies to achieve the generation of creative materials made by different comunities, civil and non government groups, according to their own language and necessities. 2) Engagement of individuals, civil groups, NGO's to achieve social movilization in the prevention of AIDS. 3) design of a strategy for the use of mass media in the maintenace of general information in the whole population which will create the necessary reinforment of all the face to face interaction which would help in the real changes of attitudes and practices.

RESULTS: 1) Design and edition of different educational material: manuals for doctors, medical and laboratory personnel; panphets for the general public, teen-agers, women... 2)Colaboration of various individuals and civil groups in the activities in the prevention of AIDS. 3) Private and official television networks have asked for information and overseeing the production of TV programs produced by they. 4) Mass media campaigns have produced an increasing demand of information and counselling that has been attended by means of the hot-line. 5) The Mexican Institute of Social Security, the most important medical network in Latin America has started together with CONASIDA the training courses in all levels.

CONCLUSIONS: 1) Educational material and mass media campaigns based on popular traditions and language have been so succesful that it is necesary to reinforce these actions.
2) Social movilization has started and has shown the vital importance of these activities. It is necessary to expand these actions in order to descentralize the work done by CONASIDA and to really acheve the prevention of AIDS with the whole society's participation.

F.D.851 IV DRUG USERS: MEDIA SOURCES FOR AIDS INFORMATION.

Solomon Liza, Jason J*, Vlahov D, Cohn S, Celentano DD, Smith M. Johns Hopkins School of Hygiene & Public Health, Baltimore, MD, and National AIDS Information and Education Program, Centers for Disease Control, Atlanta, GA.

Objective: To acertain how IVDU's have received information concerning AIDS.
Methods: A cohort of IVDU's, who were participating in a natural history study of HIV infection (the ALIVE Study) were administered a structured questionnaire concerning the ways they receive information and their entertainment interests during the period of Oct. through December 1989.
Results: Among the 218 respondents, 48% were seropositive, 78% were men, and 94% were Black. The median age was 34. Fifty-five percent of the group had heard of AIDS by 1985. Participants cited TV (53%) as the source where they learned the most about AIDS, followed by information received at this study (15%), and information available through drug treatment programs (10%). Fifty-three percent reported watching up to 4 hours a day of TV, most commonly from 8 to 11:00 pm. Newspapers, magazines, radio, and health care workers were cited infrequently as sources of AIDS information. Only 31% (66) of the respondents reported receiving information, including the surgeon generals report, in the mail. Responses did not vary by HIV-1 serostatus, gender, age or current employment status.
Conclusion: Television remains the major source of information. Pamphlets mailed to the home, magazines or newspapers do not appear to reach the majority of at risk IVDU's. IVDU's like many other Americans, tune in to evening television, thus, targeting education to high risk IVDU's will need to balance the controversial nature of this type of education with the importance of the public health concerns.

F.D.852

POTENTIAL MEDIA CHANNELS FOR INTRAVENOUS DRUG USERS' (IVDUs) AIDS PREVENTION MESSAGES

Jason, Janine*; Vlahov, D.**; Solomon, L.**; Smith, M.**
*Applied Communications Research and Evaluation, National AIDS Information and Education Program, Centers for Disease Control, Atlanta, GA, USA,
**Johns Hopkins School of Hygiene & Public Health, Baltimore, MD, USA.

Objective: IVDUs are important, not readily accessible targets for AIDS prevention messages. We examined: 1) their TV viewing habits, 2) AIDS public service announcements (PSAs) airings, and 3) IVDUs' usage of other media.
Methods: We administered a structured questionnaire on media usage/preferences to 213 IVDU cohort members (78% male,94% black, median age 34 years) recruited for an HIV natural history study. We analyzed October 1989 Broadcast Advertisers Reports (BAR) data on the U.S. Public Health Service's (PHS) "America Responds to AIDS" (ARTA) and non-PHS AIDS PSA airings.
Results: Of these IVDUs, 37% most often watched television from 8-11pm, 19% from 10am-4pm, 14% from 6-7:30pm, 13% from 11pm to sign off, 10% from 6-10am, and 7% at other times. 163 ARTA and 220 other AIDS PSAs were aired: 58% after 11pm, 27% from 7am-5pm, 11% from 8-11pm, and 3% from 5-8pm. 29% of respondents watched news programs; 29% of PSAs were placed on news programs. 52% of IVDUs also listened to radio ≥12 hours/week, preferring "soul/rap"(46%) or "top 40"(30%). 27% most often listened to radio from 10am-4pm, 25% from 6-10am, and 24% from 11pm-6am. 51% read magazines ≥6 hours/week, 80% read newspapers ≥1 hour/week. Only 31% reported receiving AIDS information in the mail, but 96% of those who received it, read it.
Conclusion: The airing times of AIDS PSAs do overlap IVDUs' viewing, but the overlap tends to coincide with that of the non-IVDU audience, including minors. IVDUs also use other media channels that may be more accepting of and effectively used for explicit and detailed AIDS prevention messages.

F.D.853

DEAR CONCERNED CITIZEN: AN ANALYSIS OF CORRESPONDENCE RELATED TO HIV/AIDS

Garza, B.W.*; Greenspan, Allison*; Cyphers, J.L.*
*Centers for Disease Control, Atlanta, Georgia, USA.

Objective: To document changes in topics of concern regarding HIV/AIDS among the general U.S. population in 1985 and 1988.
Methods: We abstracted a sample of 250 unsolicited HIV/AIDS-related letters written to the Centers for Disease Control in each of two years, 1985 and 1988. Data analyzed included: category of correspondent, state of origin, and topic of concern.
Results: Of 250 letters sampled from 1985, 185 (74%) were written by the general public, 49 (20%) by health-care workers (hcws), and 16 (5%) by all others. For 1988, 162 letters (65%) were from the general public, 55 (22%) from hcws, and 33 (13%) from all others. In 1985, 40% of the correspondence originated in California, New York, Georgia, Florida, and Texas; in 1988, 25% originated in these five states. These states accounted for 71% of reported AIDS cases in 1985 and 62% of reported cases in 1988. Topics of concern were similar for the two years, with issues related to HIV transmission accounting for 50% of letters in 1985 and 40% in 1988. Suggestions for treatments/cures were the topic of 10% of letters in 1985 compared to 20% in 1988. Between 1985 and 1988, there was a 5% decrease in letters expressing concern over HIV transmission via casual contact, and a corresponding increase in concern about environmental transmission and transmission in health-care settings.
Conclusion: These findings suggest that, despite ongoing HIV/AIDS education/information programs in place, misinformation regarding HIV/AIDS persists, even in high AIDS incidence states. The data indicate a need for innovative educational approaches at the local level to allay common concerns and fears regarding HIV/AIDS, in particular those regarding transmission.

F.D.854

THE DEVELOPMENT OF A CENTER TO DISSEMINATE AIDS/HIV INFORMATION TO THE HEMOPHILIA COMMUNITY IN THE U.S.

Hall, Christopher*; Flam, L.*
*National Hemophilia Foundation, New York, New York, USA.

Objective. To design and implement an information center to assess and serve the needs among the hemophilia community for information on HIV.
Methods. The Hemophilia and AIDS/HIV Network for the Dissemination of Information (HANDI) is an effort of the National Hemophilia Foundation (NHF) and is supported by the Office of Maternal and Child Health of the Public Health Service. Since October of 1989, HANDI has been developed as an information center delivering critical HIV risk reduction and related information to the hemophilia population. Information dissemination focuses on the areas of HIV risk reduction, treatments for HIV-infected persons with hemophilia, living with hemophilia and HIV, and discrimination against people with hemophilia/HIV. The services of HANDI include reference and referral to comprehensive resources by phone, limited delivery of materials, specialized bibliographic reports, and other publications. The project serves primarily chapters of the NHF and hemophilia treatment centers in the U.S., and provides direct access to information for people with hemophilia.
Results. The development of HANDI has demonstrated the application of information science and systems to the process of providing health information to a targeted population. The impacts of HANDI, which are beginning to be evaluated, include: (1) enhancing the delivery of essential information to hemophilic persons making behavior and treatment choices; (2) assisting health care providers in improving the quality and kind of care provided to these persons; and (3) improving the state of information exchange within and beyond the hemophilia community regarding HIV.
Conclusion. HANDI's long-term impacts for the hemophilia community are likely to be significant. The development of this center is a model for that of similar health advocacy/service organizations.

F.D.855

THERAPEUTIC NARRATIVE: MULTI-MEDIA USES OF CROSS-CULTURAL STORYTELLING FOR PEOPLE LIVING WITH AIDS

Mark Freeman, Health Care For The Homeless, Dept. of Public Health, San Francisco, CA., USA.

Objective: To provide useful multi-media models (via clinical interaction, print, radio and audiotape) of applied therapeutic communication among providers, People Living with AIDS (PLWAs) and members of their communities, families and support groups.
Methods: Uses of narrative demonstrated include: 1) "HEALING TALES", a radio program of stories from many cultures (Native- and Afro-American, Hispanic, Mideastern, Asian Pacific, regional USA etc.) to create adjunctive resources for visually impaired, homebound, hospitalized, or even homeless clients with radios or tape decks; 2) print media true-life accounts that provide PLWAs and health-care professionals with a greater voice to the community-at-large; 3) tools designed to build communication in clinical settings between patients, practitioners or volunteers.
Results: Applied models increase self-esteem levels and coping skills for clients and supporters in many communities, for patients at various levels of progress, and among practitioners, as seen in resultant assessments from community groups.
Conclusions: While research and prevention efforts continue, HIV infection forces large numbers of individuals among diverse communities to deal with life/death issues. Various types of helpful narratives--traditional stories, therapeutic metaphor, survivors' tales--offer multi-culturally sensitive, accessible resources for daily use. Stories can help provide new models of care in a medical context via a multiplicity of media.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.856 A KNOWLEDGE BASED SYSTEM FOR RISK EVALUATION AND PREVENTION MANAGEMENT.

Beuscart,C. ; Beuscart,R. ; Sivery, B. ; Senneville E. ; Beaucaire, G.; Houriez, S.; Leroy, O.; Mouton, Y.
Université de Lille - FRANCE

Objective : To improve perception of AIDS risk behaviors among the french population, and increase the knowledge of HIV/AIDS transmission.
Methods : A Knowledge Based System (KBS) is performed during 1989, with 230 inference rules, writted by the medical staff of day care hospital staff of regional reference center on AIDS. This KBS is working on GAIA , inference engine performed by CERIM (Centre d'Etude et de Recherche en Informatique Medicale of LILLE University).
Results : The mean interest of this system is represented by the realization of a anonymous consultation and the possibility to answer 24 hours a day.

This K.B.S. is able to :
- be reached by anyone by any computer or terminal connected to the French telephone network (MINITEL)
- perform anonymous consultations, calculate for each one a predictive value in regard of his own risk, his way of life and his risk factors.
- propose according to this score an HIV test, adress of centers for anonymous HIV test and/or a medical examination.
- improve the knowledge of AIDS/HIV infection and the rules to reduce HIV transmission (safer-sex, condom,...)
- be connected to a mailing box to obtain a specialist's answer to a personnal problem submitted.

Conclusion : This KBS in now usable on the french telephone network, his use has now to be evaluated, and his interest in anonymous conselling.

F.D.857 METHOD OF HEALTH EDUCATION AMONG HAITIANS

Prudent, Nicole;Jeanty, Georgette; Jean Louis, Eustache; Raphel, Reginald.
Haitian American Public Health Initiatives, Boston University School of Public Health, Boston, Massachusetts, USA.

The objective of our study was to determine if the use of audiocassette tapes is an alternative to written material providing health education to Haitians with low levels of literacy. During the past 10 years, medical providers in Boston have observed an increasing use of audiocassette tapes as a means of communication between new immigrants and their relatives and friends left in the homeland. The extent of audiocassette use among new Haitian immigrants has never been documented. We conducted a survey of 100 Haitians classified in 2 categories: individuals and focus groups. In each group we determined the number of individuals who have sent audiocassette tapes to their relatives or friends, and the number who have received audiocasstte tapes. We compiled an important list of reasons and applications of audiocassette tapes as tools for health education.
Conclusion: Greater than 50% of the patients interviewed use audiocassette tapes as a means of communication, and this method is being used in Boston as alternative to written material. It appears that health messages in creole on audiocassette tapes is a low-cost, effective, and viable means of reaching out to Haitians with low literacy levels, and can be used for AIDS education. We will need to evaluate audiocassette versus written materials for effectiveness in increasing knowledge, decreasing misconceptions, and decreasing the transmission of the HIV disease.

F.D.858 INFORMATION TO YOUNG PEOPLE ON HIV, AIDS AND SAFER SEX DURING FESTIVALS IN THE CITY OF COPENHAGEN.

Lindholm, Merete; Hansen, Bente
The Municipal School System of Copenhagen, Denmark.

OBJECTIVES:
a) To improve the connection between sex education in schools and real life.
b) To establish a dialogue with young people who have already finished school.
c) To involve young people actively in the information campaign.
METHODS:
In association with The Commissioner of Health, The Social and Health Services of Copenhagen and NGO's information campaigns are arranged on festivals of music and culture. Voluntary collaborators and young people from schools and youth clubs address the audience and distribute brochures, pamphlets, condoms, badges, balloons, labels and streamers from booths and cigarette trays. Questions are answered and elaborating conversations are offered.
RESULTS:
a) The audience respond positively to the applications and during the festival people increasingly seek contact with campaign collaborators. Distributed are 7-14.000 condoms, 4000 labels, badges and balloons and 2000 streamers. A few asked for thorough information verbally and in writing. Not many brochures and pamphlets were used but specific papers with a variation of contents were in great request.
b) The young collaborators especially felt very happy about being actively involved in the campaign, and they experienced it easier than expected to talk about HIV, AIDS and Safer Sex.
c) Many children wanted badges, labels, balloons and streamers, which gave the campaign collaborators the opportunity to talk more detailed with the parents.
CONCLUSIONS:
Information campaigns on festivals are important as a supplement to sex education in schools:
a) Attention is paid to the importance of prevention and the possibility of collecting further information is offered.
b) Involving young people actively is an excellent idea especially for the purpose of reaching other youngsters.
c) The materials distributed foster an opportunity for the parents to discuss the subject with their children.
d) The positive attitude of the audience indicates that it is a good idea to establish informative work in places where people meet - and sweet music may arise.

F.D.860 AIDS EPIDEMIOLOGY IN THE CONTEXT OF COMPLEX PROBLEM SOLVING AND COMPUTER BASED LEARNING

Gonzalez, Jose J. AID, 4890 Grimstad; and ASA, 4800 Arendal, Norway

Objective: To convey an understanding of abstract and complex facts about AIDS epidemiology to a large sector of the population. It is postulated that greater insight concerning the nature of the epidemic will have two important consequences: i) to reduce the extent of risk behavior through activation of individuals' self-interest and social responsibility; ii) to promote favorable decision-making with respect to preventive measures, expenditures for medicine, funding of research, etc.

Methods: Development of a computer based teaching (CBT) system dealing with AIDS epidemiology and based on 1) recent research in problem-solving in complex situations; 2) simulation models; 3) employment of modern computer graphics.

Results: The computer program "AIDS Information, Modification and Simulation" ("AIMS") was developed with the financial support from the Norwegian Ministry of Church and Education. AIMS exists in a full version for health-care personnel, incl. medical students; as well as in a scaled-down version that is suitable for use in schools. Companion teaching material is under development in several countries, while a scientific evaluation of the effects of learning and of resultant behavior changes is in progress.

Conclusion: Research in cognitive psychology suggests that experience with appropiate computer-simulated models is a suitable approach to the improvement of human problem-solving behavior in complex-problem situations. Preliminary results from the AIMS study appear to corroborate that this general result applies to the complex-problem situation created by the AIDS epidemic.

F.D.861 INFORMATION: A CRITICAL COMPONENT IN STOPPING THE AIDS EPIDEMIC

Dutcher, Gale A. and DuPont, G., National Library of Medicine, Bethesda, MD, USA.

Objective: To provide information on AIDS and AIDS-related diseases to health and health-information professionals, public officials, and persons with AIDS and their care-givers.
Methodology: Identification of resources and access methods applicable to the National Library of Medicine's mission and the target audience.
Results: NLM provides a variety of AIDS-related information resources to its users, primarily health and health-information professionals. NLM publishes a monthly AIDS Bibliography containing citations to the scientific literature in this area. NLM also provides access to several important online databases: AIDSLINE (published literature of research and clinical practice); AIDSTRIALS and AIDSDRUGS (clinical trials and treatments); DIRLINE (directory of health-related organizations). Currently over 35,000 users have access codes to the NLM system; however, access to these online databases is available to anyone. AIDS-related information is also available in additional databases as well as in the Library's collection of scientific and medical publications.
Conclusion: Immediate access to information is one of the important aspects of the public health response to the current AIDS crisis. AIDS and HIV infection may represent a prime example of information as a fundamental weapon in the fight against an epidemic disease. This is also a time in which information is available to health professionals and the public with incredible immediacy through computers, online databases, electronic bulletin boards, etc.

F.D.862 QUALITATIVE AND QUANTITATIVE ANALYSIS OF AIDS EDUCATION MATERIALS

Halleron-Tweedley, Trish*; Ranieri, A.*
*American Foundation for AIDS Research (AmFAR), New York, NY, USA.

Objective: Analysis of the findings of the Expert Review Panel who participated in the review of AIDS educational materials listed in the educational resource directory of the American Foundation for AIDS Research, to identify areas for improvement regarding content, form, and approach of AIDS education materials.

Method: Descriptive analysis of materials reviewed, including type and target audience; survey of expert reviewer scores and comments for specific reviewed materials; survey of expert reviewer comments regarding the body of material reviewed.

Results: Findings were that reading levels of materials are too high for many target audiences; that a lack of material exists for IV drug users, church communities, gay and bisexual minorities, women of color, and HIV+ asymptomatic persons; that translations and the cultural sensitivity of material are inadequate; that the body of primary material is repetitive; that there is a lack of interactive material--over 50% of the material reviewed utilized formats (brochures, PSAs, posters) which were not conducive to an in-depth presention of information encouraging participant interaction.

Conclusion: AIDS educational materials are often produced haphazardly, with little attention given to repetition, audience appropriateness, or information beyond the simple scope of "AIDS 101" to invite participation or to accomplish the ultimate goal of this education--behavior change toward lowered risk. Directions for future AIDS education demand more efficient and comprehensive production of material, greater readability for intended audiences through reading skill- and culture-appropriateness, and a stronger focus on material aimed at behavior change and intervention.

F.D.863 THE DEUTSCHE AIDS-HILFE CONCEPT FOR PRINTED MEDIA

Beisswenger, Klaus-Dieter, Deutsche AIDS-Hilfe, Berlin, West-Germany

The Deutsche AIDS-Hilfe (D.A.H.) concept for printed media is embedded in a total concept of prevention (in the widest sense of the word), in which general information, a selection of media which is differentiated according to the specific target groups, interpersonal communication and political (publicity) work for the improvement of the structural conditions, are closely inter-connected.
In addition to general information for the public in general, the printed media concept is based on the "way of living" approach for the target groups (people with HIV/AIDS, gay men, intravenous drug users, prostitutes, prisoners, youths in danger of becoming drug users) - as represented by the involvement and work of people from these groups in the D.A.H.. Here, it is up to the individual to decide which form of behaviour he/she can or will incorporate into his/her life style. The aim can only be to show alternative ways of behaviour or conduct which put the individual in a position to make more conscious decisions, and strengthen the social reference groups.
This means in real terms for the text and design:
making clear statements about prevention; giving as little information as possible, as much as necessary; showing viable ways of behaving; a positive basic attitude to the target groups; taking the norms and values of the target groups into consideration; showing problems from the viewpoint of those affected; selecting media and design which are suitable for the times and the specific target groups; appropriate language without false tabus; presenting specific offers of help.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.864 NATIONWIDE DIFFUSION OF A REGULARLY UPDATED COMPUTER-AIDED INFORMATION SYSTEM ON THERAPEUTIC APPROCHES TO AIDS-RELATED CONDITIONS.

Kamps, Bernd Sebastian[1,2], Stille, W.[1]
[1]Zentrum der Inneren Medizin, Johann Wolfgang Goethe-Universität, Theodor-Stern-Kai 7, 6000 Frankfurt FRG
[2] Kuratorium AIDS, Vogelweidstr. 8, 6000 Frankfurt FRG

Objective: To create a computer-aided information system on diagnosis and treatment of AIDS-related conditions capable of accelerating traditional ways of knowledge transfer to a broad public.
Methods: Access to knowledge about AIDS-related conditions is made possible in different ways: starting with symptoms and signs, with laboratory values, with diagnostic procedures, with diagnostic entities or with therapeutic substances. Switching from one topic to another is performed by easy mouse mouvements. Current standards of diagnosis and therapeutics are the end points. Major original publications and their summaries are made available. Any topic may be printed or transferred to diskettes. The system is a public domaine software. It was send to all major AIDS centers of Western Germany (supported by the German Ministery for Social Affairs). Copying of the program is encouraged. Regular updates are in progress.
Conclusion: Computer-supported information systems shorten the time between writing and publication. Updates are easy to perform. There is a natural tendency in computer software to reproduce itself, contributing to its own distribution. Compared with print media, computer-aided information systems may finally achieve a time advantage of 6 to 12 months.

F.D.865 PREVENTION/INTERVENTION BY REMOTE COMPUTER BBS

Gardner, Ben
AIDS Info BBS, San Francisco, California, USA.

Objective: The Computer BBS is an educational tool in the prevention and management of AIDS-related infections. It assists those who are ill and those at risk of AIDS in health decisions, and it relieves the strain on clinics burdened with simple AIDS health questions by providing instant anonymous 24-hour access by phone and computer to information.
Methods: This paper describes the planning, construction and operation of a bulletin board with a database of published articles and newsletters, and an accumulated resource of anecdotal comments on treatments and drugs, written by callers.
Results: Used by people with a wide range of working skills in HIV prevention, containment and management, by press and by health officials, as well as PLWA. The existing installation, in its fifth year of operation, receives calls from all over the world.
Conclusion: A computer bulletin board can be set up in any city to provide this networking at a moderate cost. Equipment for $3,000 and monthly expense of $125 will make this resource available in any location, with a part-time volunteer operator using 50 sq. ft. of office space.

F.D.866 A PRACTICAL APPROACH TO MANAGING THE FLOW OF AIDS INFORMATION

Indyk, Leonard*; Indyk, D**; Wu, X**
*Neptune Computer Group, Stamford, CT, USA
**Mount Sinai School of Medicine, NYC, NY, USA

Objective: The task of assessing and integrating AIDS information is complicated by the variety of forms, formats and forums in which this information appears and the diverse communities which use this information. We describe a method of capturing, translating and storing the information for meta-analysis by use of a variety of computer tools.
Methods: A database was constructed containing fields for demographic information (source, type, authors, keywords, patient and treatment data) plus text fields capturing the full text of the abstract or summary. Searches of AIDSLINE and other databases are downloaded to a PC, edited and formatted to reduce them to standard form, then translated to dBASE-III+. The full text fields of each record are further searched to identify, extract and encode other relevant data.
Results: A variety of users--clinicians, educators and information scientists--use the database. Uses include consolidating clinical findings from both the formal and informal literature, updating and revising curriculum materials to reflect the latest findings, and tracking the flow of specific findings across the spectrum of sources.
Conclusions: The proliferation of forums for "publication" of AIDS findings has led to a short-circuiting of the traditional stages of assessment prior to integration and codification, forcing each user to become a "gatekeeper". Our approach allows a more focused and rational assessment of the state-of-the-field.

F.D.867 SOCIAL CHARACTERISTICS OF PERSONS WHO KNOW PERSONS WITH AIDS

Gagnon, John*, Laumann, E**, Michaels, S**, Michael, R** *State University of New York at Stony Brook, Stony Brook, NY USA **University of Chicago, Chicago, IL USA

Objectives: The determination of the social characteristics of persons with a person with HIV disease in their social networks.

Methods: The multivariate analysis of data from 3 national household surveys in the United States — the GSS 1988, the GSS 1989 and the AIDS supplement of the NHIS (for all available time periods, 1987-89) — each of which asked respondents whether they knew someone in their social networks who had AIDS.

Results: The increase in the proportion of the population who knows someone with AIDS has paralleled the increase in the numbers of persons reported by official data sources on persons with AIDS. The social characteristics of persons who knows persons with AIDS differ in a variety of ways from those of the general population. Members of minorities disproportionately know more persons with AIDS, as do the better educated in the white population. Persons aged 25-40 know disproportionately more persons with AIDS than do persons who are older and younger. Men and women are equally likely to know a person with AIDS even though the disease itself is disproportionately one of men. Multivariate analysis of these data by region, education, and ethnicity suggests that there are substantial differences in the distribution of social networks in which persons with AIDS are represented. In addition there is evidence that persons who know persons with AIDS have different attitudes toward and knowledge about HIV disease.

Conclusion: The social characteristics of those with recognized persons with AIDS in their social networks is an important aspect of understanding the public response to the HIV epidemic. The concentration of persons with AIDS in limited social networks will impact the willingness of the larger population to deal with AIDS related issues, since there is evidence that knowing a person with AIDS has effects on attitudes toward AIDS and toward persons with AIDS.

F.D.868 COMPETING HEALTH CONCERNS OF BLACKS, HISPANICS, AND WHITES: HOW SALIENT IS AIDS?

Elder-Tabrizy, Kelly A; Wolitski, RJ; Rhodes, F; and Baker, JG.
AIDS Research & Education Project, California State University, Long Beach, CA

Objective. To examine ethnic differences in concerns about AIDS relative to other health threats and willingness of respondents to participate in in-home AIDS education programs.

Methods. As part of an outreach education project, 453 Blacks, Hispanics and Whites were interviewed in a door-to-door survey. The survey consisted of and open-ended inquiry regarding which health problems individuals wanted to learn about, ratings of concern for AIDS and nine other health threats and assessment of willingness to participate in AIDS education programs.

Results. During open-ended inquiry, AIDS was mentioned most frequently (50.7%), followed by cancer (19.9%). Participants reported higher levels of concern about AIDS than any other health problem with the exception of cancer. AIDS was mentioned more frequently and reported to be more of a concern by Blacks than by Hispanics or Whites ($p < .01$). Blacks and Hispanics were more willing to have a health educator visit their home to discuss AIDS issues, to attend a group presentation at a neighbor's home, and host a group presentation on AIDS than were Whites. In addition, women tended to be more interested in participating in AID educational programs than did men.

Conclusion. These results indicate that community AIDS education and intervention programs may be received differently within different communities. Minority communities, particularly Black and Hispanic, may be more receptive to personalized approaches to AIDS education than their White counterparts.

F.D.869 THE IMPACT OF WHO YOU KNOW AND WHERE YOU LIVE ON YOUR OPINIONS ABOUT AIDS.

Gerbert, Barbara; Sumser, J.; Maguire, B.
UCSF, Center for AIDS Prevention Studies, San Francisco, California, USA.

Objective: To examine the effect of personal contact with someone with AIDS and of living in an area of high AIDS prevalence on perceived risk of AIDS in health care settings and other AIDS related opinions.
Method: A representative random sample of 2000 U.S. adults were interviewed by telephone in summer 1988 (response rate = 75%). Two scales were constructed: a) perceived risk of contracting AIDS in health care settings and b) desire to limit the rights of people with HIV infection to work in various occupations.
Results: Factors independently associated with lower perceived risk in health care settings were more education, white race, and knowing someone with AIDS/HIV. People who knew someone with AIDS/HIV and those who were more educated were also more willing to allow HIV-infected people to continue working. Although people living in high prevalence areas were twice as likely to know someone with AIDS, when this association was controlled statistically, area of residence had no independent effect on the scale scores.
Conclusion: Knowing someone with AIDS has a significant positive impact on AIDS related attitudes but otherwise living in areas of high AIDS prevalence does not. Educational programs should incorporate these findings in designing and targeting messages.

F.D.870 THE AMERICAN PUBLIC'S SOURCES OF INFORMATION ABOUT AIDS.

Sumser, John; Gerbert, B.; Maguire, B.
University of California, San Francisco, California, USA.

Objective: To find out where American adults find out about AIDS and how reliance on different media of communication affects AIDS related attitudes.
Methods: Telephone interviews were conducted in July and August 1988 with 2000 English-speaking, United States adults using a representative national sample generated by random digit dialing. A 75% response rate was achieved. Respondents were grouped according to whether they listed television, print media, or authoritative sources (MDs, journals, etc.) as their primary source of information about HIV disease. Respondents were asked about the likelihood of transmission of HIV, whether HIV-infected people should be allowed to work, how much they thought medical authorities knew about HIV and how much medical authorities were telling the public.
Results: There were significant differences based on information sources. Television viewers perceived lower risk, were less likely to want HIV-infected people on the job, and believed that medical authorities knew less and were telling less than did those whose primary information source was either print or authoritative. Education had little impact on attitudes toward HIV-infected workers or on risk perception.
Conclusion: Television's dominance as an information source, coupled with its limited ability to convey complex information, has not resulted in exaggerated perception of the risk of HIV transmission. It is, however, associated with a higher level of concern about allowing HIV-infected people to continue working than is use of other information sources. Authoritative sources, such as health care workers, seem best able to reduce concern about the presence of HIV-infected individuals in the workplace.

F.D.871 ATTITUDES AND OPINIONS TOWARDS HIV INFECTION OF 1008 PARTICIPANTS TO THE V AIDS INTERNATIONAL CONFERENCE, MONTREAL 4-9 JUNE 1989

Micheluz, Sandra*; Tirelli,U.*; Franceschi,S.*; Lazzarin,A.**;Clumeck,N.°, Volberding,P.°°
*Centro di Riferimento Oncologico, Aviano, Italy, **Hospital Sacco, Milan, Italy, °Hospital S. Pierre, Brussels,Belgium, °°General Hospital, S. Francisco, USA.

Objective & Methods: During the V AIDS Conference, we carried out a survey on the attitudes and opinions toward HIV infection through a questionnaire given personally at the line of the bank and the travel agency of the Conference and immediately filled up by 1008 participants.
Results: Overall, 61% came from North America (556 persons from USA), 17% from Europe, 5% from Africa, 5% from South America, 3% from Asia, 1% from Australia. Three hundred fifty-four (35%) were physicians, 55 (5%) educators, 48 (5%) nurses, 30 (3%) public health officials, 21 (3%) belonged to the mass-media etc. To precise questions the following answers were given: 1) 50% have been tested for HIV, the reason being professional risk in 46%, sexual risk in 26% and other reasons in 27%. 2) 78% would use a condom with a sex partner if they were not within a strictly monogamous relationship, while 22% would not. 3) 70% are against mandatory HIV testing for immigrants, while 19% are in favour. 4) 52% think that changes in sexual behaviour occured so far could not be sufficient in limiting HIV spread among homosexual men, while 32% think so. 5) 35% are in favour of heroin's distribution to IVDUs under medical control, in order to reduce HIV spread, while 46% are not in favour and 16% do not know. 6) 70% think that HIV is not transmissible via passionate kissing, while 10% think so and 19% do not know. 7) 38% think that AZT should now be used in HIV asymptomatic patients, while 24% do not think so and 37% do not know. 8) 73% think that randomized trials are necessary in the development of new anti-HIV drugs, 11% do not think so. 9) 56% think that an efficient anti-HIV vaccine would not be available in the next 5 years, while 15% think so.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.872 EVALUATION OF MOSCOW TEENAGERS' AIDS KNOWLEDGE

Mozharova, Galina; Pokrovsky, V.V.
Central Research Institute of Epidemiology, 3-a,Novogyreyevskaya, Moscow, USSR

Objective: To determine the levels of AIDS knowledge of youths, aged 14-18, and study the impact of lectures on forming views on this problem.
Methods: The investigation was done by means of anonymous questioning of Moscow teenagers in February-April 1989.
Results: From 84,4% to 98,7% of the questioned subjects correctly answered about the modes of HIV transmission. 73,1%-90,3% of them are aware of preventive measures. Groups of risk were correctly defined by 80,6%-98,0% of teenagers. Over 70% of the questioned subjects consider the mass media coverage of AIDS insufficient. They prefer to get AIDS information by TV and the press. In the post-lecture group a significant increase in knowledge of the routes of HIV-transmission and groups of risk was found.
Conclusion: Moscow youths aged 14-18 have got rather high standard of knowledge of HIV transmission. The mass media have the most impact on forming teenagers' AIDS knowledge.

National and International Programs

F.D.873 THE INTERNATIONAL WORKING GROUP ON AIDS AND DRUG USE: DEVELOPING INFORMATION FOR AND ABOUT COUNTRIES WITH EMERGING EPIDEMICS

Des Jarlais, D.C.*; Friedman, S.R.**; Woods, Joycelyn Sue**.
*Beth Israel Medical Center, New York, NY USA
**Narcotic and Drug Research, Inc., New York, NY USA

OBJECTIVES: Drug-use-related HIV infection has been increasing in some developing countries, such as Thailand and Brazil, and threatens Eastern Europe as well. Exchange of data among researchers and between researchers AND policy makers can facilitate a timely response to the situation in these areas.
METHODS: 1. The International Working Group on AIDS and Drug Use is applying expertise developed in Western European and North America to assist countries with emerging epidemics. 2. A Newsletter is published quarterly and will be published in languages other than English. 3. Information on AIDS and drug use will be actively recruited from developing and Eastern European countries for 5 data bases: (a) A Bibliographic Data Base contains publications, reports, manuscripts, conference proceedings, policy decisions and legislation. (b) The Project Data Base contains information about service programs and research projects, including methods and instruments. (c) A Quick Retrieval Abstract File contains abstracts of presentations from International Conferences on AIDS. (d) The Membership Data Base contains lists of members and their interests. (e) An International File contains general information on AIDS policy, media and education campaigns in over 50 countries. 4. An International Surveillance Report will be developed to report seroprevalence rates among IVDUs (and other drug users as appropriate) as well as risk factors, for a better estimate of the situation.
CONCLUSION: The International Working Group on AIDS and Drug Use aims to share information on epidemiology and programming methods and to provide support to developing and Eastern European countries.

F.D.874 STRENGTH IN SOLIDARITY: BUILDING EFFECTIVE NGO AIDS NETWORKS

Grose, Robert*; Mann, Dr J.*; O'Malley, J.*; Morrison, K.**
*World Health Organization; **Canadian AIDS Society

Objective: To examine correlations between the goals of NGO networks which work on AIDS prevention and care issues and the structures they choose to adopt with a view to suggesting improvements in the way organizations combine their skills and knowledge at the community, national and international levels. Method: A comparative evaluation of the goals, structures and efficacy of several different NGO coalitions on AIDS. WHO has promoted and supported some of the network building that has taken place among AIDS Service Organizations (ASOs) and other nongovernmental organizations (NGOs) and has been able to observe both the process and its outcomes. Results: Activists in ASOs, new organizations that were formed in response to the impact of AIDS upon communities, have since sought to support each other through crises and to learn from each other's experience as their respective organizations went through similar stages of enthusiasm, objective-setting, institutionalization, self-criticism and consolidation. Initial informal contacts for solidarity and information exchange have often expanded to include joint projects in skills development, fund-raising and advocacy. As other NGOs working in sectors such as primary health care, development or women's rights began to deal with AIDS, they too have often sought to support each other in information exchange, project development, advocacy and other issues. Constituency specific networks have tended to develop into relatively formal structures with strong established secretariats. Other networks addressing shared goals amongst a range of diverse organizations are more likely to have loose structures which result in ongoing informal contact but avoid institutionalization. Both tendencies can be found at local, national and international levels. Conclusions: The appropriate structures and methods for network development depend more on member goals than on the number of members or the geographic scale of the coalition. Promotion of network development is critical to an effective response to AIDS but needs care in resource allocation and identification of constituency-sensitive activities. A key factor to success is clarity of objectives.

F.D.875 WHAT HAPPENS TO RECOMMENDATIONS? A WHO/GPA STATUS REPORT ON NURSING AND HIV INFECTION.

Anderson, Sandra; Sylvest-Hansen, B; Mann, J; Tarantola, D; Hirschfeld, M; World Health Organization, Global Programme on AIDS/Human Resources for Health; Geneva, Switzerland.

Objectives: To present a situation analysis of the progress made toward recommendations from the WHO/GPA Nursing Consultation in March 1988:
- promote the involvement of nursing in national and regional AIDS prevention and control activities;
- make available technical and financial support to conduct workshops for nurse managers and nurse educators at regional levels.

Methods: The progress was evaluated by questionnaires to selected national AIDS programmes and by analysis of regional nursing activities by global nurse experts to ascertain the extent of:
- nursing involvement, including representation of nurses on national AIDS committees and sub-committees, and specific nursing activities conducted;
- adaptation and implementation of WHO/ICN guidelines and integration of curriculum content on nursing and HIV infection and disease;
- the training of core groups of trainers to strengthen nursing involvement.

Results: The findings indicate the progress toward the recommendations generated at the Consultation. Case examples illustrate how active participation of nurses in national AIDS programmes can be achieved.
Conclusion: The recommendations developed through global consultation with nurses/midwives stimulated and reinforced efforts of nurses to develop and implement nursing activities to prevent HIV transmission and to provide HIV/AIDS health care. The implementation of recommendations depended on the availability of technical, human and financial resources.

F.D.876 NATIONAL PROGRAM SUPPORT IN THE REGION OF THE AMERICAS: AIDS

Mongalo, Gloria*, Kimball, A.M.*, Zacarias, F.*
*Pan American Health Organization, 525 23rd Street N.W. Washington, D.C. 20037 USA

In early 1989 an informal management analysis of the National Program support activities in the AIDS control program at PAHO suggested the following: 1) despite much progress most programming was largely ad hoc with an emergency approach predominating; 2) service requests augmenting rapidly with national program evolution; 3) the transition from short term, emergency phase of national plans to medium term phase was not being approached in a systematic way. Coincident with the reorganization of the AIDS program the following strategies were instituted: 1) increased emphasis on timely planning using existing PAHO planning tools such as the PTC; 2) audit of existing MTP documents for manpower needs in technical assistance and recruitment and orientation of consultants in most needed specialties; 3) systematization of technical assistance to member countries in the elaboration of medium term plans using multidisciplinary teams. These initiatives have increased the efficiency in carrying out the service mandate for national program support. As reflected in the increased responsiveness to country requests and the improvement in technical quality in medium term plans produced. Such efforts reflect the transition of the AIDS effort from an emergency response to more long term programming for epidemic control.

F.D.877 PEACE CORPS EXPERIENCE IN AIDS PREVENTION ACTIVITIES IN THE CENTRAL AFRICAN REPUBLIC: PROSPECTS FOR THE FUTURE.

Gamse, P.*; Sinhamisan, A.**. *Ministry of Health, Bangui, Central African Republic (CAR); **Peace Corps/CAR, CAR

Overview: In 1986, at the request of the Central African government, Peace Corps assigned the first Volunteer volunteer to work in a National AIDS Project. Over the past two years, working with the National AIDS Project director, Peace Corps established an informal and comprehensive program of Volunteer-Central African collaboration for AIDS prevention activities.
Method: Information on AIDS-related volunteer activities (actual and potential) was gathered through direct contact with volunteers during annual conferences, through reports submitted to both the National AIDS Project and Peace Corps, and through discussions with volunteer supervisors, both Peace Corps and Central African.
Results: The first AIDS project volunteers, drawing on two years of initial experience in Peace Corps as a health educator, set up lines of communication between the Ministries of Health and Education which are now the basis of many volunteer activities, including finalization and publication of a teacher's guide for AIDS education in Central African schools. Volunteers subsequently report many successful health education activities including introduction of AIDS information into primary school teacher health education workshops, initiation of village-based AIDS prevention workshops, coordination of condom distribution and AIDS education in local hospitals and health centers, and the coordination of World AIDS Day events.
Conclusion: The success of volunteer involvement in the Central African AIDS project demonstrates the potential of any development organization to make a significant impact in the fight against AIDS in developing countries.

F.D.878 TRENDS IN SEXUALLY TRANSMITTED DISEASES IN ZAMBIA AND THE VALUE OF STD SURVEILLANCE DATA FOR EVALUATION OF EFFECTIVENESS OF NATIONAL AIDS PROGRAMMES.

Hira SK (1), Slutkin G (2), Keenlyside R (2), Phiri SJ (1), van Praag E (3), Heymann DL (2), Holmes KK (2), Meheus A (4), and Mann J (2).
(1) National STD Programme and (3) AIDS Programme, Zambia and (2) Global Programme on AIDS and (4) Programme of Sexually Transmitted Diseases, World Health Organization, Geneva, Switzerland.

Objective: Determine trends in sexually transmitted diseases (STD) in Zambia.
Methods: Monthly STD reports were reviewed nationally and for all 44 STD clinics in Zambia. Twelve clinics with an apparent decline in STD were chosen and visited to confirm reports and assess procedures and referral patterns.
Results: Nationally, STD cases appeared to decline in 1988:

Year	1983	1984	1985	1986	1987	1988
No. of STD clinics	10	16	23	30	28	38
Total STD cases (x1000)	46.7	60.4	83.8	87.0	109.5	101.3

Assessment of the 12 sentinel sites substantiated declines but also revealed changes in staffing, drug supply, clinic practices (eg. introduction of HIV testing) and patterns of self-referral which could have biased these reports.
Conclusion: The number of reported cases of STD in Zambia is declining and there is a widespread belief that this is due to behaviour change following the AIDS information campaign. Preliminary studies at sentinel sites have identified specific confounding factors and the suggested decline has not yet been confirmed. STD data appear to be an important indicator of the effectiveness of National AIDS Programme activities. Priority should be given to the strengthening and support of STD surveillance and clinic services in Zambia and other national programmes.

F.D.879 Policy intervention strategies and their implications for AIDS in developing nations

Seitz, Steven T[1], Stanley, E. A.[2], Way, P. O.[3], Curry, T. F.[4], Johnson, P. D.[3]

[1]University of Illinois, Champaign, IL, [2]Los Alamos National Lab, NM, [3]Center for International Research, Washington DC, [4]US Air Force Academy, Colorado Springs, CO USA

Objectives To compare the impact of several intervention strategies for the AIDS epidemic in developing nations, and to compare social transformations that may occur because of the impact of the epidemic on population structure.
Methods We compare the impact of alternate policy strategies on the AIDS epidemic in an illustrative pattern II country using the US State Department IWG model. These strategies include condom use and other behavioral changes in casual and marital sex, blood screening, changes in disease transmissibility, STDs as cofactors, increased incubation periods, lowered divorce rates, and altered migration rates. Long-term social transformations are also analyzed.
Results The long incubation period and small infection rate per contact imply that responses of the epidemic to intervention programs tend to be slow, with medical interventions having a larger and more rapid impact than realistic behavior modifications. In countries where AIDS becomes a moderate to large problem, there are a number of long-term problems which force society to make adjustments. For example, AIDS differentially depletes certain age groups of populations. In particular, when the current birth cohort reaches maturity there will be a shortage of young adults. The dynamics of the epidemic imply that this age group will remain depressed in size relative to other age groups. This has long-term implications for sections of the labor force which currently recruit the very young, unmarried, laborers. Marital customs where older men marry younger women will run into a shortage of young women. There is a limited set of possible societal adjustments to these changes, each of which has its own implications for population growth and the future number of AIDS cases.
Conclusions Only a few policy intervention strategies make noticeable differences in the course of the epidemic. The AIDS epidemic causes macro-societal changes that have significant effects on the long-term social history of the disease..

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.880 A DONOR-SPECIFIC METHOD FOR DETERMINING RESEARCH DIRECTIONS AND PRIORITIZING FUNDING

Tollefson, Janet E.*; de Savigny, D.**.
*University of British Columbia, Vancouver, Canada; **International Development Research Centre (IDRC), Ottawa, Canada.

Objective: To determine current trends, perceived needs, actual demands, and donor response in HIV-related research in less developed countries (LDCs).
Methods: ISI Ascatopics for December, 1988, was reviewed to estimate the proportion of the scientific literature that is HIV-related and from LDCs. All abstracts accepted for the 1986 and 1989 International Conferences on AIDS, plus HIV-related abstracts from Medlars, 1986 and 1989, were reviewed to identify those from LDCs. Trend in geographic location of LDC research was determined by categorizing abstracts into World Health Organization (WHO) regions. The content of actual research was determined by categorizing LDC abstracts according to a framework of possible research content areas developed by the authors. Perceived research needs were estimated for 1 country in each of 3 WHO regions by the frequency in which a research content area was mentioned in the country's Medium Term Plan (MTP: a country-specific planning document conceptualized by WHO Global Program for AIDS). Actual research demands and donor response were determined by categorizing the content of proposals submitted to and funded by IDRC in 1989.
Results: 6% of HIV-related publications were from LDCs. Number of LDC abstracts increased 10-fold between 1986 and 1989, with 55% from Africa and 37% from Americas/Caribbean in 1989. Three major content areas were epidemiology (46%), prevention/control (29%), and clinical (17%). Research gaps were identified, although an increase in the proportion of content in areas such as specific prevention programs and improved immunodiagnostics was noted. Proportional content of actual demands paralleled that of current abstracts, and perceived research needs showed a similarity of pattern. Proportional content of IDRC response was weighted towards prevention/control, in keeping with IDRC policy for HIV-related research.
Conclusions: This method for defining research gaps may be beneficial to granting agencies and LDC governments in setting research priorities and monitoring response.

F.D.881 THE IMPACT OF AIDS ON SOCIO-ECONOMIC DEVELOPMENT: A SECTORAL APPROACH

DESMOND, GERALD M.
United Nations, Dept. of International Economic and Social Affairs, New York

OBJECTIVE: To project and assess the potential socio-economic impact of HIV/AIDS on the mining sector of a specific African country. Such a study would help to advance understanding of the impact of the disease, on the supply of skilled labour and resulting effects on costs and output in a given sector, and would help policy makers in the planning of appropriate policy responses.

METHODS: Through the use of available demographic and epidemiological data mathemathical models and computer projections, the likely impact of HIV/AIDS on the skilled work force of the industry can be projected to the year 2000. Epidemiological data for the projections may be obtained from the World Health Organization and national statistics from United Nations data bank files. Once the impact of HIV/AIDS on the labour force has been projected, production -function analyses may be applied to determine the probable effects on outputs and costs in the mining sector.

RESULTS/CONCLUSIONS: Projections are likely to show that the labour force of this key export sector, and particularly the skilled component which is not readily replaced, will be severely affected by the year 2000. Policy-makers will have a clearer picture of how the disease is likely to affect the supply and efficiency of their mining work force, and be given some lead time in formulating appropriate policy. This can have important implications not only for production and export earnings but also for training, education and public health sectors.

F.D.882 CRIDIS.A REGIONAL MODEL TO EXCHANGE INFORMATION AND EXPERIENCES IN PREVENTION AND EDUCATION ON AIDS

Rico,Blanca;Ayala,M.;Aramoni,G.;Guzmán,L.;Dominguez,G.;Etchegaray,P.; Sepulveda,J. CRIDIS-CONASIDA. Mexico City (WHO,PAHO)

Objetives: 1)To exchange AIDS education and prevention strategies among Central-american countries and Mexico. 2)To make current scientific and journalistic information and educational materials, available to decision-makers, researchers, medical doctors, health promotion workers, communicators and the general public.
Methods:CRIDIS is The Exchange,Documentation and Information Centre on AIDS for Centralamerica and Mexico. It is sponsored by WHO through PAHO and by CONASIDA. 3 operative areas have been installed in order to collect and analyze scientific,journalistic and educative materials, which are available in the library. A publication area is in charge of producing a monthly bibliohemerographic bulletin and a bimonthly newsletter: Gaceta CONASIDA. A special area has been designed to exchange experiences and information among the Central-american countries and the 32 Mexican States, through a network of local information and documentation centres, as well as through the AIDS Health Promotion Resource Centre Network from WHO with the rest of the world. MICRO-ISIS is beeing used by collaborating centres as the software to the database. Results; 16 regional and 8 international centres of the network have been already established. Increasing numbers of individuals and institutions have requested information directly or by mail. 3.4% represent institution, 5% general public and 51.6% students. 5 exhibitions of our international posters collection have been performed, one of them in the most crowded subway-station for 3 months. A strategy to give journalists current valuable information is beeing implemented.
Conclusion; Access to updated information in developing countries is difficult because of infrastructural and economical problems. CRIDIS is intending to make up for these deficiencies by giving documental support in each of its areas. It has also favored the exchange of experiences on AIDS prevention and education in order to take advantage of the positive strategies, taking into account the common cultural and historical features shared by the region.

F.D.883

An HIV/AIDS Education Instructor Training program has been developed by the National American Red Cross under a collaborative agreement with The Centers for Disease Control. The program is the core training course for all Red Cross volunteer and paid staff who do community HIV/AIDS presentations and is a prerequisite course for all other HIV/AIDS educator courses conducted under the auspices of the Red Cross. The two day instructor course is highly experential and provides training and skills development in facts, psychosocial issues and teaching strategies relating to HIV/AIDS. The presentation will include information about the project development cycle; field testing; course content; supporting materials, and evaluation plans.

F.D.884

PERSONAL COMMUNICATION AND AIDS EDUCATION IN THE FEDERAL REPUBLIC OF GERMANY

Dorn, Christa; Lehmann, H.; Marsen-Storz, G.
Federal Center for Health Education, Cologne, Federal Republic of Germany

Objective: AIDS education through personal communication aims to provide detailed information and also to bring about change in people's attitudes and behaviour, so that they can protect themselves from becoming infected but also react appropriately to those infected with the HIV or suffering from AIDS.

Methods: Personal communication consists mainly of direct conversations with people at the local level about AIDS and its implications and is a link between mass communication and individual counselling. Specially trained communicators, called AIDS discussion partners, cooperate with local experts and local organizations in conducting discussion meetings with particular target groups in the community. Various media and communication techniques - such as films, videos, (role-)plays, games, open and guided discussion - are used.

Results: Open discussions with and among different groups regarding personal and social aspects of coping with the AIDS problem in various situations (work, school, disco, youth group, etc.). Facilitating networks between local institutions (e.g. public health office and private organizations (e.g. self- help groups) involved in AIDS prevention.

F.D.885

AIDS PLATFORMS: FROM NATIONAL POLICY-MAKING TO LOCAL AND REGIONAL IMPLEMENTATION.

Tillemans, Geert, National Committee on AIDS Control, Amsterdam, The Netherlands

Issue: The AIDS platform: a model to facilitate the implementation of the national AIDS policy (prevention and care) on a sub-national level. Purpose of this new kind of co-operation between organisations is to arrange and co-ordinate activities concerning AIDS control without formal status. Participants: healthcare and welfare organisations, bloodbanks, civil servants, gay & i.v.d.u. interest groups. All of them are active on a local level. In The Netherlands there are 39 AIDS platforms.
Main question: on what conditions is it possible for an AIDS platform to function adequately?
Methods: Information and data were gathered by means of sending questionnaires to the participants of the AIDS platforms. A sample of 30 persons was interviewed.
Results: Important facilitating conditions: participation on a voluntary basis; respect for organisational autonomy; support by national organisations and the national government.
Conclusion: platforms promote the adequate implementation of a national AIDS policy. Especially because of the informal character of the co-operation between participants who are well informed about a specific local situation. To be presented: conditions on which the model is applicable in other countries and health-policy areas.

F.D.886

DEVELOPMENT OF A NATIONAL STRATEGY TO ADDRESS AIDS AMONG ABORIGINAL PEOPLE IN CANADA

Imrie, Robert A.

Objective: The primary objective of this initiative was to determine the general situation vis-a-vis HIV infection and AIDS among the aboriginal community in Canada.

Methods: A Joint National Committee representing eleven (11) national aboriginal non-government organizations and the Federal Government entertained submissions and convened several meetings to discuss the situation as it applied to aboriginal people in Canada and to prepare a Findings Report. From the findings resulted a Strategy Document.

Results: Two major documents were produced by the Joint National Committee. These outlined the results of research and a resultant strategy for education and prevention among aboriginal people in Canada. In addition to the strategy, nineteen (19) recommendations are offered for consideration for all stakeholders.

Conclusion: The results of the findings and subsequent recommendations may be of considerable value to other countries where AIDS has had an effect on an aboriginal population.

F.D.887

AIDS PREVENTION AND HEALTH EDUCATION IN THE FEDERAL REPUBLIC OF GERMANY

POTT, Elisabeth Dr.;

Federal Centre for Health Education, Cologne, Federal Republic of Germany

The Federal Centre for Health Education (FCHE) has developed the concept for the Aids education campaign in the Federal Republic of Germany. This campaign is characterised by two strategic elements. 1) Division of labour: the measures of the FCHE are aimed at the general public and its main target groups (young people/young adults, sexually active persons and those with non-monogamous lifestyles); the education of the main risk groups is being done by the German Aids-Help (Deutsche Aids-Hilfe). 2) Combination of various communication methods: opportunities offered by the mass-media serve principally to inform and create a positive prevention climate; personal counselling, discussions in small and larger groups are mainly directed at producing the necessary changes in attitudes and behaviour.
The FCHE also publishes numerous brochures for specific target groups, such as holiday-makers, students, young people or specific professional groups. Advertisements are published in newspapers and magazines; spots are presented on radio and TV. Personal inquiries can be answered through a telephone service in the FCHE which gives anonymous counselling.
The results of the scientific evaluation of the campaign (annual representative survey of knowledge, attitudes and behaviour of the population) are presented.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.888 PERSPECTIVES ON THE EVALUATION OF HIV/AIDS EDUCATION & HEALTH PROMOTION.

Aggleton, Peter*; Kapila, M.**, Pye, M.**
*Faculty of Education, Bristol Polytechnic, Bristol, England,
** Health Education Authority, London, England.

OBJECTIVES: To review critically different strategies in relation to the evaluation of HIV/AIDS education and health promotion. To identify good practice in this respect. To identify the training needs of those involved in HIV/AIDS education and health promotion evaluation and ways in which these can be met.
METHODS: As part of work in relation to the evaluation of HIV/AIDS education and health promotion, a number of UK HIV/AIDS health promotion programmes have now been subjected to in-depth study. Additionally, a national survey has has recently been undertaken to identify the HIV/AIDS education and health promotion evaluation strategies currently employed by those working in the health service, in local authorities and in the voluntary sector.
RESULTS: Findings from the in-depth study of selected UK HIV/AIDS health promotion programmes and from national survey are used to identify a typology of current evaluation strategies in relation to HIV/AIDS education and health promotion. This differentiates between alternative approaches to (a) process and outcome evaluation, (b) short-term, mid-term and long-term evaluation and (c) evaluation techniques which can identify the unintended consequences of particular interventions. The adequacy of these different strategies will be discussed in relation to local and national programme activity.
CONCLUSION: Future initiatives in HIV/AIDS health promotion programme evaluation need to build on the experience so far gained by providing training in the skills necessary to assess evaluation needs and priorities and to intervene effectively.

F.D.889 IMPLEMENTING POLICY CONSENSUS IN THE FORMATION OF THE PHILIPPINE NATIONAL AIDS PREVENTION AND CONTROL PROGRAM

Gust, Dulce*; Dayrit, M.*; Hernandez, E.*; MacDonald, G**
*Department of Health, Manila, Philippines, **AIDSCOM, Washington, D.C.

Objective: Politically and socially sensitive AIDS communications and prevention programs require government and private managers to analyze not only ideal institutional responses to AIDS but also probable responses in the real world in which they work. It is important to achieve as much advance policy consensus as possible in order to expedite planning and implementation of prevention initiatives.
Methods: The Philippine Department of Health conducted a two-day consultative workshop on AIDS policies at which managers of 22 public and private agencies working (or willing to work) on AIDS prevention met to debate policy issues and pledge support to the national prevention program.
Results: In less than 48 hours, key policy-makers discussed and approved a roster of ten policy statements on AIDS which have been adopted as official national policy towards AIDS prevention and control.
Conclusion: It is possible in a short period of time to develop a unified policy approach to AIDS prevention which sets the stage for effective programming, anticipates and attempts to resolve potential problems and encourages a normative approach to shared objectives.

F.D.890 THE UK NATIONAL AIDS TRUST MODEL FOR PROMOTING A COORDINATED VOLUNTARY RESPONSE TO AIDS AND HIV

Jay, Margaret*, Adler, M**, Bide, Sir A*, Jellicoe, Lord***
*National AIDS Trust (NAT), London, England **NAT and University College and Middlesex Hospital Medical School ***NAT and Medical Research Council

Objective: the NAT was set up in 1987 jointly by the Department of Health of the UK Government and leading British citizens to focus a united community response to AIDS. It aims to complement, reinforce and extend the UK government's initiatives in the field of AIDS/HIV through voluntary organisations.
Methods: a panel of trustees was recruited from industry, business, the medical profession and the voluntary sector. Funds were raised from government and charitable sources for grant giving and the administrative costs of a core of professional staff. Advisory panels recruited in different parts of the UK have assisted in evaluating local grant applications and shaping nationwide policies. (The trust deeds exclude medical research funding.)
Results: the grant-making programme has allocated £1.25 million over 18 months to 90 voluntary organisations, with additional non-monetary assistance ... a framework has been developed for collaborative working between voluntary organisations and other health and social services. The NAT has developed proactive initiatives in five major areas: drugs misuse; women and children; prisons; housing needs; and human and legal rights for people with AIDS. NAT has been the coordinating agency for World AIDS Day in the UK.
Conclusion: NAT has established the need for a national non-governmental funding, coordinating and planning body for HIV and AIDS in the UK, using voluntary sector resources. NAT is now working to raise substantial funds to expand this work. The prospects for gaining industrial and business support as well as private donations are positive.

F.D.891 **BUILDING CAPACITY IN NEW COMMUNITY BASED ORGANIZATIONS (CBOs) FOR HIV PREVENTION ACTIVITIES**

Schindler, Stephen*; Murguia, M.**; Johnson, R.**; Harris, B.J.**; Phields, M.**; Bowen, S.*; West, G.*
*Centers for Disease Control (CDC), Atlanta, GA, USA,
** U.S.Conference of Mayors (USCM), Washington, DC

Objective: To determine the impact of a program designed to provide "seed money" and initial technical assistance to help CBOs develop, implement, and evaluate on-going HIV prevention programs.
Methods: Grass-roots, community organizations are at the forefront of efforts to curb the spread of HIV infection in the U.S. These organizations are high in commitment, enthusiasm, and drive, but often lack resources and programmatic expertise to develop, implement, and evaluate ongoing HIV prevention programs. Furthermore, the increasing prevalence of HIV infection among minorities and the ability of these organizations to reach persons at highest risk, made development of an assistance program imperative. In 1985, the CDC, in cooperation with USCM, developed a program for enhancing the participation of CBOs in HIV prevention efforts by providing "seed funding" and intense technical assistance for a limited (one year) period. To evaluate the program's ability to enhance the number and quality of CBOs engaged in on-going HIV prevention efforts, a 30 item questionnaire was mailed to 85 organizations funded since the program's inception. The questionnaire addressed staffing patterns, budget, funding sources, HIV prevention activities, and other related variables. A qualitative rating of the impact of participation in the program in terms of ability to secure additional funds, credibility in the community, and other factors was also included.
Results: Preliminary findings indicate that 96% of the CBOs were involved in HIV prevention activities at the time of the survey. Eighty-three percent of the CBOs successfully obtained subsequent funding for their HIV prevention programs from other sources. Another 17% have applications pending review. Data suggest many CBOs were "legitimized" by participating in the program and currently receive funding from federal, State, or local health departments, and/or private organizations or foundations.
Conclusions: Projects designed to provide limited, "seed funding" and intensive technical assistance play a vital role in enhancing the capacities of CBOs to provide HIV prevention messages at the local level.

F.D.892 CHANGES IN SWITZERLAND: CONDOM USE IN OCCASIONAL RELATIONS.

Hausser, Dominique*; Dubois-Arber,F.*; Zimmermann,E.*; Zeugin,P.**
*University of Lausanne, Lausanne, Switzerland, ** IPSO, Zurich, Switzerland

Objectives: Swiss STOP AIDS prevention campaigns began in 1986, with a steady flow of preventive messages through various media. Effectiveness is measured by two indices: 1) the condom market in Switzerland and, 2) use of condoms in occasional relations.
Methods: Condom market data has been collected three times per year since 1986 from the suppliers covering more than 80 % of the total Swiss market. - Regarding condom use, representative samples of 27 to 30 years old Swiss were interviewed by telephone in four consecutive waves: Jan.87 (N=1182); Oct.87 (N=1211); Oct.88 (N=1213) and Oct.89 (N=1231). The last wave also included interviews with 31 to 45 year olds (N=1177).
Results: Before the first general population campaign, approximately 9 million condoms were sold per year. For 1987, sales figures had jumped to 11.5 million units and have since remained stable. - The proportion of young adults having had occasional sexual relations in the 6 months preceding the interview is stable at around 15 percent. "Everytime" condom use, however, is steadily and rapidly increasing: Jan.87: 8 %; Oct.87: 17 %; Oct.88: 29 % and Oct.89: 48 %. Among the 31 to 45 year olds, only 20 % consistently used condoms. - All other variables (level of education, use of drugs, homosexual practices...) remain stable over time.
Conclusion: Results indicate that the Swiss campaigns have been more effective among younger than among older adults. In the light of these findings, general population campaigns can be better targeted, and aids preventive strategies improved.

F.D.893 CONDOM PROGRAMMING IN CARIBBEAN MEDIUM TERM PLANS

Rumbaitis, Maria*, Bond, L.*
*Pan American Health Organization, Washington, D.C., USA

Objective: To study the effectiveness of Condom Programming as outlined in 17 Caribbean Medium Term Plans.
Method: a) The condom component was reviewed across 17 Caribbean Medium Term Plans according to a set of criteria. b) Reports of the Condom Services of the same countries were also reviewed. c) When available, qualitative information was also analyzed. d) Other documents (country strategies, evaluation reports; mission reports; etc.) were reviewed when feasible. All documents were evaluated by quantitative and qualitative criteria to examine if all elements (human and financial resources, country policy, distribution logistics, etc.) were in place to insure an effective program.
Result: Despite a WHO-GPA Delphi study which predicted that one third of the new infections during the 1990's were considered preventable, and despite the almost universal recognition of extremely high levels of sexual transmission of HIV in the countries reviewed, the National Medium Term Plans reviewed, lacked comprehensive condom programming that identified specific resources such as budget, a condom coordinator, logistics distribution channels, storage, quality assurance and a specific workplan.
Conclusion: a) Most condom programs reviewed in the 17 countries lack a comprehensive and strong condom component. b) If the condom element is not reviewed and policies enacted, it is unlikely that new cases of sexual transmission of HIV in these countries will decrease.

F.D.894 QUEBEC'S PHYSICIANS OPINION CONCERNING MANDATORY SCREENING FOR IMMIGRANTS IN CANADA.

Boyer, R; Fortin, C; Duval, B; Nadeau, D; Godin, G*: Unité de Recherche Clinique sur le Traitement du SIDA. Centre Hospitalier de l'U. Laval, Québec (Canada). *U. Laval; Québec (Canada).

Objective: To establish Québec's physicians opinion concerning mandatory screening for immigrants in Canada.
Methods: In collaboration with the Coprporation professionnelle des médecins du Québec an anonymous postal survey was conducted during summer 1989 among a stratified sample of physicians practicing and living in the Province of Québec. Physicians opinions were controlled by sociodemographic and professional variables with multiple regression.
Results: 74.0% (CI $_{(\alpha=0.05)}$ = 71.1% - 76.9%) are at least somewhat in favor of mandatory HIV screening for all immigrants to Canada. Multiple regression was performed on 6 sociodemographic and professional characteristics of this population: age, sex, language, geographical area (high vs low prevalence), type of practice (surgery vs others) and source of income (fee for service vs others). Physicians from the older age group and paid on a fee for service basis are more in favor of compulsory testing for immigrants. This opinion was also related to a favorable position concerning confidential mandatory nominal declaration of HIV positive results to public health authorities ($r=0.31$, $p<0.0001$) and to the acceptability of patients screening for HIV without their authorization ($r=0.25$, $p<0.0001$).
Conclusions: These results indicate that a large segment of Québec's physicians support mandatory testing for immigrants to Canada. They also indicate that such opinion is congruent with other related views on screening. This position is not supported by Canadian policy on immigration.

F.D.895 THE HIV SEROPOSITIVE INTERNATIONAL TRAVELER: HEALTH AND POLITICAL ISSUES

Turner-Hubbard, Kathleen
University of California, San Francisco, California, USA

The number of HIV seropositive individuals traveling outside their home country will continue to rise as the prevalence within world populations continues upward. Many travelers to developing countries are often at increased risk for acquiring illnesses. Those travelers who are HIV seropositive may be confronted with additional health risks, depending on their current immune status. The current political climate of some countries may also make entry and acquistion of health care more difficult.
Objective: To acquaint the audience with some of the significant health and political issues relating to international travel and the HIV seropositive traveler.
Methods: Descriptive data has been obtained retrospectively from 30 seropositive and 30 seronegative individuals who were seen for pretravel counseling at the University of California, San Francisco's Traveler's Clinic. The travelers were matched for age, sex, destination and similarity of travel plans. The counseling included discussions of health risks and entry policies.
Results: Current data demonstrates that the health problems in the seropositive group have been less frequent than the seronegative group.
Conclusion: Seropositive individuals should able to travel to most countries if they are adequately counseled regarding disease risks and prevention. Entry into most countries is possible.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.896

ROLE OF NATIONAL NON-GOVERNMENT ORGANIZATIONS IN ADDRESSING HIV: FEDERAL STRTATEGIES FOR PROMOTING GREATER INVOLVEMENT

Williams, Kenneth R.
Centers for Disease Control
Atlanta, Georgia, USA

The objective of this presentation is to discuss the roles of national non-government organizations (NGO) and their members and constituents in addressing the issue of HIV and AIDS in the United States, and governmental efforts to support and coordinate these efforts. Methods and programs for supporting such efforts and for stimulating greater involvement by national NGO's currently implemented and contemplated by the Federal Government will be discussed. Results from intitial programs in support of national NGO's, including national minority NGO's, focusing on HIV/AIDS prevention will be presented. Sectors of society which should be involved or more involved in HIV service and prevention will be identified. Conclusions and future priority areas will be discussed.

F.D.897

AMA POLICY EFFECTIVENESS IN ENACTMENT OF U.S. AIDS LAW

Szabat, Ronald P.

Objective: To demonstrate that American Medical Association (AMA) policy development helped garner passage of 100th Congress AIDS legislation.
Methods: Legislative history analysis of AIDS-related portions of Public Law 100-607 from genesis, through hearings, mark-up, House/Senate floor and conference action, against dynamic evolution of AMA's AIDS policy.
Results: (1) Voluntary versus mandatory testing issue division within U.S. House of Representatives forced AMA to broker middleground as Energy and Commerce subcommittee chairman's bill was developed. AMA's endorsement of limited targeted testing with appropriate pre/post-testing counselling of select groups on mostly voluntary basis, broadly available to all, and routinely offered in certain specific settings, proved decisive on subject. (2) Support by Chairman Waxman and AMA for Federal confidentiality standard avoided crazy-quilt state approach and saved testing program from lack of participation. AMA posited medical "need to know" as standard against which limited disclosures could be made and to safeguard interests of certain third parties, i.e., physician's duty to maintain confidentiality not seen by AMA as absolute. (3) Protections in original bill for individual who is, "or is regarded as being [emphasis added], infected with the etiologic agent for acquired immune deficiency syndrome," lacked objective medical reference ultimately enabling bill's opponents to defeat antidiscrimination safeguards.
Conclusions: (1) AMA policy references and vote victory margins indicated AMA education efforts with Representatives helped ensure passage of bill in House and should have been more forcefully employed by Senators in moving related measure. (2) Antidiscrimination safeguards may be best accomplished in non-disease specific legislation.

F.D.898

THE DESIGN AND DEVELOPMENT OF AIDS EDUCATIONAL MATERIALS

deFrancesco, S.*; Austin, D.*; Bordowitz, G.*; Carlomusto, J.*; Hoskins, V.
* Gay Men's Health Crisis, Inc. (GMHC), New York, NY 10011 USA

Objective: To demonstrate that sensitive, effective and accessible AIDS educational materials (videos, brochures, posters and the like) are best created with a recognition and an understanding of the diverse communities and populations (their social, economic and cultural backgrounds, as well as their levels of knowledge, attitudes and behaviors) to be reached.
Methods: At Gay Men's Health Crisis (GMHC), materials are developed for various communities, with the creative participation and technical expertise of community members.
Results: Experience, both documented and anecdotal, has shown that no single approach to educational materials will work for all populations. A common message (i.e., condom usage) neither benefits from nor requires a common medium, as it were. For example, it has been demonstrated that visually graphic materials work better for certain groups of gay and bisexual men than they do for certain communities of color or for members of certain religions, for whom discussions of sexuality are considered taboo. What is, therefore, "sexually explicit," "obscene," or culturally inappropriate for one population may sometimes be the most effective tool for another.
Conclusion: Community participation in the creation of AIDS educational materials helps to ensure not only the effectiveness but also the appropriateness of population-specific materials.

F.D.899

CONSULTATION ON NEEDLE EXCHANGE EVALUATION

Mitchell, Winnifred I., Rapporteur
U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES

After months of controversy over whether sterile needles should be provided to intravenous drug users to prevent HIV transmission, the U.S. government clarified that it had no role in the adoption or implementation of such programs. However, in view of concerns of officials in Federal, State, and local governments in the U.S. that very little information on the efficacy of these programs exists, in October, 1989, the U.S. Department of Health and Human Services (HHS) hosted a meeting of 12 experts outside HHS from public health, evaluation, law enforcement, epidemiology, drug abuse treatment, and medical ehtics to discuss the feasibility of devising methods to evaluate needle exchange programs. After noting that community attitudes toward needle exchange dictate its feasibility, these experts concluded that needle exchange should be evaluated not separately, but as one intervention in a comprehensive program to address HIV transmission among drug abusers. Needle exchange and bleach distributions could be evaluated as "enhancements" to a core program of drug abuse treatment and how precise an answer is desired. The full summary of these experts' opinions and concerns will be made available at the Sixth International Conference on AIDS.

F.D.900 NEEDLE EXCHANGE PROGRAMS: ETHICAL AND POLICY ISSUES

O'Brien, Maura
Network for Continuing Medical Education, Secaucus, NJ USA

Objective: To construct a normative framework within which: relevant moral conditions for a needle exchange program policy can be proposed, ethical issues relating to needle exchange programs can be identified and analyzed, and concrete policy recommendations can be formulated.
Methods: The principles of human dignity, well being, personal security, justice, and social solidarity give rise to the moral conditions of humaneness, proportionality, efficacy, non-discrimination, and feasibility. This ethical framework is applied to needle exchange programs.
Results: Competing arguments for and against needle exchange programs are based on fundamentally incompatible assumptions about the ability and desire of intravenous drug users to modify their behavior, on the symbolism attached to needle exchange programs, and on conflicting projections of program efficacy. Ethical issues examined include: confidentiality of program participation and HIV antibody test results, access of intravenous drug users to needle exchange programs, and proportionality of benefits and harms to individuals and society.
Conclusion: Concrete policy recommendations for morally justified needle exchange programs are offered.

F.D.901 ORGANIZATIONAL ADAPTATION TO THE INCREASED NEEDS IMPOSED BY AIDS/HIV INFECTION

Flam, L*, Brownstein, A*
*The National Hemophilia Foundation, New York, New York, USA

Objective: To provide education options for people with hemophilia and AIDS/HIV infection.
Methodology: In 1989, The National Hemophilia Foundation (NHF) engaged in a strategic planning process. This process involved an assessment of our community's needs since the onset of AIDS, and an assessment of NHF's ability to meet those needs in terms of organizational strengths and weaknesses and opportunities for funding and collaboration. NHF then formulated goals and strategies to meet these needs.
Results: NHF identified AIDS risk reduction education programs and information dissemination services as urgent, unmet needs, and reorganized its structure to create two complementary areas focussing on these needs. Funding was obtained from the Office of Maternal & Child Health to develop models in AIDS education outreach and information dissemination. These programs are being integrated into NHF's services provided to individual chapters and treatment providers. NHF plans to enhance its collaboration with other AIDS and chronic disease organizations to collect useful information and share model programs.
Conclusion: Although we have not yet seen its full impact, we are hopeful that the strategic planning approach will ba an effective model of adaptation, integration and collaboration for other organizations that provide services to people with HIV/AIDS and other chronic problems.

F.D.902 AIDS HOT LINE:MODEL IN A DEVELOPING COUNTRY

Carrillo Ma Elvira,Tovar S.M.,Cipriano P.B.,Uribe Z.P.,Ornelas H.G.,Chávez P.F.,Sepúlveda A.J.
National AIDS HOTLINE(TELSIDA).CONASIDA.MEXICO.

OBJECTIVE:To share Mexico's experience in the AIDS Hotline and the reaches in the community through the T.V. campaign.
METHODS:A comparison was made between the record obtained from the first semester of 1989 without ans structurated program and the T.V. campaign,and the second semester with the presence of both aspects.We registered the number,contens of calls,and the callers descriptions.During the second period we included new items:occupation,time to call, area and reactions to the campaign.We made a descriptive analysis and the chi square test.Also we comment the functions,the resources and our information policy to install an AIDS Hotline.
RESULTS:During the second period we obtained an increase in the number of calls of a 1253%, significative changes in the contents of calls and characteristics of callers.We also found an increase in the volunteers participation.
CONCLUSIONS:
1) The AIDS Hotline is one of the more efficient and direct media to contact the general population,specially if there is a reach limitation either economical o educational.
2) AIDS Hotline allows a level of comunication that interlocutor can express open and clear because of the anonymous and confidential situation,that also permits to give counseling to the callers.
3) We sugest that the AIDS Hotline should be part of the National Prevention and Information Program,being structurated and also supported by the masive media.
4) The AIDS Hotline is an efficient media to evaluate the National Information Campaign.

F.D.903 PHONE COUNSELLING TO PERSONS AT RISK FOR HIV: THE ITALIAN EXPERIENCE.

Benedetti,Paolo; Declich,S.; Giuliani,M.; Pavone,R.; Valdarchi,C.; Zaccarelli,M.; Greco,D.
AIDS Unit, Istituto Superiore di Sanità, Rome, Italy.

Established in June 1987, the hot-line has up-to-now answered about 100,000 topics on HIV-related problems: microbiology, modalities of transmission, trend, symptoms, diagnostic test, misinformation, strategies of prevention, therapy, psycho-social aspects. Originally conceived as an emergency tool, the service has been actually required to cope with psycho-social problems, relying on strict anonimity and lack of direct contact between caller and expert. See below the percentual distribution of topics raised upon, by category of callers at-risk for HIV.

	MICROB	TRANSM	TREND	SYMPTOMS	TEST	MISINF	PREVEN	THERAPY	PSY/SOC	OTHER
IVDU	2.07	20.10	0.75	25.45	18.78	2.99	15.34	5.11	4.37	5.05
HOMOSEXUAL	2.44	35.53	0.75	11.17	22.24	4.42	14.07	2.05	2.90	4.42
TRANSFUSED	3.02	52.48	3.46	8.21	15.55	5.18	4.75	2.16	3.24	1.94
PARTNER HIV+	2.43	27.46	0.39	12.11	30.30	4.00	14.76	1.81	3.33	3.41
SEROPOSITIVE	2.17	17.38	1.13	24.62	6.76	4.42	15.12	17.38	4.51	6.52
TOTAL	2.43	30.59	1.29	16.31	18.73	4.20	12.81	5.70	3.67	4.27

If we compare these data with those collected from no-risk callers, a dramatically low proportion of questions linked to misinformation is found, even though a substantial refinement of question contents is seen in all the categories of callers. The staff often experienced emotional involvement, particularly while speaking to HIV+ callers or their relatives, among which the burden of anxiety and of fear of death can be very strong.

TRACK D: SOCIAL SCIENCE & POLICY
POSTER SESSION

F.D.904

THE CENTER FOR POPULATION OPTION'S RESPONSE TO HIV PREVENTION FOR ADOLESCENTS: A COMPREHENSIVE AND INTERDISCIPLINARY APPROACH.

WIGFALL-WILLIAMS, WANDA The Center for Population Options, Washington, District of Columbia, USA

Objective: To demonstrate how simple, consistent HIV prevention message delivered by multiple respected persons in a community can have a positive effect on adolescents' tendency to practice unsafe, high risk behaviors.
Method: Utilizing three different approaches - Peer education, Community-based organizers and School-based adult/teachers - The Center for Population Options was able to provide consistant HIV prevention messages to both in-school and out-of-school youth.
Results: HIV prevention education can not take place in a vacuum. It is crucial that adolescents, who because of their developmental immaturity and feelings of invulnerability, are at high risk of engaging in behaviors that place them in the direct path of HIV. By providing adolescents with the same, simple, straightforward prevention messages delivered by a variety of individuals (peers, teachers, community leaders and parents), we increase the likelihood of the youth focusing on the AIDS crisis and their ability to reduce their own risk of HIV infection.
Conclusion: The success of CPO's programs suggest that widening the circle of those delivering the prevention messages (pharmacists, religious leaders, law enforcement officers, etc.) would improve the likelihood of a change in not only attitude, but also behavior.

F.D.905

PREVENTION OF HIV INFECTION AMONG INJECTION DRUG USERS IN CANADA - THE ROLE OF THE FEDERAL GOVERNMENT

MacKenzie, Betsy; Elmslie, K. Federal Centre for AIDS, Health Protection Branch, Ottawa, Ontario, Canada.

Objective: To identify and monitor changes in the prevalence of HIV infection and related risk factors among injection drug users in Canada. To develop collaborative national strategies that will effectively deal with this problem as an urgent public health priority.
Methods: Federal initiatives include: supporting the collection of comparable data concerning risk behaviour, HIV seroprevalence and the efficacy of prevention strategies; facilitating information exchange and consultation with and among key stakeholders; conducting a national needs assessment to evaluate the ability of existing health and social services to respond to this problem; collaborating with provincial and territorial governments to fund two-year pilot studies to evaluate multi-faceted prevention programs targeted towards injection drug users.
Results: Preliminary findings indicate that the rate of HIV infection among injection drug users in Canada varies geographically from 1-10%. Consistent approaches to data collection and program evaluation are being implemented through a growing network of interested agencies and researchers. Two multi-faceted pilot studies are underway with several others in development. These must combine risk reduction education, counselling, linkage to addiction treatment and to other health and social services, and may include a well controlled needle-syringe exchange.
Conclusions: Federal initiatives focussed on research and collaboration receive strong support from public health and community groups and can make a leading contribution to HIV prevention among injection drug users.

F.D.906

SYNERGISTIC EPIDEMICS: HOW THE UNCHECKED SPREAD OF CRACK COCAINE ADDICTION EXACERBATES HIV SPREAD IN FOUR U.S. DRUG EPICENTERS

Forbes, Anna *
ActionAIDS, Philadelphia, Pennsylvania, U.S.A. *

Objective: Governmental policies developed in response to the spread of crack cocaine addiction have a direct effect on the rate of HIV infection.
Methods: The scope and speed of the crack cocaine epidemic in four U.S. cities is demonstrated through examination of such indicators as drug-related crime trends, incidence of cocaine-related deaths and hopital admissions. The federal government's response to this crisis is measured by examining levels of public funding for drug addiction treatment over the last five years.
Results: The federal government has made no substantive response to the demonstrably urgent need for expanded crack cocaine addiction treatment programs. Neglect in this area has the effect of exacerbating the spread of HIV infection in populations that are primarily composed of heterosexual, non-IV drug using people living in indigent communities.
Conclusion: Although the spread of drug addiction is identified as a major policy problem in the U.S., government funding in this area is largely devoted to interdiction and law enforcement. The absence of a nationalized health care system combined with the governmental disregard of addiction treatment needs has resulted in profound treatment deficits. In the four cities examined here, crack cocaine addiction is virtually unchecked. The concommitant rise in "sex for drugs" transactions and street prostitution results in proportionally unchecked spread of HIV.

F.D.907

AIDS EDUCATION FOR TEENAGERS - AN INTEGRATED APPROACH

Gillies, P.A. and O'Sullivan, Anna
University of Nottingham, England

Objective. To produce effective AIDS educational materials for use in secondary schools which comprise comic material for school pupils, a parents' guide and a teachers' guide.
Methods. Researchers collaborating with school teachers and health educators produced an initial pilot comic and parental and teacher guidelines for AIDS education. The draft comic was piloted with 100 pupils aged 12-15 years. Attention was given to reading comprehension, relevance and racial imaging. The social context of HIV transmission was emphasized. Process evaluation of the materials was undertaken using self-completed questionnaires and interviews.
Results. The findings of the process evaluation include data on pupils' views of the relevance of the stories in the comic; their knowledge and perception of risk behaviour; appropriateness of the language and racial credibility. Parents' own knowledge; their confidence in imparting information to their children on this subject and how these materials helped them are described. Teachers' views of parental involvement in the process; the impact of the comic on knowledge; its use in providing a forum for discussion; how the guidelines influenced their own confidence in teaching and their view of in-service training are outlined.
Conclusions. AIDS education material for school-aged pupils should aim to integrate input from the family, teachers and pupils' own peer group. It should take account of pupils' own needs and views, be sensitive to racial issues and designed in such a way that it can be taught within a number of different environments and disciplines.

F.D.908

T.R.A.I.D.S. - A SERVICE FOR H.I.V. + VE BLOOD TRANSFUSION RECIPIENTS.

SHIPWAY Pamela, T.R.A.I.D.S. Unit, Parramatta, N.S.W. Aust.
SWANTON Katherine, N.S.W. Red Cross Blood Transfusion Service, Sydney,Australia.

Objective: To develop a support and welfare service for individuals and their families infected through blood transfusion.

Method: In 1986, the N.S.W. Department of Health established the T.R.A.I.D.S. Unit staffed by a Director, 2 Clinical Psychologists and a Social Welfare Worker to provide a state wide service to H.I.V. infected recipients and their families. Group work and one to one counselling was provided.

Results: In 1986, there were 62 identified recipients in N.S.W., at 20th December 1989 there were 112 identified recipients, 41 had died. These are men, women and children. The structure of the unit is still developing. The function of the unit is to provide emotional and practical support, networking, advocacy, liaison with service providers, government consultation on matters affecting client group,establishment, government trust fund, bereavement counselling.

Evaluation of the service has provided positive feedback from most consumers, although some difficulties have occurred in acceptance of professional intervention.

Conclusion: The N.S.W. Department of Health has responded to a perceived need to provide a special service to recipients.

F.D.909

AIDS EDUCATION FOR PUBLIC SCHOOL STUDENTS AND OUT-OF-SCHOOL YOUTH

Oros, Cheryl J.; Bascetta, C.; Landry, M.; Rosengren, T.
United States General Accounting Office (GAO)

Objective: To assess the status of AIDS education for youth, both in and out of school.
Method: GAO conducted telephone interviews with officials of a nationwide sample of school districts to determine the status of student AIDS education and the extent of training for AIDS teachers. To determine what was offered for out-of-school youth, GAO contacted state and local education agencies, national organizations, and local community based organizations.
Results: Two-thirds of the nation's public school districts reported providing formal AIDS education in the 1988-89 school year, but it is not offered at every grade level, as the Centers for Disease Control recommends. Little planning and monitoring data had been collected on students' AIDS knowledge, beliefs, and behaviors. Most AIDS teachers received training, but it was often insufficient due to the short amount of time spent in training and limited coverage of important topics. GAO found that AIDS education for high risk out-of-school youth, such as runaways, homeless, and incarcerated youth, is still developing. Few materials specifically targeted to out-of-school youth are available, training for educators and staff is inadequate, and insufficient planning and monitoring data have been collected.
Conclusions: The effort to educate youth about AIDS only began several years into the epidemic. The majority of school districts have begun to offer formalized AIDS education, but the highest risk group, out-of-school youth, has yet to be adequately reached.

F.D.910

INNOVATIVE MATERIALS FOR REACHING IN-SCHOOL YOUTHS WITH AIDS MESSAGES: AN EXAMPLE FROM ZAIRE

S.A. KAMBAMBA, J.CONVISSER, M. KYUNGU, R. EIGER, K. KALOMBO

OBJECTIVE: To develop an effective AIDS education material directed at in-school youth in Zaire.

METHOD: In collaboration with the National AIDS Program, Population Services International is implementing a mass media-based AIDS information, education, and communication campaign. The target audience for the first phase of this program is youth between 12 and 19 years of age. In order to reach a large segment of this population, PSI developed a student notebook containing a series of AIDS messages based on attitudinal research conducted in the target population. The notebooks are in the standard format that all students are required to buy, and have been sold at subsidized prices in school stores, stationery stores, and through youth groups and events in Kinshasa and four regions.

RESULTS: To evaluate the impact of the notebooks with AIDS messages on students who bought them, a comparative study was conducted that evaluated the levels of knowledge and attitudes in two schools where notebooks were disseminated and in two schools where they were not available.

CONCLUSION: By creating innovative, attractive media materials, it is possible to elevate AIDS knowledge and affect attitudes of youth.

F.D.911

NATIONAL AIDS HOTLINE:
INFORMATION SERVICES FOR THE PUBLIC, HIV/AIDS

Waller, Robert, R.

National AIDS Information & Education Program, Centers for Disease Control, Public Health Service, US Department of Health & Human Services, Atlanta,GA

Objective: This presentation will describe the history, purpose, and activities of the National AIDS Hotline (NAH), the world's largest health related hotline.
Methods: In 1983, the Federal Government established a toll free, 24 hour per day, telephone information service. The NAH answers questions regarding facts and concerns about HIV/AIDS. Services are provided to the general population of the U.S., its territories, and Puerto Rico. Information is provided in English, Spanish, as well as in TTY for the Deaf/Hearing Impaired community. In addition, the NAH provides free referral information via computerized data bases and also orders free HIV/AIDS publications for callers. Health professionals and the general public hear about the NAH through publications; exhibits and presentations at conferences and workshops; the "America Responds to AIDS" public service announcements; and through a growing outreach program.
Results: The NAH answers 100,000 calls, places 95,000 publication orders, and makes 65,000 referrals per month. Referrals include State and local AIDS hotlines, counseling and testing sites, legal support services, and health services. The nature of the calls, the staffing and technological requirements of NAH, and quality control will be discussed.
Conclusion: Call demand, publication orders, and the number of referrals suggest that the NAH is helping serve the public's need for factual information about HIV/AIDS, how the virus is spread; and preventive measures which can reduce individual risk.

1000 THE MECHANISM OF GANGLIOSIDE-INDUCED INTERNALIZATION OF THE HIV-RECEPTOR (CD4)

Repke, Heinrich*; Shin, J.**; Barber, E.* ; Rudd, Chr.* ; Helland, D.*; Haseltine, W.*
*Dana-Faber-Cancer Institute, Boston, **Harvard-University, Boston, USA.

Objective: Do gangliosides induce a new mechanism of CD4- down modulation at human T-cells ?
Methods: 1) Quantitative measurement CD4 down modulation and HIV-infection with and without site directed mutagenesis within the cytoplasmic chain of CD4. 2) Detection of selective protein phosphorylation by immunoprecipitation. 3) Effect of gangliosides on artificial Ca^{++}-channels and transglutaminase.
Results: Different pure gangliosides associate within 30 sec. with human T-cells as indicated by the newly discovered inhibitory effect on Ca^{++}-channels. However, the complete down modulation of CD4 requires one hour and is accompanied with an inhibition of HIV-1 infection. Site directed mutagenesis proves that the process is independent of CD4-phosphorylation and not attributable to a blockade of extracellular binding sites. Gangliosides induce the dissociation of the tyrosine protein kinase $p56^{lck}$ from CD4. For the first time, evidence is provided that CD4 is associated with one target of the $p56^{lck}$, i.e. CD3( ). Removal of the glutamine containing cytoplasmic sequence and transglutaminase inhibitors inhibit the ganglioside effect completely.
Conclusion: Gangliosides act on a basically new nechanism of complete CD4-internalization which involves the CD4- associated $p56^{lck}$ and covalent CD4- cross linking by a transglutaminase.

1001 LATERAL DIFFUSION OF CD4 ON THE SURFACE OF HUMAN NEOPLASTIC T-CELL LINE PROBED WITH A FLUORESCENT DERIVATIVE OF THE ENVELOPE GLYCOPROTEIN (GP120) OF HUMAN IMMUNODEFICIENCY VIRUS TYPE 1 (HIV-1)

Pal, Ranajit*, Nair, B.C.*, Hoke, G.*, Sarngadharan, M.*, and Edidin, M.**
*Advanced BioScience Laboratories, Inc., Kensington, MD, USA; **The Johns Hopkins University, Baltimore, MD, USA.

Objective: To study the lateral diffusion of CD4 molecule on the surface of human T-cell line by using fluorescein-labeled gp120 of HIV-1.
Methods: Envelope glycoprotein (gp120) was labeled with fluorescein using 6-(4,6 dichlorotriazinyl) amino fluorescein. The syncytium assay was performed by co-cultivation of HIV-1-infected cells with CEM cells. Later diffusion of CD4 was measured by fluorescence photobleaching recovery (FPR) method.
Results: Fluorescein-labeled gp120 was found to bind to CD4+ CEM cells and inhibited syncytium formation normally observed when HIV-1-infected cells are co-cultured with CEM cells. Fluorescence photobleaching recovery measurements showed that the diffusion coefficient (D) of CD4 complexed with fluorescein-labeled gp120 was around $5x10^{-10}$ cm^2sec^{-1}, with nearly 61% of the receptor molecules being mobile. Binding of anti-gp120 monoclonal antibody to the CD4-gp120 complex reduced the mobile fraction to a significant extent. Diffusion of CD4 labeled with OKT4 IgG was markedly inhibited with reductions in both D and mobile fraction but such inhibition was not observed with OKT4 Fab.
Conclusion: Crosslinking of multiple molecules of CD4 by OKT4 antibody is required to reduce CD4 mobility. The receptor might be present on the membrane plane as molecular clusters containing at least two molecules of CD4. Such dimers of CD4 when complexed with two molecules of gp120 would be readily aggregated when crosslinked with anti-glycoprotein antibodies resulting in the immobilization of the receptor.

1002 EXPRESSION OF HIV-1 mRNA AND P24Ag IN THE LIVER OF HIV-1 INFECTED SUBJECTS

HOUSSET Chantal[1,2]; LAMAS E.[1]; BOUCHER O.[1,3]; GIRARD P.M.[3]; BERTHELOT P.[2]; MARCHE C.[3]; BRECHOT C.[1,2].
[1]INSERM U.75 CHU Necker, [2]Unité d'Hépatologie Hôpital Laënnec, [3]Hôpital Claude Bernard, Paris, France.

Etiological factors of liver lesions (including sinusoidal abnormalities) in HIV-1 infection are still poorly known. We previously reported immunohistochemical detection of the CD4 molecule on liver endothelial sinusoidal cells. Immunostaining with a monoclonal antip24/p55 antibody (Abbott) was observed in the liver sections of 7/17 HIV-1 infected patients (13/17 with AIDS) (C. Housset et al., Human Pathol. in press). Labelled cells included 2 types : inflammatory mononuclear cells and sinusoidal cells with a morphology consistent with that of Kupffer cells.
Objectives : 1) confirm these results, by using a complementary approach : in situ hybridization 2) identify replication of the virus.
Methods : In situ hybridization was performed on liver samples of 5 HIV-1+ subjects (1,3 and 1 with AIDS, ARC and LAS respectively). Probe : RNA probe labelled with 35S UTP using a 3kb cDNA complementary to the Env HIV-1 gene.
Results : In the 5 samples tested, HIV-1 RNA were identified in inflammatory mononuclear cells as well as in some scattered intralobular, mostly sinusoidal cells. Further studies using immunostaining for a better identification of the cells with HIV-1 mRNA are ongoing.
Conclusion : These results confirm those obtained previously indicating that HIV-1 replication may occur in liver cells and particularly in Kupffer cells. Viral infection of sinusoidal liver cells might therefore be involved in some liver lesions observed in HIV-1 infection.

1003 CD4 + CELLS IN HUMAN PLACENTA: IMPLICATIONS FOR PERINATAL AIDS.

DAVID. F.J.E., MENU E., DANG. D.C., RAPHAEL. M.*, AUTRAN B.**, and CHAOUAT G.
INSERM, U.262 Clin. Univers. Baudelocque. 123 Bd de PortRoyal. 75674 Paris Cedex 14. France, * Dpt. d'hematologie and ** CERVI., Hop. La Pitié, Bd de l' Hopital. Paris. France.

Objective: To investigate the molecular recognition of HIV at the placenta level and mechanism(s) possibly involved in the materno-fetal HIV transmission.
Methods: Using both a modification of Klinman placental culture technique with dissociated cells, and immunohistochemical localisation with a panel of monoclonal antibodies against trophoblastic markers and monocytes.
Results: We have been able to demonstrate the presence of CD4 + cells in the term human placenta. The various markers of these cells, as well as other placental populations, will be described from FACS analysis. Their histological localisation and nature, including those of Fc-Rs+ cells, will be shown. Their ontogeny is at present under investigation by using both human & Macaca fascicularis placentae, the data of which will be eventually presented. The in vitro infectability of these cell populations by HIV virus will be assessed by the time of this meeting. Their response to cytokines in culture and the effect of growth processes on infectability will be detailed.
Conclusion: The presence of placental CD4+ and Fc-R+ cell populations raises diverse hypotheses dealing with placental HIV transmission. The clinical relevance of such observations and their implications for perinatal AIDS will be discussed.

1004 CLONING OF A HUMAN GENE POSSIBLY INVOLVED IN HIV INFECTION

Meneveri, Raffaella; Grassi, F.; Lanza, P.; Arosio, B.; Siccardi, A.G.; Ginelli, E.
Dipartimento di Biologia e Genetica per le Scienze Mediche, Università di Milano, Italy.

Objective: To verify whether a human protein of 45 kDa, defined by two Mabs (M38 and L31), might be involved in HIV infection. This hypothesis is based on the following previous findings: a) the protein and the gp120 share a cross-reacting epitope defined by Mab M38, b) the protein seems to be a physiological ligand of CD4 and c) an anti-idiotypic antibody, raised against M38, shows an anti-gp41 reactivity. Furthermore, it is also known that the 45 kDa protein is present at high concetration on the surface of activated monocytes and lymphocytes where it is involved in antigen presentation and in the negative regulation of cell proliferation.
Methods: Immunoscreening of an expression cDNA library from PHA-activated human lymphocytes. Characterization of isolated positive recombinant clones by Western-blot and by nucleotide sequencing.
Results: Two recombinant clones have been isolated whose human DNA inserts are cross-hybridizing and whose recombinant proteins are reactive with both Mabs. One clone, with a length of approximately 1700 bp, has been partially sequenced.
Conclusion: The analysis of the sequence indicates that the gene belongs to the HLA-class I multigene family, and particulary it shows a high homology to alleles of the C locus. Its possible involvement in the mechanism of HIV infection will be investigated by DNA-mediated gene transfer into $CD4^+$ cell lines.

1005 CYTOGENETIC ANALYSIS OF HIV-SUSCEPTIBLE HUMAN CELL LINES

Gluchova L.A.[1], Kushch A.A.[1], Korneeva M.N.[1], Kiseljeva I.A.[1], Manaeva S.E.[2]
[1]Ivanovsky Institute of Virology Academy of Medical Science of USSR, Moscow, USSR, [2] Institute of Cytology of Academy of Science, Leningrad, USSR.

Objective: A detailed cytogenetic analysis of human cell lines used for HIV-investigation was the main aim of this research. Its necessity can be accounted for by two reasons: 1)great diversity in HIV-susceptibility between cell lines and clones have been observed and 2) data about misidentification of different cell lines including HIV-sensitive is accumulated.
Methods: Twenty two variants of seven T lymphoblastoid (MT-4, H9, HUT -78, CEM, Jurkat, Molt-3, Molt-4) and one monocytoid (U937) cell lines received from different sources were studied. Metaphase plates were analyzed with G-, C-banding and with Ag-staining. The modal chromosome number (mode), the number and the origin of the marker chromosomes (Mr) were defined.
Results: The mode (61-63), the Mr's number (21-23) and their composition in 5 sublines of U937 cells were similar. Two variants of MT-4 cells were hypotetraploid (2n= 83), and contained 6 Mr. The same mode (2n=47) and one common marker 2p- from two variants of Jurkat cells were revealed. The cells of both sublines Molt-4 were practically identical both in mode (2n=97) and in their karyotypes. Only two of the four H9 sublines were true (neartriploid mode and more than 30 Mrs). As for the sublines HUT-78 one of them had the similar karyotype characteristics with H9 cells and the second was wrong. Two of the three variants of CEM lines had identical Mrs in one or two copies and differed in mode approximately twice.
Conclusion: Cytogenetic analysis in addition to literature data allowed us to conclude that only 17 of 22 sublines from different laboratories of Europe and the USA were true, while 5 ones were misidentified. It is of interest to compare the revealed intersubline karyotypical differences with their HIV-susceptibility. Our results point out the importance of cytogenetic analysis and regular control of cells used for AIDS investigations.

1006 TRANSMISSION ELECTRON MICROSCOPIC (TEM) ANALYSIS OF HIV-HOST CELL INTERACTIONS.

Song, Min J.* and Pudney, J.**
*High-Voltage Electron Microscopy Resource, Wadsworth Center for Laboratories and Research, New York State Department of Health, Albany, New York; and **Harvard Medical School, Boston, Massachusetts, USA.

Objective: To examine morphological relationships between HIV and its host cell during 1) binding and entry of the virus, and 2) assembly of viral particles at the host cell surface prior to release by budding.
Methods: Conventional TEM and high voltage TEM (using 0.5 - 1.0 μm thick sections) was carried out on Jurkat cells infected with the HIV-1 111b substrain.
Results: HIV could be detected 1) fusing with host cell membranes, 2) entering coated pits on the surface of host cells, 3) being taken up via endocytosis by host cells. Chains of mature HIV-1 virions were seen at the cell surface. Small vesicular structures were detected in the cytoplasmic stalk connecting developing viral particles with the host cell; similar vesicular structures could be detected in mature HIV.
Conclusion: This TEM study suggests HIV may infect host cells through two mechanisms: 1) specifically, i.e., involving either fusion of viral and host cell membranes or entry of whole HIV in coated pits by receptor mediated endocytosis; and 2) non-specifically, i.e., engulfment by pseudopodia of host cells during endocytotic activity. Binding of HIV to a host cell may effect changes in the viral envelope allowing fusion of other viral particles. Furthermore, transport of cytoplasmic components from the host cell to developing virions was detected across the connecting cytoplasmic stalk.

1007 CONCENTRATION-DEPENDENT INHIBITION OF AIDS VIRUS REPLICATION AND PATHOGENESIS BY ACEMANNAN IN VITRO

Kemp, Maurice C.*; Kahlon, J.**; Carpenter, R***; McAnalley, B.***; McDaniel, H.****; Shannon, W.**
*Texas A&M University, College Station, Texas, U.S.A., **Southern Research Institute, Birmingham, Alabama, U.S.A., ***Carrington Labs., Inc., Irving, Texas, U.S.A., ****Dallas-Fort Worth Medical Center, Grand Prairie, Texas, U.S.A.

Objective: To determine and quantitatively measure the effects of acemannan (ACE-M) treatment on HIV-1 replication and viral pathogenesis *in vitro*.
Methods: Peripheral blood mononuclear (PBM) cells and 2 defined T4 cell lines, MT-2 and CEM-SS, were used as target cells for HIV-1 infection and treated with various concentrations of ACE-M. Cell viability was determined either by trypan blue dye exclusion test or by metabolic conversion of MTT salt to formazan by viable cells. Virus replication and load were measured by hybridization of virally-infected cellular RNA and cell-free RNA, using an HIV-1 probe prepared from the *POL* gene.
Results: Protection of PBM cells was ACE-M concentration-dependent (C-D) ranging from 14-100% for cells treated with 3.2-1000 μg/ml ACE-M. Protection of infected MT-2 cells was both C-D and MOI-dependent. Protection of CEM-SS cells infected at an MOI=0.01 and treated with 62.5 μg/ml of ACE-M exceeded 85%. A C-D reduction in syncytium formation was observed; syncytia were undetectable in cultures treated with >62.5 μg/ml ACE-M. C-D reduction in virus replication was observed for treated PBM cells; concentrations of ACE-M ≥62.5 μg/ml resulted in 95-100% reduction in detectable cell-associated viral RNA. Treatment of virally-infected CEM-SS cells with concentrations ≥62.5 μg/ml caused >60% reduction in cell-free virus.
Conclusion: ACE-M inhibits viral-induced cell fusion, increases viability of infected cells, reduces virus load and suppresses production and/or release of free virus. The observed antiviral effects are in general both MOI- and concentration-dependent. Cytotoxicity was not observed at any test concentration of ACE-M.

1008 **Different forms of p25 are associated with infectious and non infectious viral particles produced by HIV-1 infected cells.**

Krust Bernard, Laurent Anne G., Hellio Raymond, Montagnier Luc, Hovanessian Ara G.
Institut Pasteur, 25, rue du Dr. Roux 75724 Paris Cédex 15.

Objectives: Four subspecies of p25, a, b, c and d, with related PI values, are produced by HIV-1 infected cells. The two forms a and b are in part incorporated into the HIV-1 virion, whereas species c and d along with a proportion of species a and b are expressed at the cell surface and also excreted. The characterization of these different forms is described here.
Methods : Cell culture supernatants of HIV-1 infected cells were fractionated by isopycnic centrifugation along a sucrose gradient, and the different fractions containing viral proteins were analyzed.
results : Three major pics containing the different subspecies of p25 were recovered : peak A at a sucrose density of 1.150 containing p25a, p25b, gp120, p68 and p55 , peak B at a sucrose density of 1.080 containing the same proteins as peak A ; peak C at a sucrose density of 1.050 containing p25 a, b, c, d and p40. Only peak A was infectious. Negative staining electron microscopy of the different fractions indicated the presence of particles of different sizes : 120 nm in peak A containing infectious virus ; 20-50 nm in peaks B and C.
Conclusion : Infectious and non infectious particles are produced by HIV-1 infected cells. The four species of p25 can be used as convenient markers to identify these particles.

1009 CYTOKINES DERIVED FROM NATURAL KILLER CELLS ARE CAPABLE OF SUPPRESSING PRIMARY HIV INFECTION OF HUMAN MONOCYTES.

Cosentino, Louis M.* and Clouse, K.A.**
*Georgetown University, Washington, D.C., and **CBER, Division of Cytokine Biology, FDA, Bethesda, MD., USA.

Objective. Cytokines derived from lymphocytes and monocytes are capable of regulating virus expression in primary HIV infection of susceptible human cells, and also in cells chronically infected with HIV. Since natural killer (NK) cells are known to make a variety of cytokines, and are not readily infected with HIV, we have investigated whether cytokines derived from NK cells can also modulate HIV expression.
Methods. Cytokine-enriched supernatants were obtained by culturing tumor cell-activated NK cells in the presence or absence of recombinant IL2 for 24-48 hours. Supernatants derived in this manner were tested for their ability to induce HIV expression in chronically infected T cells (ACH2) or promonocytes (U1), or to down-regulate HIV expression in the presence of known inducers. In addition, these cytokine-enriched supernatants were cultured with T cells or monocytes during primary HIV infection, to determine their ability to modulate virus expression. HIV replication was determined by monitoring RT activity and/or p24 antigen levels.
Results. Factor(s) derived from human NK cells do not induce HIV expression in chronically infected cells, but down-regulate virus expression elicited by other inducers. In addition, NK cell-derived factor(s) appear to interfere with primary HIV infection of monocytes, but have no noticeable effect on T cell infections.
Conclusion. This study suggests that even cells inefficient for HIV replication may influence virus expression by cytokine production.

1010 HUMAN IMMUNODEFICIENCY VIRUS REPLICATION IN EPSTEIN BARR VIRUS INFECTED PRIMARY PERIPHERAL BLOOD LYMPHOCYTE CULTURES.

Jyh-Yuan Yang, Ren-de Zhang, Michael Bealer, and Earl Henderson Department of Microbiology and Immunology, Temple School of Medicine Philadelphia, PA 19140.

Objective: to determine if HIV can infect resting human B cells.
Results: Spontaneously derived and Epstein - Barr virus (EBV) - induces lymphoblastoid cells lines (LCLs) were established from peripheral blood lymphocyte (PBL) cultures. LCLs were more easily established from PBL cultures of patients with acquired immune deficiency syndrome (AIDS) then from normal adults. LCLs were screened for the presence of human immunodeficiency virus (HIV) provirus by polymerase chain reaction (PCR) using amplimers homologous to HIV gag and envelope sequences. HIV sequences could not be detected in any LCLs established spontaneously from normal adults or patients with AIDS. As expected various linear and circular forms of the EBV genome could be detected in the same LCLs by southern blotting using the cloned EBV Dhet region as hybridization probe. In contrast normal PBL cultures co-infected with EBV and HIV also expressed higher levels of reverse transcriptase activity (RT) than did those PBL cultures infected with HIV alone. HIV provirus could be detected by PCR in the majority of B-LCLs which are from co-infected cultures. Some but not all LCLs harbored HIV provirus as detected by RT activity.
Conclusion: These results demonstrate that HIV (III B) and EBV (B95.8) may co-infect primary B-lymphocytes in culture and that there may be an interaction between EBV and HIV in the co-infected PBL cultures.

1011 FLUORESCENT CHAIN TERMINATING NUCLEOTIDES AS PROBES OF HIV REVERSE TRANSCRIPTASE-NUCLEOTIDE INTERACTIONS

Müller, Barbara, Restle, T., Goody, R.S.
Abteilung Biophysik, Max-Planck Institute für medizinische Forschung, Heidelberg, F.R.G.

Succinyl-fluorescein ddTTP can be used to terminate template-directed oligonucleotide extension by reverse transcriptase. This occurs with a k_{cat}/K_m value of ca. 10^4 $M^{-1}s^{-1}$ at 25 °C and leads to a 75% quenching of fluorescence of the terminator. Dissociation of the fluorescent primer/template occurs at a rate of $6x10^{-3}$ s^{-1} and leads to a further quenching of ca. 50%. Titration of a complex between template, fluorescent primer and reverse transcriptase with the triphosphate of the nucleoside which would have been incorporated next (in the absence of chain termination) leads to a large increase in fluorescence (ca. 150%, depending on conditions) and a dissociation constant for dGTP of 20 µM. In contrast, deoxynucleoside monophosphates bind in a base specific manner with a large decrease in fluorescence (dissociation constant for dGMP 50 µM). Binding of dGTP and dGMP appears to be partially competitive.
The affinity of the fluorescent primer/template complex used (??) for reverse transcriptase was 4.1 nM in the absence of dGTP and 1.2 nM at dGTP concentrations which are saturating for its specific binding site. A significant but relatively small reduction in the rate of the primer/template complex was only seen at much higher dGTP concentrations ($1.4x10^{-3}$ s^{-1} at 500 µM), suggesting that at normal substrate concentrations a "dead end" complex between template, terminated primer, reverse transcriptase and a deoxynucleoside triphosphate does not occur.

1012 INHIBITION OF HIV REPLICATION IN LYMPHOCYTE CULTURE OF VIRUS POSITIVE SUBJECTS IN THE PRESENCE OF AN ORIENTAL PLANT EXTRACT(SHO-SAIKO-TO, SST).

Buimovici-Klein, Elena; Lange,M.; Mohan,V.P.; Fenamore,E.; Inada,Y. and Cooper,L.Z.
St. Luke's-Roosevelt Hospital Center, Columbia University, New York, NY, USA.

Objective: An oriental medicine, Sho-Saiko-To(SST), consisting of aqueous extract from a mixture of seven different plants, and which most active component is chemically defined baicalein, was tested for its ability to inhibit the replication of HIV.
Methods: The testing was done in cultures of human lymphocytes obtained from 10 HIV positive asymptomatic subjects(AS), 5 patients with ARC and 5 with AIDS. The replication of the virus was monitored by quantitative assay of the reverse transcriptase activity(RTA) and of the synthesis of p24 antigen. The lymphocytes were maintained in the absence and in the presence of 25, 50 or 100µg/ml of SST, and monitored for up to 5 weeks.
Results: The results showed that RTA and synthesis of p24 were completely inhibited by all concentrations of SST in lymphocytes from AS. Only high concentrations of SST inhibited virus replication in 80% of lymphocytes from ARC patients, but were ineffective in lymphocytes from AIDS. It was observed that the RTA was more sensitive to inhibition by SST than the synthesis of p24 and that the antiviral effect was dependent on the virus load of the lymphocytes.
Conclusion: It appears therefore that SST could be an effective alternative antiretroviral treatment for HIV positive asymptomatic subjects and selected ARC patients.

1013 SUPERNATANTS OF HIV1-INFECTED HUT 78 CELLS CONTAIN WHOLE VIRIONS AND VIRAL DEGRADATION PRODUCTS COATED WITH MHC CLASS II ANTIGENS.

Zissis, Georges, Lambert J.P., Marbehant P.E., Marissens D.J. Van Holder K.F., Duchateau J.R. AIDS Reference Center - Free University Brussels, Belgium.

OBJECTIVE : To determine whether HIV1 virions or degradation products contain MHC Class II antigens.
METHODS : After pelleting (40.000 g/90') cell-free supernatants of HIV1 infected cells (HUT 78 cells chronically infected with SF2 or HTLV-III B; Molt-3 cells chronically infected with HTLV-III B) were submitted to rate-zonal centrifugation (5-40% metrizamide gradient) and subsequently to isopycnic banding in CsCl. Reactivity of virus (products) was tested versus monoclonal antibodies directed against viral peptides (anti-p24, anti-gp 120) and against MHC Class II antigens (anti-DR) by means of direct and indirect EIA.
RESULTS : Whole virions (d=1.18-1.16) as well as soluble degradation products originating from HIV1-infected HUT 78 cells were shown to react with anti-p24, anti-gp 120 but also with non-polymorphic MHC Class II antibodies. The latter reactivity was not observed with HTLV-III B virus material obtained from Molt-3 supernatants. Furthermore, HTLV-III B virions grown in HUT 78 cells lost Class II expression after back passage into Molt-3 cells (Class II negative). Also, anti-DR reactivity was observed both with SF2 and HTLV III B strains grown in HUT 78.
CONCLUSIONS : HIV1 virions express host-cell non-polymorphic class II antigens into their envelope during replication in HUT 78 cells. These antigens are not coded for by the virus nor are they strain-specific.

1014 DETECTION OF HIV ANTIBODIES IN URINE: BLINDED, PROSPECTIVE COMPARISON WITH SERUM TESTING IN LOW AND HIGH PREVALENCE COHORTS

Miller, Candice; Salinas, R.; Desai, S.; Mercer, W.D.
MetPath Inc., Teterboro, New Jersey, USA.

Objective: To compare the sensitivity and specificity of a recombinant ELISA for detection of HIV antibodies in unconcentrated urines with conventional tests for these antibodies in serum.
Methods: For the low prevalence cohort, blood and urine were collected from 931 healthy adults residing in the Northeastern U.S. The subjects were applicants for life insurance; informed consent was obtained for HIV testing. For the high prevalence cohort, a randomized panel was assembled consisting of urine from 94 individuals with AIDS or ARC and 94 healthy adults. Serum was tested at another laboratory for HIV antibodies by a viral lysate ELISA (Dupont) with confirmation by Western Blot (Dupont). Unconcentrated urine samples were tested, in a blinded, prospective manner, using the CBC EI HIV EIA (Calypte Biomedical Corp.). This test employs a recombinant HIV-1 envelope protein.
Results: Among the 931 individuals in the low prevalence cohort, 5 were confirmed to be positive for HIV antibodies in serum; 12 were positive for HIV antibodies in urine. All of the 5 seropositives were positive by the urine test (sensitivity, 100%; specificity, 99.2%). Of the 7 positive urines from seronegative individuals, 3 were borderline, 3 were highly positive and were positive using another recombinant urine test (ENV 9, Dupont), but were negative by WB, and 1 was positive in both recombinant assays and by WB. Among the high prevalence cohort, the urine test was positive for HIV antibodies for 94 of 94 seropositives and was negative for 93 of 94 seronegatives (sensitivity, 100%; specificity, 98.9%).
Conclusion: We found that HIV-1 antibodies could be detected in urine using the CBC EI HIV EIA. The assay was sensitive and specific in both the low and high prevalence cohorts.

1015 COMPARISON OF THE POLYMERASE CHAIN REACTION WITH CO-CULTURE, INTRACELLULAR P24 ANTIGEN AND ROUTINE SEROLOGY FOR THE DETECTION OF HIV-1 INFECTION IN HIGH-RISK INDIVIDUALS.

Schwartzer, T., Dubin, D., Raska, K., Fitzgibbon, J., Czarnecki, M., Howell, R. Connolly, D., Brennan, A. and Gocke, David.
AIDS Clinical Trials Unit, Robert Wood Johnson Medical School, New Brunswick, New Jersey, USA

Objectives: Several investigators have suggested that detection of HIV-1 proviral DNA by the polymerase chain reaction (PCR) is considerably more sensitive than serology for the early detection of HIV-1 infection. These data, however, have recently been challenged by others on technical and scientific grounds, and the utility of PCR for detection of early infection in high-risk individuals remains uncertain. In this study, we compared PCR with other markers of infection including virus co-culture, intracellular p24 antigen (cytofluorographic analysis) and routine serology (ELISA/WB).
Methods: Thirty five high-risk (homosexual or bisexual males, needle sharing intravenous drug users) individuals attending a walk-in testing center were evaluated by the above markers of infection.
Results: Eight of the 35 (22.8%) subjects were seropositive (ELISA/Western blot). PCR correlated 100% with the positive HIV-1 serologies, virus co-culture 88% (7/8 positive) and intracellular p24 antigen 75% (6/8 positive) demonstrating the sensitivity of these tests. Of the 27 HIV-1 seronegative, but high-risk individuals, two (7.4%) individuals were found to be infected with the virus as determined by co-culture and/or a positive PCR reaction.
Conclusions: We conclude, that under the conditions employed in this pilot study, performance of PCR provided a slight increase in detection of HIV-1 infection in high-risk persons.

1016 A SIMPLIFIED METHOD FOR RAPID HIV PROPAGATION IN PBMC CULTURES

Lenzner, Susanne*; Gieseler, R.K.H.*; Scolaro, M.J.**; Peters, J.H.*; Martin, W.J.***
*University of Goettingen, Department of Immunology, Goettingen, West Germany, **Los Angeles Oncologic Institute, St. Vincent Medical Center, Los Angeles, California, USA, ***University of Southern California School of Medicine, Los Angeles, California, USA.

Objective: To develop a method for accelerated HIV transmission and replication in healthy donor PBMC with low concentration of infected inocula.
Methods: Irradiated human T cells were stimulated with PHA; supernates were collected after 48 h. and frozen as a stock solution (T-SUP). HIV inoculum (PBMC at ratio 1:100 infected to non-infected, or culture supernate) was added to single or pooled healthy donor PBMC. Cells were incubated in the continuous presence of 25% T-SUP for 5 days. Measurements included supernate p24(Abbott) daily, and intracellular p17, and gp41(day 2 and 5), as well as cell viability.
Results: Envelope and core proteins were detected as early as 24 h. After initial cell death of approximately 30% in the first 24 h., all cultures exhibited cell proliferations up to 100% above initial numbers by day 5.
Conclusion: Addition of infected inoculum to single or pooled healthy donor PBMC cultures, supplemented with T-SUP, resulted in rapid HIV propagation accompanied by marked cell proliferation. This method appears to be superior to co-culture techniques, in that it is less time-consuming, and can avoid the MLR, thereby better approximating in vivo conditions.

1017 ISOLATION OF HUMAN IMMUNODEFICIENCY VIRUS TYPE 1 (HIV-1) IN SEROCONVERTERS: A MULTICENTER STUDY

Gupta, Phalguni; Rinaldo, C.; Grovit, K.; Farzadegan, H.; Imagawa, D.; Lee, M.; Wolinsky, S.; Hoover, D.; Kaslow, R.
Multicenter AIDS Cohort Study; Pittsburgh, PA; Baltimore, MD; Los Angeles, CA; Chicago, IL; NIH.

Objective: To determine the frequency of virus isolation in relation to duration of infection in HIV-1 seroconverters.
Methods: Twenty-five homosexual/bisexual men participating in a prospective multicenter investigation of the natural history of HIV-1 were studied for HIV-1 isolation. Peripheral blood mononuclear cells (PBMC) were obtained from subjects longitudinally every 3-6 months after documented seroconversion to HIV-1 and were cocultured with PHA-stimulated normal PBMC. Virus production was monitored by the HIV p24 antigen capture test.
Results: HIV-1 was isolated in 11/25 (44%) of HIV-1 seroconverters within 6 months of documented seroconversion (first HIV-1 antibody positive study visit). PBMC from three additional subjects had positive virus cultures within 12 months of seroconversion. 21/25 subjects became HIV-1 culture positive by 24 months of seroconversion. Four remained culture-negative up to 24 months after seroconversion. Results of serum p24 and plasma virus concentrations are pending.
Conclusions: A significant percentage (44%) of homosexual men had PBMC positive for HIV-1 culture within 6 months of seroconversion. Most of the study subjects became HIV-1 culture positive within 24 months of seroconversion. These men are being followed clinically to determine whether the ability to isolate HIV-1 within different times after seroconversion is related to disease development.

1018 INHIBITIONS OF HIV INFECTIVITY BY SALIVA IS NOT DUE TO HIV NEUTRALIZING ANTIBODIES

Suzuki, Michihiko*; Shinozaki, F.*; Kobayashi, S.**; Kobayashi, N.**; Yamamoto, N.**
*Dept. of Maxillofacial Surgery, **Dept. of Virology and Parasitology, Yamaguchi University, School of Medicine, Ube, Yamaguchi, Japan.

Objective: Despite the fact that HIV can be detected in saliva of HIV-infected individuals, the risk of oral transmission of HIV has been shown to be extremely low. This study focuses on the mechanism of HIV inhibition by saliva from both HIV-infected and -uninfected individuals. The level of HIV antibodies in saliva was also investigated to determine whether or not antibodies of HIV in saliva behaved as HIV inhibitors.
Methods: Saliva samples collected from both 7 HIV-uninfected (healthy) and 7 HIV-infected individuals were mixed with the same volume of HIV preparation. After incubation of various times (0,1,3,6,12,24h) at 37°C, MT-4 cells were exposed to saliva/HIV mixtures. The expression of HIV-specific antigens was determined by the IF method. The levels of antigens and antibodies of HIV in serum and saliva were determined by EIA.
Results and conclusion: Saliva samples from both HIV-infected and -uninfected individuals inhibited HIV infectivity. However, no significant difference in HIV inhibitory activity in both saliva specimens was observed irrespective of presence or absence of HIV antibodies in saliva. Further study suggested that this HIV inhibitory activity by saliva was due to the glycoprotein like substances.

1019 DIRECT DETECTION OF HIV SEQUENCES IN BLOOD: HIGH-GAIN POLYMERASE CHAIN REACTION

Faloona, Fred*; Weiss, S.**; Ferre, F.**; Mullis, K.***
*Department of Infectious Diseases, Cetus Corporation, Emeryville, CA. **Cytometrics, San Diego, CA. ***Specialty Laboratories, Inc., Santa Monica, CA.

OBJECTIVE: The synthesis of non-specific DNA in the polymerase chain reaction (PCR) compromises the overall yield of the specific PCR product. The detection of the low levels of HIV-1 proviral DNA in peripheral blood requires optimal sensitivity. Procedural modifications were examined to accomplish greater specificity of the PCR primer extension step.

METHODS: Varying amounts of plasmid DNA containing the HIV-1 proviral genome (eg. 1-100 copies) were amplified with primers to the gag region, in the presence of increasing amounts of human cellular DNA (eg. 0.01-10 µg). All of the reagents, except the Taq DNA polymerase, were added to the reactions at room temperature. Amplifications were then initiated by adding the enzyme at either room temperature, as routinely performed, or at temperatures above the annealing temperature of the cycling reaction.

RESULTS: Reactions were analyzed by ethidium bromide stained gel electrophoresis. 1-10 copies of HIV-1 DNA in the presence of 10 µg of human DNA can be routinely detected only when initiating the reactions by adding the DNA polymerase at elevated temperatures. The implications of this procedural modification for the detection of proviral DNA containing variant sequences at the primer binding regions will be discussed.

CONCLUSION: Highly complex DNA contains many regions capable of hybridizing with some PCR primers thereby providing a substrate for Taq DNA polymerase extension at low temperatures. Considerable primer-dependent synthesis of DNA occurs before the initial denaturation step of the PCR. Greater specificity of primer extension and therefore "higher gain" PCR is accomplished by adding the Taq DNA polymerase at elevated temperatures.

1020 HIV VIREMIA DETECTED BY PCR IN ASYMPTOMATIC AND AZT-TREATED INDIVIDUALS

OTTMANN, Michèle*; INNOCENTI, P.*; BACCARD, C.*; MORAND, P.**; PELLOQUIN, F.***; SEIGNEURIN, J.M.*.
*Laboratoire de Virologie, Faculté de medecine, Grenoble, France. **Service des maladies infectieuses, CHU, Grenoble, France. ***Institut Mérieux, Lyon, France.

Objective : To study the viremia in human sera or plasma and attempt to correlate it with the different stages of HIV-1 infection.
Methods : Sera or plasma were ultracentrifuged, then reverse transcription and amplification were performed in an aliquot of the concentrated pellet. LTR, GAG and ENV regions of the cDNA synthesized from the genomic HIV-1 RNA were amplified with SK29/SK30, SK38/SK39 and SK68/SK69 primers pairs. Amplified products were analysed by southern blot with corresponding ^{32}P-labelled probes.
Results : Sera or plasma of HIV seronegative, asymptomatic seropositive individuals, and AZT-treated patients were screened for the presence of genomic RNA. No HIV DNA was detected in these samples using PCR without reverse transcription. Specific HIV amplified sequences relative to genomic HIV RNA were detected in 13 out of 14 AZT-treated patients, in 21 out of 21 asymptomatic subjets, and in none of 12 seronegative individuals.
Conclusion : In our series, HIV was present in the cell-free plasma of all asymptomatic untreated individuals, as well as in most treated patients. Thus, the method used appears to be a marker for blood infectivity and for disease progression.

1021 RELEVANCE OF ANTI-NEF ANTIBODY DETECTION IN HUMAN SERA AS AN EARLY MARKER OF HIV INFECTION.

Bahraoui* Elmostafa, Benjouad** A., Sabatier* J.M., Allain*** J.P., Laurian**** Y., Gluckman** J.C. and Montagnier***** L.
* CNRS UA 1179 Marseille.
** CERVI, Hôpital de la Pitié, Paris.
*** Abbott, Chicago.
**** Hôpital Kremlin Bicêtre, Gentilly.
***** Institut Pasteur, Paris.

Objective : To study the relevance of anti-nef antibodies detection as an early marker of HIV infection.
Methods : Anti-nef antibodies were detected by RIA with recombinant ^{125}I nef expressed in E. Coli and by ELISA using synthetic peptides. The following points were investigated : i) the kinetics of appearance of anti-nef antibodies in a set of 49 longitudinal sera collected from 12 HIV infected donors at the time of seroconversion. ii) nef serology in a population of 35 HIV seropositive hemophiliacs and their seronegative or seropositive sexual partners.
Results : The results obtained using a sensitive RIA showed that anti-nef antibodies could not be detected in the sera tested before antibodies specific to HIV structural proteins. Analysis of the first set of sera clearly shows that anti-nef developed in all 12 cases and that their occurence was simultaneous with antibodies to p25 and or gp160. 16 of the 32 HIV seropositive men of the second set of sera were anti-nef posittive (50%). All but one seropositive females were anti-nef positive (5/6 or 83%). In contrast, none of 29 seronegative females had detectable anti-nef.
Conclusion : These data indicate that anti-nef antibodies detection in sera of HIV-infected patients, in contradiction with previously published results, could not be used reliably as an early marker of HIV infection.

1022 EFFECT OF LOW-SPEED CENTRIFUGATION ON RECOVERY OF HIV FROM CELL-FREE VIRUS STOCKS AND FROM SERUM

Shepp, David; Ashraf, A. North Shore University Hospital - Cornell University Medical College, Manhasset, NY, USA.

Objective. To determine if low-speed centrifugation of susceptible cell lines during viral adsorption can enhance isolation of HIV from stock virus preparations and from cell-free clinical sources.
Methods. Duplicate cultures of 2.5×10^6 normal PHA-stimulated lymphoblasts (PHAB) or H9 cells were combined with 0.5 ml of serial 10-fold dilutions of HIV stocks or fresh serum and incubated for 15 minutes. One culture from each pair then was centrifuged at 700xg at for 45 minutes (C) while the other remained in routine incubation (R). Cells were washed, placed in medium with 10% TCGF and refed twice weekly for 3-4 weeks. Growth of HIV was assessed by detection of p24 antigen in culture supernatants.
Results. End-point titers of lab strain (HTLV-III_B) and low passage clinical isolate ("MM") stocks were 1 and 2 log greater in H9 with C as compared to R. In PHAB, endpoint III_B titers were 2 logs greater while "MM" titers were 1 log greater at day 7 of culture but equal at endpoint. C and R also were compared for recovery of HIV from patient serum:

	Status			Serum p24 Antigen		Absolute CD4#			
	Asympt	ARC	AIDS	-	+	<50	51-200	201-400	>400
C	3/4	2/4	9/10	7/10	7/8	7/10	3/3	4/4	0/1
R	0/4	1/4	6/7	1/8	6/7	6/8	1/2	0/4	0/1

Conclusion. Low-speed centrifugation enhances isolation of laboratory and "wild" HIV strains in both H9 cells and PHAB. This method also facilitates recovery of HIV from sera of patients, especially those who are p24 antigen negative, have better clinical status and higher helper lymphocyte counts.

1023 DETECTION OF PCR PRODUCTS BY A NOVEL LIQUID PHASE DETECTION SYSTEM: MONITORING HIV-1 INFECTED PATIENTS DURING ANTI-VIRAL THERAPY

Bankowski, Matthew J.*; Kuhns, M.**; McNamara, A.**; Schade, S.*; Birkenmeyer, L.**; Kucik, S.*; Kennedy, M.**; Urbanski, P.*; Hagerty, J.*; Farrington, K.*; Kessler, H.*; Landay, A.*.
*Rush-Presbyterian-St. Luke's Medical Center, Chicago, IL., USA
**Abbott Laboratories, North Chicago, IL., USA

Objective: PCR in conjunction with a sensitive and quantitative hybridization assay might be useful in monitoring HIV-infected patients undergoing anti-viral therapy. These patients are usually monitored by culture, HIV-1 antigen (p24), or lymphocyte subset analysis. In early symptomatic disease, these tests may lack the sensitivity needed to adequately monitor the efficacy of anti-viral therapy.
Methods: Twenty five HIV-infected patients enrolled in an AZT/acyclovir study, were monitored by HIV culture, plasma p24 antigen, lymphocyte subset analysis, and PCR for HIV-1 provirus in blood mononuclear cells (MNC's). The PCR product of the gag region was quantitated by hybridization in solution with a highly specific single-stranded ^{125}I DNA probe. Hybrids were separated from free probe by gel exclusion chromatography. Thirty normal individuals were included as controls.
Results: PCR and liquid hybridization routinely detected HIV-1 DNA in HIV infected patients even in cases where MNC culture and plasma p24 were negative. Out of the 30 normal controls no HIV-1 DNA was detected. Although patients showed variable levels of HIV-1 DNA, anti-viral therapy appeared to decrease the HIV-1 DNA levels in some cases. In vitro AZT treatment of HIV-1 infected H9 cells resulted in decreased levels of both p24 antigen and HIV-1 DNA.
Conclusions: The polymerase chain reaction coupled with a convenient, sensitive, and quantitative solution hybridization assay is useful in monitoring HIV-1 DNA levels during anti-viral therapy.

1024

METHODOLOGICAL ASPECTS AND CLINICAL VALUE OF HIV RECOVERY FROM PERIPHERAL-BLOOD MONONUCLEAR CELLS, PLASMA AND WHOLE-BLOOD.

Cuneo Piera., Sigari G., Losi E., Zemignan M., Arenare L., Bonafede L. Inst. Hyg. Prev Med University Genoa, Italy.

Objective. To evaluate the result of different techniques for HIV isolation from blood (whole blood, PBMC and plasma). Our aim is both monitoring clinical evolution in seropositive patients and the finding out the most useful method for HIV recovery in subjects with indetermined serological pattern or seronegative ones at risk. Methods. The following procedures were used in HIV isolation: 1) Patients fresh PBMC (1x10) were stimulated with phytoemagglutinin (PHA) and cultured as in the procedure described by Gallo et al. 2) Patients PBMC were co-cultured with normal donor PBMC which had been stimulated with PHA. Additional normal donors PBMC stimulated with PH were added every 4-7 days to enhance the virus replication. 3) Subjects whole blood (500 ul) was added to normal donors PBMC, as in the previous procedure. 4) Patients filtered plasma (2 ml) was added to PBMC culture as in the previous procedure. HIV replication in the cultures has been evaluated by HIV p24 antigen titration. Samples of cultured cells have been processed to be examined by transmission electron microscope. Laboratory and clinical data were available for all the patients. Results. Out of 115 anti-HIV positive subjects, the co-culture of PBMC, carried out according the 2nd procedure, furnished the highest percentage of HIV isolation (85%). Even whole-blood culture gave satisfactory results in 15 samples studied in comparison to the former technique. Virus isolation was obtained from plasma of 35% out of 40 subjects investigated. It resulted more frequently in AIDS patients as compared to asymptomatic ones. The follow up of said asymptomatic subjects pointed out that plasma viremia should be considered negative from the prognostic point of view. Plasma viremia was often met with before the HIV Ag appearance. No HIV recovery has been obtained from 45 blood-donors with anti-HIV indeterminate serologic pattern. TEM examination of culture-cells allowed to verify the presence virus particles in positive cases. Furthermore EM evidenced the presence of other viruses, expecially HHV6. Conclusions. HIV recovery from blood and plasma in seropositive subjects proves to be useful to classify the clinical stage of infection. Improvement has been obtained in isolation techniques. Plasma viremia shows a sensible prognostic marker.

1025

PCR ANALYSIS OF HIV-1 PROVIRAL SEQUENCES IN SERO-NEGATIVE AND -POSITIVE HEMOPHILIACS.

Hassan H.J., Chelucci C., Leonardi A., Gringeri A.*, Mannucci P.M.*, Peschle C.
Dept. of Hematology-Oncology, Istituto Superiore di Sanità, Rome, Italy; *A. Bianchi-Bonomi Hemophilia and Thrombosis Center, University of Milan, Italy.

Objective. We have studied two matched groups of hemophilia A patients, comprising 25 seronegative and 18 seropositive subjects: all were similarly treated in '81-'85 with commercial not virus-inactivated factor VIII concentrates (>75% equivalent batches were used in all patients). Since the possibility has been raised that high-risk seronegative individuals may carry proviral HIV-1 sequences in a dormant stage, we used the polymerase chain reaction (PCR) to detect HIV-1 DNA in these hemophilia groups.
Methods. Serological assays were performed by ELISA and Western blotting. Isolated lymphocytes from seronegative samples were stimulated with PHA and activated with IL-2. 2-5 ug of DNA were subjected to PCR with oligo primers for the conserved "gag" and "env" regions. The amplified regions were separated by 1.5% agarose gel electrophoresis. DNA was hybridized with an oligo internal to the amplified regions.
Results and conclusions. No hybridizations signal was detected in all seronegative samples after two-fold 30-cycles amplification in both monocytes and lymphocytes, as well as in stimulated T-cells. In all seropositive samples a clear hybridization signal was observed after the first 30 cycles, although with different intensities (a substantially equivalent signal with the same samples was observed using primers specific for the factor X gene): these differences may reflect different numbers of infected cells and/or proviral sequences in a single cell.

1026

DEMONSTRATION BY IN SITU HYBRIDIZATION OF HIV1 gag-pol PROVIRUS TRANSCRIPTION IN PERIPHERAL BLOOD MONONUCLEAR CELLS OF A PATIENT WITH A NEGATIVE ANTIGENAEMIA.

DELORD Brigitte*, PELLEGRIN J.L.*, FLEURY H.J.A.*
* Centre Hospitalier Régional et Université de Bordeaux II, Bordeaux, France.

Objective : To investigate the transcription of HIV1 provirus in Peripheral Blood Mononuclear Cells (PBMC) of a patient with a negative antigenaemia.
Methods : Patient of stage II of CDC with a negative HIV1 antigenaemia (HIV1 Ag) as determined by Abbott Enzyme Immunosorbent Assay after treatment of the sample with Triton. PBMC of the patient were obtained from heparinised blood sample after centrifugation, then spread out on glass-slides with a Shandon cytocentrifuge and in situ hybridized with a [^{35}S] labeled single stranded RNA probe specific for gag-pol (nucleotides 225 to 3140) of LAV$_{BRU}$ HIV1 allowing the detection of viral and/or messenger corresponding RNA.
Results : Positive cells could be observed ; although they were rare, they are consistent with an active expression of HIV1 gag-pol provirus even in a patient with a negative HIV1 Ag.
Conclusion : Transcription of HIV1 provirus in PBMC of a patient with a negative HIV1 Ag can be demonstrated by in situ hybridization.

1027

AN ENZYME-LINKED IMMUNOABSORBANT ASSAY FOR HUMAN IMMUNODEFICIENCY VIRUS 1 ENVELOPE GLYCOPROTEIN-120

Gilbert, Mark*, Kirihara, J*, Mills, J*
University of California, San Francisco, California, USA

Objectives: A test that can measure gp120 concentration would be useful in laboratory and clinical studies with HIV.
Methods: Recombinant, soluble CD4 (rsCD4) immobilized in microtiter trays was used to capture gp120, which was then detected with a three-layer detector-amplification system consisting of polyclonal sheep anti-gp120, biotinylated rabbit anti-sheep IgG, and avidin-alkaline phosphatase. Samples were incubated with p-nitrophenyl-phosphate and absorbance read at three and thirty-three minutes.
Results: The assay showed a linear relationship between optical density and reference gp120 (recombinant, full-length, glycosylated gp120) concentration from 60 to 6000 pg/ml; the precision of the assay varied with the sample size, and ranging from +/- 50% with concentrations below 200 pg. to +/- 10% at concentrations above 200 pg/ml. In a group of replicate coded samples containing 60 pg/ml (approximately 10^7 molecules of gp120), the assay correctly identified the samples as containing gp120 90% of the time, with no false positives recorded in blank samples. Recombinant gp120 prepared in another cell culture system showed a binding coefficient which was 13-fold less than the reference gp120. With the assay system we were able to detect gp120 in HIV-1 suspensions prepared from cultured lymphoblastoid cells, and in the sera of HIV-1-infected patients.
Conclusions: This gp120 ELISA should be useful for studying the biology of gp-120 in HIV-1 infection.

1028 DETECTION OF HIV BY A NON-RADIOACTIVE SENSITIVE REVERSE TRANSCRIPTASE ASSAY

Lee, Moon*, Kusakabe, H.*, Reisinger D.**, Takasaki, T.*, Sano, K.*, Imagawa, D.*
* Harbor-UCLA Medical Center, ** Beckman Instruments, Inc., California, USA

Objective: To develop a reverse transcriptase (RT) assay that does not require use of a radioisotope, we tested a dTTP analog, digoxigenin-dUTP (Boehringer Mannheim Biochemicals), for its ability to be made into DNA.
Methods: The in vitro RT assay employed a poly rA·oligo dT synthetic template primer at 37°C for 18 hours. The DNA product was collected by TCA precipitation and dot blotting onto nitrocelluiose. Detection was by an anti-digoxigenin alkaline phosphatase conjugate and standard phosphatase assay.
Results: Digoxigenin d-UTP was used by HIV RT to make a DNA product. The specificity was verified by the RT reaction occurring only on a poly rA·oligo dT template. Under similar assay conditions, the Moloney murine leukemia virus RT was also active only on the poly rA·oligo dT template, while E.coli DNA polymerase I was active only on a poly dA·oligo dT template. This RT assay was able to detect as few as 250 HIV particles. In comparison, the assay employing ^{3}H-dTTP detected 125 HIV particles, while the HIV p24 antigen capture-ELISA assay detected 75 HIV particles.
Conclusion: HIV can be detected in a non-radioactive RT assay that is slightly less sensitive than the presently used radioisotope assay. However, it offers an alternative to laboratories who may not wish to work with radioactive compounds and may also be used as a confirming test for a positive result by the HIV antigen capture assay.

1029 A RAPID SENSITIVE NON-ISOTOPIC HYBRID-CAPTURE ASSAY FOR HIV NUCLEIC ACID SEQUENCES

Maltzman, W.*; Lee, L.S.*; Moore, J.L.**; Schochetman, G.**; Ou, C.-Y.** *Enzo Biochem, New York, New York. and **Centers for Disease Control, Atlanta, Georgia, USA

Objective: To develop a sensitive non-isotopic capture system to detect HIV nucleic acids.
Methods: To capture target nucleic acids, an oligonucleotide sequence derived from a conserved *gag* or *env* region of HIV-1 genome was immobilized in a microtiter plate. HIV DNA was captured by the immobilized oligonucleotide via hybridization. Captured DNA was incubated with a second specific signal oligonucleotide; the immobilized complex was detected using an enzyme-dependent amplification system that produced a colorimetric readout.
Results: To test the utility of the hybrid capture assay, we selected peripheral blood mononuclear cells from 85 seropositive and 95 seronegative persons. HIV DNA was amplified by the polymerase chain reaction and was tested using the non-isotopic capture system and the ^{32}P labeled DNA oligomers. The two detection systems gave concordant results. A reconstruction experiment using known amounts of HIV DNA showed the non-isotopic assay system was quantitative.
Conclusion: We have developed a rapid, sensitive and non-isotopic capture system to detect HIV-1 nucleic acids. This test can be carried out in a microtiter plate format to facilitate the processing of a large number of specimens in a uniform manner.

1030 SIMULTANEOUS DETECTION BY PCR OF HIV-1 AND HBV DNA IN SERUM

Ruta, Martin*; Hewlett, I.K.*; Neiger, N.*; Schumacher, R.T.**; Epstein, J.*; *DBBP, FDA, Bethesda, MD, **BBI, Mansfield, MA.

Objective: To simultaneously detect HIV-1 and HBV DNA in clinical specimens by co-amplification using PCR.
Methods: Plasmids carrying HIV-1 and HBV sequences served as templates for optimization of the co-amplification reaction. HBV primers to the core region and conditions for amplification were as described by S.Kaneko et. al., (J.C.M. 1989, 27: 1930-1933). A single series of HBV amplifications using primers 1763 and 2032R was compared to the secondary amplification using nested primers 1778E and 2017RB. Following amplification, the products were detected by liquid hybridization using an internally derived 32-P-labelled oligonucleotide (1820). For HIV detection, primers to the gag region SK38/39 and an internally derived primer SK19 were used. Products were analyzed by PAGE followed by autoradiography. DNA extracted from the serum of 2 patients with co-infections and 3 uninfected individuals was analyzed to establish utility of the assay on clinical samples.
Results: Co-amplification of these viral sequences resulted in a limit of detection of 10 copies of the HIV-1 and < 500 copies of the HBV genome. By this method, 2/2 patients with co-infections tested positive for both viruses (DNA) by PCR. In the same assay, none of three infected individuals had evidence of viral sequences in their serum.
Conclusions: We have developed a simple and specific PCR-based assay for simultaneous detection of HIV-1 and HBV DNA in the serum of infected individuals. This assay may be of value in the analysis of clinical samples and in determining the role of co-factors in disease progression.

1031 BIOCHEMICAL CHARACTERIZATION OF PURIFIED RECOMBINANT HIV-1 REV PROTEIN

Walter C. Herlihy*; Daly, T.*; Donner, A.*; Maione, T.*; Frankel, A.**; Cullen, B.****; Auer, M.***; Rusche, J.*; Doten, R.*
*Repligen Corporation, Cambridge, MA, USA; **Whitehead Institute, Cambridge, MA, USA; ***Sandoz Research Institute, Vienna, Austria; ****Duke University Medical School, Durham, NC, USA.

Objective: Develop methods for the production of large amounts of highly purified HIV-1 REV protein. Characterize the physical properties of wild type and mutant proteins to aid in understanding the mechanism by which REV alters gene expression and aid in designing antiviral compounds.
Methods: The REV gene was cloned as an operon fusion with the B-glucuronidase gene of *E. coli* and purified to homogeneity. The wild type and mutant proteins were characterized regarding solubility, melting temperature, RNA binding kinetics and proteolytic degradation patterns using a variety of techniques.
Results: REV protein and two mutant proteins were purified and characterized. The wild type protein is maximally soluble below pH 5 and above pH 9. Solubility is enhanced at pH 7.0 by increasing ionic strength or the addition of RNA. Circular dichroism measurements were used to estimate the α helix content and the TM of this ordered structure at various pH. The REV protein binds RRE containing RNA with a T 1/2 of 20 minutes. The affinity and stoichiometry of wild type and mutant protein will be presented. Comparative proteolytic profiles of the REV proteins will also be presented.
Conclusions: Biologically active REV protein can be purified to homogeneity in gram amounts from *E. coli*. Physical analysis of REV and comparison with mutant REV proteins will illuminate the location and shape of REV active sites. This should allow for the rapid design and analysis of antiviral compounds.

1032 ORGANIZATION AND EXPRESSION OF HIV-1

George N. Pavlakis, S. Schwartz, D. M. Benko, B. K. Felber, National Cancer Institute-FCRF, BRI-Basic Research Program, Frederick, MD 21701, USA

Objective: To understand the viral mRNAs and proteins produced by the virus and the regulatory mechanism of HIV-1.
Methods: Gene transfer, PCR amplification of RNA, protein and RNA measurements.
Results: The genome of HIV-1 contains 9 known genes. The expression of these partially overlapping reading frames is accomplished by ribosomal frameshifting, alternative splicing and the production of bicistronic mRNAs. The polymerase chain reaction technique was used to clone the small multiply-spliced and the intermediate-size mRNAs from HIV-1 infected cells and to study their expression and regulation. The class of small mRNAs includes 12 mRNAs expressing Tat, Rev, and Nef. We have identified six Rev-expressing mRNAs that are generated by the use of two splice acceptors located immediately upstream of the Rev AUG. We also have identified a novel exon present in the Env region of some HIV-1 strains. The presence of this exon generates a fourth class of small multiply-spliced mRNAs that produce additional HIV regulatory factors. One such protein produced in infected cells was characterized in detail. It contains the first exon of Tat, 38 amino acids of Env, and the second exon of Rev, and was named Tev. Tev is an early, nucleolar protein and has both Tat and Rev functional activities. Cloning of the intermediate size mRNAs revealed a heterogeneous class of at least 12 mRNAs containing the Vpu and Env open reading frames. The coding potential of the mRNAs was determined by in vitro translation and by gene transfer experiments. Vpu and Env are produced from 9 different mRNAs of the intermediate class. In all of these mRNAs Env is the second or third reading frame; thus env is produced by polycistronic mRNAs. We have shown that the inability of some mRNAs of this class to produce Vpu and Env is caused by the presence of the tat AUG, which inhibits the use of the downstream AUGs.
Conclusion: These results demonstrate that HIV-1 has acquired the capability to produce more differentially spliced mRNAs than previously known. The mRNAs producing the various HIV-1 proteins have been identified and their temporal expression and regulation has been determined.

1033 MOLECULAR ANALYSIS OF HIV-1 Tat and HTLV-I Tax: MECHANISMS OF TRANS-ACTIVATION

Jeang, Kuan-Teh; Berkhout, Benjamin; Gatignol, Anne; Semmes, Oliver.
Laboratory of Molecular Microbiology, National Institutes of Health, Bethesda, Maryland, 20892, U.S.A.

Objective: To compare and contrast the mechanism(s) of action of HIV-1 Tat and HTLV-I Tax.
Methods: Transient transfection assays based upon the detection of reporter gene expression.
Results: We have found that trans-activation of the HIV-1 LTR depends upon a TAR RNA structure and also upon upstream DNA sequences in U3. Biologically active Tat expressed from E. Coli has sequence non-specific binding property for both DNA and RNA. Under certain conditions we have observed the ability of a novel form of HIV-1 Tat to trans-activate a heterologous promoter.
The trans-activation by HTLV-I Tax appears to work only through a LTR DNA target. Tax has no sequence specific DNA binding properties. We have results implicating a role for cellular AP-1 protein in the activation of the HTLV-I LTR.
Conclusion: Our results suggest that cellular factors play a role in both trans-activation by Tat and Tax. Molecular models for the interactions between Tat and Tax with target LTR sequences will be discussed.

1034 HUMAN CHROMOSOME 12 SUPPORTS ELEVATED HIV-1 AND HIV-2 TRANS-ACTIVATION BUT NOT HTLV-I AND -II TRANS-ACTIVATION IN HUMAN-HAMSTER HYBRID CELLS.

Hart, Clyde; Galphin, J.; Westhafer, M.; Ou, C.-Y.; Schochetman, G.
HIV/AIDS Division, Centers for Disease Control, Atlanta, GA 30333, USA.

Objectives: To determine if human chromosome 12 in human-hamster hybrid cells supports elevated HIV-2 *tat*- and HTLV-I or -II *tax*-directed trans-activation.
Methods: Human lymphocyte-Chinese hamster ovary cell hybrids with a defined human chromosome content were cotransfected with a plasmid DNA containing a CAT gene driven by an LTR from HIV-1, HIV-2, HTLV-I, or HTLV-II and a plasmid containing the corresponding *tat* or *tax* gene under control of the SV40 early promoter. Levels of trans-activation of the LTRs were measured by an *in vitro* CAT assay.
Results: We previously showed the presence of human chromosome 12 in human-hamster hybrid cells was required for elevated HIV-1 *tat*-directed trans-activation of the HIV-1 LTR. In the present study we also found that elevated HIV-2 *tat*-directed trans-activation of the HIV 2 LTR occurred only in hybrid cells containing human chromosome 12. Elevated HTLV-I and -II *tax*-directed trans-activation of their respective LTRs, however, did not correspond to the presence of human chromosome 12. In addition, HTLV-I *tax* trans-activation of the HIV-1 LTR was not supported in hybrid cells containing human chromosome 12.
Conclusions: Our results indicate that elevated levels of *tat*-directed trans-activation of HIV-1/-2 LTRs are regulated by a gene(s) encoded on human chromosome 12; regulation of HTLV-I/-II *tax*-directed trans-activation requires the presence of a different or additional human chromosome(s).

1035 MECHANISM OF HIV-1 ASSEMBLY - ROLE OF GAG MYRISTOYLATION AND ENV SYNTHESIS.

Ratner, Lee*,***; Vander Heyden, N.*; Bryant, M.**
Departments of *Medicine, **Pediatrics, and ***Molecular Microbiology, Washington University, St. Louis, Missouri, U.S.A.

Objective: To define the roles of GAG myristoylation and ENV synthesis in HIV-1 particle assembly. Methods: Viral stocks were derived from molecular clones with an alteration of the N-terminal myristoyl-acceptor amino acid of GAG, or with in-frame or frame-shift deletions in the first conserved domain of the SU envelope protein. Results: Substitution of the myristoyl-acceptor glycine with alanine, in a functional clone of HIV-1, eliminates virus replication. Complementation of this defect in trans, restores infectious particle production. The non-myristoylated (myr-) gag precursor accumulates in infected cells and is not processed into the mature capsid components of the intact virion. However, myr-Pr55gag can be processed by purified HIV protease in vitro, demonstrating that the myristoyl moiety is not required for cleavage by the protease. Myristoylation of Pr55gag is not necessary for localization but is required for stable membrane association and assembly of HIV-1. In-frame or frame-shift deletions of env do not affect the ability of transfected proviral clones to give rise to virus particles, but these particles are non-infectious in CEM, MOLT3, and H9 T lymphoid cell lines. These particles have a density of 1.14 on sucrose sedimentation gradients, are trypsin-resistant and triton-sensitive. Conclusions: Myristoylation of GAG is important for HIV-1 assembly by stabilizing its interaction with the membrane. ENV is not required for virus particle formation. Further understanding of the mechanism of virus particle assembly will be important in development of specific antiviral agents targetting this step in replication.

1036 IDENTIFICATION OF INHIBITORY SEQUENCES WITHIN THE HIV-1 GENOME

Maldarelli, Frank, Martin, M. A., Strebel, K.
Laboratory of Molecular Microbiology, NIAID, NIH, Bethesda, MD USA.

Objective: To demonstrate the existence of cis-acting, negative regulatory elements on the HIV-1 genome as a prerequisite for rev gene function.
Methods: A novel, feedback-stimulated, HIV-1 reporter plasmid, pTS-7, was constructed using HIV-1 LTR-driven tat as a test gene. Portions of the HIV-1 genome were introduced into this test system and analyzed in transient assays for the presence of sequences which inhibit tat expression. S1 nuclease digestion assays were employed to quantitate reporter-specific RNA present in transfected cells. Putative inhibitory sequences were introduced into a second reporter plasmid, pCMV-CAT, to verify the results in an heterologous system.
Results: At least two specific negative regulatory sequences were identified within the HIV-1 gag/pol gene; introduction of either element into pTS-7 resulted in an 8-10-fold reduction in expression as compared to that obtained from pTS-7. The addition of a splice donor did not abrogate the negative effect.
Conclusion: The HIV-1 genome contains at least two distinct, inhibitory elements within the gag/pol region which suppress gene expression.

1037 CD4 mRNA ACCUMULATION IS UNALTERED IN HIV-1 INFECTED MONOCYTIC CELL LINES DEPLETED OF CELL SURFACE CD4

Geleziunas, Romas, Bour, S., Boulerice, F., Wainberg, M.A., Jewish General Hospital and McGill University AIDS Centre, Montreal, Quebec, Canada.

HIV-1 infection of cells expressing the CD4 glycoprotein generally leads to the reduction or disappearance of cell surface CD4. We have compared mechanisms of CD4 downregulation in HIV-1 infected monocytes with those in T-cells. We have analyzed both CD4 mRNA and protein levels in HIV-1 chronically infected monocytic cell lines: U-937, THP-1 and PLB 985. These chronically infected cell lines displayed decreased levels of cell surface CD4 as judged by flow cytometry using both OKT4 and Leu3a mAbs. Steady state CD4 mRNA levels were unaltered in these infected monocytic cells, in contrast to the decline of CD4 mRNA seen in infected lymphocytes. However, OKT4-immunoprecipitable CD4 protein levels were diminished in the infected U-937 cell line. In addition OKT4 co-precipitated viral gp120, suggesting that CD4-gp120 complexes are present in infected monocytes as well as lymphocytes. Reduced CD4 protein and CD4-gp120 complex formation are thus responsible for the absence of membrane-associated CD4 in HIV-1 infected U-937 cells. Hence, reduced CD4 gene expression is not a factor contributing to cell surface depletion of CD4 in HIV-1 infected monocytic cells. Our results suggest that a lymphoid cellular intermediate may be required to achieve reduced CD4 mRNA levels following HIV-1 infection.

1038 MECHANISM OF HIV-1 INDUCTION IN T-LYMPHOCYTES AND MONOCYTES BY SODIUM BUTYRATE: THE ROLE OF THE TATA BOX

Golub, Efim I.; Li, G.; Volsky, D.J. St. Luke's/Roosevelt Hospital Center and College of Physicians & Surgeons, Columbia Univ., New York, NY, USA.

Objective: To study the effect of sodium butyrate (NaB), a cell-differentiating agent, on HIV-1 replication in acutely and chronically infected cells, and on transcriptional activity of HIV-1 LTR.
Methods: Effect of NaB on HIV-1 expression was tested during acute infection, in chronically infected monocytes (U1.1) and T-cells (ACH-2), or after transfection with HIV-1 DNA. HIV-1 replication was monitored by an assay for viral core antigen (p24 protein) and indirect immunofluorescence staining for HIV-1 antigens (IF). Effect of NaB on HIV-1 transcriptional control elements was tested in transient *cat* expression assays using plasmids which carry the *cat* gene under control of the HIV-1 LTR. Plasmids with mutations in different regulatory elements were used to identify LTR sequences involved in HIV-1 induction by NaB.
Results: Addition of NaB (.1-5 mM) to chronically infected U1.1 or ACH-2 cells resulted in a rapid (3-24 h), dose-dependent induction of HIV-1 replication, and an increase in the proportion of HIV-1-expressing cells (from <0.5% to >90%). NaB also facilitated primary infection of T-cells with HIV-1 and increased HIV-1 replication in cells transfected with HIV-1 DNA. Mutations which removed the negative regulatory region of HIV-1 LTR or which inactivated the HIV-1 enhancer had no effect on induction by NaB. In contrast, mutations which damage the TATA box completely abolished the inductive effects of NaB.
Conclusion: NaB is an extremely effective inducer of HIV-1 replication in T-cells and monocytes. The TATA box of HIV-1 is directly involved in this induction.

1039 IS THE OBSERVED ABNORMALITY IN THE INOSITOL POLYPHOSPHATE PATHWAY IN HIV INFECTED CELLS A GENERAL PHENOMENON IN VIRAL INFECTION?

Nye, Keith. E. and Pinching, Anthony. J. Department of Immunology, St. Mary's Hospital Medical School, London, UK.

Objective
To isolate that part(s) of the phosphatidyl inositol hydrolysis pathway responsible for the abberant metabolism of inositol polyphosphates observed in HIV infected cells (Nye & Pinching AIDS 4 (1) : 41 - 45 1990)

Method
Cells, either lymphocytes separated from HIV infected subjects or taken from H9 or Hep2 lines infected with HIV or Respiratory Syncytial Virus (RSV) respectively, were lysed by freeze-fracture and incubated with 2uCi of D-myo-[2-^{3}H] inositol 1,3,4,5-tetrakisphosphate ($InsP_4$) [1Ci/mmol] for 15min at 37°C in the presence of 2mM ATP, 4mM Mg^{2+} and 2mM 2,3-bisphosphodiglycerate at pH 8.0. Activity was terminated with perchloric acid, neutralised and the inositol polyphosphate profile determined on HPLC using a Partisil-SAX ion exchange column and a water to formate gradient.

Results
In normal control lymphocytes and uninfected H9 and Hep2 cells, $InsP_4$ was rapidly converted to inositol while in the virally infected cells, either HIV or RSV, $InsP_4$ remained unchanged.

Conclusion
Infection with either of these RNA viruses causes the same observable abnormality, suggesting that this is an effect common to viral integration. The observations in addition imply that the $Ins(1,4,5)P_3/Ins(1,3,4,5)P_4$-5-phosphatase is either down regulated or defective. These preliminary results are being extended in our laboratory to include DNA viruses and to examine more closely the 5-phosphatase defect.

1040 MUTAGENESIS OF PROTEASE CLEAVAGE SITES OF THE HIV-1 *GAG* POLYPROTEIN

Tritch, Radonna*, Cheng, Y-S Edmond#, Viitanen, Paul #, Yin, Fay# and Erickson-Viitanen, Susan # #Central Research and Development and *Medical Products Departments, E.I. Du Pont de Nemours and Co., Inc., Wilmington, Delaware, USA

The virally encoded protease of HIV is responsible for specific cleavage events leading to the liberation of the enzymes reverse transcriptase, and integrase, and the core proteins from the *gag-pol* and *gag* polyprotein precursors, respectively. Utilizing *gag* polyprotein synthesized in vitro, we have shown that this substrate is sequentially cleaved by purified HIV protease to yield first p15, followed by p6 and p9, followed by p17 and finally mature p24. We have placed unique restriction sites flanking the p17-p24 and p24-p15 domains in order to facilitate replacement of cleavage site sequences utilizing oligonucleotide cassettes. Replacement of the rapidly cleaved Met-Met at the p24-p15 junction with Tyr-Pro, or replacement of the Tyr-Pro at the p17-p24 junction with Met-Met results in sites that cannot be efficiently cleaved. Addition of basic residues near the p17-p24 junction or replacement of this junction with symmetrical amino acid sequences result in intermediate cleavage rates. Our results suggest that although the majority of specificity determinants reside within the four amino acids immediately flanking the cleavage pair, more distant residues also effect the cleavage rate.

1041 HYDROLYSIS OF INSOLUBLE POLYPROTEIN SUBSTRATE WITH TWO IDENTICAL CLEAVAGE SITES BY RECOMBINANT HIV-1 PROTEASE.

N.I.Tarasova *, S.V.Gulnik*, S.V.Shulenin**, A.F.Bobkov**, M.M.Garaev.**
*Moscow State University, Department of Chemistry;
**Institute of Virology, Academy of Medical Sciences, USSR.

Objective: The main goal of the present work was the investigation of the expression of HIV-encoded protease in E.coli and of enzymatic properties of the recombinant enzyme.
Methods: A hybrid plasmid pPR6 coding the HIV sequence from Asp-5 to Ile-868 of the pol open reading frame has been expressed in E.coli. As a substrate a fusion-polypeptide of β-galactosidase with a doubled sequence of a part of p55 gag protein, containing a site of HIV-protease action situated on a border of p17 and p24 proteins has been used.
Results: During the expression of pol gene product an autoprocessing was observed leading to formation of active protease and reverse transcriptase. The protease was purified to homogeneity. pH 6-7 was determined to be optimal for the enzyme action. Maximal stability was observed between pH 4 and 5. Substrate hydrolysis was completely inhibited by Cu^{++} and Zn^{++} at concentrations of 10mM and 2mM respectively.
Conclusions: The E.coli-produced HIV protease will be used in search for inhibitors and to facilitate structural and biochemical studies. The model suggested can be used as a convenient test system for detection of HIV-protease activity.

1042 RECOMBINANT BACTERIA EXPRESSING AT THE SURFACE gp120 EPITOPES OF HIV 1 AS LIVE IMMUNOGENS

Maffei, Laura; Tattanelli, M.; Paini, C.; Hotnung, M*.; Siccardi, A.G.; Andronico, F.
Dipartimento di Biologia e Genetica, Università di Milano, Italy.
*Instit Pasteur, Paris, France.

Objective: We have used the *LamB* "exposition" vector system to express, on the surface of recombinant bacteria, two HIV 1 gp120 epitopes chosen among the most probable predicted antigenic sites. We verified that the recombinant epitopes were accessible to antibodies on the surface of live bacteria and we tested them as antigens and as immunogens to obtain antisera reactive with the native viral gp120.
Methods: Oligonucleotides 6865-6892 (OAB 155) and 7273-7311 (OAB 158) of the HIV 1 sequence were cloned into the Bam H1 site of the *LamB* gene carried by pAJC264 . Total bacterial lysates of recombinant clones were tested by SDS-PAGE and Western-Blot with a serum against the *LamB* protein (a maltoporine located in the outer membrane of *E.coli* K12) and one of the recombinant proteins was directly extracted from the bacterial membrane and tested by the same methods. Balb/c mice were immunized with live recombinant bacteria. Preimmune and immune sera were assayed by ELISA and Western-Blot on the corresponding viral proteins.
Results: We obtained stable recombinant *LamB* proteins containing two HIV 1 epitopes accessible to antibodies on the surface of live bacteria. To test the ability of the two HIV 1 epitopes to be efficiently presented to the immune system, we immunized Balb/c mice with live bacteria. The immune sera proved to be reactive with HIV 1 lysates and with recombinant gp120 in ELISA assays. The same sera efficently decorated recombinant gp160 and gp120 in Western- Blot assays.
Conclusion: *LamB* recombinant proteins bearing HIV 1 epitopes are indeed exported to the surface of recombinant bacteria and are able to elicit an immune response against native gp120. The use of the *LamB* "exposition" vector system might thus lead to the development of new strategies for live vaccines also against AIDS.

1043 ISOLATION AND SEQUENCING OF HIV FROM BRAIN AND BLOOD LYMPHOCYTES OF NEUROLOGICALLY SYMPTOMATIC AIDS PATIENTS: POLYMERASE CHAIN REACTION (PCR) STUDY OF NEUROTROPISM AND NEUROPATHOGENICITY

Kunstman, Kevin; Wolinsky, S.; Furtado, M.; Levy, R.
Northwestern University Medical School, Chicago, Illinois, USA.

Objective: To address the issues of HIV neurotropism and neuropathogenicity, polymerase chain reaction (PCR) techniques were used to isolate and partially characterize HIV from the brains and blood lymphocytes of AIDS patients with neurologic dysfunction.
Methods: Total nucleic acid was first isolated from brain and blood specimens obtained at the time of stereotaxic brain biopsy. Specific oligonucleotide primers were used to enzymatically amplify regions of the envelope gene associated with HIV neurotropism. Amplified products were resolved on agarose gels and subjected to Southern hybridization analysis using internal oligonucleotide probes specific for envelope gene sequences. With restriction sites built into the primers, the amplified products were cloned into plasmid vectors and positive clones selected by colony hybridization. The cloned DNA was sequenced by dideoxy sequencing protocols.
Results: As of September, 1989, blood and brain tissue obtained at the time of stereotaxic brain biopsy from 26 such patients and 3 HIV negative controls have been obtained. Histopathologic diagnoses for the AIDS patients include progressive multifocal leukoencephalopathy (9), lymphoma (6), toxoplasmosis (5), HIV encephalitis (3), cryptococcosis (2) and malignant melanoma (1). Results of the PCR analysis indicate that there are, in fact, nucleic acid sequence differences between neural and non-neural HIV isolates.
Conclusion: These sequence differences may be related to the neurotropism and/or neuropathogenicity of this retroviral infection.

1044

STRAIN-SPECIFIC DNA PROBES AND SEQUENCE DETERMINATION TO STUDY THE TRANSMISSION AND EVOLUTION OF HIV-1

Luo, Chi-Cheng; Robbins, K.; Moore, J.L.; Villamarzo, Y.; Horsburgh Jr, C.R.; Schochetman, G.; Ou, C.-Y. Centers for Disease Control, Atlanta, Georgia, USA.

Objective: To study the transmission and evolution of HIV-1 using strain-specific probes and polymerase chain reaction (PCR).
Methods: An HIV envelope segment was amplified directly from lymphocytes of infected persons by PCR. Amplified DNAs containing the V4, C3 and V5 regions were cloned and their sequences determined. HIV sequences from sexual partners and from their sequential specimens were compared. Strain-specific DNA probes were developed to study the presence of HIV variants in infected populations.
Results: In addition to base substitutions, short deletions and duplications were frequently found in the V4 and V5 regions. The size of the duplications and deletions was in multiples of 3 indicating that the proviral DNAs were not defective. Strain-specific oligomer probes were shown to effectively differentiate HIV-1 variants in different persons. Lymphocytes from a homosexual man were shown to have several HIV-1 variants which appeared to evolve from a common variant. In contrast, his sexual partner had only one homogeneous HIV-1 strain.
Conclusion: Using PCR to amplify HIV DNA from the lymphocytes of HIV-1 infected persons allows a detailed analysis of HIV transmission and evolution. Most, if not all, of the proviral sequences in infected persons did not appear to be defective.

1045

EVIDENCE FOR THE PROTEIN SYNTHESIS DIRECTED BY THE HIV 1 ANTISENSE PROVIRAL DNA STRAND

Golteo., Victor*; Blinov, V.**; Sulnano.a, L.*; Zaitse., I.*
*Institute for Viral Preparations, Moscow, USSR.
**Institute of Molecular Biolog., Moltseo.o, USSR.

Objective: Determination whether the open reading frames (ORFs) of the [illegible] (antisense) HIV 1 proviral DNA strand can express proteins in vivo.
Methods: Molecular cloning for recombinant polypeptide producing. Human sera screening by ELISA, computer analysis of nucleotide and amino acid sequences.
Results: There are several conserved short ORFs within antisense proviral DNA strand of HIV 1. The DNA fragments of 2 longest ORFs sequences were cloned in the E.coli expressive vector. The recombinant proteins after isolation and purification were used in human sera testing for protein specific antibody presence by ELISA. We could find sera positively reacted with recombinant proteins only among samples from seropositive HIV 1-infected persons but could not in case of seronegative persons sera. The proportion of sera from HIV 1-infected persons giving strong signals in ELISA varied within 2-10% range and was approximately similar for both AIDS patients and asymptomatic persons sera groups. Computer analysis showed the presence of several splicing sites between the ORFs that permitted the combined amino acid chain formation from both ORF nucleotide sequences. All putative proteins are very hydrophobic and resemble membrane associated structures.
Conclusion: The ORF sequences located within HIV 1 antisense proviral DNA strand appear to be expressed in vivo.

1046

SYNTHESIS OF THE HTLV-1 P24 AND GP46 PROTEINS IN EUKARYOTIC CELLS USING A BACULOVIRUS EXPRESSION VECTOR

McCreedy, Bruce J. and Earle, S. R.
Organon Teknika Corp., Durham, North Carolina

Objective: Recombinant antigens produced in moderate yield and near native form are a potential alternative to whole viral lysate in diagnostic immunoassays. We have evaluated expression of the HTLV-1 core protein (p24) and external glycoprotein (gp46) in eukaryotic cells using a baculovirus expression vector.
Methods: cDNA's containing the coding sequences for p24 and gp46 were synthesized from viral RNA templates. Plasmid clones were constructed containing the desired inserts. Following subcloning of the cDNA inserts into an appropriate plasmid transfer vector, the p24 and gp46 coding sequences were transferred to the genome of the baculovirus, AcMNPV, by cotransfection of insect cells (Spodoptera frugiperda) with wild type AcMNPV DNA. Recombinant baculoviruses containing the desired inserts were isolated and used to infect insect cells. Expression of recombinant p24 and gp46 proteins was confirmed by gel electrophoresis of infected cell lysates and immunoblotting using HTLV-1 reactive sera and monoclonal antibodies to HTLV-1 proteins.
Results: Under the control of the viral polyhedrin promoter, high levels of recombinant p24 protein accumulated in infected cells by 48 hours post-infection. Analysis of the p24 produced in insect cells showed it to have a molecular weight and immunoblot reactivity identical to that of the native viral antigen. Similar reactivity was observed for the recombinant envelope glycoprotein. The recombinant gp46 was glycosylated and secreted into the culture medium confirming the ability of the insect cells to recognize and cleave signal sequences as well as carry out N-linked glycosylation.
Conclusions: Recombinant HTLV-1 p24 and gp46 proteins produced in insect cells closely resemble the native viral proteins in immunoreactivity. These recombinant antigens should prove useful in diagnostic assays.

1047

HIGH RESOLUTION STRUCTURE OF A HIV-1 QUASISPECIES : IDENTIFICATION OF NOVEL CODING SEQUENCES

J.P. Vartanian, A. Meyerhans, M. Henry and S. Wain-Hobson
Institut Pasteur Paris, France

Objectives : To characterize at the structural and functional levels a HIV-1 quasispecies *in vivo* a high resolution (1%) in order to appreciate the genetic organization of HIV.

Methods : The first exon of *tat* was amplified by PCR from HIV-1 proviral DNA derived from fresh PBMC of a CDC stage IV patient. The products were cloned into M13mp18 and 106 recombinants were sequenced. All distinct *tat* sequences were subcloned into the pSV2gpt expression vector and their activities determined after transfection into SW480 cells.

Results : 31 different variants on tat protein level were found. Amongst those 5 major forms with frequencies of 44%, 11%, 8%, 8% and 5% were identified, they showed comparable activity in the CAT assay. All other 26 sequences were unique. 15 of these which represent 15 % of the total proviral population were defective due to in phase stop codon, deletions and single base changes. Interestingly mutation in the start and stop codons of *tat*, either abolished *tat* gene expression or created a novel *tat/vpu* fusion protein.

Conclusions : This study describes the enormous heterogeneity within HIV quasispecies. At high resolution novel genomes i.e. *tat* or *tat/vpu* emerge. While most of these represent defective genomes it may help explaining why all primate and simian lentiviruses do not have the same genetic organization. It illustrates the ease by which HIV may be able to adapt in response to selective pressures and will be able to shed drug resistant genomes.

1048 INTRAMUSCULAR INJECTION OF AN EXPRESSION VECTOR CONTAINING THE GENE FOR HIV gp 120 INDUCES ANTIBODIES TO THE gp 120 PROTEIN

Rhodes, Gary*; Felgner, P.*; Wolff, J.**; Haigwood, N.***
*Vical Inc., San Diego, California, USA, **University of Wisconsin, Madison, Wisconsin, USA, ***Chiron Inc., Emeryville, California, USA.

It has recently been demonstrated that the injection of DNA containing reporter genes into mouse muscle results in the expression of substantial amounts of the protein encoded by the gene [J. Wolf et al., Science, in press]. We have investigated the usefulness of this technique for immunization. We employed a construct consisting of a CMV early promotor which drives the synthesis of the gp-120 protein from HIV. The protein retains the signal sequences and is efficiently secreted from the cell. Two immunization procedures were tested. (1) Mice were injected intermuscularly with 20 ug of this plasmid. (2) Mouse fibroblasts were transfected using cationic liposomes and the transfected cells were injected. Serum samples were obtained weekly and assayed for the presence of IgG + IgM antibodies to gp-120. In both cases we find that a single injection produces a transient immune response which peaks between one and two weeks after injection.

One of the major problems of recombinant subunit vaccines is that the antigen is seldom properly glycosylated in the heterologous expression systems used to produce the protein. This delivery technique may provide a solution to this problem since the antigen is produce in the host species of the virus.

1049 CHARACTERISTICS OF gp160 EIA ANTIBODY RESPONSE OF ADULTS TO A FOURTH DOSE OF rgp160 VACCINE

Ellerbeck, Edward*, Viscidi, R*, Midthun, K*, Clements, ML*, Smith, G**, and the NIAID AIDS Vaccine Clinical Trials Network; *Johns Hopkins University, Baltimore, Maryland USA, **MicroGeneSys, Inc., West Haven, Connecticut USA.

Objective: To characterize the gp160 antibody response of healthy adults participating in a multi-centered phase I safety and immunogenicity trial of baculovirus-expressed gp160 (rgp160) of HIV-1 (VaxSyn HIV-1, MicroGeneSys, Inc.).
Methods: HIV-seronegative volunteers were vaccinated at 0, 1, 6, and 18 months with 40 or 80 ug rgp160 (N=23), hepatitis B vaccine (N=11) or placebo (N=16). Serial serum specimens from these volunteers were tested for IgG antibody by a noncompetitive solid phase enzyme immunoassay (EIA) using rgp160 as antigen.
Results: Twenty of 23 (87%) rgp160 vaccinees had a significant rise in IgG gp160 antibody titer after the third dose of vaccine; positive titers ranged from 1:200 to 1:6400. By 18 months after the initial vaccination, only 8 rgp160 vaccinees still had detectable gp160 antibody. After a fourth dose of rgp160, gp160 antibody was detected in 22 rgp160 vaccinees; their EIA gp160 antibody titers ranged from 1:200 to 1:25,600. Peak gp160 antibody responses of 80 ug vaccinees were higher than those receiving 40 ug of rgp160.
Conclusion: These findings indicated that immunization with baculovirus-expressed rgp160 primed the humoral immune systems of adults and that revaccination could augment the antibody response 12 months after the last dose.

1050 NOVEL MURAMYL TRIPEPTIDE (MTP-PE) ADJUVANT FORMULATIONS FOR ENHANCEMENT OF IMMUNITY TO RECOMBINANT HIV-1 gp120 ENVELOPE ANTIGENS

Van Nest, Gary; Barchfeld, G.; Haigwood, N.; Ott, G.; Wentworth, P.; Steimer, K.
Chiron Corporation, Emeryville, California, U.S.A.

Objectives. To develop adjuvant formulations suitable for human vaccine use that surpass alum in their ability to enhance immunity to HIV-1 subunit immunogens.
Methods. A series of adjuvant formulations consisting of MTP-PE in metabolizable oil emulsions have been compared to conventional adjuvants such as alum and Freund's. Experimental animals were immunized with recombinant HIV-1 gp120 antigens (both non-glycosylated denatured and fully glycosylated native versions) in the various formulations, their sera were tested for ELISA-reactive and virus neutralizing antibodies and their helper T cell responses were assessed by lymphoproliferative assays.
Results. Most of these novel adjuvant formulations were effective in guinea pigs, mice and rabbits. However, the properties of the emulsion dramatically influenced the efficacy of these formulations in larger animals such as goats and baboons. One new formulation was as effective as Freund's incomplete adjuvant and was also at least 10-fold more effective than alum in enhancing antibody responses, neutralizing antibody titers and lymphoproliferative responses to recombinant gp120 antigens in large animals.
Conclusions. Improved adjuvants with the potential of enhancing immune responses to recombinant HIV-1 gp120 antigens in humans have been developed. Further immunogenicity studies and extensive safety trials with these formulations are in progress.

1051 HIV-1 rgp160-SPECIFIC CELLULAR IMMUNE RESPONSES BY RECIPIENTS OF A LIVE VACCINIA-rgp160 VACCINE.

Keefer, Michael C.; Bonnez, W.; Roberts, N.J. Jr.; Lambert, J.; Dolin, R.; Reichman, R.; University of Rochester Medical Center, Rochester, NY, USA

Objectives: To characterize cellular immune responses to a live vaccinia-rgp160 vaccine in healthy, low-risk, seronegative volunteers.
Methods: As part of the NIAID AIDS Vaccine Clinical Trials Network, we enrolled 5 vaccinia-naive subjects in a phase I, randomized, escalating dose, double-blind, placebo-controlled trial of the initial dose of a vaccinia-rgp160 construct (HIVAC-1e, Oncogen; Bristol-Myers Co., Wallingford,CT). Three received 2 $\pm$ 1×10^7 pfu/ml HIVAC-1e, and 2 received smallpox vaccine (Dryvax, Wyeth Labs, Marietta, PA) at time 0 and 60 days. Lymphocyte proliferation assays (LPA) were performed using cryopreserved peripheral blood mononuclear cells (PBMC) from study days 28, 90 and 180. One subject also had LPA performed using PBMC obtained longitudinally from day 0 to 120. We also examined supernatants of rgp160-stimulated PBMC cultures for γ-interferon (γ-IFN) production at day 180. Baculovirus-expressed recombinant rgp160 and rp24 (MicroGene Sys, West Haven, CT) were used as in vitro antigens in all PBMC cultures.
Results: Four subjects developed primary vaccination responses after initial vaccination. PBMC from 2 subjects had stimulation indices (SI=rgp160/rp24) > 4 (range 4.1-54.2; mean 20.6) and ΔCPM(rgp160-rp24) > 4400(range 4415-14170; mean 9322) at days 28, 90 and 180, and γ-IFN was detected in day 180 PBMC culture supernatants of one subject (titer=47u/ml). The subject examined longitudinally by LPA had SI of 1.4 and ΔCPM=150 prior to initial vaccination and SI > 19 and ΔCPM > 5500 at day $\geq$ 28. The LPA results using PBMC from the other 3 subjects, one of whom did not develop a primary vaccination response, consistently had SI < 2.0 and ΔCPM < 700. The 2 subjects with cellular responses were the only subjects who developed positive Western blots.
Conclusion: HIVAC-1e induces HIV-1 rgp160-specific cellular immune responses in vaccinia-naive subjects following primary vaccination.

1052 NEUTRALIZATION ASSAYS FOR THE EVALUATION OF POTENTIAL ANTI-HIV REAGENTS: A STUDY IN DESIGN, DEVELOPMENT AND INTERPRETATION

Whalley, Alice S.; Nguyen, M.-L.; Morrow, W.J.W.
IDEC Pharmaceuticals Corp., La Jolla, California, USA

In the development of anti-HIV reagents, it is necessary to test *in vitro* their anti-viral effects. These assessments are generally made by the utilization of virus neutralization assays. A myriad of such assays is currently being used by researchers, with no universally accepted standard.

We are testing several systems for the screening of antibodies and synthetic peptides with therapeutic potential. Three distinct types of neutralization tests have been described: those in which infectivity is measured by viral expression such as p24 production, cell fusion (e.g. syncytial, plaque and foci forming assays), and those in which the cytopathic effects of infection on a target cell line are determined (e.g. conversion of XTT to formazan). We have tested and evaluated assay systems from each category in our laboratory.

When determining the usefulness of a particular assay system, it is necessary to study the kinetics of HIV infection within the parameters of the assay; in particular, target cell and HIV isolate, to ensure accurate evaluation of potential therapeutics. The type of reagents which are to be evaluated must also be considered. Some assays work well for the assessment of synthetic peptides or monoclonal antibodies, but do not perform satisfactorily when examining polyclonal antibodies. The relative advantages and disadvantages of each assay system will be presented and discussed critically.

1053 AN EPITOPE MAP FOR HIV-1

Detrick, Barbara; Bradac, J. ; Schultz, A. M. ; Koff, W. C. ; Mathieson, B. L.
Division of AIDS, NIAID, NIH, Bethesda, , Md. U.S.A.

A highly efficacious HIV vaccine will almost certainly require multiple HIV viral components and/or strains to stimulate selected immune responses. One approach to this problem is to identify the sequence of amino acids and/or protein conformations which elicit immune responses that protect the host. Peptide epitope mapping techniques have been used to characterize humoral and cellular immunity generated to the env, gag, pol and regulatory proteins. Epitopes recognized by B cell/Ig are important for neutralization, ADCC and antibody dependent enhancement. Several of these epitopes map to the gp120 and gp41 regions. Since these epitopes are expressed on the viral surface and infected cell and appear to play a critical role in the process of infection, they are a major target for current vaccine strategies. A formidable challenge to this strategy is the high degree of genetic variation concentrated in an immunodominant loop of the gp120 which is the target for neutralizing antibodies and is strain specific. Several epitopes for cell mediated immunity have also been defined. For example, HIV-specific T cells have been described with activity directed against the gp120/env, p24/gag,p27/nef and reverse transcriptase/pol. In an effort to coordinate and disseminate information relative to vaccine development, the Vaccine Research & Development Branch of NIAID maintains surveillance of overall progress in these experiments. To this end information has been complied and a defined map has been constructed. The information generated from epitope mapping provides us with a framework to define epitopes that will be useful in developing an effective vaccine.

1054 PHASE I STUDY OF HGP-30, AN HIV p17 SYNTHETIC PEPTIDE ANALOGUE SUB-UNIT VACCINE IN HUMANS

Stambuk, Drago*; Vallerich, M*; Youle, M*; Rios, A**; Naylor, P***; Sarin, P+; Goldstein, A***; Gazzard, B*.
*St. Stephen's/Westminster Hospital, London, England, **Southwest Memorial Hospital, Houston, USA, *** Washington University School of Medicine, Washington, USA, + National Institute of Health, Bethesda, USA.

OBJECTIVE: To evaluate toxicity and safety of administration to humans of HGP-30 vaccine and their antibody response.
METHODS: Nineteen Western Blot HIV negative male volunteers were injected intramuscularly with escalating doses (10, 25, 50ug/kg body weight) of a synthetic peptide HGP-30 coupled to Keyhole Limpet Hemocyanin and administered with alum. A total of 3 injections were given at weeks 0, 6, 14 to subjects divided in 3 dose-related groups and monitored two-weekly for evidence of toxicity for a median period of 18 weeks (2-24).
RESULTS: Two of 19 volunteers withdrew. In the 17, still in study, there was no evidence of toxicity and the only complaint was a varying degree of pain at the injection site lasting for 1 - 3 days. Six of 15 (40%) humans who received a full vaccination course developed reactivity to p17 and/or p24 on Western Blot. The Western Blot of all other HIV antigens remained negative in all patients except one who had transient weak positivity to p66 and gp120/160.
CONCLUSION: HGP-30 vaccine applied in human males seems to be safe, non-toxic and is immunogenic.

1055 CYTOTOXIC RESPONSES IN MICE IMMUNIZED WITH SIV_{MAC251} VACCINIA VIRUS (VV) RECOMBINANTS.

Rappocciolo, Giovanna*, Maltos, D.L.*, Johnson, P.R.**, Chanh, T.C.*
*Southwest Foundation for Biomedical Research, San Antonio, TX, **Georgetown University, Rockville, MD, U.S.A.

Objective: To study the SIV-specific cytotoxic response in mice immunized with recombinant VV expressing SIV envelope protein or internal core gag protein.
Method: BALB/c mice were inoculated intravenously with VV recombinants and boosted 3 times at 2 wk. intervals. Cytotoxicity was performed using syngenic P815 or allogenic BW5147 target cells infected with VV expressing env or gag protein. Mice were sacrificed 2 wk. after the last boost and spleen cells were cultivated in the presence of recombinants VV infected syngenic spleen cells and interleukin 2 (IL2) for 7 d and then used as effectors in a ^{51}Cr release cytotoxicity assay.
Results: 1. SIV-specific $CD8^+$ T lymphocytes were detected with P815-vv-env or P815-vv-gag target cells after in vitro expansion in the presence of antigen presenting cells (APC) and IL2. 2. The cytotoxicity was H-2 class I restricted since no cytotoxicity was obtained with mismatched targets (BW5147) thus also excluding a participation of NK cells in the phenomenon observed. 3. Antigen-specific T cell lines were obtained after repeated in vitro stimulation with syngenic APC VV-env or gag infected and IL2. 4. Target cells infected with VV expresing HIV-1 env protein were not lysed by the SIV-specific effectors.
Conclusions: Both the external env protein and the internal gag protein of SIV can induce cell mediated immune responses in mice. This information may be valuable in the development of experimental vaccines against HIV infection.

Supported by NIH grant AI-26893-02

1056 IDIOTYPE BASED STRATEGIES FOR CONTROLLING HIV INFECTION.

Ronald C. Kennedy, Department of Virology and Immunology, Southwest Foundation for Biomedical Research, San Antonio, Texas 78284.

Objectives: To assess various idiotype (Id) based strategies for modulating the in vivo immune response to human immunodeficiency virus (HIV) and develop Id based active immunotherapy schemes.

Method: The methods utilize three specific approaches for assessing Id based strategies. The first utilizes immunization with monoclonal anti-CD4 reagents. The second approach uses monoclonal anti-idiotypic antibody (anti-Id) reagents specific for selected HIV-1 gp160 epitopes. The final approach uses anti-Id reagents specific for epitopes on the CD4 molecule.

Results: Each of the three Id based approaches have induced either anti-HIV gp160 and/or anti-CD4 humoral immune responses in a variety of species, including non human primates. The anti-Id nature of these responses have been characterized and will be described.

Conclusion: Three different Id based approaches have been used to induce HIV and/or CD4 specific immune responses in vivo. The Id nature of these responses appear to be representative of both noninternal image and internal image specificities. Alteration of the epitope specificity induce by the Id based strategies when compared to responses generated by immunization with the nominal antigen suggests that Id based approaches have applications in preprogramming a given immune response to selected HIV gp160 and/or CD4 epitopes.

1057 IMMUNE RESPONSES OF HIV-INFECTED CHIMPANZEES TO A CANDIDATE HIV VACCINE AND DEVELOPMENT OF STANDARTIZED CELLULAR REAGENTS.

Cote, Paul J.*; Smith, G.**; Baseler, M.***; Satterfield, W.****; Purcell, R.*****; Gerin, J.*; Fernie, B*.
*Georgetown University DMVI, Rockville, Md; **MicroGeneSys, Inc.; ***Program Resources, Inc.; ****University of Texas MD Anderson Cancer Center; *****Lab. Infect. Dis., NIAID, NIH.

Objective:: To study the immune response of HIV-infected chimpanzees to a recombinant gp160 vaccine (VAXSYN®, MicroGeneSys, Inc.) and to develop standardized cellular reagents with gp160-specific reactivity.
Methods: Two chimpanzees (Nos. 800 and 814) previously infected with a Zairian isolate (Z34) of HIV and with serologic evidence of infection were immunized twice (Day 0,28) with 1.28 mg of VAXSYN. Plasma and peripheral blood mononuclear cells (PBMC) were obtained prior to immunization and weekly during the trial with additional leukopacks being obtained at days 7, 14, 35, and 49. All PBMC were cryopreserved by rate-controlled methods and stored in liquid nitrogen.
Results: Clinical status of the animals remained unchanged during the entire vaccination protocol. Antibody titers and cellular proliferative responses to the major envelope components (gp160, gp120, gp41) increased in both animals approximately 10-to 100-fold over pre-titers. The PBMC incorporated ^{3}H-thymidine after stimulation in vitro with PHA, ConA, PWM, recombinant human IL-2, VAXSYN gp160, and intact infectious and inactivated HIV-1_{MB}.
Conclusions: Humoral and cellular immune responses to HIV gp160 were boosted in HIV-infected chimpanzees by vaccination. HIV-infected chimpanzees can be used for producing stocks of cyropreserved viable PMBC with gp160-specific reactivity. These can provide positive-control cells for: (i) in vitro evaluation of vaccine antigens; (ii) identification and analysis of gp160 T-cell epitopes; and (iii) standardization of proliferative assays used to monitor vaccine recipients.

1058 EVALUATION OF CARRIERS AND ADJUVANTS IN DEVELOPMENT OF NEXT-GENERATION P17-BASED SYNTHETIC PEPTIDE AIDS VACCINE

Kirkley, Janet E.*; Naylor, P.H.*; Sztein, M.B.*; Sarin, P.S.***; Pietrobon, P.J.**; Goldstein, A.L.*; Holternan, D.*; Rosenberg, E.*; Lee, C.H.**
*The George Washington University Medical Center, Washington, D.C., USA;
**Connaught Laboratories Inc., Swiftwater, Pennsylvania, USA
***The National Institutes of Health, Bethesda, Maryland, USA.

Objective: Evaluation of alternative carriers and adjuvants for synthetic peptide vaccines based on the candidate HGP-30 peptide.
Methods: Balb/c mice were injected with HGP-30 conjugated to alternative carriers (tetanus toxoid (TT), diphtheria toxoid (DIP), bovine serum albumin (BSA), Keyhole limpet hemocyanin (KLH)) and adjuvants (Montanide ISA 721, RIBI, Freund's and alum). Enzyme-linked immunosorbent assay (ELISA) was used to measure antibody levels to the synthetic immunogen. Recognition of whole p17 was confirmed by Western blot. T-cell stimulation was measured by proliferative response of spleen cells from immunized animals to antigen.
Results: Antibodies against both the synthetic immunogen, HGP-30, and native p17 were raised in mice immunized with 2 of 4 carrier constructs, DIP and KLH. All adjuvants assessed with the HGP-30-KLH construct increased the B-cell response. DIP-HGP-30/alum and KLH-HGP-30/alum were effective in stimulating T cells responsive to antigen, carrier and conjugate.
Conclusion: Diphtheria toxoid may be an alternative carrier to KLH for an HGP-30 synthetic peptide vaccine. Major differences between adjuvants tested were not apparent, although alum was weakest. T-cell studies also suggest the constructs can stimulate helper T-cells, results consistent with our human data showing that HGP-30 contains both T- and B-cell epitopes.

1059 INTEGRATION OF HIV-I CD4-BINDINGREGION IN DIFFERENT SITES OF P55 COREPROTEIN AS A POSSIBLE VACCINE CANDIDATE

Fließbach Holger, Wagner R., Deby G., Modrow S., v. Brunn A., Wolf H.
Max von Pettenkofer Institut, München, FRG

Objective: Conventional strategies for HIV vaccine developement based on a vaccine against the membraneprotein gp120/160 seemed not to be sucessfull. Furthermore immunisation with gp120/160 resulted in the formation of enhancing antibodies. The p55 gag protein of HIV-I should be an appropriate candidate for a HIV-I vaccine due to its early appearance in HIV-I infection. Core particles have been shown in other virussystems to be highly immunogenic (Hepatits). In our approach we used core particles as an autolgous carrier for the CD4-binding region of the gp120 envelope protein.
Methods: The CD4-binding region was inserted in different sites of the p55 core proteinprecursor. The expression of resulting gag/env fusionproteins in E. coli, Vaccinia and Baculo was investigated in Western blot analysis and immune fluorescence. The formation of the gag/env particles will be examinated with sedimentation analysis and elektronmicroscopy.
Results: Western blot analysis and immune fluorescence showed expression of the gag/env fusionproteins in E. coli, Vaccinia- and Bakulo virussystems. Particle formation of the recombinant proteins is studied by immune electronmicrocopy, further characterisation of immunogenity will be presented by using the particles produced in the various systems for inoculation in experimental animals.
Conclusions: The possibility to form immunogenic particles, which stimulate the immunereaction not only to the HIV-I core proteins, but also to the inserted CD4-binding region will be evaluated by the appearance of specific antibodies and T-cellproliferation. The recombinant vacciniaviruses will be used as a vaccine for immunisation of experimental animals and for antigen production in lytically infected cells.

1060 SPECIFIC BINDING OF VACCINIA RECOMBINANT-DERIVED HIV-1 GP 160 TO CD4+ CELL LINES

Kistner, Otfried; Barrett, N.; Mitterer, A.; Dorner, F.
Immuno AG, Vienna, Austria.

Objective: We have developed a method for large-scale production and purification of gp 160 from recombinant vaccinia virus-infected Vero cells. This protein has been shown to be able to elicit T-cell proliferative responses and cross-reactive neutralizing antibodies in animals. In this study we have analyzed the ability of the purified recombinant-derived protein to bind to the CD4 receptor.
Methods: Binding of gp 160 to the CD4 receptor was determined by incubating the soluble protein with CD4+ and CD4- cells. After repeated washing, the cells were lysed and subjected to electrophoresis and Western blot analysis using human HIV-1 antiserum.
Results: We have demonstrated that: 1) recombinant gp 160 binds to different CD4+ cell lines such as CEM, MT4 and H9, but not to CD4- cells such as Vero; 2) denatured recombinant gp 160 does not bind to CD4+ cells; 3) deglycosylated recombinant gp 160 does not bind to CD4+ cells; and 4) antiserum against gp 160 inhibits the binding of recombinant gp 160 to CD4+ cells.
Conclusion: The large-scale production and purification of vaccinia recombinant-derived gp 160 leads to a native and biologically active protein, which binds specifically to the CD4 receptor.

1061 SERUM ANTIBODY RESPONSES FOLLOWING ADMINISTRATION OF A FOURTH DOSE OF HIV-I RECOMBINANT gp-160 VACCINE TO NORMAL VOLUNTEERS.

Dolin, Raphael*; Graham, B.*; Greenberg, S.*; Tacket, C.*, Belshe, R.*; Clements, ML.*; Fernie, B.*; Stablein, D.*; Smith, G.**; Lawrence, D.*; Koff, W.* *NIAID AIDS Vaccine Clinical Trials Network and **MicroGene Sys, Inc., West Haven, CT, USA.

Objective: To assess the immunogenicity of a fourth dose of an HIV envelope glycoprotein (rgp 160) vaccine in normal volunteers.
Methods: Either 40ug or 80ug of a recombinant HIV-I glycoprotein (rgp160) prepared in a baculovirus vector (MicroGene Sys), was administered as a fourth dose of vaccine to 24 normal subjects, who had participated in an earlier 3-dose study of rgp160. The fourth dose was given approximately 12 months after the third dose. Subjects were followed for clinical and laboratory toxicities, and serum antibody responses were determined by ELISA, Western blot, and neutralization assays.
Results: The fourth dose of rgp160 was well tolerated without clinical or laboratory toxicity. Compared to values after the third dose, ELISA values were higher in 6/11 subjects who received a fourth dose of 40ug of rgp160 ($p=0.12$) and in 8/10 subjects who received a fourth dose of 80ug of rgp160 ($p<0.05$). Western blot reactivity to gp160 and gp41 have been noted in 9/10 subjects to date following the fourth dose. In addition, serum neutralizing antibody activity, which was previously absent in these subjects, has now been detected in 4 of 14 subjects after the fourth dose. (D. Montifiori, submitted).
Conclusions: Administration of a fourth dose of rgp160 in the above immunization schedule results in augmented serum antibody responses, including the development of neutralizing antibody activity. Further studies of rgp160 as an HIV candidate vaccine are warranted.

1062 NOVEL PHOSPHATE PRO-DRUGS OF AZT

McGuigan, Christopher*; Devine, K.G.*; O'Connor, T.J.**; Kinchington, D.**
* Dept. Chemistry, University College London, London, U.K.;
** Dept. Virology, St. Mary's Hospital Medical School, London, U.K.

Objective Phosphate triester derivatives of 3'-Azido-3'-deoxythymidine (AZT) has been investigated as anti-HIV agents.
Methods Phosphate triesters have been synthesised by phosphoramidate methodologies, have been fully characterised, and have been tested against HIV-1 in a lymphoblastoid cell line.
Results Over 50 novel derivatives have been prepared. The compounds show potent inhibition of viral proliferation, with ED_{50} values below 1μM. The precise activity is very dependent on the exact phosphate structure, and a number of Structure-Activity relationships have emerged. In particular, phosphoramidates are especially active, with minor structural changes in the amino region leading to significant changes in activity. All of the compounds in the series are non-toxic to un-infected cells at 100μM. Data indicate that the compounds may act as intracellular sources of the bio-active nucleotides.
Conclusion Structures of this type may be useful as pro-drugs in HIV chemotherapy.

1064

INHIBITION OF HTLV-I VIRAL PRODUCTION BY TWO PLANT COMPOUNDS, BAICALEIN AND EXTRACTS OF PHYLLANTHUS URINARIA

Baylor, Norman W.*; Tao, F.**; Ruscetti, F.**
*BCDP, PRI, NCI-FCRF and **LMI, BRMP, NCI, Frederick, MD. USA

OBJECTIVE: The effects of 2 plant compounds, baicalein (5,6,7 trihydroxy-flavone) and a purified aqueous extract of Phyllanthus urinaria, on their ability to inhibit the production of HTLV-I in chronically infected cells were examined. Antiviral activity of both compounds has been previously reported (Ono, K. et. al., 1989. Biochem. Biophys. Res. Comm. 160: 982; Ven Kateswaran, P.S. et al., 1987. Proc. Natl. Acad. Sci. USA 84:274).
METHOD: HTLV-I infected producer T cell lines MT-2 and CS-1, and infected B lymphocytes HS-1 and CS-2 which express 3 logs less of HTLV-1 encoded protein, p19 (Longo, D,L., et al., 1984. Nature 310:505) were used. Viral production was tested by measuring HTLV-I p19 activity and HTLV-I LTR trans-activation before and after 24-48 hour treatment with either baicalein or phyllanthus extract.
RESULTS: The majority (>95%) of HTLV-I p19 production in chronically infected cells was abolished with ED50 concentrations of baicalein being 80μg/ml and phyllanthus 133μg/ml. Greater than 75% inhibition was observed at concentrations that produced little inhibition of total cellular protein synthesis or cellular DNA synthesis in infected cells, with no loss in cell viability. Transactivation of HTLV-I LTR was essentially normal after drug treatment.
CONCLUSION: These results indicate that baicalein and purified extracts of phyllanthus possess antireplicative potential against HTLV-I in vitro. The clinical potential or these two compounds in the therapy of HTLV-I adult T-cell leukemia remains to be determined by elucidating the mechanism(s) which underlies the observed selective anti-HTLV-I activity of these two compounds.

1065

GP120-INDUCED RETARDATION OF BEHAVIORAL DEVELOPMENT IN NEONATAL RATS: PREVENTION BY PEPTIDE T

Hill, Joanna M.* and Brenneman, D.E.**
*Peptide Design L.P., Germantown, MD,USA,** LDN, NICHD, Bethesda, MD, USA.

Objective: In vitro studies with murine hippocampal cultures have indicated that purified HIV envelope glycoprotein, gp120, induced significant neuronal cell death which was prevented by peptide T, D-Ala peptide T amide (Brenneman et.al., Nature 335,639, 1988; Drug Dev. Res. 15,361,1988). The purpose of the present study was to determine if gp120 would influence behavorial development when administered to neonatal rats, and to establish if peptide T prevented gp120-induced deficits.
Methods: Sprague-Dawley rats received daily injections of 100 μl of one of the following: gp120 (0.3 nM), peptide T (3 μM), gp120 (0.3 nM) and peptide T (3 μM) or saline, from birth to day 14. Observations of 14 developmental milestones/behaviors were made daily without knowledge of treatment group. Statistically significant differences, as determined by ANOVA, were considered to be acheived when $p<0.05$.
Results: The following developmental milestones/behaviors were significantly delayed by gp120 treatment: forelimb grasp, forelimb placement and air righting. In addition, righting reflex time was significantly delayed in the gp120-treated group. Peptide T co-treatment prevented the delay in behavioral development induced by gp120. The following developmental milestones/behaviors were not influenced by gp120 treatment: body weight, eye opening, auditory startle, crossed extensor reflex, and cliff aversion.
Conclusion: Systemic administration of HIV envelope glycoprotein significantly retarded the development of multiple complex motor behaviors, whereas many simple reflexes and developmental milestones were apparently unaffected. The delay in the expression of these complex motor behaviors did not occur with peptide T co-administration. These data further support the beneficial action of peptide T in preventing gp120-induced neural deficits and suggest that peptide T may be useful in the treatment of pediatric AIDS.

1066

EFFECT OF MODE OF AZIDOTHYMIDINE (AZT) ADMINISTRATION AT EARLY STAGES OF RETROVIRAL FRIEND VIRUS INFECTION IN MICE

Sinet, Martine ; Desforges, B. ; Launay, O. ; Sun, F. ; Colin, J.N. ; Pocidalo, J.J.
INSERM U13, Hôpital Claude Bernard, Paris, France.

Objective: To examine several doses, modes and routes of AZT administration for their ability to prevent dissemination of Friend virus inoculated in vivo.
Methods: Viral infection of DBA_2 mice was performed by retro-orbital inoculation of Friend leukemia virus complex at different titers (ranging between 20 and 500 focus forming units/ml). AZT was administered either in drinking water or subcutaneously (once or twice daily) at concentrations of 20, 40 or 80 mg/kg/day. Treatment was started either 1 h or 4 h after viral inoculation for 5 or 14 days. Treatment efficacy was evaluated by determination of splenic weight and infectious virus titer on day 14 and day 21 after inoculation. In some experiments, survival time after infection was also evaluated.
Results: Friend virus infection causes erythroleukemia with splenomegaly (spleen weight ranging between 430 and 2000 mg 14 days post-inoculation), leading to death in 4 to 8 weeks. Main results are: 1) a significant reduction of splenomegaly with all regimens of AZT therapy: inhibition rate was at least 90% 14 days after infection, except for mice treated subcutaneously once daily (inhibition rate 50%). 2) influence of the delay between inoculation and treatment on efficacy of AZT chemoprophylaxys : in the group of mice treated 1 h post-inoculation with 40 mg/kg SC twice daily, 15/20 animals were still surviving 6 months later whereas only 7/20 animals survived in the group treated 4h post-inoculation with the same mode of administration. 3) continuous administration of AZT in drinking water leads towards better results even with the 5 days therapy.
Conclusion: A short, early, continuous administration of AZT may prevent retroviral dissemination and development of disease in mice infected with Friend virus. This information may be considered for the prevention of HIV infection following accidental exposure.

1067

HIV-I-INDUCED EXPRESSION OF P-GLYCOPROTEIN

Sudhir Gupta, Takashi Tsuruo*, and Sastry Gollapudi
University of California, Irvine, California, USA, *Cancer Chemotherapy Center, Tokyo, Japan.

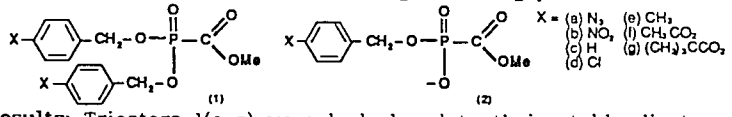
Objective: The expression of a 170 kD molecule, the P-glycoprotein (P-gp), is associated with decreased plasma membrane potentials and rapid drug efflux resulting in acquired multidrug resistance in cancer cells. Therefore, in this investigation, we examined whether HIV induces an over expression of P-gp that would be associated with decreased intracellular accumulation of AZT resulting in resistance to AZT.
Methods: A T cell line (H9) and a monocyte cell line (U 937) were infected in vitro with HIV isolate. The infection was confirmed by reverse transcriptase activity, P24 antigen, and the expression of gp-120 envelop protein at cell surface. Infected and control uninfected cells were analyzed flow cytometrically for plasma membrane potentials using DIOC5 dye, daunorubicin accumulation, and for the expression of P-gp with monoclonal antibody MRK-16. ^{3}H AZT accumulation was measured by scintillation counter. Data of plasma membrane potentials and daunorubicin accumulation are presented as mean fluorescence channel numbers (MFC) and ^{3}H AZT accumulation as counts per minute (cpm).
Results: The plasma membrane potentials of infected cells were decreased (H9= 175, U937= 281 MFC) as compared to uninfected cells (H9= 296, U937= 505 MFC). Both H9 and U937 HIV infected cells expressed increased levels of P-gp as compared to uninfected cells. ^{3}H AZT accumulation was lower in infected cells (H9= 416, U937= 1224 cpm) as compared to uninfected cells (H9= 148, U937= 3918 cpm). Daunorubicin accumulation was also lower in infected cells (H9=920, U937=587 MFC) as compared to uninfected cells (H9=1162, U937=971 MFC).
Conclusion: HIV-1 induces depolarization of plasma membrane, increased expression of P-gp, and decreased intracellular accumulation of drug. Data suggest that HIV-induced expression of p-gp may be one of the mechanism for the development of resistance to AZT and perhaps other agents used in the treatment of HIV infection in vivo.

1068

TARGETING OF ANTIVIRAL AGENTS TO THE CENTRAL NERVOUS SYSTEM: SYNTHESIS, STABILITY AND BIOACTIVATION OF PRODRUGS OF PHOSPHONATES

Mitchell, Antony; Nicholis, D; Freeman, S; Irwin, W J.
Department of Pharmaceutical Sciences, Aston University, Birmingham, UK

Objective: To design a stable lipophilic prodrug of phosphonates which will cross the blood-CNS barrier. The potential of the p-substituted benzyl group to confer both lipophilicity and susceptibility to bioactivation with concomitant release of antiviral agent was investigated with phosphonoformate (PF).
Methods: A series of p-substituted benzyl triesters 1(a-g) of PF were synthesised and their hydrolytic stabilities determined. The bioactivation of diesters 2(f-g) were investigated using purified esterases.



Results: Triesters 1(a-g) were hydrolysed to their stable diesters 2(a-g) with half-lives between 1 and 30 minutes. Incubation of diesters 2(f-g) with esterase resulted in deesterification and spontaneous decomposition to methyl PF.
Conclusion: Para-substituted benzyl triesters of PF are hydrolytically unstable under physiological conditions. The rate of hydrolysis is directly related to the electronic properties of the p-substituent. Studies with other anti-HIV drugs (eg PMEA) will ascertain whether this instability is unique to PF. Susceptibility to bioactivation of the p-substituted benzyl diesters has been demonstrated.

1069

INHIBITION OF HIV INFECTIVITY AND CYTOPATHOGENICITY IN VITRO BY ASPERGILLUS TERREUS TOXINS

Biglino, Alberto; Pugliese, A.; Vidotto, V.; Forno, B.; Pollono, A.; Ceruti A.
Institute of Infectious Diseases, University of Torino, Italy.

Objective: To study the influence of ether- extracted Aspergillus terreus toxins on HIV infectivity and cytopathogenicity in vitro. These toxins are well-known inhibitors of DNA synthesis.
Methods: MT-4 cells (E. De Clercq, Leuven) were either infected with HIV (final titre: 50 $CCID_{50}$/ml) from supernatant of H9/III-B cells (R.C. Gallo, Bethesda), or mock-infected with medium, and cultured for 5 days in 96-well microplates in the presence of different concentrations of toxins or in their absence. The number of viable cells, the percentage of cells expressing GP 120 antigen, and P24 antigen level in supernatants were evaluated, respectively, with trypan- blue exclusion, indirect immunofluorescence microscopy and an immunoenzymatic method.
Results: Toxins at concentrations of 1.8 and 0.6 µg/ml did not impair mock-infected cell replication (viable cells = 90% and 95% of untreated control) but inhibited both GP 120 surface expression (fluorescent cells = 15% and 25%, respectively; untreated control = 70%) and supernatant HIV Ag concentration (respectively 20% and 42% of levels obtained in untreated control) in infected cultures. Higher concentrations (3.75 to 60 µg/ml) partially or completely inhibited viral antigen expression but impaired severely cell replication.
Conclusions: Aspergillus terreus toxins can interfere with HIV in vitro at concentrations not affecting cell replication.

1070

THE SELECTIVITY OF PHOSPHONATE ANALOGUES OF NUCLEOSIDE 5'-TRIPHOSPHATES TOWARDS REVERSE TRANSCRIPTASES

Krayevsky,A.A.; Tarussova,N.B.; Rosovskaya,T.A.; Atrazheva,E.D.
The V.A.Engelhart Institute of Molecular Biology USSR Academy of Sciences, Moscow, USSR.

Objective: The terminator and substrate properties of AzT,dT and 2',3'-O-isopropylidene cytidine (IpC) 5'-triphosphate analogues modified in different position of phosphorus containing chain have been studied.
Methods: The compounds were synthesized by the reaction of AzT and dT 5'-phosphate morpholidates as well as of AzT and IpC hydroxymethanephosphonic esters morpholidates with phosphonoacetic, dibrommomethane diphosphonic acids and pyrophosphate. We studied their ability to inhibit DNA synthesis catalyzed with the *E.coli* DNA polymerase I, Klenov fragment, rat liver DNA polymerase β, calf thymus terminal deoxynucleotidyltransferase, reverse transcriptases (RT) of avian myeloblastosis virus and HIV-1.
Results: We shown the synthesized analogues to be more specific to RT than to other DNA polymerases. Some of them appear to be selective and effective inhibitors of the HIV-1 RT *in vitro*.
Conclusion: Phosphonate analogues of nucleoside 5'-triphosphate give the possibility to characterize peculiar properties of different viral RT.

1071

EVALUATION OF PRE- AND POST-INFECTION AZIDOTHYMIDINE (AZT) THERAPY IN FELINE LEUKEMIA VIRUS (FELV) INFECTED CATS.

Mathes, L.E.; Polas, P.J.; Hayes, K.A.; Johnson, S.; Rojko, J.L.; Kociba, G.J., The Ohio State University, Columbus, Ohio, USA

OBJECTIVES: To determine the antiviral efficacy of AZT in FeLV infected cats for treatments initiated at various times after virus challenge.
METHODS: Cats were administered 60 mg/kg/day AZT by continuous infusion for a period of 4 wks beginning at 48 hr before and 24, 48, and 96 hr after FeLV challenge. All cats were followed for 20 wks and evaluated weekly for FeLV viremia and antibody to FeLV.
RESULTS: The incidence of viremia was 1 out of 7, 2 of 6, 1 of 6 and 0 of 5 for AZT treatments initiated at -48 , 24, 48, and 96 hrs after challenge, respectively. Six of 6 challenge controls developed chronic viremia. Most AZT treated animals had evidence of transient virus infection as indicated by high anti-FeLV antibody titers and transient FeLV antigenemia.
CONCLUSION: Continuous infusion AZT therapy at 60 mg/kg/day was efficacious against FeLV challenge in cats even when initiated 96 hrs after virus challenge. Most animals including those treated prophylactically had evidence of transient FeLV infections, indicating that even a relatively high dose of AZT is not effective in totally preventing infection. The study suggests that AZT therapy may be effective in preventing the early spread of FeLV and allowing antiviral immunity to be established.

1072 PROTECTIVE ACTIVITY OF TETRACYCLINE ANALOGS AGAINST THE CYTOPATHIC EFFECT OF THE HUMAN IMMUNODEFICIENCY VIRUSES IN CULTURES AND ROLE OF POSSIBLE COFACTORS.

Lemaitre, Marc*; Guetard, D.**; Blanchard, A.**; Henin, Y.**; Montagnier, L.** and Zerial, A.*.
*Rhône-Poulenc SANTE, CRVA, Vitry/Seine, France, **Institut Pasteur, Paris, France.

Objective : We have analysed the activity of several tetracycline analogues on HIV-infected cells.
Methods : We have tested these compounds as HIV replication inhibitors in CEM clone 13 cells and in human peripheral blood lymphocytes (PBL). We have measured the reduction of cytopathic effect (CPE) induced by HIV-1 (LAV-bru strain) - MTT assay - and reduction of reverse transcriptase (RT) activity in supernatants. We have also tested the $TCID_{50}$ and cytopathogenicity of HIV stocks produced in the presence of the compounds.
Results : Minocycline and doxycycline were the most active ones in inhibiting the virus induced CPE between 7 and 14 days post infection. The active concentrations (0.3-2.5 µg/ml) were devoid of toxicity in uninfected cultures. Virus production was not inhibited. Protected cells produced RT and infectious virus in their supernatant for several weeks even if the compounds were removed. In the later case, reappearence of cell lysis was not observed. Infectious HIV stocks produced in the presence of tetracycline analogs had definitely lost the capacity of inducing cell lysis.
Conclusions : Our results indicate a dissociation between protection against CPE and inhibition of replication. We suggest that the cytopathogenicity of HIV may be due, in some cases, to the presence of tetracycline-sensitive contaminants. We study the nature of this cofactor and the activity of other possible inhibitors.

1073 EFFECTS OF TRICHOSANTHIN (COMPOUND Q) AND ALPHA-MOMORCHARIN ON CULTURED TUMOR CELL LINES

Tsao, S.W.*; NG, T.B.#; YEUNG, H.W.**#
*Department of Anatomy; #Department of Biochemistry; and **Chinese Medicinal Material Research Centre; The Chinese University of Hong Kong, Shatin, N.T., Hong Kong

Objective: To test trichosanthin and alpha-momorcharin for cytotoxic activity in choriocarcinoma, melanoma and hepatoma cells in vitro.

Methods: The human choriocarcinoma cell line (JAr) mouse melanoma cell line (B16) and rat hepatoma cell line (H35) monolayers in Dulbecco's modified Eagle's medicine. Cells in their exponential growth phase were used for drug treatment. Cytotoxicity was quantitated by protein content of the adherent cells and by measuring the tritiated leucine and thymidine incorporation in treated versus untreated cultures.

Results: The dose response inhibition curves of the three cell lines resulting from treatment with trichosanthin and alpha-momorcharin were obtained. The inhibitory activities of trichosanthin and alpha-momorcharin were similar. The inhibitory mechanisms of the two proteins were further investigated using tritiated leucine and thymidine incorporation. Preferential inhibition of incorporation of leucine was observed with both trichosanthin and alpha-momorcharin suggesting they may have selective inhibitory actions on protein synthesis.

Conclusion: Trichosanthin and alpha-momorcharin treatment caused a selectively, dose-dependent injury in cultured choriocarcinoma and melanoma cells, whereas hepatoma cells are more resistant under similar treatment conditions.

1074 THE EFFECTS OF SULFONIC ACID-RELATED COMPOUNDS ON THE CYTOPATHICITY OF HIV.

David J. Clanton*, Owen Weislow**, James McMahon*, Robert Schultz*, Ven Narayanan*, John Bader*, and Michael Boyd*. *Developmental Therapeutics Program, Division of Cancer Treatment, National Cancer Institute, National Institute of Health, Bethesda, MD., and **The Research Support Program, Program Resources, Inc., Frederick Cancer Research Facility, Frederick, MD.

The AIDS antiviral screening program of the National Cancer Institute has tested 12,000 compounds acquired from various sources worldwide (a description of this program will be reviewed). In the course of this screening, many compounds with sulfonic acid groups were found to be active. Sulfonic acid compounds exhibiting anti-HIV activity, including several structurally related to suramin, were tested under identical conditions in a comparative study. Several of these compounds were active in a range (2.0-20.0 uM) considered encouraging for further study. One compound, Direct Orange NSC#007229, was selected on the basis of its low effective concentration (EC_{50}=6.6 uM) and minimal toxicity (IC_{50}>145 uM).

Results of our studies on this compound, including its mechanism of action, cytotoxicity, and affects of the drug on virus particles, will be presented, and they suggest that this compound may be useful in the therapeutic intervention against HIV infection.

1075 COMPARISON OF VARIOUS DRUGS EFFECT ON HIV REPRODUCTION ON PRIMARY AND CHRONICALLI INFECTED CELL LINES

Andrey Pokrovsky, O. Plyasunova, O. Yastrebova, S. Chaplygina
All-Union Research Institute of Molecular Biology, Koltsovo, USSR

Objective. Two stage scheme of anti-HIV drugs screening is proposed. The first stage is perfomed on primary infected cells (line MT-4 or periferal blood mononuclear cells).For the second stage assay a cell line chronically infected by HIV-1 and contained provirus is used.
Methods. The level of HIV reproduction was examined by measuring of reverse trascriptase activity. Virus antigen expression and percentage of infected cells were determined by immunoenzyme and immunofluorescent methods, respectively.
Results. Comparison of drugs with different mechanisms of action on HIV reproduction was performed. Simultaneously the viability of treated cells was determined.On primary HIV-1 infected cells the virus inhibiting effects were for azidothymidine - 90-97%, heparine - 98-99%, glycyrrhizic acid - 95-97%, antisense oligonucleotides - 80-90%, synthetic peptides from binding site of gp120 - 60-70%. On chronically infected cell line the curing effect of these drugs decreased in different extent. Combinations of drugs with various mechanisms of action were also examined.
Conclusion.The drugs and their combinatios with clear inhibitory effect on both stages of the screening are perspectively for AIDS treatment.

1076 PARAMETERS OF HIV INACTIVATION BY DISINFECTANTS

Busnel, René-Guy; Aranda-Anzaldo, A.; Viza, D.
Laboratoire d'Immunobiologie, Faculté de Médecine, Paris, France, and Hutchinson S.A., Paris, France.

Objective: Comparative study of HIV inactivation by Triton x-100, Benzalkonium chloride, Nonoxynol-9, alcohol, or sodium hypochlorite in relation to time of incubation and viral concentration.
Methods: Various concentrations of HIV were incubated anywhere from 30" to 10' with various dilutions of the different compounds and were used to infect lymphoblastoid cells.
Results: HIV inactivation was obtained in a relatively short time with most compounds when low concentrations of virus were used. For high concentrations, the time of incubation, the amount and the nature of disinfectant were of the essence. For instance, ethanol destroys viral concentrations of 0.23 ng of p24/ml, but it fails to inactivate concentrations of 6 ng of p24/ml, whilst Triton x-100 at 0.5% and Na hypochlorite at 0.5% inactivate 56 ng of p24/ml, providing that the incubation time exceeds 1'.
Conclusion: HIV concentrations in biological fluids being low, inactivation can be easily obtained. However, high viral concentrations, encountered in research laboratories, are more difficult to inactivate in a short time and thus require special care in handling.

1077 EFFECT OF SOME PHYSICAL AND CHEMICAL TREATMENTS ON REACTIVITY OF SERUM TO HIV.

Jairo Ivo dos Santos and Bernardo Galvão-Castro.
Advance Laboratory of Public Health, WHO Collaborating Centre on AIDS, Fundação Oswaldo Cruz, Salvador, Bahia, Brasil.

Objective: To evaluate the effects of some physical and chemical manipulations employed for storage and preservation of serum samples, on the HIV reactivity.
Methods: The sera (10 positive and 5 negative) were subjected to the following procedures: heating at 56° C during one hour; freeze-thawing; freeze-drying; glycerol (50%); sodium azide (0.1%); thymerosal (0.01%); triton X-100 (1%) and chloroform. The sera were then assayed in an indirect (Organon) and competitive (Behring) ELISA.
Results: The use of glycerol and sodium azide induced false positive reactions in competitive ELISA ($p > 0.05$). In addition, sodium azide, thymeroral and triton X-100 reduced the reactivity of positive sera in indirect ELISA ($p > 0.05$), but without inducing false negative results.
Conclusions: Although the majority of procedures usually intended for preservation and storage of serum can be used with little or no loss of HIV specific reactivity, the use of both glycerol and sodium azide should be avoided in sera to be tested in competitive ELISA.

This work was supported by Pan American Health Organization (grant n° DRC/RG/Bra/88-003) and Fundação Banco do Brasil (grant n° 10/0212-7).

1078 EVIDENCE FOR IMMUNE DYSFUNCTION IN CATS WITH EXPERIMENTALLY INDUCED FELINE IMMUNODEFICIENCY VIRUS (FIV) INFECTION

Jeffrey E. Barlough, Jeanne W. George, Norman Levy, Renan Acevedo, Peter Moore, Bruce Rideout, and Niels C. Pedersen; University of California, Davis CA.

Objective: Feline immunodeficiency virus (FIV) was first recovered from cats in California with an AIDS-like illness. Subsequent investigation has shown that FIV infection is associated with an initial, transient illness, an intervening latent period measured in years, and a secondary AIDS-like disease, all of which resemble the activity of human immunodeficiency virus (HIV) in people. The objective was to determine if immunologic abnormalities--specifically, impaired lymphocyte blastogenesis and loss of CD4+ T cells--occur in FIV-infected cats.
Methods: Blastogenesis responses were measured by means of a whole-blood lymphocyte stimulation microassay. CD4/CD8 levels were determined by fluorescence-activated flow cytometry using monoclonal antibodies to feline CD4 and CD8. Cats with short-term as well as long-term FIV infections were studied, and matched to appropriate uninfected control cats.
Results: Blastogenesis responses were depressed in cats with long-term FIV infections, despite normal levels of circulating lymphocytes. CD4/CD8 ratios tended to decrease as the length of infection time increased.
Conclusions: These findings suggest that significant alteration of lymphocyte responsiveness and CD4+ T cell levels occurs in FIV-infected cats, adding further support for the FIV system as an animal model for human AIDS.

1079 SPERM AS COFACTOR OF MURINE AIDS (MAIDS)

Bentwich, Zvi*; Meshorer, A**; Rubinstein, J**; Weisman, Z*

*R. Ben Ari Institute of Clinical Immunology, Kaplan Hospital, Hebrew University Medical School, **Experimental Animal Unit, The Weizmann Institute of Science, Rehovot, Israel

Objective: To study the effect of sperm on induction and course of murine AIDS (MAIDS)
Methods: Disease was induced by viruses obtained from cell line LP-BM5-Scl in male C57BL/6J, B10A, ATL and ATH strains. Allogeneic sperm cells ($1-3 \times 10^7$) were injected intravenously and intrarectally prior to and following the viral inoculations.
Results: Marked prolonged suppression of splenocytes proliferation to mitogens and allogeneic stimulation as well as splenomegaly were observed following a single intravenous sperm injection. When suboptimal amounts of virus preparations not sufficient to induce MAIDS were used, disease developed only in those animals injected with sperm in addition to the virus. Sperm injections did not help in inducing disease in animals of MAIDS resistant strains. Intrarectal inoculation of virus was found to induce disease only after traumatizing the rectal mucosa. Under these circumstances additional intrarectal inoculation of sperm did not seem to influence the course or induction of MAIDS, in distinction to the effects seen by i.v. injections.
Conclusions: These results suggest that sperm may function as a cofactor of MAIDS induction probably by its general immunomodulating effects and possibly also by its functions as a vector. This has a clear relevance to the pathogenesis of human AIDS and probably also to the increased risk of HIV infection associated with receptive and traumatic anal sex.

1080 DEFINING THE EARLY EVENTS OF HIV INFECTION

Alter, Harvey J.*; Allain, J.P.**; Eichberg, J***
*NIH, Bethesda, MD; **Abbott Lab., North Chicago, IL;
*** Southwest Foundation Biomedical Research, San Antonio, TX, USA

OBJECTIVE: To generate large volumes of plasma/lymphocytes in early phase of HIV infection and to compare sensitivity of standard and new assays.
METHODS: A chimp was inoculated with 38 $TCID_{50}$ (10 CID_{50}) HTLV-IIIB and apheresed 1-2 times per week. Serial samples were tested for anti-HIV by licensed EIA & Western blot (WB) and for recombinant HIV proteins by dot blot assays; quantitative anti-p24; serum p24 antigen (Ag); anti-nef; neutralizing antibody (NA);viral culture and plasma PCR
RESULTS:

Week	EIA	WB	Aby to recombinant gp120	p66	gp41	p31	p17	Anti-p24	p24 Ag	anti-nef	NA	HIV Cult	Plas. PCR
-2 to 4.5	.....	.....	.....	.....	.....	.....	.....	All Assays negative	.....	.....	.....	.....	.....
5	-	-	-	-	-	-	-	-	-	-	-	+	+
5.5	-	-	-	-	-	-	-	-	-	-	-	-	+
6	-	p24	-	-	-	-	-	-	-	-	-	NT	-
6.5	-	p24	-	-	-	-	-	<5§	-	-	-	-	-
7	-	p24	-	-	-	-	-	9	-	+	-	+	-
7.5	-	p24	-	-	38**	-	-	20	-	+	-	-	-
8	-	24/160	-	-	70	-	-	285	-	+	-	-	-
9	+	24/160/18	-	5	244	-	16	21	+	+	-	+	-
11	+	full*	9	60	349	6	79	5	+	+	¶	+	-

*18,24,41,55,120,160;**ratio units; §titer; ¶ NA titer 20 wk 14; 80 wk 22
CONCLUSIONS: (1) There is a distinct sequence of events with cult=PCR>WB> anti-p24 capture>anti-nef>dot blot; all were superior to standard EIA; (2) HIV-Ag did not narrow the window; (3) recombinant dot blot may be good alternative to WB; (4)early plasma now available in volume for assay evaluation

1081 ANTIBODY-DEPENDENT,COMPLEMENT-MEDIATED ENHANCEMENT OF HIV INFECTION (C'-ADE) IN A HUMAN, EBV-TRANSFORMED B-CELL LINE.

Gras, Gabriel, and Dormont, Dominique.
Commissariat à l'Energie Atomique and Centre de Recherches du Service de Santé des Armées, Fontenay aux Roses, France.

Objective: To define if B-cells expressing complement receptors may be targets for HIV infection mediated by antibody-dependent, complement-mediated enhancement of HIV infection (C'ADE).
Methods: Cells: An EBV-transformed B-cell line, established from cord blood (kindly provided by D. Lefrançois, Institut Curie, Paris, France), was tested for its succeptibility to HIV in C'-ADE or standard conditions. Using immunofluorescence assay and cytofluorimetry analysis, no CD4 antigen was detected, and 30 per cent of the cells expressed complement receptor type 2. Infection: LAV1 strain of HIV1 (200 $TCID_{50}$) was incubated 30 mn at +04°C with HIV1 positive or negative serum (1/20) and normal serum (1/15), heat-inactivated or not, as a source of complement. This defines 4 different treatments of the virus. Cells (10 million) were then added and infection occured for 30 mn at 37°C. Cells were then washed thrice and cultivated (0.5 million cells per ml). Virus Titration: P24 antigen amounts in cultures' supernatants were measured every day. Immunofluorescence assay was performed on day 2 post-infection (P.I.). On day 2 and 5 post infection, the B-cells were thoroughly washed twice and co-cultivated in triplicate with MT2 cells, in separated compartiments (Costar, Transwell system).
Results: P24 appeared detectable 2 days P.I. under C'-ADE conditions (positive serum plus complement), and 5 days or more P.I. under other conditions. Two days P.I., 30 per cent of the cells expressed viral antigens when infected under C'-ADE conditions, the ratios were less than 1/10 in the other cultures (immunofluorescence). In the two co-cultivation assays, numerous (>50) syncitia were observed in 3/3 wells under C'-ADE conditions, 7 and 4 days post co-cultivation. Under other conditions, 1/3 or 0/3 well was slightly positive the same day (<5 syncitia per well). Results are reproductible.
Conclusion: Transformed B-cells are targets for C'-ADE of HIV infection. Blocking experiments using monoclonal antibodies against CD4 and Complement Receptors are in progress, and we are investigating wether normal B-cells may be infected by HIV using C'-ADE mediation.

1082 RESPONSE TO HEPATITIS B VACCINATION IN HIV SEROPOSITIVE PATIENTS.

Ramirez, Vega*; Garcia, S.*; Romero, J*; Jover, J*.
* Servicio Regional de Salud. Comunidad Autonoma de Madrid. Spain.

Objetive: To evaluate the response to Hepatitis B vaccination in HIV seropositive patients.
Methods: Ninety-one individuals negative for Hepatitis B virus markers (HBsAg, HBcAc, HBsAc) were recruited from patients attending a sexual transmission disease clinic. They were divided into 2 groups: 40 HIV seropositive and 51 HIV seronegative subjects (as a control group). Both recluded a similar rate of subcjets with risk tractices (homosexual men, IV drug users and HIV positive partners) ranged from 17 to 57 years and distributed by sex (77,5% of males in the HIV seropositive group and 74,4% in the control group). Global response to Hepatitis B vaccination was studied for the variables of age and sex in both group. Also seroconversion and median response (10 UI/1 ≤ HBsAc ≤ 100 UI/1) or high response (HBsAc > 100 UI/1). Both groups were stratified in two groups of age (< 30 years and ≥ 30 years), fixing also sex variable. Hepatitis B and HIV markers were screened by ELISA. Recombinant DNA vaccine was used and given at 0.1.6 months with evaluation one month after the last dose. Statistical Analysis: Comparision of proportion independent samples, Mc Nemar test and binomial distribution for signification test.
Results: Diferences in seroconversion between case (65%) and control group (92%) are significant (p=0,0061). Diferences in seroconversion between males from both groups are significant (p=0,0077), but not among females. Considering age (ranged in to groups: < 30 and ≥ 30 years) seroconversion showed to be higter in the control group (p=0,0021). Response (high or median) was better in the control group (p=0,032).
Conclusions: - Hepatitis B vaccination in HIV seropositive individuals seems to have low response.
- Post-vaccination controls are desirable in HIV seropositive vaccinated patients in order to evaluate seroconversion and the need of booster doses.

1083 ANTIBODY RESPONSE TO AN IMMUNODOMINANT EPITOPE OF THE HIV-1 SPECIFIC OUT PROTEIN: CORRELATION OF ANTIBODY TITRES TO CLINICAL STAGES

Schneider,T., Hildebrandt,P., Rönspeck,W.*, Schauzu, Marianna, Weigelt,W., Pauli,G. AIDS-Zentrum am Bundesgesundheitsamt und *Biochrom GmbH, Berlin, FRG.

A peptide scan based on overlapping decapeptides of the out sequences of two HIV-1 strains (HXB2, ELI) was used to identify an immunodominant epitope. An average of 21% of HIV-1 antibody positive sera obtained from individuals in different stages of the disease reacted with peptides corresponding to the C-terminal amino acid sequence of out. Some of these positive sera reacted with additional peptides derived from internal sequences. The oligopeptide VENGVEMGHHAPWDVDDL representing the C-terminus of out (HIV-1 strain HXB2) was used for the screening of sera in an ELISA. 243 HIV-1 seropositive and 75 negative sera were investigated. None of the HIV-1 negative sera reacted with the oligopeptide in contrast to 26% of the positive sera. Correlation of reactivity of sera with the Walter Reed staging classification demonstrated that individuals in WR 1 (36%) and WR 2 (42%) were more often reactive than patients classified WR 3-6 (11%). Prevalence of out antibodies in sequential sera of HIV-1 infected individuals will be shown.

1084 ELISPOT ASSAY FOR CLONAL ANALYSES OF HIV-1 SPECIFIC MUCOSAL AND CIRCULATING B CELL REPERTOIRES IN PRIMATES

Eriksson Kristina, Nordström I, Larsson L, Kilander A, Nordkrans G, Hagberg C, Vahlne A, Jeanson S, Holmgren J, and Czerkinsky C.
University of Göteborg, Gothenburg, Sweden.

Objectives: To document, in functional terms, the dynamics of B cell activation at mucosal and extramucosal sites in the HIV compromised host.
Methods: Pilot experiments were performed in immunized macaques to establish the feasibility of a method, the ELISPOT test, for detection of HIV-1 specific B cells. Next, we are following the occurence and changes in the size(s) and isotype commitment of total as well as HIV-1 specific (gp120, gp41 and synthetic peptides thereof) immunoglobulin-producing B cells in suspensions obtained from mucosal specimens amenable to safe biopsy in humans (duodenal and rectal mucosa).
Results and Conclusion: We have established the feasibility of single cell analyses in humans to document possible changes in the size and composition of HIV-1 specific B cell repertoires in the infected host. Results obtained from comparative ELISPOT analyses of activated B cells in the circulation and gastrointestinal tract of HIV-1-infected individuals will be discussed as to their relevance to the pathogenesis and natural history of AIDS.

1085 DEVELOPMENT OF AN ENZYME IMMUNOASSAY (EIA) USING NATIVE ENVELOPE GLYCOPROTEIN (GP160) FOR THE DETECTION OF HIV ANTIBODIES.

Nair, B.C.*, Ford, G.*, Kalyanaraman, V.*, Zafari, M.*, Fang, C.**, Gallo, R.***, Sarngadharan, M.*,
*Advanced BioScience Laboratories, Inc., Kensington, MD USA; **American Red Cross, Rockville, MD USA; ***Laboratory of Tumor Cell Biology, NCI, NIH, Bethesda, MD USA

Objective: To evaluate the usefulness of purified native envelope antigen in HIV serodiagnosis.
Methods: An EIA was developed using purified native gp160. This system was compared for its sensitivity and specificity with EIAs that use viral lysate and recombinant proteins as antigens.
Results: The gp160 assay was determined to be highly specific as 1) 998 of 1,000 sera from healthy blood donors were negative; the 2 were confirmed positive by Western blot (WB) assay, 2) 55 sera that contain antibodies likely to produce false positive reactions were all found to be negative, 3) the results of gp160 EIA coincided with WB characteristics of 398 sera. The assay was 2-10 times more sensitive than EIAs that use virus lysate as antigen on panels of diluted sera. The assay detected antibodies in early bleeds of a seroconverter which were not detected by commercial EIAs that use solubilized virus or recombinant envelope protein as antigen.
Conclusion: GP160 EIA is highly specific and sensitive. The native antigen appears to be important in the earliest detection of HIV antibodies during early seroconversion. The highly purified native envelope antigen may be useful in HIV serodiagnosis.

1086 IDENTIFICATION OF T CELL ANTIGENIC EPITOPES OF HIV BY PROLIFERATIVE RESPONSES TO SYNTHETIC PEPTIDES OF THE *ENV* GLYCOPROTEINS

Spina,Celsa A.[*+]; Terry, L.[*+]; Rosen, J.[**]; McCutchan, J.A.[*]; Richman, D.D.[*+], [*]University of California at San Diego, the [+]VA Medical Center, and [**]Johnson & Johnson Biotechnology Center, San Diego, Ca., USA.

Objective: To determine if defined peptides of HIV-1 can be recognized as antigenic epitopes in assays of cell proliferation for T_H cell response.
Methods: Synthetic peptide oligomers (15-mers) based on the deduced amino acid sequence of gp41 and gp120 were tested for the ability to induce a specific proliferative response in peripheral blood lymphocytes from HIV-seropositive donors. Study subjects were homosexual men with minimal symptoms of ARC, not receiving any antiviral therapy. T cell proliferative responses were determined by quantitation of ^{3}H-thymidine uptake in a 7-day microculture assay, in the presence or absence of exogenous rIL-2. Response to HIV peptides was compared to response to a positive control antigen, Herpes simplex virus (HSV).
Results: Because it can be difficult to accurately predict immunogenic epitopes based on biochemical models alone, we chose to screen peptides covering the entire sequences of gp41 and gp120. Initially, peptide mixtures of three 15-mers were used to test for a positive proliferative response. If a peptide group gave a high rate of response, the individual peptides within that group were then tested on another series of subjects. It was found that approximately 30% of the HIV-infected subjects showed a positive proliferative response (SI $\geq$ 2) to three regions within gp41 and one region within gp120. Of the subjects tested with gp41 peptides, 8/11 (73%) showed a positive response to at least one peptide group/region, and all 8 subjects had a positive response (SI $\geq$ 4) to the control HSV antigen. By examining individual peptides, 4 peptides of gp41 and 2 peptides of gp120 were identified as epitopes responsible for the observed positive proliferative responses in the majority of individuals tested.
Conclusion: Our studies demonstrate that defined synthetic peptides can be recognized as T cell antigenic epitopes by cells from HIV-infected subjects. These peptides may provide valuable tools in the development and evaluation of subunit or recombinant vaccines for HIV, and for the study of specific cellular immune responses to HIV.

1087 CYTOTOXIC T LYMPHOCYTE RESPONSE TO HIV IN HOMOSEXUAL MEN WITH KNOWN DURATION OF INFECTION

Rinaldo, Charles R.; Torpey, D.J., III; Faruki, H.; Liebmann, J.
University of Pittsburgh, Pittsburgh, Pennsylvania.

Objective: To assess cytotoxic T lymphocyte (CTL) activity against major HIV antigens in homosexual men with timed duration of infection.
Methods: Blood mononuclear cells were obtained from homosexual men in the Pittsburgh portion of the Multicenter AIDS Cohort Study who had known times of seroconversion to HIV. The cells were tested for cytotoxic activity in a 6 hr ^{51}Cr-release assay using autologous B cell lines infected with vaccinia vectors containing gag, pol or env genes (HIV strain IIIb; courtesy of B. Moss; NIH). Data were expressed as percent antigen-specific lysis at a 50:1, effector:target ratio.
Results: CTL activity was detected in all subjects against each HIV antigen, with a median of 6.0% (range, 1.6-30.8%) for gag, 10.5% (range, 7.8-26.9%) for pol, and 16.5% (range, 3.8-34.4%) for env. Depletion of CD16$^+$ natural killer cells resulted in no significant loss of lytic activity. Anti-HIV CTL activity was detectable as early as 18 months and as late as 64 months after documented seroconversion to HIV.
Conclusions: No associations have yet been noted between anti-HIV CTL responses and duration of infection or blood T cell counts in our cohort of predominantly asymptomatic homosexual men. Further studies are in progress to assess CTL activity in additional HIV seroconverters using HIV-vaccinia recombinant constructs and HIV peptides recognized as major CTL determinants.

1088 GLUTATHIONE REGULATES CD4 AND CD8 EXPRESSION IN MURINE SPLENIC LYMPHOCYTES

Liang, Chi-Ming; Liang, S.-M.; Henry, S.; Epstein, J.S. Food and Drug Administration, Bethesda, Maryland, USA

Objective: To study the effect of glutathione (GSH) on expression of murine CD4 and CD8 in splenic lymphocytes, as a model system.
Methods: Murine splenic lymphocytes were cultured in vitro for 48-72 h with or without GSH or with L-buthionine-(S,R)-sulfoximine (BSO), an inhibitor of de novo GSH synthesis, and then treated with fluorescein isothiocyanate-labeled anti-murine CD8 or phycoerythrin-labeled anti-murine CD4 antibodies. The cells were then analyzed on a FACStar Plus (Becton Dickinson) flow cytometer. The frequency and intensity of the $CD4^+$ and $CD8^+$ cells cultured with and without GSH or BSO were compared.
Results: Treatment of murine lymphocytes with GSH (1 mg/ml) increased the cellular GSH level by 20 fold (from 100 ng to 2,000 ng/ 10^6 cells), and this increase was fully inhibited by BSO. GSH treatment increased the population of $CD8^+$-cells by 3-fold (from 3.2% to 10.6%) while untreated cells were the same as BSO treated cells. Although GSH treatment did not significantly increase the population of $CD4^+$-cells (34.2% vs. 36.8%), the fluorescence intensity of $CD4^+$ cells was higher after the treatment (peak channel shift from 550 to 593).
Conclusion: Elevation of cellular GSH increases the expression of CD4 and CD8 receptors in murine lymphocytes. This result provides indirect support for the hypothesis that depletion of cellular GSH contributes to the immune dysfunction in AIDS.

1089 EARLY IMMUNE ACTIVATION EVENTS AFTER HIV INFECTION

Melmed, Raphael; Fahey, J.L.; Taylor, J.M.G.; Detels, R.; Hofmann, B.; Rinaldo, C.; Saah, A.; Huprikar, J.; Munoz, A.; Kaslow, R.A.; Phair, J.
Multicenter AIDS Cohort Study (MACS), Los Angeles, CA., USA.

Objective: To determine the frequency and scope of changes in beta-2 microglobulin (B2M) and neopterin (immune activation markers) following seroconversion and to relate these findings to subsequent changes in CD4 T cells and AIDS occurrence.
Methods: B2M and neopterin were measured serially by RIA in the serum of 123 seroconverting men participating in MACS.
Results: Both serum B2M and neopterin rose in the first seropositive samples in over 80% of the subjects. On the average, B2M increased by 47% and serum neopterin by 76% after seroconversion. Many individuals tended to maintain the levels reached in the first year, although some with low levels increased later and a few with high levels showed some decrease. The post-infection level of B2M and neopterin correlated (rho=-.47) with the CD4 T cell level 2 years later. The rises in B2M and neopterin correlated with each other (rho=.48). 20 individuals who developed AIDS within 3 years of seroconversion had high levels of B2M and neopterin a the rapid rate of CD4 T cell fall.
Conclusion: Immune activation (including increased serum B2M and neopterin) occurs promptly after HIV seroconversion and predicts fall in CD4 T cell levels.

1090 SERUM SOLUBLE CD8 MOLECULE IS A MARKER OF IMMUNE ACTIVATION AND HIV PATHOGENESIS

Nishanian, Parunag, Hofmann,B., Liao,D., Detels,R., Fahey, J.L.
UCLA Schools of Medicine and Public Health, L.A., California

Objective: To assay serum sCD8 levels and evaluate their significance HIV-infected individuals.
Methods: A sensitive and specific quantitative ELISA was developed to measure soluble CD8 in sera, using anti-CD8 monoclonal antibodies and the biotin-avidin system 'Becton-Dickinson).
Results: The level of serum sCD8 was low at 29.6 ± 20.8 u/ml in normal controls (30), increased significantly to 44.6 ± 22 u/ml in seronegative high-risk controls(49) and seroconverters (45)at 6 months before seroconversion (44 ± 19.2), sharply increased, mean 65%, after seroconversion, and stayed at a plateau for the subsequent 2-3 years. The mean level for the asymptomatic seropositive group (66) was 70 ± 27. sCD8 remained elevated in patients with AIDS (26), compared with seronegative controls. There was significant correlation between the level of sCD8 and CD4 and CD8 cell counts and ratio, serum neopterin and beta-2 microglobulin levels.
Conclusions: The results suggest that serum sCD8 levels reflect the activation of CD8 T cells in response to HIV infection. sCD8 is a marker of immune activation and HIV disease status.

1091 THE DIMINISHED ERYTHROCYTE-CR1 ACTIVITY OF PROGRESSIVE HIV INFECTION IS ASSOCIATED WITH CHRONIC COMPLEMENT CONSUMPTION AND CYTOKINE RELEASE.

Lange, Michael; Senderowicz, A.; Mohan, V.; B.-Klein, E.; Inada, Y.; et al.
St.Luke's-Roosevelt Hospital Center, Columbia University, New York, NY, USA.

Objective: To investigate if the decreasing E-CR1 binding activity associated with progressive HIV infection is accompanied by increased consumption of alternate pathway(AP) and terminal complement cascade(TCC) as well as cytokine production.
Methods: E-CR1 direct Coombs' for IgG & C3, complement split products(CSP: C3a desArg, SC5b-9, Bb, C5a), total hemolytic complement CH50, TNFα, IL-1α, p24Ag and acid labile α-interferon(AL-INF) were measured on prospectively collected samples as follows: Gp1; control 10 Heterosexual hospital workers, HIV-. Gp2; 22 Homosexual volunteers, HIV-. Gp3; 25 Homosexual volunteers, HIV+. Gp4; 24 HIV+ ambulatory clinic patients, of whom 17 had AIDS/severe ARC and 7 LAS/mild ARC.

Results:

	n	C3a desArg	SC5b-9	Bb	TNFα	IL-1α
Gp1	10	678±142	534±233	0.32±0.10	0	0
Gp2	22	660±160	713±235	0.27±0.13	1/16(6)	2/16(12)
Gp3	25	687±194	591±241	0.31±0.12	2/25(8)	3/25(12)
Gp4	24	1969±791	1557±791	0.78±0.29	17/20(85)	6/18(33)
		ng/ml	ng/ml	ug/ml	cases(%)	cases(%)

C5a and CH50 showed no statistical differences. Mean levels for C3a desArg, SC5b-9 and Bb were markedly increased in Gp 4 compared to Gps 1,2 and 3(p< 0.005 for all 3 comparisons). Patients with LAS more often had TNF with IL-1, whereas AIDS had TNF/AL-INF/p24Ag. No cytokine combinations occured in Gps 1,2 and 3. Triple CSP elevation occured in 96% of Gp 4, in none of Gps 1 and 3 and one in Gp 2.
Conclusion: Increased consumption of AP and TCC occurs in late stage of HIV infection. The accompanying elevation of TNF with or without IL-1 can result in increased HIV transactivation potentially setting up a vicious circle.

1093 THE HUMAN ENV-LIKE PROTEIN IS AN MHC CLASS I MOLECULE

Siccardi, Antonio G.; Grassi, F.; Lanza, P.; De Santis, C.; Pelagi, M.; Beretta, A.
Dipartimento di Biologia e Genetica per le Scienze mediche, Università di Milano, Italy.

Objective: To determine the relevance of the human *env*-like protein (HELP) in HIV infection. HELP is a 45kDa activation protein of monocytes and lymphocytes defined by two monoclonal antibodies (M38 and L31) obtained from a mouse immunized with HIV. M38 (but not L31) immunoprecipitates HIV 1 gp120, inhibits macrophage antigen presentation and inhibits syncythium formation between the cell lines 8E51(HIV 1) and MOLT-3. L31 is more affine for HELP and inhibits T4 cell proliferation after mitogenic stimuli.
Methods: Affinity purification on solid-phase monoclonal antibodies, radioimmunoprecipitation, Western blotting.
Results: Solid-phase M38 coprecipitates ß2-microglobulin, and anti-ß2 coprecipitates HELP. Conversely, L31 does not coprecipitate ß2-microglobulin (its binding probably dissociates the bimolecular complex). Moreover, affinity purified HELP is reactive with monoclonal antibodies which recognize monomorfic determinants of HLA A,B,C.
Conclusion: The finding that HELP is a class I molecule could explain why it is present in the virions of HIV 1, HIV 2 and HTLV-1 and, possibly, the frequent occurrence of anti HELP antibodies in patients' sera. However, the tissue distribution of HELP is highly restricted (activated monocytes and lymphocytes and endothelial cells) and does not correspond to the distribution of classical HLA molecules.

1094 INFECTION OF CD4 NEGATIVE EPITHELIA IN VITRO.

David M. Phillips and Aldar S. Bourinbaiar.
The Population Council, 1230 York Avenue, New York, NY 10021

Objective: HIV can be transmitted either by direct exposure to infected blood or through indirect exposure across epithelial barrier as it occurs in cases of milk-borne transmission, intrauterine exposure during pregnancy, and also as result of sexual contact. However, the mechanism of HIV infection through intact epithelia is not well understood.
Methods: An *in vitro* model representing exposure to HIV or HIV-infected leukocytes to CD4 negative mucosal epithelium was established. Grown to confluence epithelial cell line (Intestine 407) was exposed for various time periods to HIV infected lymphocytes (MOLT 4) or monocytes (U937) and followed by electron microscopy.
Results: The cell-to-cell contact induced absorptive epithelial cells to uptake HIV via three independent mechanisms: 1) absorptive endocytosis or phagocytosis; 2) direct fusion with target membrane; and 3) endocytosis via coated pits. HIV internalized via endocytic vesicles escapes into cytoplasm of acceptor cell by fusion with endosomal membrane. Occasionally it was observed that HIV directed into lysosomal compartment causes dissolvement of lysosomal membrane and subsequently could be found released into cytosol in form of free coated virions disseminated within acceptor cell.
Conclusion: Established model could serve as an illustration of HIV transmission across intact epithelium in case of mother-to-child vertical transmission as well as in case of sexual transmission. Although, the exact mechanism responsible for existence of multiple types of HIV entry is not well known, the possibility of simultaneous viral uptake via three different mechanisms by the same CD4-negative epithelial cell indicates on complexity of modes of HIV infection and may have important consequences on the preventive strategies against HIV.

1095 THE NEUROPATHOGENIC POTENTIAL OF HIV-1 ISOLATES IN CNS ORGANOTYPIC CULTURES.

Lyman, William D.; Hatch, W.C.; Tricoche, M.; Kress, Y.; Chiu, F.-C.; Rashbaum, W.K.; Soeiro, R. Albert Einstein College of Medicine, Bronx, NY, USA.

Objective: The human immunodeficiency virus type-1 (HIV-1) can be detected in the central nervous system (CNS) of patients with the acquired immunodeficiency syndrome (AIDS). The association of HIV-1 with CNS lesions has led to the belief that HIV-1 is neurotropic and neurovirulent. However, the precise role of HIV-1 in CNS pathology remains enigmatic. The enigma is compounded by the fact that different isolates of HIV-1 may have distinct cellular tropisms. This study compares the potential of various HIV-1 isolates to cause pathologic changes in human fetal CNS organotypic cultures.
Methods: Explants of human fetal CNS are maintained in organotypic culture for up to 8 weeks. Initial studies, using light and electron microscopy (LM and EM) in combination with immunocytochemistry and Western blots, confirm that the cultures contain normal nervous tissue cellular elements. After obtaining baseline values, cultures are exposed to various HIV-1 isolates including IIIb, IIIcc, RF, MN (obtained from peripheral blood cells) or BR, JR-CSF, JR-FL, and SF162 (obtained from CNS tissue or cerebrospinal fluid of AIDS patients). The resultant infection and pathology are analyzed using protein chemistry, immunocytochemistry in combination with LM and EM, and by application of the polymerase chain reaction.
Results: There is no significant difference in the ability of the various HIV-1 isolates tested to cause significant pathologic changes in CNS tissue. The pathology associated with each isolate consists of extracellular edema, intracytoplasmic lipid deposition, dissolution of normal chromatin patterns and cellular drop-out.
Conclusions: Because different HIV-1 isolates cause equivalent CNS pathology in vitro, variations in AIDS neuropathology in vivo may not be related to proposed differences in the neural cell tropisms of distinct isolates but rather to other factors.
(Supported by DA 05583, MH 46815, DA 04583 and NS 11920, AI 27671 and AI 20671)

1096 RE-EXPRESSION OF CD4 AND AUTOANTIBODY-REACTIVE ANTIGEN ON AIDS PATIENTS' T LYMPHOCYTES AFTER TRYPSIN TREATMENT

Small, C.*, Calvelli, T.**, Muck, P.*, Golodner, M.**, and Rubinstein A.** *Montefiore Medical Center, and **Albert Einstein College of Medicine, Bronx, New York, USA**

Objective: To determine whether autoreactive antigen on AIDS patients' T cells can regenerate after trypsin treatment to remove bound autoantibody or HIV protein(s).
Methods: Nylon-wool purified T cells from adult AIDS patients were exposed to 0.25% trypsin. Surface antigens were regenerated in the absence of HIV by incubation in RPMI containing 15% FCS for 72 hours. Both pre- and post-trypsinization, cells were stained with FITC-conjugated monoclonal anti-CD3, CD4, and CD8; and reacted purified $F(ab')_2$ fragments from AIDS patient IgG autoreactive with AIDS T cells, followed by FITC-conjugated goat anti-human $F(ab')_2$, and analyzed by flow cytometry.
Results: Of 12 patients tested, T cells from 10 reacted with AIDS autoantibody $F(ab')_2$. Of the 10 who reacted with autoantibody before trypsin, 5 had increased CD4 following trypsin treatment. All tested also still reacted with the $F(ab')_2$, and 2 of these showed increased reactivity. In addition, 2 patients whose cells did not react with autoantibody before trypsinization, reacted afterward; and 1 also showed increased CD4. Ten HIV negative controls did not react with autoantibody before or after trypsinization, and showed no increase in CD4 after trypsin treatment.
Conclusions: (1) CD4 on AIDS T cells increased after trypsinization, suggesting it may have been 'masked' by bound autoantibody and/or HIV; (2) after trypsinization, all patients still reacted with autoantibody $F(ab')_2$, indicating that the autoreactive protein is regenerated post-trypsinization; and (3) autoreactivity increased for 4 patients after trypsinization, suggesting that HIV is not the autoantibody target.

1097 HUMAN IMMUNODECIENCY VIRUS REPLICATES SELECTIVELY IN HUMAN MONOCLONAL CD4+ LYMPHOCYTES SUBPOPULATIONS

A.Chapel*; A.Bensussan**; J.F.Bourge**; E.Vilmer***; and D.Dormont*,* ****
*CRSSA CEA DPS/SPE 92265 Fontenay aux Roses, **INSERM U93, Hopital Saint Louis, *** Hopital Robert Debré, **** Institut Pasteur, Paris, France.

Objective: In order to investigate viral entrance of HIV1 into susceptible cells, we performed a screening of human monoclonal CD4+ lymphocytes susceptibility to HIV .
Methods: 12 human CD4+ clones have been characterized and tested regarding their susceptibility to two HIV1 strains. Viral replication was sequentially studied by reverse transcriptase assay, immuno-capture (P24), immunofluorescence, over a 21 days postinfection period. Integration of proviral sequences was evaluated by molecular hybridization (DOT blot) and Polymerase Chain Reaction in Gag, Pol and Env regions.
Results: Three different types of clones were identifiable: 5 clones were susceptible to HIV1 strains (positive RT assay, immunocapture, immunofluorescence, cytopathic effects, positive hybridization in DOT blot and PCR), 6 clones did not replicate any viral strain used in this experiment (negative RT assay, negative immunocapture, negative immuno- fluorescence and no hybridization in Dot blot, but positive in PCR), One was negative in RT assay, but positive in immunocapture and positive hybridization in DOT blot and PCR.
Conclusion: PCR, permits to conclude that all CD4+ human lymphocyte clones are infectable. All these experiments are in favour of the existence of three human CD4+ lymphocytes subpopulations: the first one, permissive, replicates HIV; the second, "non permissive" just integrates HIV proviral DNA, without any early replication; the third, is intermediate, with a partial replication. The differences in HIV susceptibility, observed in our clones may not be related to the nature of the viral strain used for infection assays, suggesting the importance of virus host cell interactions in the viral replication level. Permissivity mechanisms are under investigation.

1098 TITER AFFINITY PARAMETER: A NEW BLOOD MARKER FOR MONITORING INDIVIDUALS WITH HIV DISEASE

Umovitz, H.B.*; Haight, V.*; Schooley, R.T.**; Flynn, T.**; Conant, M.A.***; Gottfried, T.D.*
*Calypte Biomedical Corp., Berkeley, CA, USA, **Mass. Gen. Hosp., Boston, MA, USA, ***UC Med. Center, San Francisco, CA, USA

Objective: To evaluate the humoral response to both HIV-1 core and envelope proteins as a prognostic marker in HIV-1 disease.
Method: A quantitative assay, Fine Titer Analysis (FTA), has been developed to determine more precisely the HIV-1 core and envelope antibody responses. FTA is based on a recombinant core and envelope solid phase enzyme immunoassay. The data are normalized by using the Titer Affinity Parameter (TAP) which is a function of antibody concentration and affinity.
Results: Data are presented on 7 patients from a longitudinal study showing significant changes in antibody activity as determined by TAP. Positive and negative fluctuations in TAP were independent of the CD4 T lymphocyte count. Each patient demonstrated a cycle of reduction in antibody activity followed by a recovery phase regardless of the stage of disease.
Conclusion: These results describe increases and decreases in HIV-1 core and envelope antibody responses in asymptomatic seropositive individuals. These cycles may correlate with virus or viral derived product bursts through all stages of HIV infection. Significant bursts of biologically active material should influence the titer and affinity of antiserum with time. A prospective study is in progress correlating TAP with other prognostic markers. FTA may identify critical times for the administration of anti-viral treatment.

1099 DETECTION OF HIV-1-INFECTED CELLS BY NONISOTOPIC IN SITU HYBRIDIZATION

Pingel,Sabine§;Werchau,H.§;Schmidt,E.§§;Richter,E.O.§§§
§University of Bochum,Bochum,FRG;§§University of Mainz,Mainz,FRG;
§§§University of Würzburg,Würzburg,FRG

Objective:A method of nonisotopic in situ hybridization has been developed to detect and localize HIV-1-specific nucleic acid sequences in peripheral blood mononuclear cells (PBMCs) isolated from patients with asymptomatic infection,the AIDS-related complex (ARC) or the acquired immunodeficiency syndrome (AIDS).
Methods:Experimental conditions were investigated on cytological preparations of in-vitro infected cell culture systems (H9,CEM,PBMCs). DNA - probes derived from clone pBH10-RIII were labeled with biotin-dUTP and hybridized to the target sequences.Hybridization sites were subsequently visualized by fluorescence detection methodology.The presence of viral proteins was monitored in parallel by indirect immunofluorescence assays. These methods were employed in a clinical study to determine the proportion of infected cells after isolation.
Results:The sensitivity of the technique was sufficient to detect HIV-1-RNA in cells,HIV-1-DNA within interphase nuclei and few copies of the integrated proviral genome in metaphase spreads.Freshly isolated PBMCs reflected RNA-positive cells at frequencies ranging from 10^{-3} to less than 10^{-4}
Conclusion:The study suggests that in situ hybridization with biotinylated probes may serve as an alternative assay in monitoring the course of infection and in screening clinical specimens for the presence of HIV.

159

1100 DETECTION OF HIV-1 DNA BY PCR USING STRUCTURAL AND REGULATORY GENES ON BLOOD SAMPLES FROM SERONEGATIVE HIGH RISK PATIENTS.

M.R.Dawood*, R.Allan*, W.Stackiw*, B.Conway**, L.J.Bechtel**, M. S. Hirsch** and G.Hammond *. *Cadham Provincial Laboratory, Winnipeg, MB, Canada. **Massachusetts General Hospital E. (M.G.H.), Charlestown, MA, USA.

Objectives: To study the use of oligonucleotide primers from gag, pol, and vif genes for the detection of HIV-1 DNA in blood samples from seronegative high risk patients.

Methods: DNA was extracted from PBLs collected from 10 seronegative staff without risk factor for HIV-1 infections, 38 high risk seronegative patients and 22 seropositive patients. One microgram aliquots from each patient were used for the detection of HIV-1 DNA using the PCR technique. Oligonucleotide primers from the conserved regions of the gag, pol, and vif genes were used for PCR. After 30 cycles of PCR using Taq polymerase, DNA was southern-blotted. Membranes were hybridized with ^{32}P probes, then autoradiographed. DNA specimens under code from high risk patients were tested in parallel with PCR at M.G.H. using another set of primers from the pol gene and an alkaline phosphatase linked probe. A sample was considered positive with at least 3 positive primers out of 4, (-) if negative with at least 3 primers and (+/-) if positive with only 2 out of 4 primers.

Results:

	+	-	+/-
High risk/seronegative	4†/38	25/38	9/38
No risk/seronegative	0/10	10/10	0/10
Seropositive	21/22	0/22	1/22

† Two of the specimens were found to be recent seroconversions at the time of PCR testing.

Conclusions: It is important to verify HIV-1 PCR results with more than one set of primers and probes. The criteria for interpretation of PCR results requires further standardization.

1101 REGULATION OF VIRAL ENTRY AND SYNCYTIA FORMATION IN HIV-1 INFECTED T-CELL SUBCLONES BY TNFα

Gruber, Marion; Hewlett, I.; Simms, T.; Vujcic, L.; Manischewitz, J.; and Golding, H. FDA, CBER, Bethesda, Maryland, USA.

Objective: To study viral entry and HIV-1 induced cell fusion in subclones of CEM T cells treated with TNFα.

Methods: CD4 positive subclones differing in CD4 expression and in HIV-1 infectibility were studied. CD4 surface density was determined by cytofluorometry. Viral entry was measured by appearance of proviral DNA templated shortly after viral exposure by quantitative polymerase chain reaction (PCR). The effect of TNFα treatment on HIV-1 infection was determined in syncytia formation assays (number/well) and measuring reverse transcriptase activity (cpm).

Results: 1) Syncytia formation does not correlate with CD4 cell surface density. 2) Two CEM subclones, expressing high levels of CD4 are deficient in syncytia formation after HIV-1 infection. 3) The syncytia deficient clones contain lower amounts of proviral DNA than syncytia positive clones when analyzed shortly after HIV-1 exposure. 4) Pretreatment of syncytia positive clones with TNFα prior to viral infection enhances giant cell formation. 5) Formation of giant cells is induced in the syncytia deficient clones by adding TNFα 24h postinfection but not by TNFα pretreatment. 6) We will present evidence for a participation of TNFα in viral entry and formation of proviral DNA.

Conclusion: TNFα may play a multifunctional role in HIV-1 infection. In addition to its effect on virus transcription it may affect very early steps of viral entry.

1102 DIFFERENTIAL KINETICS OF HIV-1 REPLICATION IN U-937 CLONAL DERIVATIVES: A MODEL FOR LATENCY IN CELLS OF MONOCYTOID ORIGIN

Boulerice, François, Geleziunas, R., Lvovich, A., Wainberg, M.A., Jewish General Hospital and McGill University AIDS Centre, Montreal, Quebec, Canada.

In this study, single cell clones were obtained from the U-937 cell line by limiting dilution. These cells were studied for their susceptibility to HIV infection. We found that two clones (UC12, UC18) could easily support HIV-1 and HIV-2 replication compared with parental U-937 while another clone (UC11) showed baseline infection throughout a ten week culture period. The difference in susceptibility did not correlate with the expression of surface CD4. First, FACS profiles showed equivalent surface CD4 expression for each cell type as detected by Leu3a mAb reactivity. In addition, relative CD4 mRNA expression in each clone was comparable to that of parental U-937. Finally, the level of binding of radiolabeled HIV-1 did not correlate with higher or lower susceptibility to infection. Blocking experiments using Leu3a mAb totally abrogated infection, suggesting that no other receptors were recognized by HIV. Results obtained by polymerase chain reaction analysis and Southern blotting suggest the existence of factors which regulate HIV replication and/or integration after viral entry. This system represents a good model for the study of HIV latency in cells of monocytic origin and may provide a useful tool for studying the role of cellular factors which restrict or enhance viral replication.

1103 INFLUENCE OF ACYLATION INHIBITORS ON THE INFECTIVITY OF HIV-1 IN VITRO

Saermark, Torben*, Kleinschmidt, A.**, Erfle, V.***
*The Protein Laboratory, University of Copenhagen, DK-2200 Copenhagen, DK; **University of Munich, D-8000 München, FRG; ***GSF, Abt. f. Mol. Zellpathologie, D-8042 Neuherberg, FRG

Objective: Influence of acylation inhibitors (like cerulenin and myristic acid analogues) on the release of infectious virus particles.

Methods: Infected cells were incubated with the acylation inhibitors in various concentrations for 24-48 hours. Virus release was demonstrated by incubation of the supernatant with HIV-1 susceptible LC5, followed by immunoperoxidase staining for viral antigens five days after reinfection. Control experiments for the effect of glucosamine were carried out with glucose.

Results: Tetradecanal and myristoylated glycine were both found to be competitive inhibitors of N-Myristoyl Transferase (NMT) and of myristoylation of p17gag and p27nef. Glucosamine also inhibited NMT activity and acylation.

We showed that these acylation inhibitors reduced the release of infective viral particles from LC5 cells. In contrast to cerulenin these are non-toxic and do not affect protein synthesis in the concentration used. Glucosamine also inhibited virus release.

Conclusion: Inhibition of myristoylation in HIV-1 infected cells results in a reduced release of HIV-1 presumably due to inhibited acylation of p17gag. The inhibitors are non-toxic to cells.

1104 COMPARATIVE NEUROPATHOLOGY OF HUMAN (HIV) AND SIMIAN (SIV) IMMUNODEFICIENCY VIRUS INFECTIONS IN MAN AND MACAQUE MONKEYS.

Ribas, Jorge L.*,***, Kanzer, Michael D.***, McClure, Harold M.****, Anderson, David W.** *The Henry M. Jackson Foundation, Bethesda, MD, **Walter Reed Army Institute of Research and ***Armed Forces Institute of Pathology, Washington, DC, and ****Yerkes Regional Primate Research Center, Emory University, Atlanta, GA, USA.

Objective: To compare type and general distribution of lesions in human and macaque monkey central nervous system (CNS) infected with HIV and SIV, respectively.
Materials and Methods: CNS tissues from experimental macaque monkeys, which were chronically infected with SIV/SMM or acutely infected with a lethal variant SIV/SMM$_{PBj14}$, were compared with autopsy CNS tissues from pediatric and adult patients dying with AIDS.
Results: A subacute meningoencephalomyelitis, characterized by randomly distributed perivascular collections of macrophages, glial cells and multinucleated giant (syncytial) cells, was present in both HIV- and SIV-infected CNS. Leptomeningeal lesions predominated in early stages of SIV-CNS infection, but with progression of disease the lesions were mainly parenchymal. In HIV-CNS infection lesions were primarily parenchymal and were localized in subcortical white and gray matter. Many concurrent opportunistic infections occurred in adult HIV-CNS, but cytomegalovirus reactivation was the main opportunistic infection present in pediatric HIV-CNS and SIV-CNS. Opportunistic neoplasms occurred in 5% of HIV-CNS and none were seen in SIV-CNS. Vacuolar myelopathy was present in adult HIV-spinal cord only. Gross cerebrocortical atrophy occurred in 30% of HIV-infected brains, but it was not observed in SIV brains. Vascular and parenchymal calcification was seen in pediatric HIV-CNS, only.
Conclusion: Infection with SIV more closely resembled pediatric than adult HIV meningoencephalitis. Because of the differences in HIV and SIV neuropathological expression, SIV strains that approximate more closely clinical and pathological chronic CNS disease in humans need to be developed (supported in part by grants RR00165 and WRAIR/AFIP U941).

1105 TISSUE-SPECIFIC ACTIVATION OF THE HIV-1 LONG TERMINAL REPEAT (LTR) BY MORPHINE IN TRANSGENIC MICE.

Prakash, Om; Mukherjee, P.K.; Wang, T.-Y.; Mondal, D., and Coleman, R.
Laboratory of Molecular Oncology, Alton Ochsner Medical Foundation, New Orleans, Louisiana, U.S.A.

Objective: To determine the cofactors in the in vivo induction of HIV expression.
Methods: We have generated 4 strains of transgenic mice from founder animals carrying the HIV-1 LTR fused to the bacterial chloramphenicol acetyl$_4$transferase (CAT) reporter gene. CAT activities (percent conversion of ^{14}C-chloramphenicol into the acetylated forms) in the various tissues of morphine-treated and-untreated animals were compared.
Results: The mice in strains 1 and 2 show undetectable levels of CAT expression in the organs, whereas mice in strains 3 and 4 show highest levels (3-6% conversion per 100 ug protein/16 hours) in the thymus, spleen and spinal cord. Lower levels (<0.5% conversion) were detectable in the other organs. However, when the mice in all the 4 strains were injected intraperitoneally with a single daily dose of morphine sulphate (200 mg/kg body weight) for 4 days, substantial CAT gene expression (2-7% conversion in strains 1 and 2; 30-60% conversion in strains 3 and 4) was observed in brain, spinal cord and eyes of the morphine-treated animals. The morphine-induced CAT expression in the brain was limited to only hypothalamus and mid-brain. A lower response was observed when lower doses of morphine were used.
Conclusion: Our studies suggest that morphine and perhaps other opiates might directly alter susceptibility of an individual to HIV infection and development of AIDS-related symptoms. Studies are now underway to understand the in vivo activation of the HIV-1 LTR by morphine.

1106 INTERLEUKIN-1-MEDIATED STIMULATION OF TRANSFORMING GROWTH FACTOR BETA IN ASTROCYTES.

da Cunha, Antoinette; Fauci, A.S.; Vitkovic, L. NIAID, NIH, Bethesda, Maryland, USA.

Objective: Interleukin-1 (IL-1) is induced by HIV-1 in monocytes and is proliferative for astrocytes. Since IL-1 is also elevated in cerebrospinal fluid (CSF) of AIDS patients we investigated its effect on astrocytic production of transforming growth factor beta (TGFβ), a potent chemoattractant for monocytes.
Methods: Astrocytes derived from 1-day-old rat cerebral cortices were grown for 2 to 4 weeks in 95% pure primary cultures. TGFβ was measured in total cellular RNA by Northern and slot blot hybridization with [^{32}P]dCTP-labeled EcoR1 insert of TGFβ-1 cDNA under high stringency followed by autoradiography and densitometry. TGFβ protein was detected immunocytochemically with affinity-purified rabbit anti-TGFβ antibody (R & D Systems) as previously described. B cell lymphoma (BJAB) and 13-phorbol-12-myristate acetate (PMA) - stimulated Jurkat T cells served as positive and non-stimulated Jurkat T cells as negative controls for immunocytochemistry.
Results: Astrocytes grown from 4 to 50 days contained a 2.4 kb RNA which hybridized with the TGFβ cDNA. No other size RNA hybridized with this probe. The expression of 2.4 kb RNA in astrocytes increased during the first 2 weeks and remained constant thereafter. TGFβ-like immunoreactivity was present in only some astrocytes just as it was present in some, but not all, control cells. The level of TGFβ protein in astrocytes was lower than in controls as judged by the intensity of staining. IL-1 (5 U/ml) increased TGFβ mRNA in 6 hours by 2 to 3 fold. This increase was dose-dependent and specific in that tumor necrosis factor alpha, PMA, and lipopolysaccharide were ineffective.
Conclusion: A subpopulation of cortical astrocytes constitutively express TGFβ and this expression is stimulated by IL-1. These results suggest that secretion of IL-1 by HIV-infected monocytes may stimulate production of astrocytic TGFβ which in turn may lead to monocytic infiltration of brain parenchyma.

1107 HIV NEUTRALIZING AND ENHANCING ANTIBODY RESPONSES TO MICROGENESYS rgp160 VACCINE IN HUMANS

Montefiori, David C.; Graham, B.; Robinson, W.E., Jr; Wright, P.; and the NIAID AIDS Vaccine Clinical Trials Network. Departments of Pathology and Medicine, Vanderbilt University Medical School, Nashville, TN, USA.

Objective: To assess functional immune responses to a fourth administration of an HIV-1 gp160 vaccine in normal volunteers.
Methods: In a multicenter randomized, double-blind study, healthy adult volunteers received 40 ug or 80 ug of a baculovirus-derived, recombinant HIV-1 gp160 (rgp160) vaccine (MicroGeneSys) on days 0, 30, 180 and 544. A control set of subjects received placebo or hepatitis B vaccine. Neutralizing (NT) and complement-mediated, infection-enhancing antibody (C'-ADE) titers were measured in an MT-2 cell cytopathic infection assay. Antibody responses were also assessed by Western immunoblot.
Results: Sera from day 559, 2 weeks after the fourth dose, were tested from 14 vaccinees. NT antibodies were found in 2/8 subjects at the 40 ug dose, and in 2/6 subjects at the 80 ug dose. NT titers were moderately higher in the 80 ug group. C'-ADE was only detected in the two individuals with NT antibodies at the 80 ug dose. Titers of C'-ADE activity were lower than NT antibody titers. No NT or C'-ADE antibodies were detected in the control groups. Functional antibodies correlated with gp160, gp120 and gp41 immunoblot reactivities.
Conclusions: The MicroGeneSys rgp160 vaccine candidate can elicit antibody responses in humans at 40 ug and 80 ug doses that have functional activity *in vitro*. A long interval between boosts enhances antibody response.

1108 QUANTITATION OF HUMAN IMMUNODEFICIENCY VIRUS (HIV) IN SEROPOSITIVE PATIENTS AT DIFFERENT STAGES OF DISEASE

VedBrat, Sharan S.*; Pierce, P.**; Hellman, K. B.***
*Braton Biotech Inc., Rockville, Md., USA, **Georgetown Univ. Hospital, Washington D.C., ***Center for Devices & Radiological Health, Food and Drug Administration, Rockville, Md., USA.

OBJECTIVE: Medical devices coming in contact with body fluids during routine patient care may be vectors of HIV transmission. To assess this risk, it is important to determine HIV levels in body fluids of seropositive individuals. HIV levels were quantified in blood samples from 90 seropositive individuals at different stages of HIV disease by determining levels of HIV p24 antigen in plasma and frequency of infected peripheral blood mononuclear cells (PBMCs).
METHODS: Levels of HIV p24 in plasma and cocultures of patient PBMCs with normals, was determined by antigen capture (AC) assays. Frequency of HIV infected cells was determined by titration of PBMCs in multiple coculture experiments using improved coculture techniques.
RESULTS: Replicating HIV could be detected in more than 95% of the clinical blood samples irrespective of the stage of the disease and in majority of cases within 3-7 days of coculture. This represents a significant improvement of virus isolation technique over the previous reports. Using this approach, frequency of HIV infected cells was found to range from 1 in 100,000 to 1 in 324 PBMCs. Titration of whole blood, instead of PBMCs, was done in one coculture experiment in which even the lowest dose of 10ul of blood tested was found to be infectious.

AZT treatment of patients has no effect on the ability to isolate HIV from PBMC cocultures and some HIV isolates were found to be non-cytopathic.

1109 HIV-1-INFECTIVITY BIOASSAY

Pichler Christiane E., Bettens F., Pichler W.J., Felber B.K.*, Schwartz S.*, Pavlakis G.N.* and de Weck A.L. Institute for Clinical Immunology, Inselspital, Bern, Switzerland, *) National Cancer Institute, Frederick Cancer Research Facility, Bionetics Research Inc., Frederick, Maryland, USA.

Objectives: Short time bioassay to monitor HIV-1 virus infectivity in low numbers ($<10^6$) of PBMC.
Methods: 10^6 PBMC of HIV-1 infected individuals were stimulated with the anti-CD3 MoAb BMAO30 $F(ab)_2$ fragment crosslinked to the anti-CD4 MoAb (Clonab T4),(=dual antibody stimulation). Thereby selective stimulation of only $CD4^+$ T cells is achieved. HIV-1 replication was measured with a p24 enzyme immunoassay. To test HIV-1 infectivity, stimulated PBMC were cocultivated 2 days with the monocytic target cell line BF-24 (Science (1988), 239:184). The BF-24 cells have stably integrated copies of HIV-1 LTR promotor linked to the CAT gene (Chloramphenicol-acetyl-transferase). After HIV-1 infection, the virally encoded Tat proteins induce transcription of the CAT enzyme gene.
Results: Selective stimulation of $CD4^+$ cells in PBMC cultures of HIV-1 individuals enables to detect replicating virus 3 to 4 days after stimulation. In comparison, simultaneous stimulation of $CD4^+$ and $CD8^+$ T cells of HIV-1 individuals required longer *in vitro* cultures or inhibited detection of HIV-1 replication (p24 assay) and of HIV-1 infectivity (CAT enzyme assay).
Conclusion: Direct and selective stimulation of PBMC from HIV-1 infected individuals is possible and allows measurement of HIV-1 replication and infectivity without addition of allogene activated PBMC.

1110 ANTISERUM AGAINST PAPILLOMA-VIRUS ANTIGEN REACTS WITH INTRANUCLEAR PARTICLES IN KERATINOCYTES OF ORAL HAIRY LEUKOPLAKIA, AN AIDS-ASSOCIATED LESION.

Rabanus, Jörg-Peter; Greenspan, D.; Petersen, V.; Greenspan J.S. University of California, School of Dentistry, Oral AIDS Center, San Francisco, California, USA.

Objective: The observation that a rabbit antiserum against common papilloma-virus (PV) antigen reacts with the nuclei of keratinocytes in oral hairy leukoplakia (HL) has been difficult to reconcile with data showing heavy infection with EBV but no other evidence for PV. The objective of this study was to locate the binding sites of the antiserum at the ultrastructural level.
Methods: Three specimens of clinically suspected HL and two specimens of oral warts were fixed in 4% paraformaldehyde, sucrose-infiltrated, and shock-frozen in slush nitrogen. Ultrathin sections were incubated with MAb against components of EBV, MAb against cellular proteins, and with rabbit antiserum against the common PV antigen. The sections were labeled with immunogold conjugates and examined by electron microscopy.
Results: Antiserum against PV strongly reacted with arrays of intranuclear particles of about 35 nm, which are commonly seen in EBV-producing keratinocytes in HL. The antiserum also reacted with intranuclear structures of keratinocytes in oral warts. None of the MAb reacted with the intranuclear arrays in HL.
Conclusion: Staining of the nuclei of keratinocytes in HL with anti-PV antiserum is due to reaction with arrays of intranuclear particles, the nature and role of which remain to be established.

1111 IN VITRO PROLIFERATION OF SELECTIVELY STIMULATED HIV-1 INFECTED T CELLS.

Pichler Werner J., Bettens F., Pichler C.E. and de Weck A.L. Institute for Clinical Immunology, Inselspital Bern, Switzerland.

Objectives: Selective proliferation of HIV-1 infected T cell subsets of HIV-1 infected individuals to a) expand HIV-infected cells without separation techniques and b) study regulation of HIV-1 replication in cell culture.
Methods: PBMC of HIV-1 infected individuals were stimulated with the anti-CD3 MoAb BMAO30 $F(ab)_2$ fragment crosslinked to a second anti-T cell MoAb (i.e. anti-CD4 or -CD8 MoAb) in presence of monocyte supernatant and IL 2. Such dual MoAb stimulation (Eur. J. Immunol. (1987) 17:873) enables to selectively stimulate only those cells (i.e. $CD4^+$ or $CD8^+$) which are recognized by the second MoAb. Proliferation was measured by 3H-TdR uptake. HIV-1 replication was measured by p24 enzyme immunoassay.
Results: Cells of HIV-1 infected individuals responded normally to dual MoAb stimulation. The proliferation correlated to the $CD4^+$, respective $CD8^+$ cell number measured by immunofluorescence. Selective stimulation of $CD4^+$ cells led in certain individuals to enhanced levels of p24 antigens. Simultaneous stimulation of $CD4^+$ and $CD8^+$ or $CD8^+$ cells alone required longer *in vitro* cultures or inhibited detection of HIV-1 replication, emphasizing the regulatory role of stimulated $CD8^+$ cells on HIV-1 infection.
Conclusions: Selective *in vitro* stimulation of HIV-1 infected PBMC is possible and enables virus amplification in culture. It seems to be a suitable tool to study regulation of HIV-1 replication.

1112 GENERATION OF T CELL LINES AND ANTIBODIES TO A PEPTIDE FROM A PUTATIVE IMMUNOSUPPRRESSIVE REGION OF HIV-1 GP41

Voss, Gerald*; Nick, S.*; Frank, R.**; Hunsmann, G.*
*Deutsches Primatenzentrum, Göttingen, F.R.G., **Gesellschaft für biotechnologische Forschung, Braunschweig, F.R.G..

Objective: The aminoterminal region of HIV-1 glycoprotein (gp) 41 is known to contain immunogenic epitopes as well as immunosuppressive domains which may be important during natural infection with HIV-1. Using a synthetic peptide homologous to a part of the immunosuppressive region we raised antibodies and established two antigen-specific murine T cell lines. These supposed results reveal a B and T cell epitope in this same region of gp41.
Methods: The 13-mer peptide LQARILAVERYLK corresponding to amino acids (aa) 581-593 of HIV-1 gp41 was synthesized and coupled to keyhole limpet hemocyanin (KLH). A $Pam_3CysSer$-derivative of the peptide was incorporated into immunostimulating complexes (ISCOMS). Balb/c mice were immunized either with the KLH-peptide or the ISCOMS. After boostering mice were bled and antibodies to the peptide were detected by radioimmunoprecipitation. The spleen cells were collected to initiate T cell lines. Their specificities were determined with a proliferation assay and an Interleukin-2 (IL-2) assay on CTLL. The cell lines were characterized phenotypically with standard antibodies using flow cytometry.
Results: We raised specific antibodies precipitating HIV-1 gp160 after immunization of Balb/c mice with the KLH-coupled peptide. ISCOMS failed to elicit precipitating antibodies. Both preparations of the peptide gave rise to a specific T cell line. Restimulation with peptide yielded stimulation indices of at least 6.8. Flow cytometry analysis revealed that more than 78 % of the cells in both lines were positive for the murine helper T cell marker L3T4. Moreover IL-2 was detected in supernatants of both cell lines.
Conclusions: Our experiments revealed that aa 581-593 of HIV-1 gp41 are immunogenic for both murine B cells and helper T cells. For aa 581-597 an immunosuppressive effect was reported. Taking these differences into account we suggest that the four carboxyterminal aa 594-597 must be important for the supposed immunosuppression of this region of gp41 during infection with HIV-I.

1113 PHENOTYPIC CHARACTERIZATION OF LAK CELL FUNCTION IN AIDS PATIENTS

Gryllis, Chryssa, Gornitsky, M., Wainberg, M.A., Brenner, B., Lady Davis Institute - Jewish General Hospital, Montreal, Quebec, Canada.

Objective: LAK activity of AIDS patient and healthy control populations is contrasted using HIV-infected and -uninfected cell lines. The phenotype of subsets mediacing LAK cell function at the precursor, effector, and regulatory level is identified.
Methods: AIDS patients included HIV-seropositive individuals with secondary infections (CDC IV). Peripheral blood lymphocytes (PBLs) were used to generate LAK cells upon incubation with IL-2 for 6-8 days. The involvement of lymphocyte subsets was ascertained following their selective depletion. Cytotoxicity was deduced using 18 h ^{51}Cr release assays using HIV-infected and -uninfected U-937 cell lines.
Results: LAK cells from AIDS patients and controls show equal or enhanced capacity to lyse HIV-infected U-937 targets relative to their uninfected counterparts. LAK cells derived from PBLs depleted of Leu 19^+ NK cells show a 74 ± 12% (mean ± SD) reduction of cytotoxic activity relative to control LAK cells. Depletion of LAK cells of Leu 19^+ cells resulted in a 54 ± 16% loss of LAK activity. In contrast, LAK cells derived from PBLs depleted of $CD3^+$ T cells show a 3.7 ± 2.2 fold enhancement of LAK activity relative to control LAK cells. LAK cells depleted of $CD3^+$ cells show a 2.9 ± 1.8 fold enhancement of LAK activity.
Conclusion: NK cells are the progenitors and effectors of cytotoxic LAK function against both HIV-infected and -uninfected U-937 targets. T cells suppress LAK cell generation and function.

1114 IgG SUBCLASS-SPECIFIC ANTIBODY RESPONSES TO HIV INFECTION.

Ochs, Hans, Pyun, K., Wu, Y., Collier, A., Coombs, R., University of Washington, School of Medicine, Seattle, WA USA

Objectives: To determine HIV-specific IgG subclass antibody distribution in sera from asymptomatic or symptomatic HIV seropositive individuals.
Methods: Serum samples were collected from asyptomatic ELISA seropositive individuals (CDC Class II) from patients with persistent generalized lymphadenopathy (PGL, CDC Class III) and patients with AIDS (CDC Class IV); 30% were seropositive hemophilia patients (mostly CDC Class II). HIV-specific total IgG and IgG subclasses were determined by a sensitive ELISA method, using mixtures of subclass-specific mouse monoclonal antibodies.
Results: Total HIV-specific IgG antibody was highest in patients with PGL and lowest in patients with overt AIDS. HIV-specific antibody was represented in all four IgG subclasses. The highest proportion of HIV-specific antibody, 55-75%, was found in the IgG-1 subclass, followed by IgG-2 (10-35%), IgG-3 (4-10%), and IgG-4 (1-5%). The proportion of antibody of the IgG-1 class was highest in asymptomatic patients and the proportion of IgG-2 was highest in symptomatic patients (AIDS and PGL). IgG subclass distribution in hemophilia patients was similar to that of non-hemophilia patients.
Conclusion: HIV-seropositive individuals have HIV-specific antibody of all four IgG subclasses. The ratios are similar to those observed for IgG subclass concentrations in serum. During the course of the disease, HIV-specific IgG-1 antibody decreases as IgG-2 increases. This observation suggests that during HIV-infection variable gene rearrangement and stochastic downstreawm reading and rearrangement of the heavy constant region chain genes is normal and similar to observations made with other antigen systems.

1115 SEROLOGICAL EVALUATION OF RECOMBINANT ANTIGENS FROM ALL HIV-1 READING FRAMES

Vornhagen, Rolf[1]; Pichler, W.[2]; Franke, M.[3]; Baur, A.[4]; Wolf, H.[5]; Sonneborn, H.-H.[1] WEST GERMANY
1 BIOTEST AG, Research Dept., Offenbach, ~~FRG~~; 2 Institute for clinical Immunology, Bern, Switzerland; 3 Clinic for Internal Medicine I, Köln, FRG; 4 Institute for Clinical and Molecular Virology, University of Erlangen, FRG; 5 Max-von-Pettenkofer-Institut, München, FRG.

Objective: Evaluation of the antibody response against the different structural and regulative viral proteins during seroconversion and at different stages of HIV-infection.
Methods: DNA fragments of all HIV-1 reading frames have been cloned and expressed in E. coli. Bacterial lysates of selected clones have been evaluated in Western Blot experiments with 9 seroconversion panels and with more than 200 sera from infected individuals of different clinical stages.
Results and Conclusion: With seroconversion panels the first strong antibody response could be observed in general with the major structural antigens gp41, p66 and p24. In some cases, however, a weaker reaction with nef and vif occured even earlier. The other viral antigens including p17, gp120 and p31 are less important for the detection of seroconversions. With sera from different clinical stages gp41 (100%) and p66 (98%) revealed the highest seroprevalence rates. With the progression of the disease the reactivity of several antigens like p24, p17 and gp120 is clearly decreased, but according to our present knowledge there is no strict correlation between antibody reaction and clinical stage. Nef reacted with a limited number of sera from all clinical stages and individual follow ups clearly demonstrate that nef-specific antibodies can be induced even in late clinical stages.

1116 CHARACTERIZATION OF THE BIOLOGICAL PROPERTIES OF THE ACID-LABILE INTERFERON ALPHA FROM AIDS PATIENTS.

Der, S; Read, SE; Lau, Allan S. Division of Infectious Diseases, Hosp Sick Children, Departments of Pediatrics and Microbiology, University of Toronto, Toronto, Canada.

IFNs are naturally occuring proteins with potent antiviral and immunomodulatory properties. High levels of an unusual acid-labile interferon (IFN) α present in AIDS sera have been implicated in the pathogenesis of AIDS. We are interested to determine the biological properties of the acid-labile IFN-α as an initial step to investigate its role in HIV infections. We have previously reported that the acid-labile IFN-α is capable of inducing TNF synthesis and its receptor expression. Human IFN-α titers in patients' sera were quantitated by a cytopathic effect protection assay on T98G cells (glioblastoma), using recombinant IFN-α_2 (Schering) as standard. To test responsiveness of blood mononuclear cells to IFN, 2-5A synthetase activities of the cellular extracts were determined using poly r(I):r(C) coated agarose beads. We have shown that the acid-labile IFN-α subtype is capable of down-regulating IFN-α receptors and inducing 2-5A synthetase activity, similar to recombinant IFN-α_2 or leukocyte-derived interferon (Wellferon, Burroughs Wellcome). In determining the cellular origin, it appears that B-cell subsets from blood mononuclear cells are the main source of the acid-labile IFN subtype. On the contrary, HIV infection of CD4-expressing cells, including Jurkat and CEM, produces low levels of IFN-α. In accord with previous reports, the IFN-α subtype from AIDS sera is acid-labile and can be neutralized by anti-IFN-α antibodies. In addition, when IFN-α_2 or leukocyte IFN are treated with AIDS sera, the exogenous IFNs become acid-labile, similar to that of the endogenous IFN subtype found in AIDS sera. It therefore appears that the acid-lability of the IFN is dependent on the presence of an unknown factor in AIDS serum. In summary, we have determined that the IFN subtype present in AIDS has similar biological activities as leukocyte and recombinant α IFNs. (Supported by National Health Research Development Program, Canada)

1117 ANTIBODIES AGAINST NEUROTRANSMITTER RECEPTORS IN HIV INFECTED INDIVIDUALS.

de Bracco, Maria M.E.*, Sterin-Borda L** and Borda E.**; IIHEMA-Academia Nacional de Medicina* and CEFAPRIN-CONICET**, Buenos Aires, Argentina.

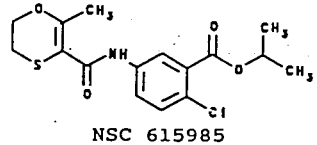
Objectives: In this report, we describe the occurrence of antibodies in HIV infected individuals, that can mimic the effect of cholinergic agonists.
Methods: Sera from 5 AIDS patients, and from 14 HIV+ and 15 HIV- hemophilic patients was assayed for their effect on heart contractility. Spontaneously beating rat atria were suspended in Krebs-Ringer-Bicarbonate solution, and dilutions of heat-inactivated serum (56°C, 30 min), or chromatography purified IgG were added. Changes of the isometric developed tension (IDT) were calculated in relation to equilibrium values.
Results: HIV+ sera reduced the IDT of isolated rat atria preparations (IDT % -22±4) after 15-20 minutes of incubation. In contrast, sera from HIV- hemophiliacs, slightly enhancedIDT (IDT %: +12±4) and sera from normal (N) individuals had no effect (IDT %: +3±5). Purified IgG was as active as unfractionated sera. Inhibition of IDT was dose-dependent reaching a plateau at 90 ug /ml HIV+ IgG. The maximum effect was achieved after 20 minutes of incubation. The negative inotropic action of HIV+ IgG was abolished by preincubation of the heart tissue with 10^{-7} M atropine and remained unchanged by 10^{-7} M propranolol treatment. In contrast, propranolol abrogated the weak positive inotropic response of atria to HIV- sera.
Conclusions: Our results suggest that antibodies reacting with neurotransmitter receptors are present in sera from HIV+ individuals. These antibodies might trigger cholinergic-like responses in the heart and could play an immunopathogenic role in the development of cardiac and neurologic disease in AIDS.

1118 AIDS ANTIVIRAL ACTIVITY OF OXATHIIN BENZOIC ACID ESTER (NSC 615985)

by Fred Midelfort, Robert Schultz, Ven Narayanan, James McMahon, John Bader and Michael Boyd, National Cancer Institute, Developmental Therapeutics Program, Bethesda, MD and James Pierce, Ashley Harrison and Gary Jewell, Uniroyal Chemical Co., Inc., Middlebury, CT.

The National Cancer Institute's Developmental Therapeutics Program is engaged in large-scale screening of diverse chemical structures for anti-HIV activity. A compound with hitherto unknown antiviral activity was submitted by the Uniroyal Chemical Co. It produced total inhibition of cell killing of CEM cells by HIV IIIb and RF strains over a wide range of concentrations. The effective concentration for 50% inhibition of cell killing (EC50) was 0.2 uM, and the inhibitory concentration for 50% inhibition of CEM cell growth (IC50) was greater than 100 uM.

The compound is benzoic acid, 2-chloro-5-[(5,6-dihydro-2-methyl-1,4-oxathiin-3-yl)carbonyl]amino-, isopropyl ester. Studies on its mode of action showed that it was neither an HIV reverse transcriptase nor an HIV protease inhibitor. It was fully effective if its addition was delayed for 8 hours after infection by virus, and delays as long as 20 hours gave some protection. The data suggest that the compound acts at a later stage of the virus life cycle after synthesis of viral DNA and integration into host DNA.



NSC 615985

1119 SELECTIVE INHIBITION OF THE GROWTH OF HIV-1 INFECTED CELLS BY A RIBOSOME-INACTIVATING PROTEIN (BRYODIN)

Wachinger, Michael.*; Samtleben, R.#; Festl, H.*; Wagner, H.#; Erfle, V.*
*GSF-Abteilung für molekulare Zellpathologie, D-8042 Neuherberg; #Institut für pharmazeutische Biologie der Universität München, D-8000 München.

Objective. Effect of bryodin, a ribosome-inactivating protein from the roots of *Bryonia dioica (Cucurbitaceae)*, on the growth of HIV-1 infected and uninfected T lymphoma cells and on HIV production in vitro.
Materials & Methods. KE37/1 cells, uninfected and persistently infected with HTLV-IIIB; LC5 cells; MTT test for determination of cell density; assay for reverse transcriptase (RT) activity; indirect immunoperoxidase staining (IPS) for HIV-1 antigens.
Results. Bryodin selectively inhibits the growth of HIV-infected T lymphoma cells. Two fractions of bryodin purified by dye ligand affinity chromatography were analysed with respect to their effects on growth and virus production: One fraction was mainly mitogenic, whereas the other fraction showed little mitogenic activity but strongly reduced virus production.
Conclusion. Bryodin selectively kills HIV-1 producing T lymphoma cells in vitro. Since bryodin lacks the membrane-binding subunit which is present in other ribosome-inactivating proteins such as ricin, this effect might be due to an altered membrane permeability for this substance in HIV-1 producing cells.

1120 MECHANISM OF HIV INHIBITION BY TWO DISTINCT SULPHATED POLYSACCHARIDES

McClure, Myra*; Weber, J.N.**; Cook, G.M.W.***; Keynes, R.***; Davies, D.**; Weiss, R.A.*. *Institute of Cancer Research, London, **Royal Postgraduate Medical School, London,*** University of Cambridge, England.

Objective: Investigation of the anti-viral effect and mode of action of two sulphated polysaccharides.
Methods: $TCID_{50}$ of HIV and VSV(HIV) was titrated by a variety of methods (RT, p24, MTT, syncytia, plaque assay) after reaction of virus or cells with fucoidan and polysaccharide X. The effect of the drugs on T-cell proliferation, activation by CD3 antibody and cellular protein synthesis was measured. Binding of fucoidan to cells was measured by fluorescence and ^{125}I. CD4-gp120 interaction was measured by ELISA. Dextran sulfate and AZT were used as controls.
Results: The titer of diverse strains of HIV-1 was reduced 10,000-fold by 10µg/ml of either agent. The drugs did not bind directly to virions or inhibit CD4-gp120 interaction. In contrast to dextran sulphate or AZT, the drugs did not inhibit T-cell activation at 100µg/ml. Fucoidan specifically bound to a cell surface protein of 18,000 kd expressed on T-cells and monocytes.
Conclusion: Sulphated sugars with strong anti-viral activity appear to inhibit HIV infection via interaction with a cell surface molecule.

1121 CD4-IMMUNOGLOBULIN FUSION PROTEINS WITH EFFECTOR FUNCTION ON HIV AND HIV-INFECTED CELLS

Zettlmeissl, G.*; Gregersen, J. P.*; Langner, K.-D.*; Niedrig, M.*, Gelderblom, H.** and Seed, B.***
*Research Laboratories of Behringwerke AG, Marburg, FRG,
**Robert-Koch-Institute, Bundesgesundheitsamt, West-Berlin, FRG
***Department of Molecular Biology, Massachusetts General Hospital, Boston, Massachusetts, USA

Various chimeric antibody-like molecules were constructed containing different domains of the extracellular part of the HIV receptor CD4 coupled to the constant region (Fc) of the human IgG1 immunoglobulin.

The CD4-Fc fusion proteins were expressed in BHK cells, purified by affinity chromatography on Protein A-Sepharose and further characterized.
Half-life studies of the CD4-Immunoglobulin constructs in mice and monkeys revealed a significant prolongation of serum survival compared to soluble CD4. The analysis of the immune effector function demonstrates that the CD4-Fc fusion proteins were potent inhibitors of HIV infectivity shown in neutralizing assay and complement-mediated lysis of HIV-infected cells. CD4-Fc do not block responses to antigen in vivo and show complement assisted restriction of viral propagation. The binding specifity of the different CD4-Fc fusion proteins was demonstrated by Western blot and immune electron microscopy.

1122 MAPPING IDIOTOPIC AND ANTIGENIC RECOGNITION SITES ON MONOCLONAL ANTI-CD4 PREPARATIONS

Attanasio, Roberta; Dilley, D.; Kanda, P.; Kennedy, R.C. Southwest Foundation for Biomedical Research, San Antonio, Texas USA.

Objective: To identify idiotopic (Id) and CD4 antigenic recognition sites on mouse monoclonal anti-CD4 reagents that inhibit HIV-1 and/or SIV infectivity in vitro.
Methods: Synthetic peptides corresponding to the second and third complementarity determining regions (CDR) of the heavy (H) chain of anti-Leu3a were utilized to immunize rabbits in order to produce specific anti-idiotype antibody (anti-Id) reagents.
Results: The two synthetic peptides elicited the production of specific anti-Id that recognized both the respective immunizing peptide and anti-Leu3a. Anti-Id sera from mice, rabbits, and nonhuman primates immunized with the intact anti-Leu3a molecule failed to recognize the two peptides, indicating that the second (CDR2VH) and third (CDR3VH) CDR of the H chain of anti-Leu3a are associated with nonimmunodominant Id. Further experiments indicated that these CDRs are not involved in CD4 binding.
Conclusion: Linear amino acid sequences corresponding to the CDR2VH and CDR3VH of anti-Leu3a are associated with Id expression but not with CD4 recognition sites.

1123 EFFECTS OF HYDROCORTISONE (HC) AND DEXAMETHASONE (DEX) ON STEADY-STATE LEVELS OF HUMAN IMMUNODEFICIENCY VIRUS TYPE-1 mRNA IN T-LYMPHOID CELL LINES

Soudeyns, Hugh, Geleziunas, R., Hiscott, J., Shyamala, G., Wainberg, M.A., Lady Davis Institute-Jewish General Hospital, and McGill University, Montreal, Quebec, Canada.

Objectives: To investigate the modulation of HIV-1 production and HIV-1-specific message accumulation by HC and DEX in cultured cell lines.
Methods: HIV-1 production was quantitated by ELISA and RT assays. Glucocorticoid receptor (GR) levels were obtained by measuring specific binding of ^3H-dexamethasone to cell extracts. Dot blot analysis was performed on total RNA fractions, and the autoradiograms were scanned using a laser densitometer.
Results: HC (10^{-7} M) and DEX (10^{-8} to 10^{-9} M) markedly enhanced production of HIV-1 in a variety of susceptible T-lymphoid and monocytoid lines cultured in steroid-free media. We have correlated the magnitude of this induction with levels of GR in these cells. We have also studied the effects of these glucocorticoids (GC) on the steady-state levels of HIV-1 mRNA in infected H9 and ACH-2 T-lymphoid cells. The response to GC treatment was biphasic, first resulting in a shutdown of viral mRNA production as early as 4 hours post-hormone addition, followed by a significant increase in HIV-1 mRNA accumulation (up to 50-fold), peaking at 24 to 48 hours.
Conclusion: We conclude that GC can regulate HIV-1 viral replication in a cell-specific manner. This regulation is apparent at the level of viral mRNA and involves both early and late responses to GC. These effects are probably receptor-mediated.

1124

Primary cytotoxicity against the envelope glycoprotein of HIV-1 : evidence for antibody dependent cellular cytotoxicity directed against highly conserved epitopes.

Y. RIVIERE, A. CORDONNIER, F. TANNEAU, M. EMERMAN, M. McCHESNEY and L. MONTAGNIER.
Unité d'Oncologie Virale, URA CNRS 1157, Institut Pasteur, 25, rue du Dr. Roux, 75724 Paris Cedex 15, France.

Objective : To further characterize HIV env B cell epitopes involved in the recognition of env expressing target cells by ADCC effectors isolated from peripheral blood of HIV seropositive subjects.
Methods : Autologous EBV transformed lymphoblastoid cells were infected with recombinant vaccinia virus expressing the complete gp160 or gp160 with deletions in regions that are conserved between HIV-1 and HIV-2. These targets were used in a conventional chromium release assay using fresh PBMC from HIV seropositive subject as effector cells.
Results and conclusion : Within a large group of donors, a majority present ADCC effector cells against target cells infected with a recombinant vaccinia virus expressing the env gene of HIV-1/BRU. In view of the high variability of the env gene this suggest that there might be conserved functional B cell epitopes involved in ADCC. In experiments using vaccinia recombinants expressing gp160 with deletion of two regions that are conserved between HIV-1 and HIV-2, env-specific ADCC was partially or completely abolished.

1125

REDUCED IgA IN SALIVA FROM PATIENTS WITH AIDS

Müller, Fredrik; Frøland, S.S; Brandtzaeg, P.
University of Oslo, The National Hospital, Oslo, Norway.

Objective: To study secretory immunity in different clinical stages of HIV infection using parotid IgA and IgM as a model system.
Methods: Stimulated parotid saliva from patients with AIDS, HIV infection of CDC (Centers for Disease Control) stage II/III, and controls were assayed for total IgA, IgA1, IgA2, and IgM by ELISA. Serum IgA was quantified by nephelometry. Results are given as medians (25-75 percentiles).
Results:

		Immunoglobulin concentrations (µg/ml) in parotid saliva			
	n	IgA (total)	IgA1	IgA2	IgM
Controls	19	27.4 (17.3-41.2)	18.7 (14.8-26.5)	6.5 (3.6-10.0)	0.5 (0.4-1.0)
CDC II/III	28	22.0 (17.7-29.9)	16.0 (13.2-22.2)	5.9 (3.4-8.7)	0.5 (0.2-0.9)
AIDS	16	14.2 ** (11.9-23.8)	11.7 * (9.4-20.2)	3.2 * (2.0-5.0)	0.7 (0.3-0.9)

*:$p<0.05$ and **:$p<0.005$ vs controls and CDC II/III

The serum IgA concentration was 2.8 g/l (2.1-3.8) in controls, 2.9 g/l (1.6-3.5) in CDC II/III, and 6.9 g/l (5.2-9.0) in AIDS ($p<0.05$).
Conclusion: The parotid IgA concentration in patients with AIDS was significantly reduced compared with controls and CDC II/III. The reduction comprised both IgA subclasses and was in striking contrast to the significantly raised IgA concentration in serum from the same patients. This disparity probably reflected the T-cell dependency of the secretory immune system. A low level of secretory IgA in AIDS patients might well contribute to their frequent mucosa-related opportunistic infections.

1126

SEQUENCE LENGTH VARIATION IN ENV IS LOST DURING CULTURE IN CELL LINES

Simmonds,P.*, Balfe,P.*, Bishop, J.O.*, Ludlam, C.A.** and Leigh Brown, Andrew J.*
Depts. of *Genetics and **Haematology, University of Edinburgh, Scotland

A double PCR procedure has been used to characterise segments of HIV proviral genomes amplified direct from DNA of patients' peripheral mononuclear cells (PBMCs; Simmonds, P. et al., J.Virol. 64 (2), 1990). In two regions of env which flank the CD4 binding domain, length variation as well as nucleotide substitution is frequent. Direct labelling with ^{35}S during amplification and analysis on acrylamide gels shows that each PBMC sample contains a number of variants which differ in size, abundance and sequence from each other. Length variation is due to insertion or deletion of a number of sequence motifs that are rich in potential glycosylation sites and may be immunologically significant. The total population of length variants is patient-specific, but may change rapidly during an infection.
HIV isolates, propagated in T-cell lines, do not show length variation in env. On culture of infected PBMCs, a rapid decline in length heterogeneity is observed. In particular, culture in C8166 cells led to a loss of all but one length variant in each case, although it was not always the same variant that was preserved. Conversely, infection of normal PBMCs with supernatant from HIV_{IIIB} resulted in the appearance of novel length variants. We are currently determining whether this represents selection of pre-existing variants or whether length mutations arise *de novo* on replication of HIV in PBMCs.

1127

SPECIFIC IgE AGAINST SOME ALLERGENS IN PATIENTS WITH HIV INFECTION.

D. Caselli, M. De Amici, M. Arico', Alberto Dei Cas*, G. Licardi, R. Pozzo.
Departments of Paediatric and *Infectious Diseases - IRCCS Policlinico San Matteo - University of Pavia - Italy.

Objectives: In order to evaluate the relation between HIV infection and allergic disorders, reported in adults, we studied specific IgE against inhalants or food allergens, against Candida Alb. and Staphilococcus A. in paediatric and adult HIV infected patients.
Patients and methods: We dosed specific IgE against mix of egg, meets, cereals, inhalants (grass and tree pollens), using a Radio-allergo-sorbent-test (RAST, Pharmacia),in 38 HIV infected patients and 20 healthy control children. HIV infected subjects were as follows: 15 drug abusers and or homosexual adult subjects; 23 children born to seropositive mother : 5 uninfected passive maternal antibodies carriers, 5 P0, 2 P1, 11 P2 according to CDC classification. All sera were inactivated to 56 C for 30'. The control subjects were tested before and after inactivation and the results were comparable. We considered as positive the sera showing more than 5% of radioactivity binding.
Results: We have found 13 (34%) RAST-positive patients, (6 adults and 7 children), without history of allergic symptoms.
Two adults with full blown AIDS were positive to Candida, cereals, grasses and tree pollens mix; 3 adults with LAS and 1 asymptomatic were positive for grass pollen or egg mix or for Candida Alb.; 7 children (4 P2, 2 P1, 1 P0) showed positivities for 1 or more allergens. As for the clinical status, 9 symptomatic patients (5 adults and 4 children) were RAST positive.
Discussion: Our results suggest that B cell derangement, usually more severe in the advanced course of HIV infection, may be responsable for increased frequency of RAST-positivity as we observed in symptomatic patients.

1128 BIOLOGICAL AND MOLECULAR PROPERTIES OF HIV ISOLATES FROM CHILDREN BORN TO HIV SEROPOSITIVE MOTHERS CORRELATE WITH CLINICAL OUTCOME.

De Rossi Anita, Mammano, F., Pasti, M, Chieco-Bianchi L. Institute of Oncology, University of Padova, Italy.

Objective. Study in short term assay cell tropism, replication rate, cytopathic effect and transactivation activity of HIV isolates from perinatally infected children, and correlate virologic properties with disease outcome.
Methods. HIV infection was diagnosed by Polymerase chain reaction (PCR) using primers specific for gag, env and LTR HIV genome, in vitro antibody production (IVAP), and virus detection in PBL cultures. HIV properties were studied by coculture of patient lymphocytes with T-lymphoid H938 and monocytoid U38 cell lines (obtained from G.N. Pavlakis, NCI), in which HIV-LTR CAT construct had been introduced. Transactivation was evaluated by CAT assay.
Results. In 101 perinatally exposed children, 27 were HIV infected; 12 developed AIDS or ARC early in life (range 3-18 mos), and 15 are still asymptomatic (range 20-41 mos). In 8 AIDS and 12 symptom-free cases, PBL were cultured with H938 and U38 cells. In AIDS cases, cytopathic effect was scored in co-cultures with both cell lines; CAT activity was positive in all, but 2 U38 co-cultures. In asymptomatic cases, only 2 were positive for all parameters in both cell lines, while 6 showed syncytium formation and/or CAT expression in one cell line only; 4 cases were negative for all parameters.
Conclusions. Short term bioassay avoids in vitro selection of HIV variants and provides virologic parameters that correlate with clinical status. This approach may be useful in predicting clinical outcome.

1129 INFECTION OF NORMAL HUMAN BLOOD MACROPHAGES WITH HIV-1, HIV-2 AND SIV

Valentin, A.*, Albert, J.*,**, Nauclér, A.***, Putkonen, P.O***
Fenyö, E.M.* and Asjö, Birgitta*
* Dept. Virology, Karolinska Institute, Stockholm, ** Dept. Virology and
***Dept Immunology, National Bacteriological Laboratory, Stockholm, Sweden.

OBJECTIVE: To compare the susceptibility of normal human blood macrophages to infection with HIV-1, HIV-2 and SIV.
METHODS: Macrophage cultures were prepared from peripheral blood mononuclear cells (PBMC) recovered by Ficoll-Hypaque gradient centrifugation. PBMCs were cultured in RPMI medium containing 10% HIV-negative human serum and 20% FCS. After five days non-adherent cells were washed away with PBS and adherent macrophages were grown in 20% FCS-RPMI medium. Supernatant from PBMC cultures of 8 HIV-1, 7 HIV-2 and 2 SIV isolates were used to infect 7 days old macrophage cultures. Infections were monitored by reverse transcriptase (RT)-activity and p24 antigen assay (Coulter Corporation) in culture medium.
RESULTS: All HIV-1 and HIV-2 isolates could productively infect the macrophage-cultures as measured by antigen assay. About half of the HIV-1 and HIV-2 cultures were also RT-positive. Replicating virus was detectable for the entire culture period of 2 months. In contrast to HIV-infected cultures, both SIV isolates yielded infections detectable by RT-assay.

Virus	No of positives	Relative intensity of RT-activity
HIV-1	4/8	+
HIV-2	3/7	+
SIV	2/2	+++

CONCLUSIONS: Similarly to HIV-1, HIV-2 and SIV can infect normal macrophages. Compared to HIV-1 and 2, SIV showed the highest replicative capacity.

1130 NON-CYTOPATHIC INFECTION OF NORMAL CD8$^+$ LYMPHOCYTES CONCOMITTANT WITH THE ACCUMULATION OF UNINTEGRATED HIV-1 DNA

Mercure, Louis*, Phaneuf, D.+, Wainberg, M.A.*, *Jewish General Hospital and McGill University AIDS Centre, +Department of Infectious Diseases - Hotel-Dieu Hospital, Montreal, Quebec, Canada.

Objective: The present study was realized to determine if CD8$^+$ lymphocytes from healthy donors can be infected by HIV-1 *in vitro*.
Methods: To distinguish between direct infection of CD8$^+$ lymphocytes and cell-to-cell transmission, we have used two different protocols. In both cases, normal PBMCs were infected with the III_B strain of HIV-1. CD8$^+$ cells were sorted and purified by a biomagnetic system. The production of viral particles was demonstrated by reverse transcriptase activity. Infection of CD8$^+$ cells was also determined at the single cell level with both double immunofluorescence and double flow cytometric analysis. Finally, high and low molecular weight DNA were extracted by the Hirt's method. The integrated and unintegrated HIV-1 DNA were evaluated by PCR using specific *env* primers.
Results: CD8$^+$ cultures were maintained for up to two months without any apparent cytopathic effect. Purity of CD8$^+$ lymphocytes by flow cytometry was 98-99%. CD8$^+$ cells contained both proviral DNA as well as unintegrated viral DNA (UVD). By each method, the data show that normal CD8$^+$ lymphocytes can be productively infected by HIV-1 although this infection remained at a low-replicating rate.
Conclusion: Despite the presence of UVD, CD8$^+$ cells remained non-susceptible to cytopathic effects. Consequently, CD8$^+$ lymphocytes might serve as reservoir in the HIV-infected people.

1131 HIV GP160 RECOMBINANT VACCINIA IN VACCINIA-NAIVE ADULTS

Graham, Barney; Belshe, R; Midthun, K; Dolin, R; Fernic, B; Stablein, D; Wright, P; Koff, W; and the NIAID AIDS Vaccine Clinical Trials Network.

Objectives. To assess the safety and immunogenicity of recombinant vaccinia encoding the gp160 of HIV-1, LAV-1 (HIVAC-1e, Oncogen/Bristol-Myers).
Method. In a randomized, double-blind study, HIVAC-1e is being compared with its parent vaccinia strain (Dryvax, Wyeth) in healthy, vaccinia-naive adults with no evidence of HIV infection and at low risk of HIV exposure. HIVAC-1e doses of 10^7, 10^8, and 10^9/ml or equivalent doses of Dryvax are being given to 12 and 6 subjects respectively at each dose using bifurcated needle punctures.
Results. Enrollment at low dose is complete and 9 participants have been enrolled at mid dose. After initial vaccination with low dose 4/6 Dryvax and 5/12 HIVAC-1e recipients had takes. After booster vaccination an additional 2 Dryvax and 5 HIVAC-1e vaccinees had primary takes. No clinical, virologic or serologic evidence of a boost was seen if initial vaccination took. Thus, 2/12 volunteers who received HIVAC-1e did not take at low dose. Despite history of no vaccination, 1 nonresponder was seropositive to vaccinia by ELISA. Neither local/systemic reactions nor virus titer differed significantly between vaccines. Serologic responses to vaccinia measured by neutralization and ELISA indicate that immunity induced by the products is comparable, that no serologic responses occur without a take, and that vaccinia takes cannot be boosted at a 60 day interval. In 8/10 low dose HIVAC-1e recipients with takes, bands developed at gp160 &/or gp120 in the Dupont western blot assay. In 3/8 the bands appeared after day 100. Testing by Abbot HIV ELISA assay has been negative.
Conclusions. GP160 expressed by vaccinia induced modest antibody response in vaccinia-naive people. GP160 did not alter vector virulence or immunogenicity.

1132 IMMUNOGENICITY OF HIV-SF2 GP120: SIGNIFICANT BROADENING OF VIRUS NEUTRALIZING ACTIVITY TO DIVERGENT ISOLATES FOLLOWING MULTIPLE IMMUNIZATIONS.

Haigwood, Nancy*; Nara, P.**; Brooks, E.*; Higgins, K.*; Eichberg, J.***; Steimer, K*. *Chiron Corporation, Emeryville, California, USA, **NCI-FCRF, Frederick, Maryland, USA, ***SFBR, San Antonio, Texas, USA.

Objective: To examine the comparative immunogenicity of two versions of recombinant gp120 from HIV-SF2 in baboons.
Methods: The HIV-SF2 env gene was engineered for the expression of native, glycosylated gp120 in mammalian cells (gp120) and denatured, nonglycosylated gp120 in yeast (env 2-3). The two proteins were used to immunize baboons in three adjuvant formulations, and sera were tested for the ability to neutralize divergent virus isolates to the 90% level by a quantitative infectivity assay (Nara *et al.*, 1987, AIDS Res. Hum. Retroviruses 3, 383). All values listed in Results represent mean titers.
Results: Following 5 immunizations (24 weeks), sera from all animals immunized with gp120 or env 2-3 showed significant neutralizing activity (NA) against HIV-SF2 (81 and 18, respectively). All gp120-immunized animals had NA against isolate HIV-MN (65), and 6 of 8 had NA against HIV-HTLVIIIB (30). Three of 7 env 2-3-immunized baboons had NA against HIV-MN (25), and 1 of 7 against HIV-HTLVIIIB (0.7). Earlier bleeds from these animals had NA that was more restricted in isolate specificity.
Conclusion: Significant broadening of the NA can be measured in animals immunized repeatedly with recombinant gp120 from a single isolate, and the broadening is more apparent with native, glycosylated antigen. Additional isolates are being tested in an effort to define the breadth of the neutralization response and to develop a model for broadening.

1133 MOLECULAR EVIDENCE OF CNS INVOLVEMENT IN RABBITS INFECTED WITH HIV-1 AND HTLV-I.

Kulaga, Henrietta*; Truckenmiller, M.E.**; Adams, A.*, Coggiano, M.*; Shen, Y.*; Kindt, T.J.**; Wyatt,R.J.*; *NPB, NIMH, Washington, D. C., **LIG, NIAID, NIH, Bethesda, MD

Objective: To determine the extent of central nervous system (CNS) involvement following retroviral infection in the laboratory rabbit.
Materials and methods: Specific pathogen free New Zealand White rabbits were infected with HIV-1, HTLV-I or both agents as previously described (JEM 1989, *169*:321). At a number of time points post-inoculation, animals were bled and tested in order to substantiate infection by serologic and molecular methods. At necropsy, brains were removed, dissected and flash frozen. Total RNA was subsequently isolated, cDNA was synthesized and samples were subjected to PCR analysis using primers specific for env and gag regions. Identification of amplified HIV-1 and HTLV-I sequences were verified by hybridization with appropriate viral probes. Sequences of amplified viral fragments from infected rabbit brains were compared to sequences derived from lymphoid tissues.
Results: Evidence for HIV-1 and HTLV-I infection in a number of brain regions was obtained by molecular analysis. HIV-1 could be detected as early as 4 months post-infection and as late as 1 year post-infection. In a dually infected animal, virus-positive areas did not overlap. HIV-I was detected in frontal, occipital and parietal lobe, whereas HTLV-I was found in spinal cord, pons and medulla. Preliminary sequence analysis of HIV-1 gag and env fragments indicated close homology to virus detected in lymphoid tissue of the same animal and to the original inoculum.
Conclusions: The polymerase chain reaction can be used to demonstrate CNS infection of rabbits infected with HIV-1 and HTLV-I. Viral distribution and expression are described. Molecular analysis, such as these, should allow for a more precise characterization of the extent of retroviral infection in the CNS.

1135 CD8+ CD57+ SUPPRESSOR T CELLS RELEASE A SOLUBLE SUPPRESSOR FACTOR IN HIV INFECTED PATIENTS

Sadat-Sowdi, Béhazine*, Autran, B.*, Guillon, J.M.*, Katlama, C.** , Mayaud, C.*** , Debré, P.* - * Lab. Immunol. Cell. and ** Dept. Med. Trop., Hop. Pitié-Salpétrière, Paris - *** Dept. Pneumo., Hop. Tenon, Paris - FRANCE

Objective : Suppressor CD8+ CD57+ T cells (Ts) down-regulate the anti-HIV CTL responses in lungs of patients with advanced HIV disease. In this study, we have further analysed their suppressor effect on distinct cytotoxic effector cells as well as the mechanism of suppression both in alveolar and peripheral blood (PB) lymphocytes.
Methods : The inhibitory effect of total or FACS CD8+ CD57+ cells sorted PB or alveolar lymphocytes was tested on effector cytolytic cells in a standard ^{51}Cr release assay. Supernatants were prepared from 2-4 hours cultures of non-activated purified CD8+ CD57+ cells.
Results : Our data confirm the progressive increase of lung and PB CD8+ CD57+ lymphocytes mirroring both the regression of anti-HIV CTL and the decrease of CD4+ PBL numbers before the onset of AIDS, in a cohort of 110 seropositive patients. These CD8+ CD57+ Ts cells display the CD3-TcR complex and lack cytolytic activity. PB CD8+ CD57+ lymphocytes mediate the same suppressor effect as alveolar cells onto the effector phase of antigen-specific CTL, NK and LAK cells. CD8+ CD57+ cell supernatants strongly suppress cytolytic effector cells as well as CD8+ CD57+ sorted cells. Purified CD8+ CD57+ cells release a non specific soluble suppressor factor, distinct from PGE2, IL1, IL2, IL3, IL4 and IFNγ as shown by competition studies.
Conclusion : The late expansion of CD8+ CD57+ cells might have critical effects on cytotoxic functions. Further characterization of such a soluble suppressor factor should help us to better define the in vivo relevance of CD8+ CD57+ cells in the HIV disease.

1136 THE IMMUNOTOXICITY AND MYELOTOXICITY OF 2'3'-DIDEOXYDIDEHYDROTHYMIDINE (D4T) IN MICE

Shopp, George*; Clark, D.**; Galbreth, K.*; Goble, R.*; Rosenthal, G.***
*Lovelace Medical Foundation and **VA Medical Center, Albuquerque, NM, USA, and ***National Institute of Environmental Health Sciences, Research Triangle Park, NC, USA.

Objective: The nucleoside analog, 2',3'-dideoxydidehydrothymidine (d4T), has been shown to be a potent inhibitor of HIV replication in vitro. Clinical trials are under way to determine its efficacy in human subjects. The present study was undertaken to assess the immunotoxicity and myelotoxicity in C57BL/6 and DBA/2 mice.
Methods: Female mice were administered d4T orally, daily for 30 days. The dose levels were 125, 250, and 500 mg/kg. After the exposure period the following immune function assays were performed: peripheral blood hematology, spleen plaque-forming cell response to sheep red blood cells, the cytotoxic T lymphocyte assay, spleen cell subsets analysis, lymphocyte proliferative response to mitogens and allogeneic spleen cells, the natural killer cell assay, and bone marrow cellularity and myeloid progenitor cells.
Results: Mice exposed to 500 mg/kg showed increased spleen and liver weights. Peripheral blood hematology showed erythropenia and decreased hematocrit at the high dose level for both strains of mice. The C57BL/6 mice also showed leukopenia at the high dose level. The C57BL/6 mice showed small increases in spleen surface Ig positive cells and Thy 1.1 positive cells. Also, the C57BL/6 mice showed increases in natural killer cell activity, but these were not dose-related. The most interesting effects were seen with the bone marrow function assays. The C57BL/6 mice showed a decrease in bone marrow cellularity and about a 20% decrease in the myeloid progenitor cells per femur. The DBA mice showed little change in bone marrow cellularity but a dose related (up to 40%) decrease in the myeloid progenitor cells. No effects were seen from any of the other immune assays.
Conclusion: These results will provide information to aid in the prediction of toxicity to humans after clinical treatment. [NIH contract N01-ES-95238]

1137 IMPAIRED CELLULAR IMMUNE RESPONSES TO A PURIFIED MANNOPROTEIN ANTIGEN OF CANDIDA ALBICANS IN HIV-INFECTED SUBJECTS.

Quinti, I.*, Guerra, E.*, Iannaccone, C.**, Palma, C.**, Aiuti, F.*, Cassone Antonio**.
* University of Rome "La Sapienza", and ** Istituto Superiore di Sanità, Rome, Italy.

Objective To study the induction of cell-mediated immune responses by a purified, mannoprotein antigen of Candida albicans (MP), in cultures of peripheral blood mononuclear cells (PBMC) from HIV-infected subjects.
Methods PBMC from 30 HIV-infected patients, subgrouped according to the clinical stage, and those from an equal number of sex and age-matched, healthy controls, were analyzed for MP-induced proliferation and generation of cytotoxic effectors active against tumor cell lines (CMC). Comparisons included the use of other microbial or polyclonal stimulants, and recombinant interleukin-2 (rIL-2).
Results MP strongly stimulated proliferation and CMC generation in PBMC from all controls and stage II-subjects. Both responses were markedly impaired in about 50% of patients with lymphoadenopathy (stage III) and in patients with infections or neoplasias (stage IV). The lymphoproliferative response correlated witht CMC but did not correlate with the number of circulating $CD4^+$ cells. In all subjects, efficient cytotoxic activity was generated in PBMC cultured with rIL-2.
Conclusions Cellular immune responses to a chemically defined candidal antigen is affected early in the course of HIV infection, an impairement whit a possible prognostic value for the development of susceptibility to local and/or systemic candidiasis. Future studies will explore any correlation between failures in candida-induced immuneresponsiveness and infections by molecularly-defined biotypes of C.albicans. (AIDS Project, Italy, Unit 0.06).

1138 FINE SPECIFICITY OF HUMORAL IMMUNE RESPONSE TO GP160 SYNTHETIC PEPTIDES NARROWS IN HIV-1 INFECTED INDIVIDUALS WITH DECREASED LEVELS OF CD4+ CELLS.

Ronald Q. Warren, Hans Wolf, Patrick Kanda, R. Neal Boswell, and Ronald C. Kennedy. Dept. Virology and Immunology, Southwest Foundation for Biomedical Research, San Antonio, TX 78227.

Objective: To determine whether the humoral immune response to selected gp160 epitopes narrows in specificity as CD4+ cell levels decline.

Methods: Synthetic peptides corresponding to gp160 epitopes 503-528, 600-611, and 846-860 were examined. Sera from 50 HIV-1 infected individuals were screened by ELISA for peptide reactive antibodies.

Results: Sera from infected individuals with fewer than 200 CD4+ cells/mm3 were less reactive to peptides 503-528 and 846-860 than sera from individuals with more than 200 CD4+ cells/mm3. No decline in antibody reactivity was observed against peptide 600-611 in sera from individuals with fewer than 200 CD4+ cells.

Conclusions: Antibody production against selected epitopes of gp160 appears to decline in infected individuals with fewer than 200 CD4+ cells/mm3. This narrowing of reactivity may result in the loss of potentially beneficial antibodies.

1139 SYNTHETIC PEPTIDES IN HIV ANTIBODY SCREENING AND TYPING

Närvänen, Ale*; Korkolainen, M.*; Lillo, F.**;, Varnier O**; Vaheri, A.***, Huhtala, M.*
*Labsystems Research Laboratories, Helsinki, Finland
**School of Medicine, Genova, Italy
***University of Helsinki, Helsinki, Finland

Objective: The sensitivity and cross-reactivity of synthetic peptides derived from the transmembrane proteins of HIV-1 and HIV-2 were tested with sera from HIV-1 and HIV-2 infected individuals.
Mthods: Peptides for typing and screening were selected from highly immunoreactive conserved regions of HIV-1 and HIV-2 transmembrane proteins. Peptides were used as antigens in indirect EIA and tested with HIV-1 positive sera from Europe and HIV-2 positive sera from West-Africa. The type of the HIV infection was verified by immunoblotting.
Results: The HIV-1 specific peptide reacted with all 352 HIV-1 positive sera but with none of 187 HIV-2 positive sera. The HIV-2 specific peptide reacted with all 196 HIV-2 positive sera and 3.8% of 316 HIV-1 positive human sera were cross-reactive. Using peptides selected for screening all HIV positive sera could be detected simultaneously.
Conclusion: Synthetic peptides are suitable for discrimination between HIV-1 and HIV-2 infections as well as for screening for HIV antibodies.

PUBLICATIONS

1140 ACUTE HIV INFECTION: CLINICAL AND SEROLOGICAL EVENTS IN SEVEN CASES.

Soriano V, Tor J, Ribera A, Clotet B, Muga R, Ribas-Mundó M, Foz M.
Hospital de Badalona "Germans Trias i Pujol", Badalona, Spain.

INTRODUCTION. A broad spectrum of symptoms can be presents during Primary HIV infection. Serological data showed that HIV antigen was the first marker, followed by the appearance of antibodies to envelope and later to core. We evaluated accuracy of clinical data and different serological tests for recognized HIV infection in 7 seroconverted patients.
PATIENTS. 6 males and 1 female. Three or more serum samples were collected in the three-month period corresponding to seroconversion. Data concerning their clinical status are avalaible.
METHODS. All serum were screened with different EIA kits: first generation assays (Organon, Wellcome, Behring) and new generation assays using DNA recombinant antigens (Abbott and Wellcome) and synthetic peptides (Behring, Enzygnost HIV 1+2). A rapid assay (HIV-Check, Du Pont) were also used. All samples were further analyzed by the Western blot method (Du Pont). Also HIV antigen was investigated in all samples by different EIA kits (Abbott, Organon and Du Pont).
RESULTS.

Patient	Sex	Age	Risk-group	Symptoms	SAMPLES: 1	2	3	4	5	6	(Ag/Ab)
1	M	22	IVDU	Oral thrush	+/-	+/+	-/+	-/+			
2	M	26	IVDU	Mononucleosis-like	-/-	+/-	+/+	+/+	-/+	-/+	
3	M	22	IVDU	Esophageal candidiasis	+/-	+/+	-/+	-/+			
4	M	21	IVDU	Assymptomatic	-/-	-/+	-/+				
5	M	42	Heterosex	Mononucleosis-like	+/+	-/+	-/+				
6	F	40	Heterosex	Mononucleosis-like	+/+	-/+	-/+	-/+			
7	M	31	Homosex	Oral aphtosis	+/-	+/-	-/+	-/+	-/+		

CONCLUSIONS. 1)A broad spectrum of symptoms are possible during acute HIV infection. Oral thrush and Esophageal Candidiasis may be present at this moment; 2)Sensitivity of different EIA kits for antigen detection is variable (A DP O) and the antigenemia period in primoinfected patients is brief (only a few weeks); and 3) EIA using synthetic peptides are the most sensitive for detecting early HIV Ab. We suggest their use for the screening of blood donors.

1141 SERUM IgG OLIGOCLONAL BANDS ARE MAINLY HIV-1-SPECIFIC

Amadori, A.*; Gallo, P.**; Zamarchi, R.*; Veronese, M. L.*; De Rossi, A.*; Ortolani, C.***; Chieco-Bianchi, Luigi*
*Institute of Oncology, Padova; **Neurology Dept., Padova; Central Lab Unit, Venezia General Hospital, Italy

Objective: To evaluate the specificity of IgG oligoclonal bands occasionally observed in the serum of HIV-1-infected individuals.
Methods: Isolelectric focusing of sera; affinity-driven transfer of focused IgG onto HIV-1-saturated cellulose membranes; adsorption of sera with HIV-1 insolubilized on CNBr-activated Sepharose 4B.
Results: Among 60 patients studied, IgG OB were detected in 9 subjects, most of which with limited disease progression (WR1-WR3); no correlation with clinical, virologic, and immunological parameters were observed. When focused IgG were blotted on HIV-1-saturated membranes, most IgG OB recognized HIV-1 antigens; moreover, adsorption of the sera with solid-phase HIV-1 completely removed the IgG OB pattern.
Conclusion: These results show that B-cell clone deregulation, which is epitomized by serum IgG OB presence, takes place in early stages of disease, and further buttresses the idea that intense activation of HIV-1-specific B cells may constitute a primary event in subsequent malignant transformation and lymphoma development.

1142 ALTERED REPLACEMENT OF CD4 LYMPHOCYTES BY CD8 LYMPHOCYTES EARLY AFTER SEROCONVERSION TO HIV-1.

Margolick, Joseph B, Donnenberg AD, Muñoz A, Odaka N, Saah AJ.
Johns Hopkins School of Public Health and School of Medicine, Baltimore, MD

Objective. To determine if there is 1:1 replacement of lost CD4 lymphocytes with increased CD8 lymphocytes in HIV-1 infected individuals.
Methods. Data from 83 men who seroconverted (SC) to HIV-1 during a prospective study of gay/bisexual men (part of the Multicenter AIDS Cohort Study) were studied. Percentages (%) of total (CD3), helper (CD4), and suppressor-cytotoxic (CD8) T lymphocytes were determined by flow cytometry. Changes (Δ) in these cell populations were calculated between each clinic visit (≈ 6 month intervals or semesters) and were analyzed by multiple linear regression in relation to the time of SC, with adjustment for repeated measures. 704 phenotypic evaluations over 10 visits yielded 503 valid observation pairs for this analysis.
Results. Estimated Δ%CD4 and Δ%CD8 per semester, and their sum, were as follows:

Change in Percent Per Semester after Seroconversion (SC)

	Pre-SC	1	2	3-5	6-9
Δ%CD3	0.0	2.8*	1.2	0.0	-0.1
Δ%CD4	-1.8	-6.4**	-2.8	-1.8	-2.2
Δ%CD8	1.1	8.7**	3.4	1.3	2.3
Δ%CD4 + Δ%CD8	-0.7	2.3*	0.6	-0.5	0.1

Significantly different from Pre-SC value at $p \leq 0.03^{*}$ or 0.001^{**}.
Conclusions. The data demonstrate that the semester immediately after SC is characterized by large changes in T cell subsets and a significant imbalance (increase in CD8 > decrease in CD4) in the size of these changes. The fact that this imbalance was not seen before SC or at later times after SC indicates marked dysregulation of T cells in the period immediately following SC. The excess CD8 lymphocytes produced immediately after SC could represent either mature suppressor-cytotoxic cells or nascent lymphocytes produced in response to HIV-1 induced loss of CD4 cells.

1143 EXTRAPYRAMIDAL SYMPTOMS IN MEDICALLY HOSPITALIZED AIDS PATIENTS RECEIVING NEUROCEPTICS

Breitbart W*;Marotta,R**;Platt,M*;Corbera,K*; Weisman,H**; Dorfman,D.**
*Memorial Sloan-Kettering Cancer Center, New York, New York, USA,
**St. Luke's/Roosevelt Hospital Center, New York, New York, USA.

Objective: Reports in the literature suggest that a significant percentage of AIDS patients with neurological complications develop spontaneous extrapyramidal symptoms (EPS), and have increased incidence and severity of EPS when given dopamine-blocking neuroleptics. We have begun to study the incidence of spontaneous EPS and neuroleptic induced EPS in medically hospitalized AIDS patients; comparing rates of EPS in homosexual male (HM) AIDS patients with intravenous drug user (IVDU) AIDS patients.
Methods: Patients with AIDS on two medical units (one predominately black IVDUs, one predominately white HMs) were screened prior to admission and discharge for the presence of EPS by trained physicians using the Extrapyramidal Symptom Rating Scale (EPSRS) (Chouinard, 1980). Those patients who later developed delirium were treated on a delirium study protocol where they either received haloperidol, chlorpromazine or lorazepam. During a 7-day delirium treatment study these patients were rated daily with the EPSRS.
Results: Preliminary data indicates that 15 of 22 patients receiving haloperidol developed severe EPS, 4 developed Neuroleptic Malignant Syndrome (NMS). Only 5 of 18 patients on chlorpromazine developed severe EPS and none developed NMS. Patients who are IVDUs are less likely to develop EPS.
Conclusions: Severe EPS, including NMS may complicate the use of high potency neuroleptics in the management of AIDS patients with delirium.

1144 LACK OF PRECISION IN THE CLINICAL DIAGNOSIS OF BACTERIAL PNEUMONIA IN HIV-INFECTED CHILDREN IN A CLINICAL TRIAL OF INTRAVENOUS IMMUNOGLOBULIN (IVIG)

Rigau-Pérez, José G.*; Mofenson, L.M.*; Cadden, C.**; for the IVIG Clinical Trial Study Group
*National Institute of Child Health and Human Development, NIH, Rockville, Maryland, USA
**Westat, Inc.

OBJECTIVE: Severe bacterial infections are monitored as end-points in a trial of IVIG in symptomatic HIV-infected children. Because clinically diagnosed (CD) acute pneumonias (AP) were much more frequently reported than laboratory confirmed (LC) AP, we established a method to better characterize these events, and to separate AP from chronic, possibly non-infectious, processes. METHODS: AP was defined as the occurrence of respiratory signs and symptoms, combined with new chest X-ray (CXR) abnormality. The review process was conducted by two MDs blinded to treatment and severity groups, and included lab, history and physical examination data, CXR reports, and comparison of sequential CXRs. A panel of 5 MDs settled discrepant review results. RESULTS: 159 episodes of AP, reported over 22 months, were evaluated. 25% of episodes were re-classified as non-AP; 23% were CD-AP of unknown etiology, 4% each were LC bacterial and non-bacterial AP; 43% require further information and review for final classification. CONCLUSION: A large proportion of CD AP reports consists of non-specific, or possibly non-infectious lung disease. While patient care requires a definition of CD AP with high sensitivity, explicit and highly specific criteria are needed to permit accurate judgement of drug efficacy, and comparison of results of clinical trials.

1145 1990 PROGRESS REPORT ON CLINICAL TRIAL PHASE 1 CONCERNING THE PREPARATION OF A VACCINE AGAINST AIDS

Zagury.D*; Picard.O*; Bernard. J*; Imbert; JC*; Salaun.JJ**; Lurhuma. Z*** and RC Gallo***
*University of Paris and Institut Jean Godinot
**INRB and Cliniques Universitaires Kinshasa
***NCI/NIH Bethesda

In the previous annual reports (1,2,3) we presented the experimental results of an active immunisation against HIV based on priming with recombinant vaccine (rV) expressing HIV gp160 with analogous lymphocytes infected with rV and subsequently fixed. We showed that this immunization lead to an in vitro protective immune reaction as detected by the presence of Ab neutralizing infection of H9 cells by different HIV strains and killer T cells lysing HIV infected cells (1,2). Moreover neutralization - and not enhancing- of HIV infections in monocytes was observed in vitro in presence of immunized sera. (3) The cellular preparation cannot however be administered to a large group of people, because of the heavy technique related to the necessary cytaphereris. Therefore last year we presented a new project of immunization based on gp160 determinants used as a major antigen signal associated with accessory antigens from HIV gag and pol regions. This year we present the preliminary results of this active immunisation trial done in 40 French volunteers at the Hôpital Saint Antoine in Paris. Evidence of some protection against in vitro HIV infection, as detected by neutrailsation of infection in presence of immunized sera and cell mediated cytotoxicity, is provided

1) Zagury etal 1) 3rd annual meeting in Washington 3)5th annual meeting in Montreal
2) Zagury 2) 4th annual meeting in Stockolm

In conclusion: These beneficial effects persisted up to now (Dec 1989)
The place of active anti HIV specific immunization in AIDS therapy and infection is now posed. (Alternative to AZT/DDI treatment, association with discontinuous AZT/DDI treatment, HIV infected healthy volunteers).

1146 HIV DETECTION IN SERONEGATIVE MEN AT HIGH OR MEDIUM RISK FOR INFECTION

PAN, LI ZHEN; ROYCE, R.*; WINKELSTEIN, W.*; Levy, J.A.
University of California, School of Medicine, San Francisco, California, USA,
*University of California, School of Public Health, Berkeley, California, USA

Objective: To detect the presence of HIV or viral DNA in HIV antibody-negative individuals who have had at least two recent unprotected sexual contacts.
Methods: The peripheral blood mononuclear cells (PMC) from 44 seronegative homosexual men who have had recent unprotected anal receptive sexual contact were placed in culture and evaluated for infectious HIV by procedures including the initial culturing of PMC in phytohemagglutinin (PHA) for three days, co-cultivation with PHA-stimulated PMC from seronegative individuals, selective growth of purified CD4+ cells and culture of PMC after removal of CD8+ cells. Virus replication was measured by reverse transcriptase activity and p25 antigen in the culture supernatant. The possible presence of viral DNA in these PMC was monitored by PCR analysis.
Results: None of the 44 individuals had infectious virus recovered from PMC. None of the PMC were PCR positive.
Conclusion: No evidence of HIV infection could be found in any PMC cultures from the 44 seronegative individuals studied. The results suggest a very low incidence of HIV infection in seronegative individuals who have practiced medium to high risk sexual behaviour.

1147 A PATHOGENIC FRAGMENT OF GP120 IS CONCENTRATED IN HIV PLASMA AND CSF

Ruff, Michael, O'Neill, B., Barbour, J., Mayer*,K.,Moon*,M.,Huyett*,J.Heseltine#,P.,Bridge**,P.,Pert,C.B., Jaffe,H. Peptide Design, Germantown, MD;*Fenway Community Health Center, Boston,MA; #USC, Los Angeles, CA;**National Institute of Mental Health, Bethesda, MD

Objective To molecularly characterize the potent neurotoxic gp120-like activity previously identified in up to 50% of HIV positive (CDC1-4) CSF, and in plasma.

Methods Plasma or CSF from CDC IV AIDS patients was subjected to FPLC size exclusion chromatography by standard methods. Fractions were bioassayed for their ability to kill developing mouse hippocampal neurons in culture. This toxicity, present at $1:10^6$ dilution, is blocked by anti-L3T4 mAbs, peptide T, VIP, or an antiserum to peptide T.

Results Biological activity of plasma samples was confined to a fraction corresponding to an estimated M_r of 5,000-7,500 daltons.OD monitoring revealed a distinct peptide peak in this fraction. This peptide was present in fractionated plasma from 11/11 of our HIV patient cohort, and was absent in 6/6 non-HIV controls. Five CSF's tested also showed low M_r activity associated with an identical peak. SDS-PAGE on 11-23% gradient gels of the bioactive plasma fraction by size exclusion also revealed a band unique to HIV patients (3/3) at M_r =7,900, not present in a normal control. In a limited sampling of plasma from patients receiving peptide T for 3 months (see Mayer,K.)4/6 individuals showed a decrease, 1 was unchanged, and 1 an increase in the height of the peptide peak.

Conclusions High concentrations(>1uM) of a small bioactive pathogenic fragment, most likely derived from proteolysis of gp120, has been identified in HIV plasma and CSF. GP120, via this small bioactive fragment, may contribute to disease pathology.Preliminary data indicates that decreases in this peptide can be associated with peptide T treatment.

1149 DETECTION OF HIV-1 GENOME IN PATIENT PERIPHERAL BLOOD MONONUCLEAR CELLS BY POLYMERASE CHAIN REACTION (PCR) AMPLIFICATION* AND RELATIONSHIP WITH CLINICAL STAGE OF DISEASE

Calabro, M.A.**; Wages, John M., Jr.**; Fowler, A.K.**; Oster, C.***; Redfield, R.R.***; Burke, D.S.***
**SRA Technologies, Inc., Rockville, Maryland, USA; ***Walter Reed Retrovirus Research Group, Walter Reed Army Institute of Research, Washington, DC, USA.

Objective: To assess the accuracy of the PCR amplification/detection method in confirming the presence of HIV-1 DNA in peripheral blood mononuclear cells (PBMCs) as a function of patient stage of disease.
Methods: A whole cell lysate of patient PBMCs was used as a nucleic acid preparation for PCR amplification. To determine presence of HIV DNA, a series of three primer sets (in GAG, ENV, and LTR regions) was used. After 40 cycles, the amplified DNA was detected by liquid hybridization with ^{32}P-labelled specific probes, followed by direct autoradiography of the electrophoresis gel. Two different gene regions were required to be PCR-reactive before a specimen was considered as HIV-positive. The PCR results were compared to the individual's clinical stage of disease (determined by the Walter Reed staging system) and also to the viral coculture isolation test results.
Results: In 118 staged patients examined, the PCR test sensitivity and the coculture isolation rate (in parentheses) were found to be: 94% (67%), 94% (88%), and 94% (85%) in Stage 1, Stage 2, and Stage 3 patients respectively, and 100% (100%) in Stages 4, 5, and 6 patients. Results were uniformly negative for PCR and coculture isolation from 10 blind negative specimens and 37 (negative) leukopacks.
Conclusion: The PCR amplification/detection method is highly sensitive in late stage patients, and only slightly less so in early stage patients. It is more accurate and much more rapid than tissue culture isolation methods.

* The PCR process is covered by U.S. Patents Nos. 4,683,195 and 4,683,202 assigned to Cetus Corporation and licensed by PE Cetus.

1150 HIV INFECTION STUDIED IN HUMAN CD_4 TRANSGENIC MICE.

Barré-Sinoussi, F*; Lorès, P.**; Mackay, C.***; Boucher, V.*; Nguyen van Cong****; Pla, M.*****, Weill, J.-C.***, Jami, J.**
*Institut Pasteur, Paris, France, **Unité INSERM 257, Paris, France, ***Institute for Immunology, Basel, Switzerland, ****Institut Jacques Monod, Paris, France, *****Unité INSERM 93, Paris, France.

Transfection of the HIV proviral DNA into murine fibroblasts is followed by a low viral replication, suggesting that productive HIV infection in mouse cells might be possible, when the cell-fixation/penetration step of the virion is overcome. Transgenic mice expressing the human CD_4 cDNA under the control of the mouse H-2K^b promoter were obtained. The transgenic receptor was either the native human CD_4 or a composite CD_4/L3T4 molecule in which only the two aminoterminal extracellular domains are of human origin, the rest being the homologous mouse L3T4 molecule. Transgenic lines where the transgene expression at the membrane was of the same order of magnitude as in human were selected. The ability of transgenic lymphoid cells to bind gp160 was checked. Total or T8-depleted lymph node cell populations expressing the transgene were cultured upon stimulation by Concanavalin A and infected by HIV_1/BRU. No productive infection was observed as assessed by the absence of RT activity and/or viral antigen in cell free supernatants of both infected murine cell cultures and cocultures with human T lymphocytes used as indicator cells. The possibility that a human MHC type I molecule is needed together with CD_4 for the early events of HIV infection was investigated. Triple transgenic mice expressing human CD_4, HLA B27 and human β2-microglobulin were obtained by crossing appropriate transgenic mice. Stimulated T cells remained resistant to HIV_1 infection. In order to determine whether mouse cells can gain the ability to become infected when they express an ubiquitous molecule together with CD_4, a series of human x mouse cell hybrid clones well characterized for retention of various combinations of all the human chromosomes (except chromosomes 9 and Y) were tested. Hybrids were transfectd with a human CD_4 cDNA construct and infected by HIV_1, 3 days later than when CD_4 was expressed by the vast majority of the cells. In no instance a productive infection was obtained. These results suggest that resistance of mouse cells to infection might be due to a dominant block at the level of HIV penetration. This work was supported by the French National Agency for AIDS Research (ANRS).

2000 SERUM AND CSF LEVELS OF ALFA-TNF IN HIV-INFECTED PATIENTS: CLINICAL AND PATHOPHYSIOLOGICAL IMPLICATIONS

Minoli, Lorenzo**; Bono, G.*; Melzi d'Eril, G.V.*; Turla, M.*; Pagani, I.***; Grossi, P.**
Neuro-AIDS Unit, *IRCCS C.Mondino and Policlinico S.Matteo, **Depts. of Infectious Diseases; ***2nd Div.of Anesthesiology, University of Pavia, Pavia, Italy.

Objective: To define the clinical relevance of alfa-TNF measurements and to investigate the role played by this substance in the pathogenesis of HIV-subacute encephalomyelopathy.
Methods: In n.30 HIV-patients (M:23; F:7, mean age: 30.2 ± 11.09 yrs) and in n.10 healthy control subjects, age and sex-matched, serum and CSF levels of alfa-TNF were measured by ELISA test (T-cell Science Inc., Cambridge, MA). Data were correlated with other biological variables (BBB damage; IgG index; immunological status) and clinical data (CDC stages; presence or absence of CNS damage) using the Chi-square test.
Results: Levels of alfa-TNF below the limit of 10 pg/ml were found in the control group. The majority of HIV-pts., instead, showed elevated alfa-TNF titres (from 10 to 70 pg/ml:serum; from 10 to 90 pg/ml:CSF): higher values in the CSF than in the serum characterized pts from CDC group IV presenting with neurological signs/symptoms, while an opposite trend (higher levels in the serum vs CSF) characterized pts without clinical CNS involvement.
Conclusions: Elevated alfa-TNF levels in the CSF indicate clinical involvement of CNS without distinguishing between direct damage from HIV and opportunistic infections, respectively. Therefore, alfa-TNF cannot be considered a marker of HIV-encephalopathy but rather a (possible) indicator of in-vivo viral replication.

2001 NEUROPSYCHIATRIC PROFILE OF HIV-INFECTED PATIENTS

Cairoli, Silvano*; Verri, A.P.*; Barbarini, G**; Bono, G*
*3rd Dept.of Neurology, IRCCS C.Mondino, **Dept.of Infectious Disease, IRCCS Policlinico S.Matteo. University of Pavia, Pavia, Italy.

Objective: To delineate the affective and behavioral profile of HIV infected patients in different stages of the disease by analyzing the personality traits and quantitative variables state-related.
Methods: N. 160 HIV-infected patients (97M 63F; mean age 27,0±5,4 Ds) were studied; according to CDC criteria they were classified as follows: group II= n. 89; group III= n. 40; group IVA= n. 11; group B-E= n. 20. The following scales were administered: MMPI (Minnesota Multiphasic Personality Inventory) for the evaluation of personality traits; BPRS (Brief Psychiatric Rating Scale) for evaluation of the various stage of the disease; SRT (Symptoms Rating Scale) for the evaluation of anxiety, depression, somatization and inadequacy; MADRS (Montgomery-Asberg Depression Rating Scale) for the evaluation of depressive symotoms.
Results: MMPI: a significant rise of the PD scale ($p<0,01$) was present in all the groups. In the groups IV we observed higher score for PD ($p<0,05$) then in group III. BPRS: items related to psychotic symptoms were higher in group IV vs. group II and III ($p<0,001$). SRT: anxiety and depression were lower ($p<0,01$; $p<0,05$) in the AIDS group vs. HIV positive patients. MADRS: confirmed a fall of depression level ($p<0,001$) in AIDS pts. vs. HIV positive pts.
Conclusion: anxiety/depression scores are more elevated in groups II/III than in group IV. However in AIDS pts., the fall of anxiety and depression is probably correlated with the presence of organic CNS damage.

2002 POSSIBLE PLACEBO EFFECT IN AIDS AND ARC

Mehl, Lewis. E. , University of Arizona, and Chan, B., Rosebridge Institute, Walnut Creek, California.

Objective: The goal of this research was to evaluate the effects of treatment with a vaccine for changing rate of disease progression in AIDS and ARC. During the course of this evaluation a possible placebo response was observed.
Methods: As part of the initial evaluation, psychosocial and lifestyle data was obtained from patients along with medical data. Patients entered a treatment protocol with a killed bacterial vaccine. Laboratory parameters were followed along with patient's subjective sense of improvement, other medical complications, and measurements of the size of Kaposi's lesions. A total of 80 patients were studied over a 4 to 12 months period.
Results: An initial improvement in subjective sense of severity of illness was observed in 60 patients. Half of these patients showed evidence of laboratory improvement. Ten patients showed significant decrease in size of Kaposi's sarcoma lesions. Twenty percent of patients showed no change of any kind and four patients seemed to worsen. By four months into the treatment, only twenty percent of patients continued to show improvement. The remainder of patients gradually returned to their pre-treatment condition. The four patients who had initially worsened did not receive further treatment after their initial exposure and seemed to be within the natural variations of their disease. On one year follow-up, eight patients were still under treatment, showing significant improvements in subjective feelings and maintaining improved laboratory status and/or decreased size of Kaposi's lesions. Analysis of the psychosocial data suggests that these patients had a high likelihood of expectation for treatment improvement.
Conclusions: Either a placebo response was observed predictable by psychosocial variables or there is a small subset of patients (below statistical significance for a drug-treatment study) who benefitted from the vaccine. The initial positive response has a similar explanation. This finding could explain the proliferation of "alternative" therapies in AIDS and ARC, and may also have relevence for drug trials.

2003 COMPARATIVE STUDY OF NEUROLOGICAL COMPLICATIONS IN 172 CASES OF HIV INFECTION - 1986/87-1988/89.

Sohler, Marzia Puccioni*; Correa, R.B.*; Perez, M.A.**; Schechter, M**; Ramos Filho, C.F.** and Novis, S.A.P.* - Dept. of Neurology* and AIDS - Programme**, University Hospital, Federal University of Rio de Janeiro, Brazil.

Objective: To compare variations in the frequency of neurological manifestations in HIV infected patients in two study periods (1986-87 and 1988-89).
Methods: Chart review of 653 in-patients with HIV infection followed in a tertiary Hospital, in RJ, Brazil, 280 seen in the period 1986-87 and 373 in 1988-89. Charts of patients with neurological manifestations were studied and etiological diagnosis compared.
Results:

	1986-87	1988-89	p
Total n.patients	280	373	
Patient with N.I.	16% (44/220)	34% (128/373)	$p < 0,01$
O.I.	81% (36/44)	69% (89/128)	$p < 0,0001$
HIV - R.D.	10% (4/44)	26% (33/128)	$p < 0,001$

N.I.= Neurological involvement; O.I.= Opportunistic Infections Toxoplasmosis, Cryptococcosis, Tuberculosis); HIV-R.D.=HIV - Related diseases (Sub-acute Encephalitis, Mielopathy, Peripheral Neuropathy)

Conclusions: Results obtained showed an increased frequency of observed neurological manifestations and HIV-related disease in the second study period whereas the frequency of opportunistic infections decreased. Further studies are need to determine if these changes reflect increased awareness and earlier diagnosis, improvement in diagnostic techniques or changes in epidemiological patterns.

2004 FIRST DESCRIPTION OF HTLV-I ASSOCIATED MYELOPATHY (HAM) IN ARGENTINA.

Zala,Carlos*;Campestri,R**;Muchinik,G.**;Bouzas,MB.**;da Bouza,J.*;Benetucci,J.*
*Hospital Francisco Muñiz,**Instituto de Investigaciones Hematologicas, Academia Nacional de Medicina, Buenos Aires,Argentina.

Objective: To describe the first cases of neurological manifestations associated to HTLV-Iinfection in drug abusers (IVDA) with HIV I positive serological test in Argentina.
Methods: Two white heterosexual IVDA Argentine natives living in Buenos Aires both with HIV-I infection, evaluated for spinal cord diseases. Serum and CSF samples were tested for HIV-I antibodies(Ab) by EIA (Abbott Laboratories Il.) and for HTLV-I Ab by EIA (Abbott) and particle agglutination (Fujirebio,Inc.N.J.)Samples repeatedly positive for HIV-I were confirmed by Immunofluorescence (IF) and for HTLV-I, by IF and Western Blot (WB).
Results: Patient 1: He is 19 years old, he had his first symptom of subacute myelopathy (spastic paraparesis, pyramidal signs, genitourinary disfunction without sensory level) and no impairment of intellectal functions in August 1988. He had had lymphocyte alveolitis and clinical manifestations of Sjogren syndrome.
Patient 2: He is 22 years old and shared needles with patient 1; his myelopathy manifestations began in September 1989. Both patients were found reactive for HTLV-I Ab through serum and CSF samples. Conclusions: Neurological features in Pt. 1 and extraneurological manifestations suggest clinical expression of HTLV-I infection.We recommend investigation of HTLV1 in the IVDA of Argentina,HIV+ ones with a neurological picture resembling HAM.

2005 PARALYTIC POLIOMYELITIS AND HIV INFECTION IN KINSHASA, ZAIRE.

Vernon, Andrew*; Okwo, B.**; Lubamba, N.**; Miaka, MB.**; Kashamuka, M.***. *IHPO, CDC, Atlanta, GA, USA; **Programme Elargi de Vaccination (PEV/LMTE), Kinshasa, Zaire; ***Projet SIDA, Kinshasa.

Objective: To determine whether the presence of HIV infection and the associated immuno-depression increases the risk of paralytic poliomyelitis in children under the age of 15 years in Kinshasa, Zaire, an area endemic for both infections.
Methods: To ascertain cases of paralytic poliomyelitis, biweekly visits were made from October 1988 thru September 1989 to a network of 27 clinical sites, including the principal pediatric and rehabilitation services in Kinshasa. To identify risk factors associated with possible concurrent HIV and paralytic polio infection, a case-control study was performed. Cases of paralytic polio were children under the age of 15 years with acute onset of asymmetric flaccid paralysis, without sensory changes, and which persisted for at least 60 days if the child survived, and with no other apparent cause. Controls were age (± 4 months) and neighborhood-matched children. HIV infection was determined by ELISA and immunoblot. For logistic reasons, the case-control study was limited to a systematic one-third sample of cases.
Results: A total of 131 cases of paralytic poliomyelitis were identified. Two 2(4.5%) of 44 case children and 4(9.5%) of 42 case mothers were HIV(+). Case-control groups have thus far been constituted for 35 cases. The odds ratio comparing the HIV infection rate in case children with that in control children was not significantly different from 1.0 (P)0.05). The same was true for case and control mothers.
Conclusion: In our Kinshasa study population, paralytic poliomyelitis was not associated with a statistically significantly increased risk of HIV infection. These data provide support for continued use of live oral polio vaccine in immunization programs in HIV-endemic areas of Africa.

2006 DOES AIDS REDUCE PSYCHIATRIC ILLNESS? AIDS PATIENTS COMPARED WITH OTHER MEDICALLY ILL HIV+ PATIENTS SEEN IN CONSULTATION

O'Dowd, Mary Alice; McKegney, F.P.
Montefiore Medical Center, Albert Einstein College of Medicine, Bronx,NY USA

Objective: To compare patients with different stages of HIV infection, in order to systematically examine the clinical hypothesis that AIDS patients are less emotionally distressed than patients with less severe HIV infection.
Methods: Data were gathered prospectively on all patients seen in psychiatric consultation in a large metropolitan hospital over the calendar year 1989. The predominant HIV risk factors were intravenous drug use and HIV+ heterosexual sex partners.
Result: AIDS patients had significantly more delirium and dementia, but as a group, in all parameters measured, had less psychiatric disturbance than patients with less symptomatic HIV infection.

	AIDS	ARC & Other HIV+	Non HIV+	
Diagnoses:	n=99	n=23	n=167	
Assessed Suicidal	6%	23%	8%	ns
Delirium	43%	32%	26%	p=.007
Dementia	22%	4%	5%	p=.001
Major Affect Disorder	1%	10%	5%	ns
Adjustment Disorder	31%	44%	27%	ns
Actions:				
Medication Recommended	23%	44%	19%	p=.04
Total Hours Consultation	3.4hrs	3.7hrs	2.9hrs	ns
Mean days of 1:1 Obs	1.4days	1.7days	1.1days	ns

Conclusion: It is possible that organicity and psychological processes such as denial or preoccupation with progressively fatal physicial illness, may reduce the disturbed behaviors in AIDS patients.

2007 INCIDENCE OF DEPRESSION AMONG 30 HOMOSEXUAL MEN WITH CLINICAL AIDS, HOSPITALIZED OVER AN 18 MONTHS PERIOD.

Marchand-Gonod, Nicole ; Edel V. ; Rodriguez,J.; Gentilini,Marc.
Infectious Diseases Department Pitié-Salpêtrière, Paris, FRANCE

Methods : 3 rating-scales to evaluate depressive symptoms :
- "auto-evaluation", Pichot 1984
- HAMD, Hamilton 1974.
- "Ralentissement dépressif", Widlöcher 1983

and a semi-directive interview about the history of these in-patients, who were chosen at random.
Results : According to our study, it seems that :
1) depressive tendencies are reduced :
- when homosexuality is known and accepted by family before infection,
- when the patient has requested himself the HIV serology
- whenever he lives with his sexual partner or involves himself in a gratefying activity (i.e professional, social or else).
2) Risks are rising :
- when recent affective loses occur (death or rejections of all sorts)
- by an accelerated evolution of the opportunistic infections agents, increasing the rate of hospitalisations ; its duration as well as physical deterioration.
Conclusion : Among these 30- in-patients
- 30 % were not depressed at the time of the research
- 70 % were showing a depressive condition.

2008

SYSTEMATIC RESEARCH OF PATHOGENS IN THE RESPIRATORY SYSTEM IN HIV INFECTED PATIENTS WITHOUT RESPIRATORY SYMPTOM AND NORMAL CHEST X RAY

Bouvet Elisabeth* ; Dhiel J.L.** ; Aubier M.**
* Hôpital Bichat, ** Unité de Pneumologie, INSERM U226, Hôpital Bichat, Paris, France

Objective : To assess how often opportunistic or other pulmonary infectious organisms were present in HIV patients free of pulmonary symptoms and with a normal chest roentgenogram.
Methods : 44 patients belonging to groups II, III and IV of CDC classification were studied (21 with AIDS). None of them complained of respiratory symptoms and all had normal chest X ray when studied. In all of them, respiratory function , CD4 lymphocyte count, bronchoscopy and bronchoalveolar lavage (BLA) were performed.
Results : In 6 patients (14%), pulmonary opportunistic infections were diagnosed by BLA : 3 pneumocystis Carinii (PCC), 3 cytomegalovirus infections (CMV), and 1 atypical mycobacteria. One patient had both, PCC and CMV infection. Lymphocyte count in BLA was not elevated in our patients. No correlation between respiratory function and the presence in BLA of opportunistic organisms were found.
Conclusion : Opportunistic infections were found by BLA in 14% of our serie of 44 HIV patients free of respiratory symptoms. In these patients, no predictive value of lung function data was observed. This indicates that opportunistic infection may be present in the lungs of HIV patients despite normal chest X ray which emphasizes the need for preventive treatment.

2009

Value of lungfunctiontests (LFT) and nuclear medicine procedures (NMP) in the diagnosis of pulmonary complications in AIDS patients

Christine Armbruster*, G. Kapfhammer*, H. Köhn**, N. Vetter*
*II. Med. Dept., Pulmolog. Zentrum/Vienna/Austria
** Dept. of Nucl. Med., Wilhelminenspital/Vienna/Austria

Objektive: Aim of the study was the evaluation of LFT and NMP in early detection of pulmonary complications in AIDS patients.
Methods: 118 HIV-AB positive patients were examined every six weeks by LFT (VC, TLC, Raw, paO2, paCO2, AaPO2 on rest, DLCO)and NMP (67-Galliumscan, 99m TC-DTPA lung clearance rate) during a 27 month period.
Results: Pulmonary complications occured in 36 patients (16 PCP, 8CMV, 1 LIP, 5 KS, 6 Tb and other bacterial infections).
Statistical evaluation was done by T-Test, proportional reduction of error (Lamda) and crosstabulation.
The results are shown in the table.

Method	Sensitivity	Specificity
VC,TLC/DLCO	61,7%/58,5%	72,5%/65,4%
paO2,, AaPO2	55,3%	82,1%
99m TcDTPA/67 Galliumscan	55,8%/50,0%	73,8%/88,1%

Comparing the two groups of patients every parameter differed significantly (p 0,05) except Raw, FeV1/VC, PaCO2, 99mTc-DTPA- lung clearance rate. Lamda was small for every method (0,000 - 0,181).
Conclusion: The sensitivity of LFT and NMP is low in diagnosing the pulmonary complications of AIDS. Specificity is reasonably good for PaO2, AaPO2 and 67-Galliumscanning. Our results suggest that pathological LFT and NMP necessitate further diagnostic procedures, but these methods are of little value in screening AIDS patients for pulmonary complications.

2010

FIBEROPTIC BRONCHOSCOPIC DIAGNOSIS OF PULMONARY BACTERIAL DISEASES IN 243 HIV INFECTED PATIENTS.

FJ. Aspa. P. Gómez Herruz, B. Padilla, B. Steen, M. Adrados, L. Jiménez.
Department of Pneumolog and Microbiology Hospital de la Princesa and Department of Internal Medicine Instituto Carlos III. Madrid. Spain.

OBJECTIVE: To evaluate the rentability of Fiberoptic Broncoscopic (FB) in the diagnosis of pulmonary bacterial disease in HIV infected patients with pneumonitis.
METHODS: We realized FB in 276 episodies of pneumonitis in 243 patients (83% ilicital drug abusers).We have obtained 276 bronchoscopic aspirates (BA); 278 bronchoalveolar lavage (BAL); 232 bronchoscopic protected catheter brush (CB). The bacterial growth was considered significative according to these criteries: BA>10^3cfu/ml; CB>10^3cfu/ml; BAL>10^3cfu/ml. Any oropharingeal bacterial growth was considered as contamination, and for BAL specimens if contained >1% squamous epitelial cells in Giemsa-stain. For Legionella diagnosis, direct fluorescent-antibodies was realized.
RESULTS: The main results were as follows:

Organism	BA	CB	BAL	Diagnosis
H.influenzae	13/19*	12/14	16/18	19
S.pneumoniae	4/8	3/7	7/8	8
Legionella sp.	2/5	2/4	4/5	5
S.aureus	1/1	0/1	0/1	1
P.aeruginosa	1/1	1/1	1/1	1
B.catarrhalis	0/1	1/1	0/1	1
TOTAL	21/35	19/28	28/34	
	60%	68%	82%	

*Number of positives by the method/ number of posivites by any method.

Both CB and BAL was performed in 12 patients who had previous antimicrobial therapy. CB was diagnostic in 66% of them and BAL in 91%
CONCLUSION: 1. In 12% of pneumonitis episodies one or more bacteria were detected by FB. 2. The most frecuent pathogen was H. influenzae. 3. In our experience BAL specimens was a effective procedure for diagnosis of pulmonary bacterial disease in HIV infected patients.

2011

PRIMARY HIV EXANTHEMA CAN RESEMBLE SECONDARY SYPHILIS, AND CAN BE PRESENT DURING A SEROLOGICAL WINDOW PHASE

Hulsebosch, Hendrik J.*; Claessen, F.A.P.**; Goudsmit, J.***; Lange, J.M.A. ** ***.
* Dept.of Dermatology, ** Dept.of Internal Medicine,*** Human Retrovirus Laboratory, Dept. of Virology; Academic Medical Centre, University of Amsterdam, The Netherlands.

Objective: To describe dermatological manifestations of primary HIV-I infection, and their relation to HIV antigen (Ag) and antibody (Ab) tests.
Methods: Three patients presented with an exanthema and enanthema, and a febrile illness. Skin biopsies were taken and serum was tested for syphilis, HIV-markers and other viral infections (EBV, CMV, measles, RSV, rubella, hepatitis B, influenza, parainfluenza, adenovirus, echo 9).
Results: the exanthema consisted of round and oval erythematous macules and papules, some with a haemorrhagic centre, located mainly on the upper part of the body. In two patients palms and soles were involved. The mouth showed superficial ulcerations. The skin pattern strongly resembled secondary syphilis,however,syphilis serology was negative as were antibody tests for the viral infections. The histopathology was non-specific. HIV-I p24 Ag proved to be present in serum of all three patients. Seroconversion to HIV Ab positive in two patients took place one week after the first investigation, subsequently the Ag test became negative. In the third patient the Ab test became positive after three weeks, while the Ag test had turned negative after the first investigation.
Conclusions: 1) HIV exanthema can resemble secondary syphilis and 2) can be present during a serological window phase.

2012 TREATMENT OF HIV ASSOCIATED PSORIASIS WITH ETRETINATE. PRELIMINARY RESULTS.

Cusini Marco, Alessi E., Zerboni R., Muratori S., Mansi M., Carminati G.
1st Clinic of Dermatology, University of Milan, Milan, Italy

Objective: This study was performed to determine the safety and the efficacy of the combined treatment with zidovudine plus etretinate for HIV associated psoriasis.
Methods: Ten (2.05%) of 438 patients seen by us with AIDS or ARC manifested psoriasis; the disease was always atypical especially because of marked exudation and the involvement of main folds. Six of 10 patients were treated with zidovudine (600-1200 mg daily) plus etretinate (1 mg/Kg daily) for a period of at least 2 months. Clinical and laboratory controls were performed every two weeks.
Results: Zidovudine was suspended in 1 patient because of profound anemia; a slight increase in serum transaminases manifested in 3 patients. In all subjects, a marked improvement of psoriasis after 4 to 10 weeks of therapy was observed. Etretinate could be reduced to a maintenance dose of 0.5 mg/Kg daily in 3 patients. In 1 patient who spontaneously discontinued etretinate psoriasis severely relapsed after a few weeks.
Conclusion: No increase of toxicity was observed with the combined regimen. Therapy seemed to be effective on HIV associated psoriasis.

2013 BENIGN MELANOCYTIC NEVI AND AIDS : A CASE CONTROL STUDY

Poizot-Martin, Isabelle*; Grob, J.J.**; Dhiver, C*; Gouvernet, J*** ; Bonerandi, J.J.**; Gastaut, J.A.*
*C.I.S.I.H. Hôpital Salvator, **Hôpital Sainte-Marguerite, ***Faculté de Médecine, Marseille, France.

Objective : Melanoma and eruptive dysplastic nevi have been recently reported in HIV patients. We studed the influence of HIV infection on moles' count.
Methods : All subjects were interviewed and examined by a trained dermatologist. Nevi were counted on the whole body. Their size and the presence of nevi with clinical atypical features (dysplastic nevi) were recorded. Sixty caucasian HIV patients were included : 39 stage IV (24 C1, 7 C2, 7 D, 1 E), 11 stage III and 10 stage II. For each case, one control was selected from a group of 320 subjects randomly examined and interviewed in the general population and matched to the case for age, complexion, hair colour and sun sensitivity.
Resultats : Number of small (5 mm diameter) and large (5 mm diameter) nevi were significantly higher in HIV patients than in controls (Wilkox on test, p 0.0005). The two groups were not significantly different for the presence of atypical nevi. Number of nevi and presence of atypical nevi were not correlated with stage, CD4 count, origin of contamination, and time from diagnosis.
Conclusion : HIV infections is likely to play a role in the development of melanocytic nevi, but does not appear to be correlated with degree of immunodeficiency.

2014 HYPERPIGMENTATION OF SKIN IN HIV-INFECTED PATIENTS

Poizot-Martin, I* ; Gamby, Thierry* ; Dhiver, C** ; Lafeuillade, A* ; Bouabdallah, R** ; Gastaut, J.A.**
*C.I.S.I.H. Hôpital Salvator, **Institut Paoli-Calmettes, Marseille, France.

Objective : A study of increased pigmentation in the skin and its appendages is reported.
Methods : Clinical and biologic signs of adrenocortical deficiency (weakness, weight loss, abdominal pain, hypotension, hyponatremia, hypokalemia, hypoglycemia, eosinophilia, negative fluid balance) were investigated and adrenocortical function test was performed. Biopsy specimen of the hyperpigmented areas were taken in on case. Previous medication and/or previous use of nicotine or drugs were evaluated.
Results : Five out of 600 HIV-infected patients had skin hyperpigmentation : 4 homosexual male in stage IV with a darkening of the skin of the whole body ; One intravenous drug abuser female in stage III with a transverse blue line on the first fingernails and toenails, with also well-defined brown-black macules in the buccal mucosa. None of the patients showed clinical or biological symptoms of adrenal insufficiency and levels of plasma cortisol were normal in all cases. The biopsy specimen showed an increase in epidermal melanin. We consider that these hyperpigmentations were drug-induced. Three patients were treated with pyrimethamine (50 mg/day for 3 months, 75 mg/day for 1 year, 100 mg/day for 1 month), one with ketoconazole (800 mg/day for 1 month). The nails' pigmentation was related to azidothymidine (800 mg/day for 1 year) and the oral mucosa pigmentation to nicotine.
Conclusion : Physicians prescribing these treatments need to be aware in order to avoid unnecessary or prolonged administration of corticosteroïds.

2015 ASSOCIATION OF NON-DISSEMINATED KAPOSIS SARCOMA WITH HIV INFECTION IN KENYA

Owili D. M.* Gakuu J. N.*
* KENYA NATIONAL AND TEACHING HOSPITAL, NAIROBI, KENYA.

The co-existence of Non-disseminated Kaposis Sarcoma (KS) with Human Immunodeficiency Virus HIV has been frequently noted and this association apprears to be more coincidental. Kaposis Sarcoma is a multicentric malignant process that occurs most commonly on the lower extremities but may also involve internal organs. There is general agreement that the disease is widely disseminated and the skin lessions are usually associated with internal lessions that are often silent.

An association of disseminated Kaposis Sarcoma with AIDS is well known although the biological mechanism responsible is not clear. 20 patients with nodular and infiltrative type of Kaposis Sarcoma attending Kenyatta National Hospital between January, 1989 and January, 1990 were subjected to HIV screening using ELISA techniques. Positive cases were confirmed by Western Blot method. Skin biopsies were done for histology. T4, T8 lymphocytes studies were carried out on some patients. Out of 20 patients with disseminated Kaposis Sarcoma, 15 were confirmed HIV positive and 10 of the positive cases developed various opportunistic infections such as herpes zoster, oral candidiasis and chest infections. Our findings provide evidence in support of the possible association of non-disseminated Kaposis Sarcoma with HIV infection in Africa.

2016

ABSENCE OF AIDS AND REJECTION IN AN HIV POSITIVE IV DRUG-USER AFTER LIVER TRANSPLANTATION (LT) WITHOUT IMMUNOSUPPRESSIVE TREATMENT FOR 18 MONTHS

Coaquette,Alain; Vanhems,Ph.; Miguet,JP.; Vuitton,D.; Al Ali,KG.*; Gillet,M. Hépatologie - Virologie* CHU F25030 Besançon

Objective: To report a case of HIV positive patient who received an LT in october 86 and stopped taking any immunosuppressive treatment for 18 months. **Methods:**Analysis of clinical and biological data over 3 years. **Results:**A 30-years IV-drug user was admitted for an LT on day 0 (D). He presented a severe post-hepatitis B cirrhosis. He denied to continue to use intravenous drug. The serologic profile for HIV, Ag HBs, Ac Delta virus, and the CD4 values are reported on the table:

	D0	D23	D132	D545	D715	D1125
Ag p24	-	+++	-	-	-	-
Ac p24	-	-	+	+++	+++	+++
Ac gp41	-	-	+	+++	+++	+++
CD4/mm3			244	195	184	62
Ag HBs	-	+	+	+	+	+
AcDelta	-	-	-	+	+	+

The patient confessed to use one drug injection 3 weeks before the LT. He stopped himself cyclosporin 18 months after the LT. During the follow-up he had got one oral candidiasis on D425 and 2 bacterial pneumoniae on D617-D1125. **Conclusion:**This case asked many questions:What are 1)the criteria for indication of LT in similar patients ? 2)the viral interactions between HIV, HBV and HDV ? 3)Why this patient is enough immunosuppressed to tolerate his liver without treatment but not enough to develop an AIDS ?

2017

DIARRHEA IN AIDS PATIENTS

Bonfim de Lima, Dirce*; Jurado da Silva, E.*; Favoreto, C.A.*; Gomes, V.R.*; Silva, O.F.*
Universidade do Estado do Rio de Janeiro, Rio de Janeiro,Brasil.

Objective: To determine incidence and importance of intestinal pathogens in diagnosis of AIDS patients diarrhea.
Methods: Feces samples from each patient were examined by four distinct methods (Faust et al, Kato-Katz, Baermann-Moraes and Baxby et al). Stool culture was also done. After negative laboratorial investigation for common intestinal parasites or microorganisms, colonoscopies with biopsies from caecum through rectum (fibrocolonoscope ACMI and video-colonoscope Welch Allyn) were performed.
Results: The group consisted of 87 male and 13 female adult patients with average age of 38 (range 27-49), 92 (92%) of which having been infected by HIV through sexual contact and 8 (8%), through blood. The most occuring agents were Strongyloides stercoralis (26%), Cytomegalovirus (19%) diagnosed by colonoscopic biopsies, Giardia lamblia (18%), Isospora belli (16%), Cryptosporidium sp (16%) Shigella sp (8%), Entamoeba histolytica (5%), S. mansoni (2%).
Conclusions: The infections found in most of the patients were multiple, what is probably associated to the endemicity of these agents in the developing countries. Most cases of diarrhea in AIDS patients were diagnosed through common laboratory techniques. Only in 11 cases (11%) the etiological agent was not identified.

2019

SUCCESSFUL TREATMENT OF AIDS-ASSOCIATED WASTING AND DIARRHEA WITH A SOMATOSTATIN ANALOGUE (SMS-A) DESPITE PERSISTENT SUPPRESSION OF ANABOLIC HORMONES

Malinverni, Raffaele; Gisin, M.; Horber F.F.
Med. Universitätspoliklinik, Inselspital, Bern, Switzerland

Objective: Diarrhea and wasting are common in AIDS. SMS-A is an experimental treatment (TTT) of diarrhea, but suppresses anabolic hormone secretion, which might preclude reversal of wasting in AIDS patients.
Methods: We treated a 35 year old homosexual ♂ with prior PCP and refractory diarrhea with no demonstrable cause with a SMS-A (SMS 201-995, Sandoz Ltd, Basel, CH) at 0.1 mg tid sc for 1 week followed by 0.25 mg tid. Body weight (BW), stool habits, quality of life (self assessment questionnaire), nitrogen balance and CD4-counts were evaluated before and 2 months after starting TTT. Fasting plasma levels of glucagon, insulin, growth hormone (GH) and somatomedine (IGF-1) were measured before and after 2 weeks of TTT.
Results: BW decreased by 23% in the 2 years prior to TTT and increased by 11 % in 2 months during TTT. Before TTT, **stools** were watery and discharged 5 (3-9) x/day and were formed with 2 (1-4) discharges/day during TTT. **Nitrogen balance** was 0 before and during TTT, whereas caloric intake increased from 3200 to 4050 kcal/day. Quality of life improved in 6 of 7 items from 35% to 95% Fasting plasma levels of the **hormones** GH (0.2-0.7 µg/l) and IGF-1 (17-20 µmol/l) were low and unchanged during TTT. Glucagon and insulin levels were normal before and during TTT. CD4-lymphocytes changed from <1% before to 2% during TTT.
Conclusions: Refractory diarrhea and wasting can be successfully treated with SMS-A in selected AIDS-patients. Body weight increase is probably due to increased fat mass. The suppression of plasma levels of some anabolic hormones seems not to preclude reversal of wasting at least in patients with low baseline fasting values. Whether additional substitution e.g. with human-GH may increase lean body mass, remains to be shown.

2020

RELATIVE EFFICACY OF LASER VERSUS RADIO-FREQUENCY ABLATION OF ANOGENITAL CONDYLOMATA

Geraci, Anthony; Thomas, G.; Lavigne, J.; Levy, M.

Objective: There are numerous methods employed for the treatment of anogenital warts. This study was undertaken to assess the relative efficacy of carbon dioxide laser versus radio-frequency ("electrocautery") ablation of anal warts.
Methods: A retrospective study of the clinical records of 247 patients was done and the data analyzed for statistical difference via student's one tailed T-test. The vast majority of patients were gay males, 50% of whose HIV status was known. The variance in number of recurrences among both populations was determined, as well as predictive values for recurrent warts for both treatment modalities.
Results: Those patients treated with laser had a significantly smaller number of recurrent warts. Patients treated with radio-frequency ablation had an average recurrence rate per patient of 1.243. Patients treated with laser had a rate of .5294 per patient. This difference is significant at the $p < .005$ level. From the data, we were able to determine that patients treated with radio-frequency ablation of anogenital warts had a 74.3% chance of having recurrences whereas those treated with carbon dioxide laser had a 45.8% chance of recurrence.
Conclusion: Carbon dioxide laser ablation is the treatment method of choice for anogenital condylomata in gay men.

2021

PANCREATITIS IN AIDS PATIENTS

Silva,M.A.;Silva,M.C.B.;Lima,T.S.;Lemos,O.;Corrêa-Lima,M.B.;Mello,C.E.B.
Internal Medicine A,Hospital Universitario Gaffree-Guinle(HUGG), Universidade do Rio de Janeiro,(UNI-RIO),Rio de Janeiro,Brasil.

Among 92 post-mortem examinations performed on patients with AIDS in the Hospital Universitario Gaffree-Guinle,during the period 1984-1989,7(7.6%) had either acute or chronic pancreatitis. Six of them,or 85.7%, had acute pancreatitis (3 necrohemorrhagic, 1 due to Cryptococcus sp,1 serous pancreatitis and 1 edematous). Only one patient showed chronic pancreatitis due to Cytomegalo - virus.

The main signs and symptoms were abdominal pain and vomiting. 85.7% complined of spastic diffuse pain and 14.2% of a dull pain in the right upper quadrant.

Two patients had a previous risk factor to develop pancreatitis (biliary lithiasis and heavy alcohol intake).

Only one in three showed elevated amylase(3 times the normal value) and lipase(7 times).

There were gallstones at ultrasonography in one patient,ascites in three,and pleural effsion in one.

We concluded that the rate of pancreatitis in our series of AIDS patients was elevated. However,it is very difficult to differentiate that disorder from others frequently overtake these patients,based just on the clinical picture.It is prudent therefore to include pancreatitis as a diagnostic possibility in any patient with AIDS and a persistent abdominal pain.

2022

GASTROINTESTINAL ENDOSCOPIC FINDINGS IN AIDS PATIENTS IN BAHIA, BRAZIL

Paes, Igelmar*; Mascarenha, R.*; Varela, H.*; Badaró, R.*
*Federal University of Bahia, Salvador, Brazil.

Objective: To evaluate gastrointestinal mucosal involvement in AIDS patients with dysphagia and/or diarrhea.
Method: A total of 34 class IV AIDS patients underwent upper tract endoscopy (18), colonoscopy (11) or both procedures (5). All patients had cinemagraphic documentation of their lesions.
Results: All patients with dysphagia had esophageal abnormalities including: ulcerative lesions with adherent white membranes due to Candida sp (16 patients); herpetic ulcers (3 patients); hemorrhagic ulceration with CMV inclusion bodies (2 patients); granular micro-ulcers due to cryptosporidium (1 patient); and infiltrating lymphoma (1 patient). The colonoscopic findings were diffuse hemorrhagic ulcers due to CMV (6 patients) and granular micro-ulcers due to cryptosporidium (2 patients). Two patients had diffuse ulcerative lesions which on biopsy revealed intestinal tuberculosis (1) and Herpes simplex (1). The colonoscopy was normal in 4 patients with persistent diarrhea. Kaposi's sarcoma was found in four patients; 2 esophageal, one colonic, and one patient had both colonic and esophageal disease.
Conclusion: Gastrointestinal opportunistic infections and Kaposi's sarcoma are very common in AIDS patients in Bahia. Ulcerative lesions were the most common finding and Candida was the most frequent etiologic agent.

2023

HELICOBACTER PYLORI ISOLATION FROM SYMPTOMATIC AIDS PATIENTS AT ENDOSCOPY.

Wee Tee, Mijch AM, Dwyer B, Lucas CR.
Fairfield Hospital, Melbourne, Australia.

AIM: To determine the incidence Helicobacter pylori isolation from upper GIT biopsy specimens in AIDS patients, and correlate this with histological findings.
METHODS: Between September 1986 and November 1989, 58 of 304 patients with CDC Category IV AIDS, underwent upper endoscopy at Fairfield Hospital. Indication for endoscopy was abdominal pain (42), dysphagia (14) and gastrointestinal bleeding (4). Biopsy material was examined histologically, and cultured for H.pylori and potential pathogens.
RESULTS: H.pylori was cultured from 8 patients (14%). In all patients it grew from stomach or duodenal biopsies. In no patient was the organism grown from oesophageal biopsies. Histological examination revealed gastritis (3) CMV enteritis (2) KS (1) oesophageal candidiasis (1) and oesophageal ulcer (1). Of the 50 patients from whom H.pylori was not isolated, 5 had gastritis on histological examination.
CONCLUSION: H.pylori was isolated from 14% of endoscoped AIDS patients, with gastritis present in a third of these. This may be a treatable cause of upper abdominal pain in patients with AIDS.

2024 ACUTE UPPER GASTROINTESTINAL (GI) BLEEDING IN PATIENTS WITH AIDS. A RELATIVELY UNCOMMON CONDITION ASSOCIATED WITH A REDUCED SURVIVAL.

Parente,Fabrizio;Cernuschi,M;Lazzarin,A.;Valsecchi,L.;Rizzardini,G.;Bianchi Porro,G.
Departments of Gastroenterology and Infectious Diseases,H.L.Sacco,Milan,Italy.

Acute upper GI bleeding is rarely reported to complicate the clinical course of AIDS; to date, however, the exact prevalence or incidence of this condition is unknown. To determine the cumulative incidence of acute upper GI bleeding, we enrolled in a prospective cohort study 453 patients (pts) with AIDS diagnosed in our Institution from June 1985 to March 1989. They were followed-up for a median time of 6 months (ms) (range 0.5-42 ms); the cumulative incidence of bleeding was 6% at 14 ms and this event resulted to be associated with a significant reduced survival (8% at 12 ms in bleeding pts vs 64% in those who never bled). Independent risk factors for bleeding were: severe thrombocytopenia (30 x 10^9/l) at the time of dignosis and non-Hodgkin lymphoma as first clinical manifestation dignostic for AIDS. An emergency upper GI endoscopy was feasible in only 10 cases: in 70% of pts bleeding was due to lesions specifically associated with AIDS, whereas in the remainder the source of haemorrhage was not a direct consequence of HIV infection. We conclude that acute upper GI bleeding rarely complicates the course of AIDS, but its occurrence has an adverse effect on pts' survival. As some of the causative disorders are potentially treatable, an aggressive diagnostic approach is indicated in this pts,except for those terminally ill.

2025 EFFICACY OF LOPERAMIDE OXIDE IN HIV-RELATED DIARRHOEA.

Hira, S.; Mukololo, Patrick; Parera,C.; Luo,N.;Mpoko,G.
University Teaching Hospital, Lusaka, Zambia.

Objective:To determine long term efficacy of loperamide oxide in control of HIV-related diarrhoea.
Methods: Between March & April 1989, 30 patients with HIV-related diarrhoea attending University Teaching Hospital in Lusaka, Zambia were entered in the study. Patients excluded were those with inflammatory bowel disease, cardiac, renal, hepatic, pulmonary disease or malignancy. Investigations included full blood counts, HIV-1 serology using Recombigen ELISA (Cambridge BioScience) and Western blot, and stool specimens for parasites and bacteria. Serology for togavirus, causative agent for bovine viral diarrhoea, was performed with indirect immunofluorescence assay (IFA) using European strains.
Results: The study included 18 males and 12 females. Five had subacute diarrhoea (7-14 days) and 25 had chronic diarrhoea (14 days). 14/30 (46.7%) of patients had one or more of the following in stool: cryptosporidium (10), mycobacterium (8), ascaris (4), hookworm (1), E.coli (1). 21/30 (70.0%) had complete control of diarrhoea during the week of therapy and had no relapse for next 4 weeks. Average weekly dose of loperamide oxide for control of diarrhoea was 24.6mg; dose was independent of parasites or gender. Of the remaining, 5 had control during 4 weeks of therapy and another 4 responded poorly. Significantly, those with viral enteritis responded poorly compared with those where parasites/bacteria were identified. At the end of 6 months of followup, 16/18 (88.9%) had had complete remission since they were treated at recruitment and had not received any maintenance therapy. 7/30 (23.3%) of patients were IFA positive for togavirus; high mortality was seen among them.
Conclusion: Loperamide oxide is a useful drug for HIV-related diarrhoea.

2026 ZIDOVUDINE-INDUCED LEUKOCYTOCLASTIC VASCULITIS

Lee, Moon H.*; Torres R.*
*St. Vincent's Hospital and Medical Center, New York, N.Y., USA

Methods: To describe an unusual hypersensitivity reaction to zidovudine.
Objective: The patient is a 33 year old Hispanic homosexual male, HIV-seropositive (11/88) asymptomatic, with severe immunodeficiency (CD4 count=26, Beta-2 microglobulin level=4.9mg/l), who developed high fever (105F) and headache immediately after initiating zidovudine therapy. Symptoms resolved shortly after discontinuation of zidovudine, a week later the patient was rechallenged with zidovudine with recurrence of fever and headache accompanied by a pruritic, raised erythematous papular eruption on both lower extremities. Aerosolized pentamidine was the only other medication the patient reported taking within the previous months.
Results: Physical examination was normal except for pyrexia and the erythematous raised papules and patches in both pretibia. Laboratory evaluation was unremarkable except for leukocytosis, eosinophilia and elevated LDH. Blood, urine, and cerebrospinal fluid cultures for bacteria, virus, fungi and acid fast bacilli were sterile. Chest radiograph and CT scan of the head were negative. Serological tests for syphilis, cryptococcal antigen, cytomegalovirus, toxoplasma, Hepatitis B surface antigen, rheumatoid factor, antinuclear antibodies and cryoglobulins were negative. Sedimentation rate was elevated (48mm/h) and immunological evaluation revealed hypocomplementemia and polyclonal hypergammaglobulinemia. Skin punch biopsy of the rash revealed perivascular inflammation of small dermal vessels with nuclear debris, diagnostic of a leukocytoclastic vasculitis. Immune complex deposition was absent, suggesting a hapten-mediated hypersensitivity vasculitis. Zidovudine was discontinued and the patient was treated with prednisone for 10 days with total resolution of symptoms and rash.
Conclusion: Zidovudine may induce a hypersensitivity reaction characterized by a leukocytoclastic vasculitis, which responds to steroids and discontinuation of the drug.

2027 SEBORRHEIC DERMATITIS AND HIV INFECTION : QUALITATIVE ANALYSIS OF SKIN SURFACE LIPIDS IN HIV SEROPOSITIVE AND HIV SERONEGATIVE MEN.

VIDAL Catherine*, Girard PM.***, Dompmartin D***., Bosson JL*., Mettra C**., Groslambert P**., Coulaud JP***., Amblard P.*
* Département de dermatologie, hôpital universitaire, Grenoble, France, ** Département de biochimie A, hôpital universitaire, Grenoble, France,*** Département des maladies infectieuses, Hôpital Bichat-Claude Bernard, Paris, France.

Objective : To look for modifications of skin surface lipids (SSL) in HIV infected and non infected subjects with and without seborrheic dermatitis (SD) in order to identify a possible correlation.
Methods : We have compared by chromatographic analysis the composition of SSL (cholesterol, free fatty acids (FFA), triglycerides (TG), wax esters, squalene) in 4 groups (Gp) of male patients : Gp I (n=18) HIV - without SD, Gp II (n=14) HIV - with SD, Gp III (n=21) HIV + without SD, Gp IV (n=15) HIV + with SD.
Results :

Gp	FFA (%)	TG (%)	Squalene (%)
I (HIV-, SD-	33.2 ± 5.4	22.3 ± 4.8	11.4 ± 2.0
II (HIV-, SD+)	37.4 ± 6.1	20.7 ± 5.6	11.2 ± 2.0
III (HIV+, SD-)	23.3 ± 4.9	32.7 ± 4.5	13.8 ± 1.5
IV (HIV+, SD+)	20.7 ± 5.9	35.2 ± 5.4	15.6 ± 1.8

No significant changes were evidenced between the 4 groups in cholesterol and wax esters levels. TG and Squalene were significantly increased (respectively $p = 10^{-4}$ and 10^{-3}) and FFA decreased ($p = 2.10^{-3}$) in HIV + patients compared with HIV - patients regardless of the presence of SD. There was a strong negative correlation between FFA and TG levels (r = - 0.8948) .
Conclusions : These results suggest that (1) These SSL modifications are not associated with the development of SD, (2) Perturbations of FFA and TG are related to HIV infection itself.

2028

A SINGLE EPISODE OF HERPES ZOSTER AS INDICATOR FOR HIV-1 INFECTION IN ETHIOPIAN PATIENTS.

Yigeremu Abebe, Armed Forces General Hospital, Addis Ababa, Ethiopia.

Objectives: To see whether a single episode of Herpes Zoster is predictive of HIV-1 infection in Ethiopian patients.
Methods: All patients with a single episode of herpes zoster coming to Armed Forces General Hospital, Addis Ababa, Ethiopia were tested for HIV-1 antibodies from June to Nov. 1989. Demographic, risk behievior and clinical data were also documented.
Results: A total of 12 patients were seen over five months period. Three were females and the age ranged from 16 to 80 years ($\bar{X}$ = 32.25). Six (50%) were positive for HIV-1 antibodies. These were all males, young ($\bar{X}$ = 29 years), single or divorced and had frequent contacts with female prostitutes. Among the seropositives 5 (83.3%) presented with scars 2 and more months old.
Conclusions: 1) A single episode of herpes zoster sometimes in the previous months can be highly predictive of HIV-1 infection in young subjects with risk behaviour and without underlying illness or immuno suppressive therapy. 2) There is no significant difference in extent, location, severity and complications of herpes zoster between seropositive and seronegative cases.

2029

PREVALENCE AND TYPES OF ORAL CANDIDIASIS IN GAY MEN

Greenspan, J.S. *; Greenspan, D.*; Winkelstein, W **; Rutherford, G.*, Moss, A.*; Feigal, D.W.*****
* Univ of Calif., San Francisco, ** Univ of Calif, Berkeley, *** Department of Public Health, San Francisco, ****Univ of Calif, San Diego;CA, USA.

Objective. To determine prevalence in gay men examined during scheduled cohort study visits.
Methods 564 seropositive and 644 seronegative gay men were examined (blind to serostatus) in 1987 in 3 cohorts of the Oral AIDS Epidemiology project: the SF Gay Mens Health Study (SFGMHS, n=715); the SF City Clinic Cohort (SFCCC, n=305); and the SF Epidemiology study (SFES, n=188). Examiners were trained in Oral AIDS clinic to recognize different types of mucosal involvement. Candidiasis was confirmed by KOH smears. The proportion of oral candidiasis with erythematous mucosal involvement alone in the cohorts was compared to oral candidiasis patients in the Oral AIDS clinic.
Results: Candidiasis was classified in the cohorts as pseudomembranous (n=15), erythematous (n=2), angular cheilitis (n=6), and type not specified (n=21) which was usually pseudomembranous.

	Prevalence of Oral Candidiasis (%)					
	SFMHS		SFCC		SFES	
Serostatus	pos	neg	pos	neg	pos	neg
n	316	399	124	181	124	64
Pseudomembranous	.3	.3	.8	0	2.4	0
Erythematous	0	0	.8	0	.8	0
Angular Cheilitis	.3	.3	.8	0	2.4	0
Type not Specified	3.8	.5	3.2	0	2.4	0

In the Oral AIDS clinic erythematous candidiasis alone was observed in 18% of all candidiasis cases while in the cohorts it was observed in 5%.
Conclusions: Pseudomembranous candidiasis is probably readily recognized by trained non-dental observers and is infrequently observed in seronegative gay men. Despite training in the Oral AIDS Clinic, however, it appears that erythematous candidiasis is often not detected since it is seen as the sole type of candidiasis in a smaller proportion than in the clinic.

Supported by NIH PO1-DE-07946.

2030

ORAL HAIRY LEUKOPLAKIA: CLINICAL-PATHOLOGIC CORRELATIONS AND DIFFERENTIAL DIAGNOSIS

Ficarra, Giuseppe; Gagliotl, D.; Di Pietro, M.; Panzoni, E.
University of Florence and USL 10/D, Florence, Italy.

Objective: To describe the clinical aspects, pathomorphology and differential diagnosis of oral hairy leukoplakia (OHL).
Methods: Clinical aspects and histopathology of OHL were correlated in 85 consecutive HIV-infected patients (pts). A comparison with other tongue conditions and the histology of normal lingual and buccal epithelium in both HIV+ and HIV- pts was also made.
Results: The pts median age was 28 years (range 22 to 72). 59 were men and 26 women. 52(61%) pts were IVDA, 13(15%) homosexuals, 10(12%) homosexuals and IVDA and 8(9.5%) heterosexuals. OHL was observed only on the tongue. In 59(69.5%) pts was bilateral and in 26(30.5%) unilateral. Hyperparakeratosis, acanthosis and corrugation of the lingual epithelium was observed in all OHL specimens. Keratin projections and ballooning cells were seen in 51% and 99% of cases. Ballooning cells showed either a focal or a band-like distribution in the spinous and granular layer. A superficial sharp demarcated band of parakeratin was seen in 60% of cases. Cowdry type A inclusions and inflammatory infiltrate were seen in 68% and 16.5% of cases. The comparative study showed that some, but not all, of the clinical and histologic features of OHL were also present in other tongue conditions and in the normal lingual epithelium of both HIV+ and HIV- pts.
Conclusions: Because of its variegate clinical aspects and histomorphology, OHL may be easily confused with other oral conditions. Idiopathic leukoplakia, lichen planus, geographic tongue, candidiasis and frictional keratosis may simulate OHL. The histologic features of OHL are not specific. The superficial sharp demarcated band of parakeratin was absent in the control tissues and seems to be a characteristic feature of OHL. Care is necessary in making a definitive diagnosis of OHL.

2031

QUANTITATION OF CANDIDA ALBICANS IN THE OROPHARYNX OF ASYMPTOMATIC HIV-INFECTED MALES AND PATIENTS WITH OROPHARYNGEAL CANDIDIASIS

Marriott, Deborah; Harkness John
Microbiology Department, St. Vincent's Hospital, Darlinghurst, New South Wales, Australia.

Objective: To quantitate C.albicans (C.a) in the oral cavity of HIV-infected men with and without oropharyngeal candidiasis (opc).
Methods: 382 men with no evidence of opc and who were not receiving antifungal therapy and 40 patients (pts) with opc gargled with 10ml of sterile distilled water. 0.1 ml was plated on to Sabouraud's agar and the number of colony-forming units (cfu)/ml was calculated. C.a was identified by standard methods.
Results: 104 of 382 men (27%) with a normal oropharynx had no C.a isolated. The count in the remaining 278 ranged from 10-44,000 cfu/ml (median 160 cfu/ml; mean 848 cfu/ml), and was greater than 1000 cfu/ml in 33 samples(12%). Of 39 pts with dentures but no clinical evidence of opc, 8 (20.5%) had 0 cfu/ml, with counts of 31 pts ranging from 10-7,000 cfu/ml median 250 cfu/ml; mean 782 cfu/ml). In 40 symptomatic pts examined the yeast count was 10-30,000 cfu/ml (median 2420 cfu/ml; mean 6409 cfu/ml). The difference in cfu/ml between asymptomatic and symptomatic pts was significant ($p<0.0001$, unpaired Student's t-test).
Conclusion: This study has shown that there is considerable overlap in yeast counts between asymptomatic men and those with opc, although there is a significant trend towards higher counts in symptomatic pts. Thus the diagnosis of opc remains a clinical diagnosis with a low yeast count not excluding the disease and a high yeast count found in HIV-infected individuals with a normal oropharynx.

2032 GENGIVAL PATHOLOGY IN PATIENTS WITH SERO-POSITIVE HIV

Birman, Esther*; Godoy,L.F.**; Costa, C.R.**
*School of Dentistry - University of Sao Paulo, **AIDS-Reference Center, Sao Paulo, SP., Brazil.

Due to controversial aspects about the prevalence of gengival pathology in HIV seropositive patients,we studied 100 patients (90.9% men; 45.4% homossexual men, 21% drug abusers,27% other types), with age varied from 16 to 54 years mainly 2º and 3º decate, classified in 65% as group IV. It was realized a clinical evaluation by the Loe method to study the state of gengiva at the first visit. The degree of affected gengival in three groups index amounted 88% associated in 22% with periodontites. GUNA was observed im 11%.
Unespecific ulceration were observed in 6% associated with Gram negative bacteria. Gengival candidose was present in 12% in general associated to pseudomembranous lesions of other localization in the mouth, rarely isolated.
Unless local treatment and oriented higienization it was not possible correlate a better clinical picture of the gengiva. The gengival conditions varied with the general state of the patient, in their various visits, demonstrating an inter-relation between the gengival problems and systemic conditions.

2033 ALPHA-INTERFERON IN HIV-INFECTED PATIENTS WITH IMMUNE THROMBOCYTOPENIC PURPURA (ITP).

Salvatrice Mancuso, V.Accurso, M.Spina,R.Perricone,A.cajozzo.

Istituto di Clinica Medica e Malattie Cardiovascolari. Università degli Studi. Palermo.

Objectives. To evaluate therapeutic effects of alpha interferon on platelet count in thrombocytopenic Hiv infected individuals.
Methods. At the Center for AIDS control in Sicily, we treated twelve HIV patients belonging to groups II and III of CDC classification, with platelet count <30.000/mmc. Following a 1 month observation period, subjects received alpha interferon 3 Mu s.c. 3 x weekly. Regular haematological and immunological follow-up was conducted over a period of three months.
Results. In 9 patients platelet count increased to 52.000 ± 9.000/mmc, reaching a peak after 1 or 2 weeks. Interferon therapy produced a sustained increase in platelet count for 3 months treatment period. Immunological and virological parameters remained stable.
Conclusion. The treatment with alpha interferon appears to be effective in HIV-associated thrombocytopenia.

2034 EFFECTIVENESS OF AZT ON HIV-RELATED THROMBOCYTOPENIA.

Milazzo,Francesco;Zanchetta,N.*;Coen,M.;Dal Conte,I.;Re,M.*; Vivirito,M.C.
Ist Dept. Infectious Dis.,* Dept of Hygiene,L.Sacco Hospital, Milan, Italy.

Objective: To evaluate long-term effectiveness of AZT on HIV-related thrombocytopenia (TP) .
Methods:17 HIV infected patients(PTS) (13 LAS and 4ARC/AIDS) with TP (platelet-(PTL)-count 100.000/mmc) were trated with AZT,according to standard protocol criteria, for at least 12 weeks;8/17 were treated up to six months.PTL count was weekly estimated;CD4+ lymphocyte count and p24 antigen(p24Ag) level were determined at 3 months interval.
Results: PTL count progressively increased in 15/17 PTS(mean value at start= 46.000/mmc,after 3 months=86.000/mmc);this trend was not related to CD4+,clinical stage,AZT dose and severity of TP at start.In the 8 PTS followed for at least 6 months the mean PTL count showed,after a peak at 3rd month,a slight decrease,but it remained higher than 50% baseline counts.In particular PTL levels remained high in 4 PTS and decreased in the other 4.In these patients we determined also p24Ag.1 PTS,who was p24Ag positive before treatment became negative at 6th month;among the other 7,who were p24Ag negative at start,one became positive.
Conclusion: In our experience AZT is an effective treatment of TP in terms of better response and duration,particularly when compared with other therapies(high dose Ig,steroids and anti-D Ig). We did not find relationship between PTL count and p24Ag pattern during AZT treatment;this could be due to low sensitivity of Ag test as index of viremia or to the low number of patients examined.

2035 PLATELET DECREASE IN HIV-INFECTION ASSOCIATED WITH PROGRESSIVE IMMUNODEFICIENCY, ATYPICAL MYCOBACTERIA AND SALMONELLA SEPSIS

Matuschke, Alexander*; Welzl,G.**; Bogner,J.*; Goebel,F.-D.*.
* Medizinische Poliklinik, Universität München, München, FRG,
** MEDIS der GSF, München-Neuherberg, FRG.

Objective: To determine different causes of platelet decrease in HIV-infection.
Methods: In 407 HIV-infected patients, platelet counts [PL], gamma globulins [GAM], risk of infection, Walter Reed stages [WR], opportunistic infections [OI] and date of death were compared. Significance [signif.] was defined as p < 0.05.
Results: Male HIV infected iv-drug abusers had a signif. higher rate of PL <150000 than homosexuals. In the latter mean values [M] of PL signif. decreased in WR1/2, WR3/4, WR5 (M=237500, 197900, 159000), in WR6 instead signif. increased >200000, due to pneumocystis carinii pneumonia with mean PL of 210800. The rate of cases with minimum PL <100000, during atypical mycobacteria infection (73%, n=11) was higher than during cytomegalovirus infection (45%, n=20) and signif. higher than during other OI (26%, n=92). Two of 2 patients had decreased PL during salmonella sepsis. In 86 patients, during the last 2 years before death, measured at 3 month's [MO] intervals, PL did not decrease (M=177000 +/- 20000), but GAM decreased (>24 MO before death M=2.05, 3 MO before death M=1.79). In the intervals 21-18-15-12-9-6 MO before death the correlation of PL and GAM was -0.35,-0.55,-0.44,-0.36,-0.31. In earlier intervals, and 6 MO before death with high rate of OI, PL and GAM did not correlate. In patients with spontaneously resolving severe thrombocytopenia a decrease of GAM has been noted.
Conclusion: Medium PL decrease with progressing immunodeficiency until WR5, but not during the time before death. This might be caused by a decrease of antiplatelet antibodies, going parallel to the decrease of GAM. Further studies are necessary. If PL decrease in state of advanced immunodeficiency, atypical mycobacteria infection and salmonella sepsis must be considered.

2036 SERUM LACTATE DEHYDROGENASE LEVELS IN HIV-Ab POSITIVE, AIDS AND ARC INDIVIDUALS IN BULGARIA

Doganov, Boyan
Clinic of Infection Diseases, Sofia, Bulgaria

Objective: To assess the value of serum lactate dehydrogenase (LDH) as a predictor of worsening in the clinical state of HIV-Ab (+) individuals.
Methods. We measured the serum LDH levels in 60 HIV-Ab (+) individuals, together with the changes in the cell-mediated immunity (CMI).
Results: We found elevated total LDH in 67% of these individuals, medium value 227 U/l (normal 112 U/l). In 6 of the 7 ARC cases we found elevated LDH levels 6 months before worsening in the clinical course. It was related to negativization in the skin multitest and later on with decline in the T4+ and T4/T8 ratio. We could not find any pulmonary problems in those patients, so the origin of this LDH elevation is quite suspici- ous.The patients had no liver problems at that time either, supported by the lack of changes in ALT, AST, GGTP, AP. We can speculate that LDH high levels reflect the rate of lymphocytes' destruction, but further investigation is necessary.
Conclusion: Elevation in LDH levels, together with CMI changes, in the lack of other reasons (liver, pulmonary) can be predictive for worsening in the clinical course of the HIV infection.

2037 TUFTSIN DEFICIENCY IN HIV INFECTION

Corazza, Gino Roberto*; Zoli, G.**; Ginaldi, L.*; Profeta, V. F.*; Gasbarrini, G.**; Quaglino, D.*
*Dipartimento di Medicina Interna e Sanità Pubblica, Università de L'Aquila
**Patologia Medica I, Università di Bologna. ITALY

Bacterial pneumonia caused by Pneumococcus and Haemophilus influenzae occur in patients with AIDS with a frequency which is significantly higher than in the general population. Infections caused by these same organisms are well known to be associated with splenectomy or splenic dysfunction and are believed to be related to tuftsin deficiency. Tuftsin is a naturally occurring tetrapeptide stimulating phagocytosis released from the Fc-fragment of IgG by a splenic carboxypeptidase. Since defective reticuloendothelial system Fc-receptor function has been already reported in patients with AIDS, we have measured serum tuftsin activity by a biological assay (Nishioka K.et al. Biochim.Biophis.Acta 1973; 310:217) in 16 patients with HIV infection and have compared the results obtained with those observed in 38 normal subjects and 17 splenectomized patients. Tuftsin activity appeared significantly reduced ($p < 0.05$) in HIV patients ($\bar{x}$ 9.1% range 0-16) compared to normal controls ($\bar{x}$ 21.3% range 10-37). The difference was similarly highly significant when comparing patients with AIDS ($\bar{x}$ 4.2%) with other subjects infected by HIV ($\bar{x}$ 10.3%). As expected, in splenectomized patients tuftsin activity ($\bar{x}$ 1.6% range 0-9) was significantly reduced compared to the other groups. Tuftsin deficiency demonstrated for the first time in patients with HIV infection may be of some relevance for the onset of bacterial infections.

2038 UNEXPLAINED VENOUS THROMBOSIS (UVT) IN HIV INFECTED PATIENTS

Pulik, Marc*, Lefebvre d'Hellencourt, S.*, Couderc, L.J.**, Matheron, S.***, Saimot, A.G.***, Mahé, A.*
* Hôpital V. Dupouy, Argenteuil ; ** Hôpital Foch, Suresnes ; *** Hôpital Claude Bernard, Paris, France.

Ojective. To describe a previously unreported complication : UVT in HIV-infected patients (pts).
Methods. Group I : retrospective study of UVT observed in HIV-infected pts in 4 hospitals, in Paris area, from 1983 to 1989. Group II : prospective study of coagulation in HIV-infected pts, in January 1989.
Results. Group I : 16 deep vein thrombosis and 5 pulmonary emboli were observed in 12 pts. 5 pts had 2 or more events. No arterial thrombosis occured. Pts had the following characteristics : 10 men, 2 females ; 5 gay, 1 intravenous drug user, 3 heterosexual, 3 other risks. 8 had AIDS (no Kaposi), 3 ARC, 1 asymptomatic. At the time of UVT 7/12 were on zidovudine. Most had depressed T4 (mean 207 ; range 10-324/mm³). Coagulation studies : platelets counts normal (12/12) ; protein C normal (7/7) ; total protein S normal (4/4) ; free protein S low (3/4) ; factor VIII-related-antigen high (2/2) ; antithrombin III normal (4/4).
Group II : Coagulation profiles were as follows : elevated (25/45 %) factor VIII-related-antigen (11/14) ; free protein S deficiency (39 % all ; 12,4 % female , 54.9 % male) (15/16). Total protein S, C4 binding protein, protein C were normal.
Conclusions. 1°) UVT seem not infrequent in HIV-infected pts ; 2°) many coagulation abnormalities are observed in HIV-infected pts but they are the same in the 2 groups and therefore do not explain by themselves the UVT observed in our pts.

2039 SYSTEMIC LUPUS ERYTHEMATOSUS MIMICKING HIV INFECTION

Wool, Michael; Magpantay, L.; Hardy, W.D.; Chen, I.
University of California, School Of Medicine, Los Angeles, California, USA.

Objective: Case report of Systemic Lupus Erythematosus (SLE) mimicking HIV infection with multiple positive and indeterminate HIV laboratory results.
Method: A 31 y.o. white female with low HIV risk factors and a history of infectious mononucleosis with hepatitis in 1982 subsequently developed symptoms of persistent fatigue, intermittent painful lymphadenopathy, Raynaud's phenomenon, eczema, psoriasis, multiple arthralgias and myalgias. A 20 month evaluation revealed persistently false-positive HIV antibody tests by EIA and multiple negative, positive and indeterminate HIV western blot assays. T lymphocyte studies, Beta 2 microglobulins, CBC, chemistries, urinalysis, chest x-rays, EKG and erythrocyte sedimentation rates were consistently normal. Multiple HIV cultures were negative. Toxoplasmosis, CMV, and Lyme disease serologies were negative but positive convalescent titers to Epstein-Barr virus were noted. In 6-89 a polymerase chain reaction (PCR) test was performed with a negative result. The patient developed a anti-nuclear antibody (ANA) titer, rising from 1:40 to 1:320 with a speckled pattern. Complement C3 was mildly elevated. Two false-positive VDRL's with concomitant negative FTA were noted. Other rheumatologic markers were negative. The patient's symptoms improved with moderate doses of ibuprofen. Repeat PCR tests are planned.
RESULTS:

	4-88	5-88	6-01-88	6-28-88	7-88	1-89	6-89	8-89	10-89	1-90
EIA	POS	POS	POS		POS	POS	POS		POS	
WEST p24	0.5	0.5	2	1	NEG	NEG	POS		NEG	
p55	NEG	NEG	1	0.5	NEG	NEG	NEG		NEG	
gp41	NEG	NEG	1	0.5	NEG	NEG	NEG		NEG	
gp120/160	NEG	NEG	NEG	NEG	NEG	NEG	NEG		NEG	
PCR							NEG			
HIV Culture					NEG				NEG	
ANA	1:40						1:320	1:320		
CD4/CD8				1003/531			538/269			777/413
T4/T8 Ratio				1.71			2.00			1.88

CONCLUSION: Systemic Lupus Erythematosis can resemble HIV infection infection and produce false positives in both EIA and Western blot assays. Prudent follow-up, repeat testing and perhaps newer technologies such as PCR assays may provide accurate answers to these diagnostic dilemmas.

2040

EIGHT YEAR FOLLOW-UP OF IMMUNE FUNCTION IN JAPANESE HEMOPHILIACS (1983-1990)

Tanaka Asashi; Yorifuji,H; Fukutake,K; Hada,M; Ikematsu,S and Fujimaki,M.
Tokyo Medical College,Department of Clinical Pathology,Shinjuku,Tokyo,Japan

Objective: Most of hemophiliacs have been suppressed their immune system in various extent whether they have suffered from HIV infection or not. Thus, it is important that we continue to study on their immune function to gain insight into the natural history of HIV infected individuals. We report results of our analysis for Japanese hemophiliacs with variations of immune functions over a 8 year period. Methods: We investigated 51 hemophiliacs including 30 seropositive patients (Group P) and 21 seronegative patients (Group N) for HIV, whose age was between 8 and 66 years. The following parameters were examined about significant difference by t-test and Wilcoxon's rank sum test etc from 1983 to 1990; white blood cell count, lymphocyte count, platelet count, CD3 cell count, CD4 cell count, CD8 cell count, CD4/CD8 ratio, IgG, IgA. Results: In 1983 there was no difference between Group P and N except IgG, but in 1990, the following data also made differences; white blood cell count, platelet count, CD4 cell count, CD4/CD8 ratio, and IgA. CD4 cell count in Group P presented significant decrease ($p \leq 0.05$), of which mean value was 630/μl in 1983 to 470/μl in 1985. CD4 decreased mainly in that earlier period and thereafter didn't change markedly. In contrast, CD4 in Group N developed a tendency to increase. CD8 didn't give significant change over the study period in both Groups. In Group P, CD4/CD8 ratio showed significant decrease progressively, but in Group N, it showed a tendency to increase. IgG had increased tendency in both Groups, and it became clearly higher in Group P. IgA was stable in Group N, but progressively increased in Group P. Conclusion: These results suggest that these parameters may help to comprehend their clinical course and to analyze conditions to develop AIDS.

2041

PERIPHERAL BLOOD ERYTHROCYTES (E) FORMING ROSETTES WITH THEIR AUTOLOGOUS LYMPHOCYTES (AELR) IN HIV INFECTED PATIENTS.

Pathouli,Christina+; Spiliotopoulou,J.++;Kontopoulou-Griva,Ir.++
+2nd Academic Dept of Medicine of Athens University,++1st Regional Transfusion Center, Hippocration Hospital, Athens, Greece.

Objective: We casual observed that a part of peripheral blood lymphocytes (PBL) in persons infected by HIV forms spontaneous rosettes (R) with their autologous erythrocytes (AE). We wanted to estimate how extensive is this phenomenon. We studied 32 HIV positive Hemophiliacs, 27 HIV positive cases, 3 positive Cooley anemias (A) and 20 normal controls (NC).
Methods: PBL separated according to classic techniques. AE suspensions 1% prepared and the mixture (V/V) observed by microscopy after incubation for 24 hours in 4°C temperature. R formation inhibition performed by using "Dakopatts" monoclonal antibody (MA) T, T_4, T_8, B into the mixture of AELR.
Results: AELR in all patients found $\bar{X}$ 78±17% and after T-MA $\bar{X}$ 14±15%, after T_4 $\bar{X}$ 20±23%, after T_8 $\bar{X}$ 18±10% and after B $\bar{X}$ 54±20%. AELR in NC found $\bar{X}$ 20±14% and after all MAs 0%.
Conclusions: The lower R-inhibition observed in patients by using B-MA and the higher by using T-MA. The NC have unstable R and these are very sensitive against R inhibition by all MAs. We may until now conclude that a small numeral of PBLs are able to attack against AE in order to eliminate old or altered E from blood stream.Probably these PBL subpopulations may increase in pathologic states like HIV infection so as become dangerous for normal AE.It is possible this mechanism to be partially responsible for the A,Wich A develops later in such patients.

2042

INCIDENCE OF HIV INFECTION IN PATIENTS TREATED FOR LYMPHOMA

Forjaz Lacerda M.J*,Santos-Ferreira M.O.*** Lourenço M.H.***, Forjaz Lacerda J.M.**
*Department of Pathology, **Department of Hematology,Faculty of Medicine/ Santa Maria Hospital; ***Department of Microbiology, Faculty of Pharmacy, Lisbon, Portugal.

Objective - To determine the number of patients infected by HIV among those treated for lymphoma.
Methods - 165 patients with lymphoma (Hodgkin and non-Hodgkin) have been tested for HIV (both HIV-1 and HIV-2).Antibodies to HIV were checked by ELISA and confirmed by Western blot analysis. Conventional morphology and immunopathological studies were performed to study lymph node biopsies.Clinico-laboratorial studies were also performed.
Results - HIV infection was demonstrated in 4 of 165 patients (2,4%),treated for lymphoma and previously unsuspected for AIDS. 3 patients were positive to HIV-2 and 1 for HIV-1. The characteristics of the patients were: sex - male--3; female-1. Mean age - 47 (29-63). Risk group - homosexual-1; Africa- 2; Blood tranfusion- 1.Histologically all of them were non-Hodgkin's lymphomas of high grade malignancy and the phenotype was B cell type, monoclonal. There was no extranodal involvement. The complete response rate was low and relapse rate was high in all of them.
Conclusion - Patients with malignant lymphoma, mainly non-Hodgkin's lymphoma, must be tested for HIV infection, specially when they belong to a risk group or when they have poor response to therapy.

2043

IS ACUTE RENAL FAILURE (ARF) IN AIDS REALLY DECREASING ?

A. Genderini, S. Bertoli, D. Scorza, MT. Barone, C. Lagona and G Barbiano di Belgiojoso
Renal Unit, Sacco Hospital, Milan, Italy.

Incidence of ARF in AIDS patients (pts) is a frequent event, but reports on its occurrence in recent times,compared to earlier observations is lacking. We evaluated the occurence of ARF in pts hospitalized for AIDS or pre-AIDS at Infectious Diseases Units of Sacco Hospital, Milan from 1984 to 1989. Out of 715 AIDS pts, 82, who showed a rapid increase of creatinine (creat) and urea levels, were selected: according to severity of ARF 3 groups were isolated: mild (14 pts) for maximum creat between 1.7 and 2.9 mg/dl, medium (14 pts) for creat between 3.0 and 6.0 mg/dl and severe over 6 mg/dl respectively. 73 pts were drug abusers, 7 homosexuals, 1 male bisexual, 1 both drug abuser and homosexsual; 67 were males and 15 females.
The etiology of ARF was: hypovolemia and dehydratation in group I, drugs, sepsis, dehydratation and hepatorenal syndrome in group II, the same plus intestinal perforations and rhabdomyolysis in group III. Renal replacement therapy was started in 10 pts belonging to group III.
The incidence of ARF for periods 1984-86 and 1987-89 was 45 over 173 AIDS pts and 37 over 542, respectively, with a reduction from 26% to 6.8% .The reduction was noted for all 3 groups, with disappearance of surgical pts. Prognosis was renal function recovery for all pts. None of the pts from group I died during ARF. Among 32 pts from groups II and III, only 7 were alive at 2 years from the episode of ARF, and 4 were lost at follow up. No changes in prognosis was seen among the two periods. These observations may reflect a more prompt reversal of dehydratation in early phases of ARF, and a less aggressive treatment of severe terminal AIDS pts.

2044 BACTERIAL EAR AND SINOPULMONARY INFECTIONS IN HIV INFECTED PERSONS

Simpson, Gail; Martin,M; Cox,P; Beck,K; Beall, G.
Harbor-UCLA Medical Center, Torrance, CA, USA

Objective: The magnitude of common bacterial infections in HIV infected patients is unknown and merits investigation. Therefore, we sought to determine the incidence of ear and sinopulmonary infections and potential associated factors in a defined HIV-infected population.
Methods: A retrospective chart review of 377 patients followed in a public hospital HIV clinic for a minimum of two months was performed. Patients (68) with a diagnosis of bronchitis, sinusitis, otitis media, and otitis externa (OE) requiring antimicrobial treatment were selected. Predisposing factors were analyzed and included: CD4 cells/mm^3, absolute neutrophil countx10^9/L (ANC), tobacco and cocaine use, skin changes, and presence of oral candida (OC).

Results:	Pts	Episodes	ANC	CD4	OC	Tobacco	Cocaine
Bronchitis	43(11%)	90(24%)	3.1	104	48%	74%	7%
Sinusitis	28(7%)	56(15%)	2.4	106	50%	64%	18%
Otitis							
Media	24(6%)	52(14%)	1.9	59	42%	58%	16%
Externa	21(6%)	42(11%)	2.3	136	38%	66%	9%

Dermatologic problems occurred in 38% of patients with OE.
Conclusion: We have defined the incidence of ear and sinopulmonary bacterial infections in our population. Recurrences were frequent. Management of specific predisposing factors should improve outcomes for HIV-infected patients.

2045 NATURE OF INTRAMYOCARDIAL INFLAMMATORY INFILTRATES (IMI) IN AIDS PATIENTS.

Parravicini,C*;Gaiera,G*;Vago,L*;Lazzarin,A*;Baroldi,G**.
*University of Milan;**CNR, Niguarda Hospital, Milan, Italy.

Objective:Investigation of frequence, phenotype and pathogenesis of IMI in AIDS patients (pts). Methods:Heart samples obtained from 34 consecutive pts. died from AIDS, and 6 IVDU HIV- subjects were examined. Immunohistochemical methods were employed with MoAbs directed against several leucocyte and viral antigens (CMV, HIV p18, gp41 and gp120). Results: IMI were observed in 20/34 (58%) pts. and in 8 (23%) of them a diagnosis of myocarditis (mc) was done due to the presence of associated necrosis. The T lymphocytes/monocytes mean ratio (mr) was 2.9 in IMI cases without necrosis, and 0.5 in mc; the CD4/CD8 mr was the same in the two groups (0.6). B lymphocytes and granulocytes were virtually absent. In all cases the presence of isolated interstitial leucocytes was observed, with a T lymphocytes/monocytes mr of 0.8 and a CD4/CD8 mr of 5.8. In 5/10 cases CMV antigens were demonstrated in myocytes and isolated monocytes; in 2 of them, HIV antigens were also observed in rare interstitial monocytes. Neither IMI nor mc were present in IVDU HIV- pts, while distribution and phenotype of interstitial leucocytes were the same in the control and HIV cases. Conclusions:IMI were observed in more than 50% of AIDS cases. The phenotype of inflammatory cells resembles that of "idiopathic" mc, and suggests a common pathogenesis, involving CD8+ lymphocytes. CMV may be the cause of at least some of the mc and IMI, while HIV antigens expression may be only a secondary effect of CMV or other viral concomitant infections.

2046 OCULAR LESIONS IN AIDS PATIENTS IN SENEGAL

Ndoye, Nafissatou*; Wade,A*; BA,E*; SOW,S**; COLL, AM**.
*Ophthalmology Department, Hôpital Le Dantec, Dakar, Senegal; **Dept. of infectious Diseases, Hôpital de Fann, Dakar, Senegal.

Objectives: 1) To estimate the prevalence of AIDS related ocular lesions. 2) To discribe the different types of AIDS related eye lesions. 3) To assess differences of ocular lesions according to type of HIV infection.
Methods: Systematic examination by an ophthalmologist of all new AIDS cases hospitalized at the Infectious Diseases Department of the University Hospital. Data collected include evaluation of vision, split lamp examination, eye pressure and fundoscopy as well as clinical staging, type of HIV infection and case case definition according to criteria of Bangui, the CDC and Walter Reed.
Results: Ocular lesions were present in 20% of AIDS cases, mainly cotton wool spots, uveopapillitis and uveitis.
Conclusion: AIDS related ohthalmic lesions were observed in patients infected by HIV1 as well as those infected by HIV2. Further investigation is needed in order to assess the place of ocular lesions in the clinical definition, staging and management of HIV infected individuals.

2047 MICROSPORIDIAL KERATOCONJUNCTIVITIS IN AIDS

Friedberg, Dorothy N.*; Orenstein, J.M.**; Didier, E.S.***; Stenson, S.M.*; Shadduck, J.A.****. *NYU Medical Center, New York, NY, USA, **George Washington University Medical Center, Washington, DC, USA, ***Tulane University, New Orleans, LA, USA, ****Texas Veterinary Medical Center, College Station, TX, USA.

Objective: To determine the cause of a recalcitrant, bilateral, superficial epithelial keratoconjunctivitis in 3 patients with AIDS.
Methods: Conjunctival scrapings were examined by light (LM) and transmission electron microscopy (TEM) in 2 patients. Results were confirmed by conjunctival biopsy in one patient. Organisms were grown in tissue culture in Maidin Darby canine kidney cells. Serum was analyzed by Western blot assay using murine Encephalitozoon cuniculi as antigen. One patient was diagnosed clinically.
Results: Gram, acid-fast, and Giemsa-positive bodies, which were also birefringent, were seen by LM in smears and paraffin sections. Organisms in scrapings, biopsy and tissue culture were identified by TEM as Microspora, morphologically similar or identical to E. cuniculi. They develop within parasitiphorous vacuoles, have spores with thick endospores, polar tubules with up to 7 turns, and measure up to 1.1x2.5um. Western blot analysis of one patient's serum showed 2 or 3 bands of cross reactivity using murine E. cuniculi as antigen.
Conclusions: An Encephalitozoon, most resembling E. cuniculi was identified pathologically and in tissue culture as the cause of a new clinical entity in AIDS patients. The source of this superficial microsporidial keratoconjunctivitis is unclear, but all 3 patients had exposure to household pets, a common reservoir for E. cuniculi.

2048

CLINICAL MANIFESTATIONS OF HIV-INFECTION IN THE USSR

Yurin, Oleg; Irova, T; Sundukova, E; Pokrovsky, V.V.
Central Research Institute of Epidemiology, 3-a, Novogyreyevskaya, Moscow, USSR

Objective: To estimate clinical manifestations of HIV-infection in the USSR.
Methods: Observation of clinical manifestations of HIV-infection in seropositive persons: 401 Soviet citizens including 155 children (38,7%) and 578 adult foreigners.
Results: In 8% of Soviet seropositive persons symptoms resembling Glandular Fever-Like-Illness were observed in 5-12 weeks after the infection. When being diagnosed with the infection 82% of all seropositives considered themselves to be healthy. A third of all cases have generalized lymphadenopathy. 19 patients were AIDS diagnosed (16 Soviet citizens and 3 foreigners). And only 3 adults of them were diagnosed with AIDS by the first examination. The other 12 developed AIDS after being under observation from 6 months to 2 years. 5 AIDS sufferers (26%) are alive so far. One of them is 37-aged male homosexual suffering from Kaposi's sarcoma since 1985. From 1987 he has been treated with AZT and Recombinant α-interferon.

2049

ARTHRITIS AND HIV INFECTION IN KIGALI RWANDA.

Blanche, Philippe*; Teelman, H.*; Bogaerts, J.*; Batungwanayo, J.*; Kegame, A.*; Nyirabareja, A.*; Kabagabo, L.*; Ruteganira, Y.*; Abdel Aziz, M.*; Van de Perre, P.**.
* Departments of Internal Medicine, Microbiology, Centre Hospitalier de Kigali (CHK), Rwanda,
** AIDS Control Program, Kigali, Rwanda..

Objective: To investigate the patients admitted at the CHK with acute or subacute arthritis and look for a possible association of this condition with HIV infection.
Methods: From 10/01/89 to 12/31/89, each patient with acute or subacute arthritis was examined clinically, had a X-ray of chest, pelvis and involved joints, standard blood tests, parasitological examination of the stools, cytological and microbiological examination of urethral and/ or cervix exsudate, cyto-biochemical and microbiological analysis of joint fluid and HIV serology (Elisa, Western Blot). Early and late serum specimens for additionnal serological tests were also collected.
Results: Nineteen patients (15 male, 4 female ; age range : 20-65, mean: 32) with acute or subacute arthitis were diagnosed.

Diagnostic categories of arthritis	n°	(%)	HIV n° positive/total n° of cases	(%)
Infectious (+)	9	(47)	8/9	(88)
Non infectious(++)	10	(53)	7/10	(70)
Total	19	(100)	15/19	(79)

+ N. gonorrhoeae 4, S. aureus 2, M. tuberculosis 2, Salmonella B 1.
++ Reactive 6 (of whom 6 HIV +), Metabolic 2 (of whom 0 HIV +), Others 2 (of whom 1 HIV +).
Conclusions: The high HIV seropositivity rate in patients with acute or subacute arthritis suggests HIV infection should be considered in any patient with arthritis in areas with high prevalence of HIV infection.

2050

GYNAECOLOGICAL AND REPRODUCTIVE ASPECTS OF HIV INFECTED WOMEN

Sojo Diana and Fresneda, A. Centro Promoción de la Salud. Distrito Centro. Madrid Council Spain.

Ninety-seven HIV infected women who attended the clinic were prospectively studied. Ninety of them were in group II, four in group III and three in group IV according to CDC clinical staging. Eighty-seven per cent reported IVDA present orpast and 13% were couples of subjects previously infected.

Genital infection, unwanted pregnancy and cervical intraepitelial neoplasia were the most common problems in HIV infected women who attended the clinic. Eighty per cent had cervical intraepithelial neoplasia and/or in situ carcinoma. More than 50% of the women had a genital infection. The incidence of infection was different for the different groups checked. It was especially high in the IVDA group.The risk for IVDA prostitutes was hihger than that for the non prostitute IVDA group. The risk of infection was two times greater for these women. Vaginal candidiasis was the most frequent infection taking into account all the cases studied. Candidiasis, trichomoniasis and infection produced by mycoplasma and ureaplasma were found to be the commonest in the IVDA prostitute group. In the IVDA non prostitute group, the papilloma virus (HPV) infection was the most frequent followed by candidiasis, trichomoniasis and mycoplasma infections.

The use of the condom was low in the groups studied. Infrequent use and misuse of contraceptive methods in these women, are the factors related to the high rate of unwanted pregnancies observed. Each case needs to be analysed carefully and the use of contraception must be discused independently of the prevention of the heterosexual transmission. Parenteral progestogens were used with a low incidence of collateral effects. Routine cervical smear and colposcopy examination of vulva, vagina and cervix must be done frequently.

2051

PERICARDIAL EFFUSION AND HIV INFECTION IN KIGALI, RWANDA.

Kegame, Abel*; Teelman, H.*; Bogaerts, J.*; Batungwanayo, J.*; Nyirabareja, A.*; Abdel Aziz, M.*; Blanche, P.*; Van de Perre, P.**.
* Departments of Internal Medicine, Microbiology, Centre Hospitalier de Kigali (CHK), Rwanda,
** AIDS Control Program, Kigali, Rwanda.

Objective: To investigate the causes of pericardial effusions and their possible association with HIV infection.
Methods: From 08/01/88 to 07/31/89, each patient with pericardial effusion had a medical history, physical examination, standard laboratory tests, chest X-ray, ECG, cyto-biochemical and microbiological pericardial fluid analysis including cultures on various media, and a HIV serological test (Elisa, Western Blot). Needle biopsy of the parietal pleura with histological and microbiological examination of the biopsy specimen and screening for mycobacteria in sputum were also performed when indicated.
Results: Pericardial effusion was diagnosed in 28 patients(21male/7 female ; age : 20-56).The findings were the following :

Diagnosis (n=28)	n° of cases	(%)	HIV n° positive/total n° of cases	(%)
Tuberculosis	23	(82)	21/23	(91)
Kaposi sarcoma	2	(7)	2/2	(100)
Acute rheumatic fever	2	(7)	0/2	(0)
Cardiomyopathy	1	(3.5)	0/1	(0)
Total	28	(100)	23/28	(82)

Conclusions: In Kigali, an area with high prevalence for HIV-1 and M. tuberculosis infection, pericardial effusion was associated with HIV seropositivity in 82% of cases. These preliminary results suggest pericardial effusion might be another predictor of HIV infection.

2052 *Gynecologic Infection in Women with HIV Infection.* *Anderson, Jean; Horn, J.; Atkinson, J.; Smith, M.; Chaisson, R. The Johns Hopkins University School of Medicine, Baltimore, Maryland, USA.* *Supported by the Freeman Foundation.*

Objective. Describe gynecologic (GYN) infections and selected correlates in women attending an inner-city HIV clinic.
Methods. Retrospective review of available GYN information obtained from 86 HIV seropositive women seen between 1985 and 1990.
Results. The mean age was 33.3 years (range 19-74). The racial distribution was: Black-88%; Caucasian-12%. Risk factors for HIV infection included: IV drug use (IVDU) alone-30%; heterosexual contact with a high-risk partner only 31%; IVDU and high-risk heterosexual contact-16%; unknown or denied-12%; transfusion-5%; 5% reported history of transfusion and IVDU (1) or high-risk heterosexual contact (3). Sexual activity was continued after HIV serostatus was known in 72%(50/69), and 14%(10/69) became abstinent. Condom usage was documented in 54% of those sexually active. Of 58 women reporting a history of sexually transmitted disease (STD) 57% had had gonorrhea; 21% syphilis; 19% genital herpes (HSV); and 9% HPV infection. Furthermore, 23%(20/86) developed new evidence of an STD during follow-up. Hysterectomy had been performed in 19%. Of 32 women with AIDS or CD4<200/mm^3: 31% had an episode(s) of genital HSV, 44% vaginal candidiasis, 22% both infections. Of 15 with CD4 200-500/mm^3 13% had genital evidence of HSV, 33% candidiasis and 13% both infections. CD4>500/mm^3 was noted in 39, of whom 8% had HSV, 36% candidiasis and 3% both infections.
Conclusion. Heterosexual activity is a major mode of HIV transmission in this population. History of other STD's is common. The majority of women in this population continue sexual activity but unsafe sexual practices are prevalent leading to increased risk for acquisition of other infections. Vaginal candidiasis is commonly seen at all stages of HIV infection but genital HSV alone or episodes of both HSV and candidiasis are seen more frequently with increasing immunosuppression.

2053 PYOMYOSITIS IN HIV INFECTED PATIENTS.

Widrow, Carol; Kellie, S.; Saltzman, B.; Nadeson, S.; Mathur-Wagh, U.
Beth Israel Medical Center, New York, NY, USA.

Objective: To describe the clinical and laboratory features of pyomyositis in 5 patients with HIV disease.
Methods: Chart review of patients with a discharge diagnosis of pyomyositis and HIV infection seen at our institution during 1988-89.
Results: All were males (4 homosexual, 1 IVDU) between the ages of 26 and 37, CDC Stage IV A (2 patients) and IV C (3 patients). All had fever (≥101°F) and myalgias for 1 to 3 weeks. Although all denied trauma, 3 reported engaging in strenuous exercise for several weeks prior to developing symptoms. There were areas of induration and tenderness, without overlying erythema, involving the large muscles of the legs. WBC count ranged from 1.8 to 13.4/mm^3, CPK's from 217 to 583 u/ml and T_4 cell count <100/mm^3. CT Scan findings included single or multiple intramuscular abscesses in the following muscle groups: quadriceps, gastrocnemius, biceps femoralis and vastus medialis. Aspirates of lesions revealed pus in all and 4/5 grew S. aureus, sensitive to oxacillin. The patient with negative cultures was taking oral Keflex prior to the procedure. Blood cultures grew S. aureus in one patient. All were treated with surgical drainage and antibiotics for 2-6 weeks. All improved, however, 2 had recurrent disease, 1 with wide dissemination.
Conclusions: Pyomyositis should be considered in HIV infected patients presenting with fever and myalgias. Strenuous exercise leading to muscle injury may have a role in the pathogenesis of pyomyositis in these patients.

2054 IMPACT OF HIV INFECTION ON THE SURVIVAL OF CHRONIC RENAL FAILURE PATIENTS

Pestana Jose Osmar Medina; Cendoroglo M.N.; PereiraC.A.P.; Luconi P.S.; Peixinho Z.; Mendes N.; Ramos O.L.
Divisions of Nephrology, Immunology and Infectious Diseases
Escola Paulista de Medicina , Sao Paulo , Brazil

On Dec./1986 we started the screening for HIV infection on our Dialysis and Transplantation population . Since then we have found 6 HIV infected subjects out of 400 transplanted patients and 4 out of 350 Dialysis patients. The most important data are shown on the table :

Pat.	Sex	Age (years)	Kind of Treatment.	State	Survival after HIV	CDC Class	Risk Factor	OKT4 OKT8
1	M	40	Hemodial.	dead	19 months	IVc	B.T.	--
2	M	23	Hemodial.	alive	17 months	II	Drugs	0.68
3	F	64	CAPD	dead	8 months	II	B.T.	--
4	M	50	CAPD	alive	26 months	II	B.T.	0.22
5	M	27	Transpl.	alive	53 months	IVc	B.T.	0.29
6	M	54	Transpl.	alive	47 months	IVc	B.T.	0.40
7	F	29	Transpl.	alive	28 months	III	B.T.	0.28
8	M	34	Transpl.	alive	18 months	II	B.T.	1.56
9	M	25	Transpl.	alive	15 months	II	Drugs	--
10	M	24	Transpl.	alive	8 months	II	B.T.	0,24

CAPD=Continuous Ambulatorial Peritoneal Dialysis ; B.T.= Blood Transfusion. These results suggest that Transplantation does not worsen the outcome of these patients .As this is the modality of treatment that offers the best quality of life , we should discuss alternative proposals such as the employment of allografts from HIV infected Cadaveric donnors

2055 PREDICTABILITY OF HIV STATUS IN HAITIAN ADULTS

Kissinger, Patricia*; Adrien, M*; Boulos, R*; Brutus, JR*; Holt, E**; Ruff, A**; Halsey, NA**.
*Centers for Development & Health, Port-au-Prince, Haiti, **The Johns Hopkins Univ., Balto, MD.

Objective: To determine the predictive value of signs and symptoms for HIV.
Methods: Patients were evaluated in a single clinic by one physician.
Results: 151(65%) of 231 tested were HIV-1 positive (98 male, 53 female).

Sign/Symptom	No.	% of HIV+	Sensitivity %	Specificity %	PPV %
WHO case def.	121	72	56	55	72
Weight loss	145	69	44	64	72
Diarrhea >30d	110	73	51	60	73
Fever >30d	89	79	45	75	79
Papular Erupt.	96	72	44	64	72
Oral Candida	37	78	19	89	78
Kaposis Sarc.	14	79	7	96	79
Herpes Zoster	40	83	21	91	83
Lymphaden.	86	71	39	67	71
Brittle Hair	170	64	69	17	64
Neurol. Abnl	82	70	35	63	29

HIV positive individuals had a mean of 1.6 major and 1.9 minor symptoms vs 1.3 and 1.5 for HIV negatives.
Conclusion: Since a high % of all patients with any symptom were HIV+, testing all patients with symptoms is indicated.

2056

CHARACTERISTICS IN THE CLINICAL COURSE OF THE HIV INFECTION IN BULGARIA

Plotchev,Kamen, Dikov,I.,Duhovnikova,T., Lilyanova,V.,Doganov,B.,Valkova,I. et al.
Clinic of Infection Diseases, Sofia, Bulgaria

Objective: For a 4 year period, in an interval of 3-6 months, in the Clinic of Infection Diseases in Sofia has been made a follow up of 60 HIV-Ab (+) individuals.
Methods: The follow up included a clinical status, immunological status (FACScan), laboratory investigations and search for indicating opportunistic infections sings.
Results: 2 (3.33%) of the whole group were in an acute phase of the infection; 10 (16.6%) are without any clinical and immunological changes; 37 (60.6%) have subclinical immune defficiency; 5 (8.33) have ARC and 6 (10%) have AIDS.
Conclusions: Characteristic features of the Bulgarian HIV infection include: a great number of patients with subclinical immune defficiency, a small number - 8 (13.3%) individuals with PGL, 2 (3.33%) with KS and 6 (10%) with PCP. It is obvious that the clinical characteristic of the HIV infection in Bulgaria differs a lot from those of other countries. The authors try to give an explanation of that fact in the paper.

2057

IMMUNE PARAMETERS IN INFANTS BORN TO SEROPOSITIVE MOTHERS: A LONGITUDINAL EVALUATION

d'Arminio Monforte, Antonella; Novati, R.; Galli, M.; Marchisio, P.*; Massironi, M.*; Principi, N.*
Infectious Diseases Clinic, *IV Pediatr. Department, University of Milan.

Objective:Longitudinal evaluation of immune parameters in neonates and infants born to seropositive (seropos.) mothers in relation to transmission of HIV infection.Methods:27 neonates and 12 infants (younger than 6 months-mo.s) entered the study. 34 anti-HIV negative (neg.) neonates from anti-HIV neg. non drug addict mothers were included as control group (CG).Follow-up was set at time 0,3,6 mo. and then every 6 mo.s and included T-lymphocyte subset counts by monoclonal antibodies,serum immunoglobulin levels determinations, anti-HIV ELISA and W.B., HIV p24Ag ELISA. CG was tested only at birth.Results:At birth lymphocyte subsets and CD4/CD8 ratios were similar among seropos. neonates and CG. A mean follow-up of 19.2±8.2 mo.s was reached in 26 children other than P-0.Two P-2 infants who died within the 4th mo. contributed to lower mean CD4 cell counts in infected(INF) vs. seroreverted(SR) group at the 3rd mo. This parameter became therafter significantly lower in INF group only at the 24th mo. At the 6th mo. CD8%,IgA and IgM serum levels were higher in the INF group. At the 12th and 18th mo. also CD8 absolute numbers, CD4% and CD4/CD8 ratios were significantly different in the INF children compared to the SR ones. Conclusion: Elevation of CD8%,IgA and IgM serum levels seem to be the most precocious markers of immune disregulation in HIV infected infants.A fall of CD4 cell counts is related to the duration of HIV infection or to a rapid onset of symptoms.

2058

GLUTATHIONE CONCENTRATIONS IN PLASMA AND BLOOD ARE MARKEDLY DECREASED IN HIV-INFECTED CHILDREN.

Smith, Charles Vincent, Hansen TN, Hanson IC, and Shearer WT,
Department of Pediatrics, Baylor College of Medicine, Houston, TX, USA.

Objective: To determine the systemic glutathione (GSH) and glutathione disulfide (GSSG) status in HIV-infected children. GSH is the major intracellular thiol and is critical in cellular defenses against reactive oxygen species and many other potentially toxic species. Much of the body's GSH is synthesized in the liver and exported to plasma. GSH may be taken up intact by some cell types, but breakdown of GSH during uptake with resynthesis intracellularly or utilization of cysteine for protein synthesis are more common. The recent report [Lancet 12.2.89:1294] that plasma GSH is lower in HIV-infected adult males than in controls and our observations of lower plasma GSH in noninfected infants indicated that the GSH status of HIV-infected children should be examined.
Methods: Plasma and whole blood GSH and GSSG were measured in 5 vertically HIV-infected (P2A) children ages 0.5 to 4.5 yr; 2 subjects had CD4/CD8 < 1.0.
Results: We found plasma GSH concentrations to be (x±SD) 1.6±0.3 μM, which is lower than we observe in venous plasma of newborn infants (34-42 weeks gestational age) (3.5±1.4 μM) or in healthy adults (7.2±0.2 μM). GSSG, which is formed in the peroxidase-mediated reduction of hydroperoxides and is elevated during oxidant stresses, is not elevated in the HIV-infected children (0.2±0.1μM). Whole blood GSH and GSSG, which largely reflect erythrocyte contents, show a similar pattern of low GSH and relatively normal GSSG in these subjects, 289±139 and 0.3±0.1 μM, respectively.
Conclusions: Systemic deficiency of GSH may put these HIV-infected children at increased risk to toxicity from certain drugs, such as acetaminophen. In addition, GSH is critical for optimal T-cell immune response [Immunobiology 172:151; J Biol Chem 264: 13519]. If our initial observations are supported by further studies, the possible therapeutic benefits of judicious supplementation of GSH will need to be examined.

2059

CLINICAL BEHAVIOUR OF 25 MEXICAN CHILDREN INFECTED BY HIV.

Dr. Pérez Rodríguez Gustavo,* Dra. Gorbea Robles - María del Carmen,**.
Hospital de Infectología, Centro Médico La "Raza"- I.M.S.S. México, City México.

OBJECTIVE: To inform statment of 25 mexican children with AIDS - and transmission nechanisms.
METHODS: We studied pediatric patients infected by HIV from new born to 14 years old according the center for disease control -- criteria, from january 1985 to january 1990.
RESULTS: We detected 25 patients; 20 male and 5 female. We found 10 hemophilics; 7 with single blood transfussion and 7 with multiple transfusion; one patient had history of inoculation with a contamined syringe used by a brother who died by AIDS; 3 patients had a history of the perinatal vertical transmission and 2 horizontal transmission by breast milk.
The infeccion was symtomatic in 21 patients and asyntomatic in - four.
CONCLUSIONS: The principal mechanisms of transmission by HIV was blood transfusion or its products in hemophilics patients.Almost all patients (84%) have development AIDS and the 45% had died.
In Mexico the mechanism of transmision sexual and perinatal are- rare, in the pediatric age in comparison with other countries.
In Mexico it's mandatary to test the blood and products before-- use.

2060 ATYPICAL MYCOBACTERIAL INFECTION (AM) IN PEDIATRIC AIDS

Hoyt Laura, Connor E, Oleske J. Children's Hospital of NJ and UMD-NJ Medical School, Newark, NJ, USA.

Objective: To describe the natural history of AM in children with AIDS.
Methods: Microbiology records (1981-1990) of HIV-infected patients in the Children's Hospital AIDS Program were reviewed to identify those with positive cultures for AM. Medical records of patients with AM were reviewed to obtain clinical, immunologic, and outcome data.
Results: Eleven children with AM were identified; 10/11 were diagnosed (dx) since 1987. Ninety-one % acquired HIV perinatally. All had severe immune dysfunction (CD4 <300/mm^3 and/or <10%) before onset of AM symptoms (sx). Ten (91%) had infection with Mycobacterium avium-intracellulare and 1 had M. kansasii. AM was found antemortum in stool cultures in 91% and 60% of these also had positive blood cultures. AM was dx in 1 at autopsy. Mean age at dx for 10 patients with perinatal HIV was 58 mo. Signs and sx at presentation were: persistent failure to gain weight/weight loss in 91%, anorexia 91%, abdominal pain/tenderness 64%, fever 55%. Overall, patients were followed for a mean 15.4 mo after sx and 5.2 mo after dx. The mean time from sx to dx was 9 mo (1-19 mo). Sixty-four % died; mean survival from sx 17 mo and from dx 5.7 mo. Two patients received anti-AM treatment; survival was 16 and 21 mo. Five patients had autopsies performed and AM was found in lymph nodes, intestinal tissues, liver and/or spleen in all. Mean followup of 4 patients still alive is 9.3 mo since sx.
Conclusion: These data suggest that AM is more common among children with AIDS than previously recognized. Currently, dx is often delayed as long as 19 mo. AM should be suspected in HIV-infected children with failure to thrive, abdominal complaints and/or persistent fever.

2061 PREGNANCY AS A FACTOR OF RISK FOR THE PROGRESSION OF HIV INFECTION.

Muggiasca Maria Luisa, Casolati E., Conti M.
VII Department of Obstetric and Gynecology, University of Milan Italy.

Objective To evaluate if pregnancy may elicit a progression of HIV infection.

Methods 34 HIVpos.women(20 ex-IVDA;8 IVDA;6 partners of HIV)have been evaluated and tested for HIV circulating antigen (p24 Ag,Elisa,Abott),anti-body (p24 Ab,W.B.,Du Pont)and lymphocyte subset (monoclonal antibodies,Ortho) during and after pregnancy. The follow-up has been performed for two years

Results During pregnancy 18 (53%) women were asymptomatic (CD4+ mean 615); 8 (23.5%) were affected by LAS (CD4+ mean 419); 7 (20.5%) were affected by ARC (CD4+ mean 543) and 1 (3%) presented AIDS (CD4+ 550). This patient was p24 Ag positive. After pregnancy 6/34 (17.6%) patients became p24 Ag positive and presented clinical manifestation (1 asymptomatic → LAS; 3 LAS → ARC; 2 ARC → AIDS). Actually these patients are treated with zidovudine 7/34 (20.5%) patients presented immunological alterations.

Conclusions
Pregnancy may negatively affect the natural history of HIV infection.

2062 ZIDOVUDINE TREATMENT IN CHILDREN WITH SYMPTOMATIC HIV INFECTION

Castelli Gattinara Guido; Livadiotti S.; D'Argenio P.; Caniglia M.; Ossicini C.; Elia L..
Bambino Gesu' Children Hospital - Institute of Research, Rome.

Objective: to evaluate influence of Zidovudine (AZT) treatment in children with symptomatic HIV infection.
Methods: 12 children (4 F, 8 M) aged between 5 and 77 months (mean age 26) with vertical HIV infection in P-2 CDC class (8 AIDS) were treated with AZT (400 to 720 mg/m²/die in 4 or 2 doses) for a mean period of 13 months (range 6-19).9/12 patients receveid also IVIG (400 mg/kg/month) and 3/12 TMP SMZ prophilaxis
Results: In the period before treatment (311 months, mean 26, range 6-77) children showed 33 infectious episodes (19 bacterial, 7 mycotic, 4 viral, 4 protozoal PCP). During the treatment period (155 person-months), a relevant reduction in number and seriousness of infections was observed (8 bacterial, 2 mycotic, 2 viral, 1 PCP in a patient who died). CD4 cell number rose transiently in 7/12 patients but decreased to treatment number in almost all patients. HIV p24 Ag level reduction was noted in all the 5 positive patients but persistently disappeared only in one case, in 3 p24 Ag negative patients is becoming positive. During treatment 2 children had transient nausea and abdominal pain. Toxic effects were noted in 5/12 patients (2 anemia, 3 neutropenia, 2 transaminase increase) with transient dose reduction in 2 and temporary suspension in 1.
Conclusion: Though immunological and virological improvement in children treated with AZT has been transient or mild, clinical symptoms remained clearly improved for a longer time.

2063 AN OBSERVATIONAL STUDY OF THE SAFETY AND EFFICACY OF HYPERICIN IN HIV+ SUBJECTS

Cooper, William C.* and James, J.*
*Community Research Alliance, San Francisco, California, USA

Objective: To assess clinical and laboratory changes in patients (pts) self-administering hypericin (HY) herbal extracts available over-the-counter (OTC).
Methods: HIV+ pts at any stage of the disease who were starting to use HY (approximately 1 mg per day) received baseline and 4 monthly measurements, including physical exam, T-cell subsets, p24 antigen, beta 2 microglobulin, and Merieux skin testing. Concomitant use of AZT and other treatments was permitted.
Results: 31 pts were enrolled and 26 completed the 4-month study. Toxicities were limited to reversible liver enzyme elevations in 5 pts; all levels returned to baseline after 1 month without HY. P24 antigenemia disappeared in 2 of 6 initially positive pts, both also using AZT. CD4 changes differed depending on AZT usage. In the subgroup of 10 pts who took no AZT either before or during the study ("AZT virgins"; none had AIDS), the mean CD4 count increased 13 percent from baseline after 1 month on HY and maintained this increase for 4 months. These increases were not statistically significant. By contrast, CD4 counts of those using AZT throughout the study (N=10) fell significantly after an initial mild rise (see table).

MEAN CD4 COUNTS/MM3 (PERCENT CHANGE), N=10 EACH GROUP

Month	Baseline	1	2	3	4*	*p
"AZT Virgins"	558	630 (+13)	597 (+7)	630 (+13)	625 (+12)	NS
HY+AZT group	189	206 (+9)	166 (-12)	190 (0)	165 (-13)	.028

No change occurred in beta 2 microglobulin, or delayed hypersensitivity by Merieux testing.
Conclusions: OTC herbal extracts containing HY may be hepatotoxic; tests of liver function should be monitored in patients taking HY preparations. Improvement of CD4 counts seen in "AZT virgin" patients justifies controlled trials of pure HY (non-hepatotoxic in animal tests) in HIV+ subjects, to assess its antiviral activity in human use.

2064

EARLY CLINICAL EXPERIENCE WITH THE PARALLEL TRACK COMPASSIONATE RELEASE DDI TREATMENT PROTOCOL

Agins, Bruce; Smith, Mary; Shepp, David; Kaplan, Mark
North Shore University Hospital, Cornell University Medical Center; Manhasset, NY, USA

Objective: To describe the clinical benefits and toxicities of DDI in patients (pts) enrolled in the compassionate use protocol since 10/89. Methods. Pts are studied prospectively with monitoring of weight, clinical symptoms, laboratory parameters (CBC, SMA20, amylase), absolute CD4 count and occurrence of opportunistic infections (OIs). Pts (n=52) were enrolled in accordance with study protocol criteria from Bristol-Meyers. All failed AZT therapy. 42 had CD4 ≤50/cumm (80%). Parameters were considered evaluable in 35/52 pts (67%) who had received drug ≥30 days. Results: 15 of 35 pts (43%) gained ≥1 kg within 60 days; 9 gained ≥2 kg; 6 lost ≥1 kg. Absolute neutrophil count (ANC) rose to >1000 and more than doubled in 19/52 pts who had previously taken AZT and had profound neutropenia (ANC <750). DDI was stopped in 16 pts (30%) secondary to death (5), toxicity (5), illness (3) and noncompliance (3). In this group, toxicity included nausea (2), dementia, diarrhea, and anemia (1 each). Six deaths occurred, none attributable to DDI. All deaths occurred in pts with CD4 <100. Drug dosage was adjusted in 5 pts because of neuropathy (2), nausea (1), hyperuricemia (1) or diarrhea (1). Of 35 evaluable pts, 4 developed new OIs: CMV retinitis (3), toxoplasmosis (1); 2 developed severe bacterial infections. KS worsened in 2 pts. Anemia occurred in 8/52 pts; 6 had MAI. Conclusions. DDI has resulted in stabilization or improvement in a majority of pts with severe HIV disease who cannot tolerate AZT. Toxicities noted include neuropathy, nausea, vomiting and dementia. Some have developed opportunistic infections.

2065

TOLERANCE OF CHONDROITINPOLYSULFATE (CPS) IN HIV-1 SEROPOSITIVE ARC AND AIDS PATIENTS (PTS).

Hötfken,Gert*; Bieniek,B.*; Menßen,H.D.*; Petri,M.*; Nick,S.**; Hunsmann,G.**; Panse,P.***; Thiel,E.*;
*Klinikum Steglitz, Freie Universität Berlin, **Dtsch. Primatenzentrum, Göttingen, ***Luitpold-Werk München, F.R.G.

Objective: CPS, a polysulfated mucopolysaccharide with a median mol.weight of 6-8 kD, prooved to be a potent inhibitor of HIV-1 reverse transscriptase and protects HIV-1 infected MT-4 cells against virus-induced cell death at 0.08 mg/l. Pharmacokinetics studies in animals and humans showed that CPS doses of 1 to 2 mg/kg b.w. lead to serum concentrations about 0.5 mg/l. But, anticoagulatory effects might limit the clinical application of polyanionic compounds.
Methods: In this tolerance study in 14 ARC and AIDS pts. (all male homosexuals, mean age 40,4 ± 10 y) CPS was given biweekly via iv-infusion in 9 escalating doses from 0.1 to 1.6 mg/kg b.w.. Before and after infusion, act.partial thromboplastin time (PTT), thrombin time (TT), prothrombin time (QUICK) and platelets were measured. In addition, immunological, virological and further parameters were determined (e.g. lymphocyte subsets, antibodies to different HIV-1 proteins with ELISA and RIPA, β_2-microglobulin ßm).
Results: Besides the expected anticoagulatory effect no adverse drug reaction could be recorded. After infusion, a dose dependent prolongation of aPTT was seen (mean, pre and post values, sec) CPS 0.1 mg/kg: 27 and 31, 1.0 mg/kg: 29 and 54 and 1.6 mg/kg: 27 and 91; no accumulation occurred. Minor changes were seen for QUICK (99 vs. 95%, 99 vs 79% 100 vs. 74%,resp.) and for TT (data not shown). No changes (pre and post) were recorded for anti-Xa activity, reptilase time, platelets, and ßm. Mean CD4+ lymphocyte subsets prior to 1st and 5th administration and after the last dose increased non-significantly (123/ul vs. 150/ul vs. 155/ul). HIV-1 neutralizing antibodies are under investigation. Two of 8 AIDS pts. developed opportunistic infections, none of the ARC pts. experienced stage progression.
Conclusions: These data indicate that CPS, up to a dosage of 1,2 mg/kg shows an acceptable and reversible anticoagulatory effect which can easily be monitored by aPTT. This dosage seems to be reasonable for longterm therapy studies in HIV-infected pts..

2066

Karnick, C.R.*; Kulkarni, M.S.; Gupta, Alok; Gosavi, A.S.
Clinical and Experimental Research Division,
WOCKHARDT LIMITED, Aurangabad, India.

Title: AIDS – observation of Ayurvedic therapies

Objective: Prevention, immunization and recovery to AIDS patients using non-toxic Ayurvedic herbal drugs.

Methods: Ayurvedic herbal drugs showing anti-viral activities screened, analysed compound using modern pharmaceutical parameters. Patients screened by various latest methods for blood, urine, etc. using Elisa technique, symptoms, etc.

Results & Conclusions: Time scale progression of viral growth retard using electro-magnetic therapy along with the use of anti-viral herbal drugs. The crystallization of RNA is prevented by triggering neuron cells of brain by activated drug molecules. The vayu which is retarded and the mosaic pattern formation of RNA cover prevented. A new hypothesis of electrofusion is proposed in this paper for the first time.

2067

NEUTRALIZATION OF HIV BY THE FRACTION OF NATURAL IMMUNOGLOBULINS OBTAINED BY ION-EXCHANGE CHROMATOGRAPHY.

Poverenny A.M., Korneyeva M.N.*, Rott G.M., Sugaeva N.I., Kruglov I.V.*, Masonov E.L.
Institute of Medical Radiology, Obninsk-249020 USSR, *Institute of Virology Acad.Med.Sci.USSR, Moscow.

OBJECTIVE: We have analyzed the ability of normal polyspecific antibodies to react with HIV-1 antigens. *METHODS:* 7 different IgG fractions were obtained by anion-exchange chomatography of commercial preparations without antiHIV activity. The ability of these fractions to neutralize reproductive HIV-1 activity in 2 different cell cultures was studied. Each culture was examined for characteristic cytopathic effects with syncytia formation and for reverce transcriptase activity. Neutralization was defined as the complete inhibition of syncytia formation and >90% reduction in RT-activity compared with control cultures. *RESULTS:* We have detected that one of these 7 fractions react as a positive serum in screening tests for antibody to HIV-1. This fraction in concentration 30 ug/ml were able to inactivate directly the HIV-1 in a neuralization assay in vitro both on H9 and Jurcat tat III cell lines. *CONCLUSION:* In this study we have demonstrated that a fraction of IgG with HIV-1 neuralizing activity potentially may be manipulated for therapeutic advantage. We can proposed that the inhibition of infection was mediated by interaction between these fraction of IgG and CD4 receptor.

2068

ASSOCIATION OF ZIDOVUDINE (AZT) WITH A TEN DAYS COURSE OF ANTI-CD4 MONOCLONAL ANTIBODY (mAb).

Dhiver, Catherine*; Mawas,C**; Hirn,M***; Tamalet,C****; Olive,D**; Gastaut, J.A.*
* Institut Paoli-Calmettes, **INSERM U119, ***Immunotech S.A, ****Laboratoire de Virologie du CHU Timone, MARSEILLE, France.

Objective :Phase I study of therapeutic association with anti-CD4 mAb and AZT.
Methods :13B8.2, a workshop qualified anti CD4 mAb, could inhibit in vitro syncitium formation, deliver negative signals to T cells, thus preventing T cell activation and viral replication, contribute to CD4 T cells clearance by its Fc portion and induce an immune response by the patient, contribute potentially to an anti-idiotypic response. Patients (pts) received the mAb during 10 days course in association with AZT (800 mg/d). The mAb dosage and schedule were ajusted on the basis of circulating CD4+ cells and mAb pharmacokinetics. Immunological and virological parameters were also monitored.
Results :Seven profoundly immunosuppressed pts have been treated. Tolerance was good. None of the patients presented an opportunistic infection during the study or in the following weeks. One presented a transient increment in CD4 T cells associated with augmented T cell functions, the suppression of p24 in the serum and a negative reverse transcriptase assay. A second patient had a steady increment of CD4 T cells after completion of the treatment, with a transient decrease of p24 in the serum 5 days after completion of the anti-CD4 protocol.
Conclusion :Association of AZT and an anti-CD4 mAb could be of interest in the treatment of HIV infected patients before the settlement of a deep immunodeficiency. Indeed the two responders were the less immunosuppressed. A new prospective trial (phase I-II) is currently starting for patients less profoundly immuno compromised.

2069

THE INFLUENCE OF ZIDOVUDINE (AZT) ON THE HUMORAL IMMUNE RESPONSE TO CYTOMEGALOVIRUS (CMV) IN ARC AND AIDS PATIENTS

Sprenger, Herman G.; Weits, J.; v.d. Giessen, M.; Law, G.; Steunebrink, G.H; The T.H.
University Hospital, Groningen, The Netherlands.

Objective: To investigate the influence of AZT in different groups of HIV seropositives on CMV-specific humoral immunity.
Methods: 16 patients with ARC or AIDS were prospectively studied during treatment with AZT. CMV-specific IgG-antibodies (Ab) were measured using a quantitative ELISA. CMV Ab were expressed as percentage of a reference pool.
Results: Pre-AZT levels of CMV Ab were the same in 11 AIDS patients (Med. 53%, range 6-175) and 5 ARC patients (47%, 13-450). In both groups CMV Ab were significantly increased compared to HIV seronegative controls (12%, 4-77). Eight out of 11 AIDS patients showed a significant rise of CMV Ab (64% to 325%, range 12-900), without signs of CMV disease. These 8 patients received AZT within 4 months after AIDS diagnosis. The increase of the CMV Ab occured between 3 and 11 weeks (Med. 4,5 wk) after the start of AZT. The 3 other AIDS patients could not tolerate AZT for longer than 5 weeks and did not show an increase in CMV Ab. They all had "late" AIDS (AZT start >8 months after diagnosis AIDS). The 5 ARC patients also did not show a rise of their CMV Ab during AZT therapy, though CD_4 cell counts rose both in the "early" AIDS patients (Med. 23/mm^3 to 77) as in the ARC patients (33/mm^3 to 150).
Conclusion: "Early" AIDS patients show a significant increase of their - already high - specific humoral immune response to CMV on AZT. In the presence of constant subclinical CMV activity this rise probably demonstrates an ameliorated T cell-dependent B cell function. Because ARC patients keep CMV better in latency, no rise of CMV Ab in these patients was present after treatment with AZT.

2070

CLINICAL EFFICACY OF LOW-DOSE ZIDOVUDINE IN PATIENTS WITH ARC AND AIDS

Miller, Steven and Sifris, Dennis
HIV Clinic, Johannesburg Hospital, Johannesburg, South Africa

Objective: To prospectively evaluate the clinical efficacy of low-dose zidovudine (ZDV) in patients with ARC (PWARC) and AIDS (PWA).
Methods: Eighteen PWARC and 12 PWA received 400mg ZDV daily. Patients who were unable to afford ZDV were included as matched controls. Patients were monitored monthly for six months. All patientd with CD4+ cell counts <200/mm^3 also received cotrimoxazole or dapsone, and isoniazid as prophylaxis for PCP and TB, respectively.
Results: All patients receiving ZDV had significant weight gain and elevation of CD4+ cell counts (230±50/mm^3 to 300±50/mm^3 in PWARC, and 90±30/mm^3 to 180±30/mm^3 in PWA). All receiving ZDV had improved Karnofsky scores. Three PWA initially p24 antigenaemic became ag-negative by the 4th week of treatment, and remained so at 24 weeks. None of the PWARC progressed to AIDS vs. 2/18 controls. None of the PWA developed new opportunistic diseases vs. 3/12 controls, and no patient receiving ZDV died, vs. 2/12 in the PWA control group. Significant myelosuppression occurred only in 1 PWA with an initial Hb of 10,2 g/dl.
Conclusion: Low-dose ZDV was clinically effective and non-toxic in PWARC and PWA, and reduced progression to more serious disease and death. Prospective studies are warranted to assess the long-term efficacy and toxicity of this regimen.

2071

ZIDOVUDINE: EVALUATION OF AN INTERMITTENT THERAPY SCHEME

Staszewski, Schlomo [1]; Kober, A.[1]; Gottstein, A.[1]; Odewald, J.[1]; Rehmet, S[1]; v. Wangenheim, I.[2]; Helm, E.B.[1]; Stille, W.[1]
[1]Zentrum der Inneren Medizin, Johann Wolfgang Goethe University, Theodor-Stern-Kai 7, 6000 Frankfurt FRG
[2]Paul-Ehrlich-Institut, 6070 Langen, FRG

Objective: To evaluate intermittent Zidovudine treatment as to side effects and effects on clinical course of HIV-infection in patients with severe immunodeficiency.
Methods: 58 patients (35 AIDS, 23 ARC) received Zidovudine 1000 - 1250 mg/d during treatment intervals of 4 weeks, which alternated with therapy breaks of 4 weeks. Significant data (laboratory findings, clinical events) were prospectively collected every 4 weeks. 30 patients were monitored for > 10 months.
Results: At therapy start, 6 patients had high titers of serum P24 antigen. Under therapy, a long-term titer reduction was observed. CD_4+ cell counts significantly increased initially but dropped again beyond baseline values after 4 months. However, only 4 patients needed blood transfusions. In 23 patients, one or more AIDS manifestations occurred, with 11 patients thus proceeding to AIDS. 5 patients died. Of 23 patients with AIDS at therapy start, 13 have survived their first AIDS manifestations between 12 and 18 months, and 10 have survived for more than 18 months up to now.
Conclusion: Main advantage of intermittent Zidovudine therapy is a significant reduction in numbers of transfusions needed. In spite of the total Zidovudine dosage being lower, intermittent therapy shows positive effects on clinical course.

2072 OPEN TRIAL OF THE LONG-TERM SAFETY OF ZIDOVUDINE-TOXICITY AND SURVIVAL OF 188 HIV PATIENTS AT 36 MONTHS

Houle, Linda*; Lebel, Francois*; Fletcher, Malcolm*; and the Canadian Zidovudine Collaborative Group*Burroughs Wellcome Inc.,Kirkland, Quebec, Canada.

Objective.To present data on the survival of 188 (post-PCP)AIDS patients who have followed for at least 36 months.
Methods.This open study began in November 1986 and continues. In order to receive Zidovudine, physicians enrolling patients had to complete follow up forms on their patients at least once a month. To qualify for enrollment patients had to be HIV positive and had to have had at least one episode of PCP.
Results.There were 184 men and 4 women entered into the study between November 1986 and May 1987. Baseline information for these patients is: Avg age=39yrs, avg wt =71 kg, avg hgb =12.3 g/l, avg MCV = 90, avg WBC =4.8, avg Gran = 3188 and avg plat = 127. The average start dose was 1100mg/day.
As of November 11, 1989, 10 patients never started, 5 patients are still in the study and continue to receive drug. There are 173 patients discontinued. Of them 133 are dead and 40 are lost to follow up. For the purposes of the survival curve we have assumed that the 40 patients are dead (a worst case scenario). The survival rate was 68% (123/188) at 12 months 41% (78/188)at 24 months and 3% (5/188) at 36 months.
Conclusion.The first cohort of 188 post PCP AIDS patients have been followed for 36 months. There are only 5 patients remaining in the study (3%). Compared to previous reports the survival (68%) is higher than expected at 12 months.

2073 MULTICENTER DOUBLE BLIND PLACEBO CONTROLLED DOSE RESPONSE STUDY OF DIETHYLDITHIOCARBAMATE (DTC, IMUTHIOL) ASSOCIATED WITH ZIDOVUDINE IN PATIENTS WITH HIV INFECTION

KIRSTETTER MYRIAM*, MATHIS C.**, FELTEN A.**, BOUTITIE F.** and the French Imuthiol Study Group***
*Paris, ** Institut Mérieux Lyon, ***Marseille, Lyon, Strasbourg, Rennes, Rouen, Nantes, Paris (France).

In 3 placebo controlled studies, Imuthiol has shown its clinical effectiveness in reducing the progression of the HIV infection. The dose of DTC generally used was 10 mg/kg weekly.
Objective: to assess the safety and the effectiveness of DTC given in different dose regimens in association with zidovudine therapy.
Methods: After informed consent, HIV infected patients, justifying Zidovudine treatment for clinical and biological reasons (CD4 cells count $\leq$400/mm3), were enrolled. They were randomized in 5 groups to receive either placebo or DTC in 4 dose regimens: 2.5 (group 1) 2 x 2.5 (group 2) 10 (group 3) or 2 x 10 (group 4) mg/kg/week. The patients were followed up, every two months, during 12 months, for clinical, biological and immunological parameters and for DTC side effects (metallic taste, gastrointestinal and neurological symptoms)
Results: 125 patients were enrolled: 43 asymptomatics (CDC groups II, III), 44 ARC (CDC group IVA, IVC2) and 38 AIDS (CDC groups IVC1, IVD, IVB). All baseline features were well balanced in the 5 groups. The mean of treatment duration was 300 days. Preliminary safety data showed no difference within patients belonging to groups 1, 2, 3 compared to the placebo group whereas the most frequent complains were reported by patient of group 4 (metallic taste: DTC 44% Placebo 14%; nausea: DTC 34% Placebo 18%; appetit loss: DTC 50% Placebo 27%). Side effects were generally mild or moderate. The treatment was discontinued for reversible symptoms in 5 cases (gastrointestinal signs, asthenia, prurigo): 2 Placebo, 2 DTC group 3, 1 DTC group 4.
Conclusion: these results 1) support the use of DTC at an optimal tolerated dose of 10 mg/kg weekly. 2) showed that DTC could be used with concomitant zidovudine therapy with no additional side effects.
Keys words: 35 DTC, 171 Clinical trials, 1103 Tolerance

2074 THE USEFULNESS OF LEM (THE EXTRACT OF CULTURED LENTINUS EDODES MYCELIA) IN HIV-INFECTED HEMOPHILIACS

Shirahata, Akira*; Mori,K.**; Kishida,K.***; Maruyama, I****; Suzuki,K.*****
*University of Occupational and Environmental Health,Japan, **Tohoku University, ***Hamanomachi Hospital, ****Kagoshima University, *****Noda Shokkin Co., Ltd.

Objective:"LEM" is an extract of cultured Lentinus edodes mycelia. The product contains lignin which supresses HIV in vitro, thus the immunological effect of "LEM" on HIV infected hemophiliacs was studied in this clinical study.
Patients:The subjected group consisted of 15 patients with hemophilia A and 1 patient with hemophilia B(12 AC's,1 ARC and 2 AIDS's). "LEM" was administered three times a day, a dose of 9g daily.
Results: (1)The CD4/8 ratio in 5 patients out of 12 AC's was increased and was decreased in 1 AC. No fluctuation was observed in the remaining 6 AC's, ARC and patients with AIDS. (2)The absolute number of CD4 increased in 4 patients and decreased in 2 patients out of 12 AC's. The number was not changed in ARC and tended to decrease in 2 AIDS patients. (3)Lymphocyte blastogenesis reaction due to PHA, Con A, PWM was enhanced in 7 patients and was depressed in 1 patient. In 2 AIDS patients, the reaction was markedly enhanced and the clinical symptoms of cadidasis were improved.
Conclusion:"LEM" was remardably efficient especially on lymphocyte blastogenesis reaction. The improvement of the clinical symptoms of all AIDS patients were observed. Therefore, it is considered that "LEM" is worth to try to prevent development of AIDS and to treat the disease.

2075 TREATMENT OF HIV-INFECTED PATIENTS WITH ZINC-SULFATE.

Cabotin Pierre-Patrice* ; Janier M.* ; Rabian C.* ; Ferchal F.* ; Bourdon R.** : Civatte J.*
* Hôpital Saint-Louis ** Hôpital Fernand Widal - Paris - France.

Low serum zinc levels, have been documented in HIV-infected patients and might worsen the cellular immunological defect of these subjects. The potential effects of zinc salts are controversial since zinc could be both inhibitor of reverse transcriptases and activator of tat-protein. The aim of our work was to assess the efficiency of zinc sulfate for treating HIV infected patients.
METHODS : 7 asymptomatic homosexual male patients (mean age 30,1 ± 2,3), HIV + were given zinc sulfate (400 mg/day) for 3 to 12 months (7 ± 3,4) and regularly assessed for serum zinc levels, blood CD4+ and CD8+ cells and proliferations to mitogens and various antigens (CMV, candidin, tuberculin, varidase).

RESULTS	Normalvalues	Before SO4 Zn	After SO4 Zn
Serum zinc levels µmol/l ± S.E.	16,8 ± 1,5	13,6 ± 1,3	19,1*±4,1*p<0,01
Blood CD4+ cells/mm³ ± S.E.	990 ± 400	379 ± 222	531* ± 255 *N.S.
Blood CD8+ cells/mm³ ± S.E.	630 ± 240	657 ± 315	814* ± 235 *N.S.

All patients had low serum zinc levels before treatment and normal values while on SO4 Zn (p<0,01). Mean CD4+ and CD8+ were higher on treatment but this increase is not significant. Proliferation to antigens and mitogens did not differ before and after treatment. All patients remained asymptomatic while on treatment except the patient n°3 who developed a non complicated herpes zoster. P.24 antigenemia was not modified by the treatment (4 positive, 3 negative).
CONCLUSION : We demonstrated an increase in CD4+ cells, although non significant, and no evidence of progression of disease nor enhancing of HIV replication. A randomized study on a large group of patients would be of interest.

2076 A NEW THEORETICAL APPROACH TO TREATMENT OF HIV INFECTION.

Raoufi, Mohammad*
*Iran's University of Medical Science ,Tehran,IRAN

Objective : To present a theoretical approach to treatment of seropositive HIV-infected individual progressing to AIDS.
Methods : The criteria used to select the patient include presence of oral thrush, Constitutional symptoms, on both, anergy, fewer than 200 T_4^+ cell/mm^3 a T_4/T_8 cell ratio less than 0.5, 10 to 25 and less than 10U/ml of antigen-induced IFN-Gamma, HIV-P_{24} antigenemia (40 Pg/ml or more) and $Beta_2$-micro - glubulin level of 3.0 ml/L or more.(Three criteria are sufficient) Treatment begins with administration of prednisone (1-2 mg/k/d) followed after one week AZT (200 mg PO q_4h) and a course of GM-CSF continous intracenous for one week alternating with ddc (0.05 , mg/k/d) for one week. (The administration of prednisone is continous). Level of P_{24} antigen in blood and also reversion of mentioned criteria for selection of patient are indications for discontinuation of therapy. ARC, if manifested, must be cured according to current therapies.

Results : Preventing the invasion of virus to intact cells and organs is the most important result as well as lowering the level of HIV-P_{24} antigen in blood and elimination of virus from the cells and blood. This treatmnet may also use in frank AIDS.

Conclusion : A Cheap and single treatment seems unaccessible. In its instead the combination therapy, and in particular this schedule, may promise the permanent remission or even "Cure". Based on some prioreties shown by this schedule, introduced drug may come to clinical trials and approval (especially rCD_4-toxin hybrid being the best complementary for this schedule).

2077 DIAGNOSIS OF *PNEUMOCYSTIS CARINII* IN ROUTINE SPUTUM AND BRONCHOALVEOLAR LAVAGE: EVALUATION BY COMPARATIVE USE OF TRADITIONAL STAINING TECHNIQUES AND IMMUNOFLUORESCENCE

Weber,Günter; Public Health Labs., Hannover; West Germany

Objective: To extend the evaluation of current diagnostic approaches in HIV positive patients with suspected PCP.
Methods: In total, 555 routine sputa (RS) and 178 BAL specimens were examined, using staining with toluidine blue O and Diff-Quick^R, and a non-commercial immunofluorescence test (IFT). Comparative evaluation of RS and BAL specimens was done by examining 72 relevant RS/BAL pairs from 67 patients.
Results: 20 positive RS diagnoses obtained in the RS/BAL group could be confirmed by IF examination of BAL. Of the 52 negative RS diagnoses, 5 proved false negative. On the other hand, one patient with *Pneumocystis* (*Pc.*) in his RS had a negative BAL diagnosis (specimens taken at the same day). In about 40 per cent of all positive RS *Pc.* was detected first in TBO-stained material. When all developmental stages of *Pc.* were considered diagnostically, about 2 per cent of the RS could not be diagnosed with certainty. In 93 per cent of all BAL specimens TBO staining resultet in correct diagnoses. Seven diagnoses were false negative.
Conclusion: Immunofluorescence examination of RS is most effective in diagnosing *Pc.* in HIV patients. Even staining with TBO of RS detects *Pc.* in more than one third of the PCP cases.

2078 ORAL CLINDAMYCIN PLUS PRIMAQUINE FOR PNEUMOCYSTIS CARINII PNEUMONIA

Joseph, Patrick*; Marzouk,J; and Phelps,R.
*Merritt-Peralta Medical Center, Oakland, CA, USA.

Objective: To determine the safety & efficacy of oral clindamycin plus primaquine (C+P) as initial therapy for 1st, 2nd, or 3rd episode of Pneumocystis carinii pneumonia (PCP).
Methods: Sixteen gay men with AIDS and mild or moderate PCP were enrolled onto a protocol using only oral clindamycin + primaquine. All participants had an arterial pO_2 above 45mm Hg.

Drug dosages: Clindamycin 450-600mg four times daily for 21 days.
Primaquine 30mg once daily for 21 days.

Results: 12/16 (75%) recovered (without relapse in 8 weeks).
4/16 (25%) had drug discontinued for toxicity:
3 for rash; 1 for elevation of hepatic enzymes.

Measles-like rash: A measles-like rash developed in 11 men (69%). The rash typically appeared on treatment day 7-12. Early in the study, C+P were stopped because of the rash. Subsequently, both drugs were continued "through the rash" with the addition of antihistamines. No patient experienced renal or skeletal effects of immune complex disease.

Conclusions: Oral C+P may represent an alternative regimen for out-patient therapy of PCP. A measles-like rash from C+P occurs frequently in this patient population, but does not necessarily require discontinuation of therapy.

2079 PHARMACOKINETICS OF (PK) PENTAMIDINE.

JE Conte, Jr.
University of California, San Francisco, California, USA

The PK of pentamidine were studied in 24 subjects: 10 with normal renal function, (RF) (Group 1). 9 undergoing hemodialysis (HD) (Group 2) and 5 with near normal RF (Group 3) following the last dose of therapy. A 3-compartment fit best represented the concentration-time data for Groups 1 and 2.

1st Dose PK	N	Dose	V1 (l)	VSS (kl)	AUC (ng/ml.hr)	Clp (l/h)	T1/2-LZ (h)	C-peak (ng/ml)
Group 1	6	3mg/kg	38.2.±27	3.5±3.8	748±211	268±70	29±25.0	249±80
Group 2(	5	3mg/kg	218±295	12.4±3.9	578±407	592±472	72.6±38.1	275±184
	4	4mg/kg	218±200	32.4±45.3	747±158	329±58	118±119	227±110

The differences between Groups or within Group 2 were not significant ($p > .05$). Multiple dose analysis in Group 1 patients confirmed progressively increasing trough concentrations (linear regression: $y = 4.14\ x$; $r = .91$, $p = .0001$) without achievement of steady state. Minimal pentamidine was excreted in the urine (range 6.0±4.0 to 12.9/mg/day) and the renal to plasma clearance ratio was 2.1±01%. In Group 3, the elimination rate constant and half-life after the last dose were .06±.01 days -1 and 12.0±2.3 days. Conclusion: a 3-compartment model is most appropriate for analyzing the PK of pentamidine; the true half-life ranges from 1 day in patients with normal RF to 3-5 days in patients on hemodialysis, however little pentamidine is excreted in the urine and impairment of renal function does not significantly decrease plasma clearance or increase total body drug burden; minimal dose correction is required in HD patients. Daily dosing, even in patients with normal RF, results in progressive plasma accumulation, suggesting that lower dose or combined aerosol/parenteral regimens should be investigated.

2080

PNEUMOCYSTIS CARINII PNEUMONIA (PCP) IN SPANISH AIDS PATIENTS: UNI/MULTIVARIATE ANALYSIS OF PREDICTORS OF MORTALITY.

Miró, J.M.; Veigas, Carlos; Zamora, L.; Mallolas, J.; Valls, M.E.; Torres, A.
Hospital Clinic i Provincial. Barcelona. Spain.

Objective: To identify the clinical and laboratory features which are predictive of mortality in Spanish AIDS patients with PCP.
Methods: We studied the first 78 AIDS patients diagnosed of PCP in our Institution since 1984 until January 1989. PCP relapses were not included. The PCP diagnosis was made on the demonstration of organisms in alveolar lavage fluid in 69 cases. The clinical and laboratory features of survivors and non survivors were compared using the BMDP statistical packet.
Results: Thirty seven patients were homosexual men and 33 drug addicts. Nineteen needed intubation and mechanical ventilation (MV) and 25 dead (13 of those with MV). In the univariate analysis the following variables were significantly present in non survivor group: non-drug addiction as risk group for HIV infection ($p<0.03$), PaO2/FIO2 ratio on admission <30% ($p<0.04$), mechanical ventilation ($p<0.001$), serum LDH level on admission greater than 1000 IU/L ($p<0.01$), CD4+ lymphocyte count on admission below 100/mm3 ($p<0.02$), serum albumin level on admission <30 g/L ($p<0.01$), serum cholesterol level on admission <120 mg/100 ml ($p<0.02$), non-trimethoprim/sulfamethoxazole treatment ($p<0.001$), and other pulmonary infections associated to PCP ($p<0.004$). In the multivariate analysis we identified two variables significantly related with mortality: mechanical ventilation ($p<0.001$) and non-trimethoprim/sulfamethoxazole treatment.
Conclusions: In Spanish AIDS patients with PCP, two variables seems to be significatively related with mortality: mechanical ventilation and non-trimethoprim/sulfamethoxazole therapy.

2081

NO ARRHYTHMOGENIC QT-PROLONGATION BY PENTAMIDINE AEROSOL PROPHYLAXIS (PP) IN 44 PATIENTS.

Thalhammer Christoph, Bogner JR, Goebel F-D, Matuschke A, Heinrich B, Lohmöller G, Medical Policlinic, Univ. of Munich, FRG

Intravenous Pentamidine may induce QT-prolongation and torsade-de-pointes tachycardias. This side effect is believed to be an idiosyncratic reaction and not dose related (Bisher et al., V.Int.Conf.on AIDS, Montreal 1989). We therefore studied the effect of PP (300 mg every 2 weeks) on corrected QT (QTc; blind measurement) and ventricular arrhythmias (2 minute rhythm strip)

1.In a cross-sectional study QTc was similar in
a) 44 HIVpos patients receiving PP (mean 414,range 376 to 456ms)
b) 44 HIVpos patients not receiving PP (409,range 362 to 453ms)
c) 44 HIVneg patients not receiving PP (408,range 357 to 455ms)
The three groups were matched for age, sex and heart rate.
2.In a longitudinal study QTc did not change with PP
a) after the first dose (+2 ms; +23 to -17 ms; n=12; n.s.) or
b) with chronic treatment (-1 ms; +30 to -46 ms; n=28; n.s.),
neither within one month (-6 ms; n=14), 2-4 mo (+4 ms; n=14) nor 5-12 mo (+2 ms; n=13). Single ventricular ectopic beats were observed in 1 case before and 2 of 44 cases during PP. Severe arrhythmias or unexpected sudden death on PP were not observed.

In conclusion, we could not demonstrate QT-prolongation and arrhythmias as a side effect of PP.

2082

OXYGEN CONSUMPTION AND ITS RELATIONSHIP TO OXYGEN DELIVERY IN PATIENTS WITH ACUTE RESPIRATORY FAILURE SECONDARY TO AIDS-RELATED PCP.

Ronco, Juan J.; Fenwick, J.C.; Russell, J.A.; Ruedy, J. and Montaner, J.S.G. AIDS Research Programme and Intensive Care Unit, Department of Medicine, St. Paul's Hospital, University of British Columbia, Canada.

OBJECTIVE: To characterize the relationship between oxygen delivery (DO_2I) and oxygen consumption (VO_2I) in patients with acute respiratory failure secondary to AIDS related PCP.
METHODS: Five patients admitted to the ICU for mechanical ventilatory support because of acute respiratory failure secondary to AIDS-related PCP ($PaO_2 < 70$ mmHg while $FiO_2 > 50\%$) were studied. Thermodilution cardiac index (CI), hemoglobin (Hgb), lactate and arterial (SaO_2) and mixed venous oxygen saturations were measured simultaneously at baseline and after transfusion of 2 units of red blood cells over 1 hour. DO_2I (CI x arterial O_2 content), VO_2I (CI x arterio-venous O_2 content difference), and O_2 extraction ratio ($O_2ER = VO_2I/DO_2I$) were calculated.
RESULTS: Values are expressed as mean ± SD

	Hgb	SaO_2	Lactate	CI	DO_2I	VO_2I	O_2ER
	(G/L)	(%)	(mmol/L)	L/min.m^2	ml/min.m^2	ml/min.m^2	(%)
pre	109± 12	89 ±5	2.4 ± 0.6	4.6 ± 1.2	638 ± 204	134 ± 34	21 ± 2
post	130 ± 13	91 ± 5	2.4 ± 0.6	4.6 ± 0.9	778 ± 201	149 ± 29	19 ± 2
pvalue	0.01	0.50	0.74	0.96	0.006	0.02	0.26

CONCLUSIONS: Similar to sepsis and the adult respiratory distress syndrome, oxygen consumption is pathologically dependent on oxygen delivery in patients with acute respiratory failure secondary to AIDS-related PCP.
Supported in part by grants from B.C. Heart Foundation and National Health and Research Development Programme.

2083

AEROSOLIZED PENTAMIDINE PROPHYLAXIS FOLLOWING PNEUMOCYSTIS CARINII PNEUMONIA IN PATIENTS WITH AIDS.

Lavelle, James*; Murphy, R.**; Harding, P*; Pierce, P* for the FISONS Multicenter Aerosolized Pentamidine Trial.
*Georgetown University School of Medicine, Washington, DC, USA,
**Northwestern University Medical School, Chicago, IL, USA

Objective: Without prophylactic therapy recurrent Pneumocystis carinii pneumonia (PCP) develops in 40% of patients (pts) at 6 months and 70% at 12 months (Fischl, MMWR, V. 38, June 1989). We sought to assess the safety and efficacy of secondary prophylactic aerosolized pentamidine (AP).
Methods: A total of 68 pts were enrolled in a multicenter, randomized, double-blind, dose comparison trial of AP as secondary prophylactic therapy for PCP. This study remains ongoing and blinded. Data on 41 of 68 pts is available for review. Pts with either multiple past episodes of PCP or a single episode more than 6 months prior to entry were randomized to receive 60 or 120 mg AP for an average of 190 days. Five doses of AP were given in the first 2 weeks, then 1 dose was given biweekly using an ultrasonic nebulizer (FISONEB, MMAD 4.7 mc; SD 1.5).
Results: Minor adverse events included: bad taste in nearly all pts, cough (49%), wheeze (29%), dyspnea (22%), and chest tightness (24%). Two pts developed pancreatitis, 1 died. One pt developed symptomatic hypoglycemia requiring continuous glucose infusion. Ten episodes of recurrent PCP occurred in 9 pts, 1 died. The rate of PCP per hundred pt months was 3.8.
Conclusions: 1. AP is generally well tolerated and reduces the expected incidence of recurrent PCP, however the optimal dose is undetermined. 2. A fatal reaction to AP may have occurred. 3. No extrapulmonary pneumocystis carinii infection was seen.

2084 PYRIMETHAMINE-SULFADOXINE (P-S) IN PRIMARY AND SECONDARY CHEMOPROPHYLAXIS OF PNEUMOCYSTIS CARINII PNEUMONIA (PCP)

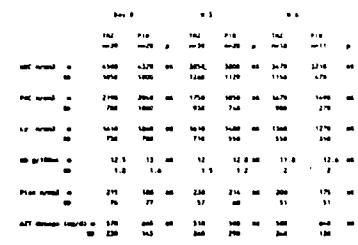
Ruf, B., Pohle, Hans Dieter. II. Department of Internal Medicine, Rudolf Virchow University Hospital (Wedding), Berlin, FRG

Objective: General agreement exists, that the most frequent opportunistic infections in AIDS patients should be prevented by primary chemoprophylaxis. Experiences emphasize the use of aerosolized pentamidine (AP) in PCP prophylaxis. In areas with high incidence of toxoplasmosis a primary prophylaxis has to be considered, that prevents toxoplasmosis as well. P-S, which was shown to be highly effective in preventing relapses of CNS toxoplasmosis, may be reasonable in such areas. We evaluated the efficacy of P-S in primary and secondary prophylaxis of PCP.
Drug regimen: 2 x 1 tablet P-S weekly, 30 mg folinic acid weekly to prevent hematological side effects.
Results: Fourty-two cases could be observed for a period of 4-31 months (median 14) for primary prophylaxis. A PCP manifestation was observed in 1/42 patients (2 %) with prophylaxis but in 5/16 patients (31 %) without prophylaxis. Seventy cases could be observed for a period of 5-29 months (median 13) for secondary prophylaxis. In 5/48 patients (10 %) with prophylaxis, and in 8/22 (36 %) patients with discontinued prophylaxis, relapses occurred. Side effects related to P-S were observed in 22/90 patients, but only in three P-S had to be discontinued.
Conclusions: P-S was shown to be effective in the prophylaxis of PCP. Therefore, P-S is an alternative in prophylaxis in areas with a high incidence of toxoplasmosis.

2085 TRIMETHOPRIM-SULFAMETHOXAZOLE (TMZ) VS PENTAMIDINE INHALATIONS (PIN) FOR PRIMARY PROPHYLAXIS OF PNEUMOCYSTIS CARINII PNEUMONIA (PCP)

ROZENBAUM, Willy; KADIVAR, M; GHARAKHANIAN, S; CANO, C; DIAS TAVARES, M; CARDON, B.
ROTHSCHILD UNIVERSITY HOSPITAL PARIS FRANCE

Objective: To compare the efficacy and toxicity of TMZ vs PIN in the primary prophylaxis of PCP in patients treated by Zidovudine (Z).
Methods: CDC stage-IV patients (pts) excluding PCP; not treated by Sulfadiazine, Pyrimethamine, Fansidar, Dapsone. CD4 cell count<200. WBC>2000, Hb>11, platelets>50000, liver transaminases<2x normal values Doses of treatments initiated concomitantly: Z (800mg/d), TMZ (160mg/d) or Pentamidine (4mg Kg/twice monthly) with Respigard II inhalator. Z dosage was reduced according to WBC/PN/Hb levels. Pts allergic to TMZ were given PIN. Patients were evaluated bi-monthly for clinical and hematologic side effects, as well as occurance of PCP and other infection. Data was compared at 0,3,6 months utilising CH2, t-student and non-parametric tests.
Results: Concern 59 pts with a follow-up of at least 3 months. 39 were treated by TMZ and 20 by PIN Pts were comparable for age, sex, weight, Karnofsky index, past opportunistic infections, KS, initial CD4 count (92±45 vs 82±61d/mm³), % of p24 Ag+, Z dosage and hematologic parameters at 0,3,6 months (Table). Median follow-up was 192 (TMZ) and 196 (PIN) days. 6 pts interrupted TMZ, (3 cutaneous allergy, 1 toxoplasmosis, 1 chemotherapy, 1 pts decision), none PIN. No PCP occured in the 2 groups.

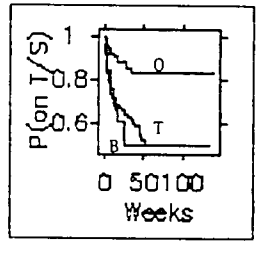


Conclusion: Both TMZ and PIN appear effective in the prevention of PCP. PIN are currently developped mainly because of presumed hematologic adverse reactions to TMZ, which was not observed in this study. The avoidance of disseminated, extrapulmonary PCP by use of TMZ and its possible prevention of bacterial infections could outweigh the risk of mostly transient allergic reactions. These considerations justify a long-term randomized study which is under way.

2086 SIDE EFFECTS OF PROPHYLACTIC TRIMETHOPRIM/SULFAMETHOXAZOLE (T/S) ARE DIMINISHED WITH ONCE DAILY DOSING.

Wolbert, Jerry; Keyes, C. Chieffe, R.; Marte, C.; Kelly, J.; Holzman, R. S. COMMUNITY HEALTH PROJECT/BELLEVUE HOSPITAL, N.Y.C., N.Y.

Objective: To determine if various doses of T/S have different rates of untoward side effects when used for PCP prophylaxis (PCPP).
Methods: A retrospective study of patients treated with T/S for PCPP in a community based clinic. Inclusion criteria: No prior T/S usage and HIV Ab+, T4<200 or <12%. 199 eligible subjects received either 1 DS tab od (O), bid (B) or bid tiw on consecutive days (T). Side effects were classified as moderate if drug was continued, severe if discontinued. Subjects were ranked as asymptomatic, symptomatic or as CDC defined AIDS.
Results: Groups O, B, & T did not differ significantly by race, sex or risk. There were 25 B, 67 O, and 107 T. Fewer B were asymptomatic (20%B vs 56%O&T, P<0.002). Mean length of PCPP was 32 weeks (median 26, range 2-134). Moderate side effects, most frequently nausea, occured in 18% T, 8% B, 1.5% O (P<0.001, O vs T; other comparisons ns). By life table analysis, O were less likely (P<0.01) than B or T to have severe side effects (see fig.). Severe side effects included rash (32%B, 24%T, 9%O), followed by nausea (9%T, 8%B, 1.5%O). Overall, 87 of 199 subjects (43.7%) reported side effects from T/S, which is consistent with other reports.



Conclusion: The incidence of side effects requiring discontinuation of T/S for PCPP is significantly less when administered od vs bid or bid tiw. Moderate side effects are also reduced.

2087 RADIOLOGIC MANIFESTATIONS OF PNEUMOCYSTIS CARINII PNEUMONIA (PCP) BEFORE AND DURING AEROSOL PENTAMIDINE PROPHYLAXIS

Opravil, Milos; Marincek, B.*; Fuchs, WA.*; Weber, R.; Battegay, M.; Speich, R.; Lüthy, R. Departments of Medicine and *Radiology, University Hospital, Zurich, Switzerland.

Objective: To compare the radiologic and clinical presentation of initial PCP in 29 AIDS patients with consecutive PCP recurrences during aerosol pentamidine prophylaxis.

Methods: All 29 patients in our institution, who suffered from microscopically verified PCP recurrences while receiving pentamidine prophylaxis, were analyzed. Chest roentgenograms of both initial and recurren: PCP were reevaluated independently and in a blinded manner by two experienced radiologists. If present, infiltrates were classified as interstitial or alveolar and predominant involvement of upper or lower lung areas was determined. Pentamidine inhalations (60 mg biweekly in sitting position) were initiated after a median of 1.3 months after the diagnosis of initial PCP and continued until the recurrence in all patients.

Results: PCP recurrences were diagnosed 10.0 months (median, range 1.4 - 22) after the initial PCP. Roentgenograms showed no infiltrates in 7/28 (25%) patients with initial PCP versus 10/29 (34%) patients with recurrent PCP; infiltrates were unilobar in 0/21 vs. 5/19 (26%) patients ($p = 0.018$, Fisher exact test); and upper lobes were predominantly involved in 2/21 (10%) vs. 7/19 (37%) patients ($p = 0.045$). Interstitial infiltrates were twice as frequent as alveolar in both initial and recurrent PCP. One patient presented with a pneumothorax as a manifestation of the initial PCP.
A trend toward earlier diagnosis of the recurrences was observed. In comparing initial versus recurrent PCP episodes, mean duration of symptoms before diagnosis was 3.4 vs. 2.7 weeks; lactate dehydrogenase was 771 vs. 681 U/L; and alveolar-arterial pO_2 gradient was 36 vs. 31 mmHg (all non-significant, t-test).

Conclusion: Roentgenograms of initial PCP were normal in 25% of our patients. The radiologic presentation of recurrent PCP during aerosol pentamidine prophylaxis was frequently atypical and consisted of absence of infiltrates, isolated unilobar involvement, or localization in upper lobes. These differences might be explained by 1) sitting position during pentamidine inhalations, and 2) a trend toward earlier diagnosis of the recurrences due to higher awareness of patients and physicians.

2088

COST-EFFECTIVENESS OF SECONDARY PCP PROPHYLAXIS USING AEROSOLIZED PENTAMIDINE: EVALUATION OF A HOSPITAL-BASED PROGRAM

Mathews, Wm.Christopher; Fenton,C.; Fullerton,S.; Abramson,I; Coley,E.; La Belle,J. University of California, San Diego, USA

Objective: To estimate the program costs per case of pneumocystis carinii pneumonia(PCP) relapse prevented by aerosolized pentamidine prophylaxis in a hospital-based clinic.
Methods: Sixty-four patients with prior confirmed PCP were enrolled in an aerosolized pentamidine prophylaxis program of 150 mg every 2 weeks between 10/14/88 and 1/31/89. Data was collected prospectively on compliance, concurrent medications, and confirmation of PCP relapse. Cumulative risk of relapse(Rp) for the prophylaxis group at 12 months was estimated by Kaplan-Meier analysis. Expected 12 month relapse for unprophylaxed(Rnp) was estimated independently using national data from NIH/ACTG protocol 002. Estimated prevented fraction among those receiving prophylaxis(PFp) was calculated as (Rnp-Rp)/Rnp. The expected number of relapses over 12 months for unprophylaxed(Enp) was estimated from observed relapses(Op) as Op/1-PFp. The prevented number of relapses over 12 months was calculated as Enp-Op. Cost per Rx delivered was $105.72 excluding program startup costs. Cost effectiveness is expressed as annualized cost per case of PCP prevented.
Results: Median followup for 64 patients was 7.3 months(range:1-16 months). At 12 months: Rp=0.28±0.09; Rnp =0.66±0.02; PFp = 0.58±0.14; Op=9; and Enp=21.4. The annualized program cost was $74,532(range:$66,286-$87,113). The prevented number of relapses was 12.4(range:7.1-23.1) and the base case estimate of 12 month cost/case prevented was $6,010(range:$2,869-$12,269).
Conclusion: Cost per case of PCP prevented compare favorably with reported inpatient costs for PCP Rx, neglecting morbidity & mortality effects of PCP. PFp, costs, and tolerance of other prophylaxis regimens need to be evaluated.

2089

FAILURES IN PROPHYLAXIS FOR *PNEUMOCYSTIS CARINII* PNEUMONIA (PCP) WITH AEROSOLISED PENTAMIDINE

Pialoux, G.* ; Chauvelle,MarieThérese*; Trotot,P.M.*; Sansonetti, Ph.*; Dupont, B.*
* Hopital de l'Institut Pasteur, Paris, France.

Objective : To assess the failure rate during primary and secondary prophylaxis of PCP with aerosolized Pentamidine.
Methods : Since March 1988, 185 high risk HIV infected patients have received nebulized Pentamidine (480 mg or 240 mg monthly administered via a Respirgard II or NB 99 Devilbiss nebulizer). The laboratory and radiological data observed during the relapse or the first episode of PCP were respectively analysed. The 185 patients were stratified into two groups : Group A (primary prophylaxis; N=130) and Group B (secondary prophylaxis; N = 55).
Results : Median duration of Pentamidine prophylaxis was 8,7 months (range 3 - 22 months). During this period 5 episodes of PCP occured in 5 patients (2.7 %): 3 in Group A and 2 in Group B. The mean duration of prophylaxis before PCP was 275 days (range : 400 - 130 days). In three cases, the radiological aspect was atypical and did not show the classical diffuse bilateral alveolo-interstitial pattern described in PCP. The failure rate, median follow up, compliance and side effects were not significantly different in both groups. There were no serious adverse reactions. We have not observed extra-pulmonary or disseminated *Pneumocystis carinii* infection after aerosolized pentamidine prophylaxis.
Conclusion : The overall failure rate in primary and secondary prophylaxis of PCP with aerosolized pentamidine was 2.7%.

2090

Topically applied All Trans-Retinoic acid for the treatment of Kaposi's sarcoma (Ks)

L.BONHOMME*, G.FREDJ*, S.AVEROUS**, AM.SZEKELY*, P.MEYER*, E.ECSTEIN*, JM.LANG***, B.TRUMBIC*, JL.MISSET*, C JASMIN*.
* HOPITAL P.BROUSSE, Laboratoire de pharmacologie expérimentale et clinique, 94800-VILLEJUIF
** SERVICE DE DERMATOLOGIE,33 avenue Honore Serre 33000 TOULOUSE
*** HOPITAL HAUTEPIERRE, 67098 -STRASBOURG -FRANCE-

OBJECTIVE : Evaluation of clinical and histologic response in epidemic Ks skin lesion after topical treatment with 1% All Trans Retinoic acid (tretinoin) gel.
METHODS : 8 male homosexuals were included in this trial. All patients had biopsy proven KS with at least 2 measurable lesions. Ks staging was IB = 2, IIB= 2, IVB=4. Age range was 20-51years. Seven patients had a total CD4 lymphocyte number of less than 100/mm3,the eighth patient had a mean CD4 count of 500/mm3. Prior interferon therapy failed in three cases, 2 patients have been allowed concurrent azidothymidine.Skin lesions varying in size from 5 to 50 mm were topically treated with 1% tretinoin gel for a period of 6 to 12 weeks and compared to lesions treated with vehicle only and untreated lesions.The vehicle contained oxidized oil.Clinical response was evaluated on changes in size colour and induration.
RESULTS: After three months 5 of these patients had a 50% reduction in treated lesions and one patient developped a complete response after two weeks For all patients we noted a fading of colour and a decrease in the nodular infiltration.No change was noticed in lesions treated with vehicle only and in untreated lesions.Biopsy of treated lesions showed rarefaction of tumor cells improvement of vascular differentiation and collagen sclerosis. Side effects (erythema and inflammatory skin reaction) regressed when treatment was suspended for a few days.
CONCLUSIONS : Preliminary results showed antiproliferative and differentiation activity of All Trans Retinoic acid in Kaposi's Sarcoma skin lesions after topical application.

2091

PULMONARY KAPOSI'S SARCOMA (KS) IN PATIENTS WITH HIV INFECTION

Coudere, Louis Jean, * ; Petrichis, P. ** ; Matheron, S.**; Katlama, C. *** ; Caubarrère, I. * ; Clauvel, J.P. ****
* Hopital Foch, Suresnes ; ** Hopital Bichat-Claude Bernard, Paris; *** Hopital Pitié Salpêtrière, Paris ; **** Hopital Saint Louis, Paris. France.

Objective : To determine the features and responses to treatment of pulmonary KS in patients with HIV infection.
Methods : Forty-one HIV positive patients (39 homosexual men, 2 heterosexual african women). Twenty four (58 %) patients have had previous opportunistic infections.
Results : 1°) extra pulmonary organs involvement by KS : skin (39/41 patients), oropharynx (23/41), stomach (6/11). Only one patient had isolated pulmonary KS. 2°) fever, 16/41 patients ; hemoptysis, 0/41. 3°) radiographic findings : interstitial infiltrates, 16/41, pulmonary nodules, 21/41, pleural effusions 10/41, hilar adenopathy, 3/41 ; normal chest film : 2/41. Thoracic scans with no specific features, 11/11. 4°) mean arterial PO2 : 69 mmHg ; PCO2 : 34 mmHg. 5°) characteristic endobronchial aspects of KS : 36/41 patients ; with histologic bronchial features of KS : 15/25 cases. Normal bronchoscopies : 5/41 patients : diagnosis by open lung biopsy (2 cases) or by others visceral involvement (3 cases). Chemotherapy : complete response : 0 patient; partial response : 6 patients (1 with Bleomycin, 5 with combination of Adriamycin (A), Bleomycin (B), Vincristine (V), Deticene (D); stable diseases : 4 patients with ABVD, 1/2 patient with ABV, 2/3 with A VP16, 3/6 with AV. Median survival duration : 6.5 months.
Conclusion : 1°) fiberoptic bronchoscopy was a diagnostic procedure in 36/41 patients. 2°) Chemotherapy regimen including Adriamycin allowed dramatic improvement in 16/36 patients, during a short period (3 months).

2092

PATTERNS OF FAILURE AND TOXICITY OF CHEMOTHERAPY (CT) IN AIDS RELATED NON-HODGKINS LYMPHOMA (NHL).

Joseph A Sparano, J Goldstein, R Gucalp, L Davis, P Wiernik.
Dept of Medical Oncology and Radiation Oncology
Montefiore Medical Center/Albert Einstein College of Medicine, Bronx New York

Objective: To evaluate the patterns of failure and toxicity of CT in the treatment (TX) of AIDS related NHL.
Methods: Retrospective chart review of 20 patients (pts) who presented with AIDS related, intermediate to high grade NHL.
Results: Treatment in most patients included cyclophosphamide, doxorubicin, vincristine, and prednisone in standard doses. Two pts had radiotherapy (RT) to bulk disease and 9 pts had prophylactic intrathecal CT (PICT). Response and median survival: complete (CR) 5 (25%), 8+ months (mo) (6+-17 mo); partial (PR) 13 (65%), 6 mo (4-12 mo). No pt with Burkitt NHL (6) or bone marrow (BM) involvement (6) achieved a CR. CR occurred within 2 cycles of CT in 4/5 pts. One pt later had CR after infusional CT using same drugs + etoposide. CT produced neutropenia/fever in 16/38 cycles (42%) where data was available. Ten opportunistic infections (OI) occurred in 9 pts, but all after the 2nd cycle of CT. Meningeal relapse occurred in 6/13 pts with negative initial BM including 3/6 pts TX with PICT and 3/7 pts not TX with PICT.
Conclusions: (1) Pts not achieving CR after 2 cycles of CT are unlikely to achieve CR with further myelotoxic CT. (2) More than two cycles of myelotoxic CT may produce an increased risk of OI. (3) PICT should be considered in all patients, and both PICT and cranial RT may be indicated in high risk pts. (4) CR occurred after infusional CT in 1 pt who failed bolus CT. We have also observed this in both HTLV-I + NHL and non AIDS NHL. This merits further study. (5) A risk and outcome adapted TX algorithm will be presented.

2093

IMMUNOHISTOCHEMICAL ASPECTS OF HIV ASSOCIATED NON HODGKIN'S LYMPHOMAS. COMPARISON WITH MORPHOLOGY.

Debré Patrice°, Raphael M.°, Audouin J.+, Lamine M.°,
Abd alsamad I.°, Diébold J.+.
° CHU Pitié-Salpétrière, + Hotel Dieu Hospital Paris, France.

High grade of B cell type non Hodgkin's lymphomas (NHL) are observed in 5 to 10% of AIDS patients. In order to determine the phenotype of each histological category of HIV associated NHL we analyzedon frozen sections the expression of B cell differentiation antigens (Ag), immunoglobulins (Ig) activation and proliferation markers.

Thirty seven cases (20 Burkitt's, 7 centroblastic, 9 immunoblastic and 1 polymorphic proliferation) were tested using immunoperoxidase technic with 27 monoclonal antibodies. Pan leucocyte CD45, B cell markers (CD10, CD19, CD20, CD21, CD22, CD23), anti-MHC classII Ag, anti-vimentine, anti-EMA, activation and proliferation markers (CD24, CD30, CD38, CD71, Ki67) and T cell markers (CD1a, CD2, CD3, CD5, CD7, CD4, CD8) were studied. The Ig were determined by immunoperoxidase technic and by Southern blot. The immunophenotyping study results were compared to the morphology.

In Burkitt's NHL, most cases were monoclonal IgM Kappa and expressed CD45, CD10, CD19, CD20 and CD22. In centroblastic polymorphic lymphomas CD45, CD10, CD19, CD20, CD22 were positive while these Ag were rarely expressed in immunoblastic cases. CD21 and CD23 were negative. CD38 was positive in cases with plasmacytic differentiation. Some immunoblastic cases were polyclonal. Activation markers were expressed in numerous cases with a lot of cells Ki67+.

Such studies comparing morphology and immunophenotype help to classify HIV associated NHL and have clinical implications.

2094

VULVAR AND CERVICAL PATHOLOGIES IN HIV SEROPOSITIVE (HIV+) WOMEN FOLLOWED IN A COLPOSCOPY OUTPATIENT CLINIC

GALFETTI Mariangela, IRION O, BEGUIN F.
Department of OB/GYN, University Hospital, GENEVA, Switzerland

Objective: evaluate prevalence of HIV+ patients in our colposcopy outpatient clinic and describe related pathologies.
Method: We reviewed the files of 397 colposcopy-patients followed in 1989.
Results: 19 (4.8%) were HIV+ (27 consultations) for a total of 397 patients (612 consultations). Mean number of consultation was 1.42 for HIV+ and 1.54 for others (p=NS). Compliance was poor in the first group. In the HIV+ group, mean age was 26.7. Fifteen women were possibly infected by IVDU (78.9%), 3 came from Africa and 1 had an unknown mode of acquisition. Six sexual partner were known to be HIV+, 3 HIV-negative, no data were available for partners of 10 patients. Vulvar pathologies were found in 14/19: 9 condylomatas, 5 vulvar intra-epithelial neoplasia (2 VIN II, 3 VIN III). Ten of these patients had associated cervical lesions: 3 condylomatas and 7 dysplasias. 5/19 had only cervical pathologies: 3 condylomatas, 2 dysplasia. DNA-hybridisation for human papillomavirus (HPV) was done in 16/19 patients: 7 were positive. Of 16 women tested for HPV, 10 had associated vulvar and cervical lesions: 6 were positive for type 16/18 and-or 31/33/35, and 4 were negative. Last HPV+ patient had only cervical dysplasia. Indication for treatment was present in 14 patients. Three refused. Eleven were treated by CO_2-Laser with recurrence in 6.
Conclusions: Prevalence of HIV+ women (4.8%) is high in our colposcopy clinic compared to other clinics in our OB/GYN Department. Most patients are (past)-IVDU. Some sexual partners are HIV-negative or unknown. In HIV+ patients, we note a high incidence of vulvar pathologies frequently associated with cervical lesions and presence of potentially oncogenic HPV. Compliance is poor, with risk of progressive untreated lesions or recurrencies. These data support our opinion that HIV+ women must be carefully followed by a gynecologist who can send them for evaluation, biopsies and treatment in colposcopy clinic if indicated. Educational strategies have to be designed to reach these patients and their sexual partners.

2095

HIV-RELATED NON-HODGKIN'S LYMPHOMAS (NHL) IN ITALY: INTRAVENOUS DRUG USERS (IVDUs) VERSUS HOMOSEXUAL MEN (HM).

Vaccher, Emanuela*; Tirelli, U.*; Errante, D.*; Rizzardini, G.**; Palmieri, G.°; Monfardini, S.* for the Italian Cooperative Group Study on AIDS-related Tumors (GICAI).
*Centro di Riferimento Oncologico, Aviano, Italy, **Hospital Sacco Milan, Italy, °University of Naples, Italy.

Objective: To compare the natural history of HIV-related NHL in IVDU vs HM.
Methods: A retrospective analysis of the clinico-pathological features and outcome of HIV-related NHL among IVDU vs HM has been conducted by the GICAI.
Results: Since November 1986, 150 Italian cases, 96 IVDUs, 31 HM, and 23 belonging to other risk groups were collected. This distribution was in accordance with the overall epidemiology of HIV infection in Italy. The median age of IVDU and HM was 26 and 38 yrs respectively. In both groups, NHL of the high or intermediate types were found in the vast majority of cases, 96% in IVDUs and 86% in HM. Burkitt's type constituted 40% of high grade NHL in HM and 29% of high grade NHL in IVDUs (p=NS), while immunoblastic lymphoma 27% and 46% in IVDUs and HM, respectively. Forty-seven percent (57/122) could not receive any antineoplastic treatment, due to rapid disease progression or post-mortem diagnosis. Intensive combination chemotherapy regimens (ProMACE-MOPP type) administered in one third of both IVDU and HM provided more CR than less intensive combination chemotherapy regimens (type CHOP), but overall survival was similar. There was no difference in CR rates between IVDUs and HM. Overall median survival was 3.7 months for IVDUs and 3.6 months for HM. Among IVDUs, the best predictor for survival were opportunistic infections at onset. The most common cause of death in both groups was progression of NHL.
Conclusions: HIV-related NHL is associated with unfavourable outcome either in IVDU and in HM, without clear difference as far as clinico-pathological features, response to treatment and overall survival.

2096 HIV SEROPOSITIVITY AND HODGKIN'S LYMPHOMA

Liff, Jonathan M*; Eley, JW*; Khabbaz, RF**; Selik, RM**; Chan, WC*
*Emory University, Atlanta, Georgia, USA; **Centers for Disease Control, Atlanta, Georgia, USA

Objective: To ascertain the seroprevalence of HIV among Metropolitan Atlanta patients with various subtypes of lymphoma.
Methods: Since February 1, 1989, all incident cases of lymphoma have been identified in the 5 counties comprising the Atlanta Surveillance, Epidemiology and End Results (SEER) area. Clinical summaries for all cases were obtained by review of medical records and pathology reports. Pathologic specimens are being obtained and reviewed by a study hematopathologist. Phlebotomy was performed on consenting patients. Sera were tested for antibodies to HIV by ELISA; reactive samples were confirmed by Western Blot. HIV test results from medical records were noted when phlebotomy was not performed.
Results: As of January 8, 1990, 165 subjects were identified as eligible. Medical record information has been obtained for 149, of whom 103 were tested for HIV by the study. There is evidence of HIV seropositivity for 23 (15%) of the 149 patients. Seroprevalence by histology is as follows:

Hodgkin's	HIV+/Total	(%+)	non-Hodgkin's	HIV+/Total	(%+)
mixed cellularity	7/12	(58%)	high grade	11/27	(41%)
nodular sclerosis	0/22	(0%)	large cell diffuse	3/31	(10%)
other	0/ 9	(0%)	other	1/35	(3%)
unclassifiable	0/ 1	(0%)	not otherwise specified	1/ 4	(25%)
Malignant lymphoma, not otherwise specified				0/ 8	(0%)

Conclusions: These data suggest that the mixed cellularity subtype of Hodgkin's lymphoma is associated with HIV infection. The previously recognized association of high grade lymphomas with HIV was confirmed.

2097 COLPOSCOPIC EVALUATION OF HIV SEROPOSITIVE WOMEN

Tarricone, Nicholas J.*; Maiman, M.**; Vieira, J.*
*The Brooklyn Hospital-Caledonian Hospital, Brooklyn, N.Y.
**SUNY Health Sciences Center at Brooklyn, Brooklyn, N.Y.

OBJECTIVE: To determine the effect of HIV seropositivity on cervical histology Thirty-two (32) known HIV+ patients had cervical colposcopic evaluations.

METHODS: All patients had cervical cytology, colposcopic biopsies and T-cell studies performed.

RESULTS: Twenty-five per cent of the study group (mean age 33.4 yrs.) were intravenous drug users; the majority of patients had early age of first coitus (<17) and multiple partners (>3). Thirteen of 32 patients (41%) were found to have cervical intraepithelial neoplasia (CIN) while another 14 of 32 patients (47%) had chronic cervicitis. Only 5 of 32 patients (16%) had completely normal histology. Abnormal cytology however, was noted in 3 pt's., only one of which suggested CIN. All (5/5) patients with a clinical diagnosis of AIDS, had CIN compared to 30% (8/27) of non-AIDS seropositive patients. Patients diagnosed with CIN had significantly lower T4:T8 ratios (.33 vs .62) and absolute CD4 counts (221 vs. 408/mm^3) than those without CIN. In addition, patients with AIDS were more likely to have higher grade lesions than non-AIDS seropositive patients.

CONCLUSION: Our data suggests that abnormal cervical pathology is common among HIV+ women, and that cytologic screening may not be predictive of CIN. In addition, the presence of cervical dysplasia correlates strongly with T-cell function. We strongly recommend that cervical colposcopy be part of the routine management of HIV seropositive women.

2098 HUMAN PAPILLOMA VIRUS (HPV) AND RISK OF CERVICAL INTRAEPITHELIAL NEOPLASIA IN HIV-1 INFECTED INNER CITY WOMEN

Kloser, Patricia*; Lombardo, J.*; Chung, R.*; Gersten, D.*; Jenson, A.*; Raska, K., Jr.

*UMDNJ-New Jersey Medical School and University Hospital, Newark, USA
**Georgetown University, Washington, D.C., USA

Objective: To determine the prevalence of HPV infection in HIV-1 infected female outpatients attending the Infectious Disease clinic at University hospital in Newark, New Jersey.
Methods: Over a one month period (11/89), thirty HIV-infected female subjects, as part of medical treatment, had cervical specimens analyzed both cytologically and by Southern blot analysis for presence of HPV types -6, -11, -16, -18, -31, -33, -35.
Results: There were 26.7% (n=8) subjects identified as HPV-infected. One subject was found to be infected with "low risk" HPV 6/11, four infected with "intermediate risk" HPV 31/33/35, two with "high risk" HPV 16/18 and one concomitantly infected with both the intermediate and high risk HPV types. Cytologically, 16.1% (n=5) of subjects had abnormal smears and of these, four were positive for HPV by hybridization. One subject had dysplasia on cytology but was negative for HPV by molecular analysis.
Conclusion: These data suggest an extremely high prevalence of HPV infection in this patient population of HIV-infected females. Such a patient population may serve as a model system in which to study the course of HPV infection under conditions of changing immune competence.

2099 CLINICAL, RADIOLOGICAL, AND BRONCHOSCOPIC FEATURES OF PULMONARY KAPOSI'S SARCOMA.

Pozniak, Anton; Latif A; McLeod D; Ndemera B; Neill P.
Department of Medicine, University of Zimbabwe, Zimbabwe

Objective: To describe the main clinical, radiological and bronchoscopic features of pulmonary Kaposi's Sarcoma (PKS).
Methods: Of 268 patients with biopsy proven HIV associated Kaposi's Sarcoma (KS) any who had clinical or radiological changes suggestive of pulmonary involvement underwent fibreoptic bronchoscopy.
Results: 21 heterosexual males age (mean) 23-37 (34) years were found to have PKS. The commonest symptom was cough in 19 of duration 2-180 (62) days. 8 were productive of white sputum, 9 had haemoptysis. 18 were breathless, 7 at rest; duration 3-90 (41) days, 11 on exercise; duration 4-180 (48) days. Cyanosis occurred in 6 and 15 were tachypnoeic. 11 had widespread and 3 localised crackles. 14 had widespread cutaneous KS, 3 had multiple lesions localised to one limb, 2 had palatal involvement only and 2 had lymphadenopathic KS only. On CXR, 11 had widespread nodular infiltrate and 8 had localised segmental infiltrate. 2 had pleural effusions. At bronchoscopy; in 7 nodules of KS were seen, 6 had flat well circumscribed haemorrhagic lesions, 5 had both. Proximal Tracheobronchial involvement was commonest. 3 patients had diffuse erythema. Biopsies were performed in 13 and KS found histologically in 5. All had chemotherapy. At follow up 8 patients have died, mean survival 38 days. One of the 11 is alive at 165 days post bronchoscopy follow-up.
Conclusion: prolonged cough, dyspnoea, tachypnoea, and nodular infiltrates on CXR, are features of PKS. Bronchoscopic KS usually involves the proximal tacheobronchial tree. Survival is poor even after chemotherapy.

2100 **High dose intralesional recombinant interferon-alpha-IIb-treatment in HIV-1-infected patients with Kaposi's sarcoma**

Tschechne, Barbara, von Wussow, P., Schedel, I., Deicher, H.
Medical School Hannover, FRG.

Objective: To determine the value of high dose intralesional interferon-α-IIB-therapy (IFN-α-IIb) of HIV-1-related Kaposi's sarcoma (KS).
Methods: Seven patients with histological proven KS and HIV-1-infection have been treated by intralesional injections of IFN-α-IIb, 3x10⁷ IU per dose daily for a period of 4 weeks, followed by a reduced dosing of 3x10⁷ per dose 3 times weekly. The correlation of clinical course and different biological parameters, HIV-antigen (AG) level, IFN-antibodies, MX-protein as well as clinical response were assessed.
Results: The treated tumor lesions were clinically compared (size, colour, shape) with non-treated nodes. All treated KS-nodes were noted to be diminished in cutaneous thickness, tumor size and intensity of colour. Patients classified as KS without opportunistic infections (O.I.) showed a complete remission in 2/5 cases, whereas 2 patients with KS and O.I. did not reach a C.R. Patients with isolated cutaneous KS had a higher frequency of CR than those who had visceral lesions (2/4). Patients who had a pretreatment value of total lymphocyte counts (>3000/µl), CD4 counts (>400/µl) and CD4/CD8-ratio (>0.4) reached a higher chance of clinical response. CR was observed in 1/3 of HIV-AG negative group, in 1/4 of the HIV-AG positive group. In the HIV-AG positive group responded to IFN-α-IIb-treatment 2/4 became AG negative.
Conclusion. AIDS-related KS responded in 57% to intralesional application of IFN-α-IIb. In addition, patients with KS without O.I. as well as CD4 lymphocyte counts >400/µl and without visceral KS lesions may have a superior effect.

2101 PREDICTIVE FACTORS FOR ANTITUMOR RESPONSE IN PATIENTS (P) WITH AIDS-RELATED KAPOSI'S SARCOMA (KS) TREATED WITH INTERFERON ALPHA-2B (INTRON-A) ASSOCIATED WITH ZIDOVUDINE.

Hermans, Philippe; Cauchie, E.; Sommereijns, B.; Payen, M.C.; Clumeck, N.
Div. of Infectious Diseases, St Pierre University Hospital, Brussels, Belgium

Objective: To evaluate predictive factors for antitumor effects of combined therapy using Intron-A and Zidovudine in AIDS P with KS.
Method: Since August 1988, 16 P with AIDS and KS have been enroled in an open prospective clinical study. Treatment (TRT) consisted on administration of Intron-A (20MU/d, 5/7d) associated with oral Zidovudine (600mg/d). Krigel's criteria were used for KS classification. Using a two-tailed Fisher's exact test comparing responders vs non-responders to TRT, the following parameters were analysed to determine their potential predictive value on the response rate: KS staging and subtypes, prior history of opportunistic infection (OI), duration of TRT, CD4 cell count, p24 antigen and values for hemoglobin (Hb) and white blood cells (WBC) according to the WHO recommendations.
Results: Overall clinical response (complete and partial) was seen in 11 P. Analysis of responders versus non-responders showed that a normal baseline value of Hb level was associated to response to TRT (positive predictive value of 100% vs 0% when Hb was abnormal). This predictive value was also present when week +4 was considered ($p<0.01$). There was no predictive value for the following parameters: KS staging or subtypes (A vs B), prior history of OI, CD4 cell count (<200 vs >200), p24 antigen, WBC, or duration of TRT.
Conclusion: Our study suggests that normal Hb levels at baseline (and at week +4) is predictive of an antitumor response among AIDS P with KS treated with Intron-A and Zidovudine. Hb level as a confounding factor requires further statistical analysis on a larger group. The lack of relation between clinical response and duration of TRT or prior OI argues against this potential bias.

2102 RADIATION THERAPY (RT) OF THE CENTRAL NERVOUS SYSTEM (CNS) IN AIDS RELATED NON-HODGKINS LYMPHOMA (NHL).

Jeffrey Goldstein, D Dickson, E Valentine, L Davis.
Dept of Radiation Therapy and Pathology.
Montefiore Medical Center Albert Einstein College of Medicine Bronx,New York

OBJECTIVE: To evaluate the use of RT to the CNS for AIDS related NHL.
METHODS: We reviewed all 25 biopsy proven, HIV related cases of NHL treated with CNS irradiation between 1985-1988. We recorded the reasons for referral, type of therapy given, and results of treatment.
RESULTS: Seventeen patients had primary CNS NHL. Most patients were severely debilitated from previous AIDS related ilinesses. All patients were treated with total cranial irradiation. Mean survival was only 72 days (range:17 days - 230 days). Following treatment, 12 patients showed improvement in symptoms ($p<.05$). Although length of survival was related to pre-treatment performance status ($p<.05$) most patients died of opportunistic infections. Fifteen patients with systemic NHL received RT. Eight of these patients received radiation to the brain or spinal cord for leptomeningeal relapse. Mean survival was only 103 days (range:5 days - 388 days). Radiation provided improvement of neurological symptoms in 6 of 8 patients. Most patients died of systemic infections or widespread systemic lymphoma.
CONCLUSIONS: Survival is poor in patients with primary CNS NHL or CNS relapse of systemic NHL. RT is a useful modality for palliating local symptoms in both of these disorders. Patients suffer few side effects from irradiation. Most patients succumb from opportunistic infections rather than uncontrolled CNS lymphoma.

2103 A STUDY OF LANGERHANS' CELLS IN THE CERVICAL EPITHELIUM OF WOMEN WITH HIV INFECTION

Barton Simon*; Maddox,P**; Smith,J***; Jenkins,D*; Hawkins,D*.
*Westminster Hospital, London, England. **Whittington Hospital, London, England. ***St. Mary's Hospital, London, England.

OBJECTIVE: A high prevalence of cervical intraepithelial neoplasia (CIN) has been reported in women with HIV infection and this accords with a similar finding in women with systemic immunosuppression.
METHODS: Colposcopically directed cervical biopsies were obtained from 25 HIV infected women whose disease status ranged from completely asymptomatic to AIDS. The biopsies were cut and stained using 2 monoclonal antibodies for Langerhans' cell markers, S100 protein and T6 (CD1). The concentration of Langerhans' cells was measured per unit area of cervical epithelium and compared to non-HIV infected matched controls.
RESULTS: The cervical epithelium of women with HIV infection contains significantly fewer Langerhans' cells per unit area compared to HIV negative controls ($p<0.05$). In particular there was a virtual absence of S100 protein even in samples with T6 (CD1) bearing cells present. This effect of HIV infection was independent of the effects of cigarette smoking and human papillomavirus (HPV) infection.
CONCLUSION: HIV infection results in a reduction in Langerhans' cells per unit area of cervical epithelium. The functional consequence of the specific loss of S100, a calcium binding protein, is uncertain. But further study may provide information about the role of local immunosuppression in the aetiology of cervical neoplasia.

2104 HUMAN PAPILLOMA VIRUS INFECTION AND CERVICAL INTRAEPITHELIAL NEOPLASIAS (CIN) IN HIV-INFECTED FEMALE PATIENTS.

Hiller, Klaus F.; Baur, S.; Lutz, R.; Stauber, M.; Jakobs, U.;
University of Munich, I. Women's Hospital, Munich, FRG

Objective: A quantitative and qualitative analysis of the high rate of cervical intraepithelial neoplasias and its relation to human papilloma virus infection in pregnant and non-pregnant HIV-infected female patients.
*Methods:*76 women with HIV, one group during pregnancy and one group of non-pregnant women, were tested for CIN-lesions and human papilloma virus infection (HPV).Vaginal smears, colposcopy and microbiological studies were done for reasons of clinical assessment. For HPV-diagnosis the combined methods of cytology, colposcopy,dot-blot-hybridization,Southern blot and serological testing were used.In cases of CIN III a histological evaluation was acheived by either biopsy,cervical curettage or conization.
Results: The diagnosis of cervical intraepithelial neoplasia can be found 10 to 15 times more often than in a group of non HIV-infected women.(approx. 20%) The combination of several methods of HPV-diagnostic procedures leads to a high yield of patients positive for HPV thus showing a good correlation of HPV-infection and CIN lesions and a high incidence rate of HPV-infection in HIV-infected patients. There was no significant correlation between a patient's immunologic status and the occurrence of CIN-lesions. Also other local infections did not significantly influence the rate of CIN lesions.
Conclusion: High rates of Cervical intraepithelial neoplasias are found in HIV-infected women, frequently combined with the diagnosis of HPV-infection. Repeated testing for HPV and the use of several detection methods at the same time are necessary in order to establish a valid diagnosis.

2105 KAPOSI'S SARCOMA (KS) IN AIDS CASES IN ARGENTINA

Perez Hector*; Smilovich A.**; Cahn P.*; Casiro A.*; Muchinik G.***; Grinberg N.*-
*Hospital Fernandez, Buenos Aires, Argentina. ** Clinica Independencia, Buenos Aires,Argentina.*** Academia de Medicina, Buenos Aires, Argentina.

OBJECTIVE: To analyse the clinical and epidemiological features of KS, the influence of treatment and of opportunistic infection (OI) on outcome at 12 months (MO).
METHODS: Between 1982 and 1989 we studied 124 AIDS patients (pts). One hundred and two were male homosexuals, 11 IV drug abusers, 6 heterosexuals, and 5 hemophiliacs. All KS cases were confirmed by biopsy. Staging was made using the New York classification for KS. Treatment schedules were: Stage (St) I: Surgery; St II: radiotherapy plus Interferon (IFN); St III A and IV A: Monochemotherapy plus IFN; St III B and IV B Chemotherapy.
RESULTS: KS was diagnosed in 31 homosexual males. No cases were seen in others groups. KS pts presented in the following stages: St I:3; St II:12; St III:6; St IV: 10. Twelve Pts had no symptoms (A) and 19 had B symptoms. Treatment was given to 15 pts. (St I:2; St II:3; St III:4; St IV:6). Only 1 pt showed complete response and is alive 30 mo. later. Three pts. showed a partial response of more than 50 %. Two are in early phase of treatment (2 and 5 mo.). The Other 9 worsened. Twelve mo. after diagnosis, 8/13 (61.5 %) were alive in the treated group versus 2/16 (12.5 %) in the non treated. ($p < 0.025$). OI were diagnosed in 20 pts (8 treated and 12 non treated). Only 4 pts with OI survived at 12 mo. versus 6/9 without OI ($p < 0.05$).
CONCLUSION: The incidence and clinical features of KS in our series is similar to those of developed countries. Lack of treatment and concurrent OI had a negative influence on prognosis at 12 mo.

2106 EXPERIENCE WITH GANCICLOVIR THERAPY IN CITOMEGALOVIRUS INFECTIONS WITH AIDS MEXICAN PATIENTS

Peredo, L-V.M.A; Estrada, A.J.L.*; Jimenez, Z.E.*; Vargas, E.*; Martinez, S.J.**; Lopez-Fiesco, A.**
* Hospital de Infectología, Centro Médico La "Raza", I.M.S.S. MEXICO
** Syntex México, DIFA

Objective: To evaluate the efficacy, safety and tolerance of Ganciclovir (DHPG) in the treatment of citomegalovirus (CMV) infections in AIDS patients.

Method: Twenty-three Mexican patients with AIDS for HIV1 developed CMV infections (eighteen with retinitis and five with colitis). Indirect ophtalmoscopy, fluoroangiography and colonic biopsy was conducted. The patients received induction treatment with Ganciclovir 5 mg/kg BID during 14 days, followed by maintenance treatment of 5 mg/kg once a day for 14 days. Opthalmological changes, gastrointestinal (GI) manifestations and hematological test were monitored.

Results: Fifteen (83%) with retinitis showed improvement, two patients (11%) stabilized and one patient (6%) did not respond to therapy of Ganciclovir. Three patients with retinitis (16%) relapsed, but a second course of Ganciclovir improved them. The GI symptoms disappeared in the 100% of the cases. Neutropenia occurred in nine patients (39%) and thrombocytopenia in one case. The treatment was not interrupted in any case.

Conclusion: Ganciclovir therapy is safe and effective in CMV infections and should be used as part of general programs for attention provided by official institutions.

2107 EARLY VIRUS ISOLATION,IMMEDIATE-EARLY ANTIGEN DETECTION,AND DNA AMPLIFICATION BY PCR IN POLYMORPHONUCLEAR LEUKOCYTES FROM AIDS PATIENTS WITH HUMAN CYTOMEGALOVIRUS VIREMIA

Gerna,G.*;Zipeto,D.**;Silini,E.**;Parea,M.*;Grossi,Paolo*;Milanesi,G.**
*Virus Lab.,Inst.Infect.Dis.,Univ.of Pavia,IRCCS Policlin.S.Matteo,**Ist. di Genetica Biochimica ed Evoluzionistica del CNR, Pavia, Italy.

Objective: To establish the frequency of human cytomegalovirus (HCMV) viremia in AIDS patients by examination of polymorphonuclear leukocytes (PMNLs).
Methods:1)Conventional virus isolation by CPE in cell cultures (3wks observation);2)Centrifugation-enhanced early antigen (EA) detection by MAb to EA 24h p.i.;3)Immediate-early antigen (IEA) detection in PMNLs by MAb to IEA using cytospin preparations;4)Amplification by the polymerase chain reaction (PCR) of a conserved sequence of the major IE region of HCMV DNA.
Results:PMNLs from 2 (1 HCMV-seropositive and 1 seronegative) immunocompetent subjects and 18 HIV-HCMV-seropositive asymptomatic individuals were negative for HCMV viremia.Out of the 40 PMNL samples examined from 34 symptomatic AIDS patients,concordant results between PCR and virus or viral antigen detection were found in 33 samples (15 positive and 18 negative).Of the 7 discordant results,5 were positive only by PCR and 2 only by virus isolation.
Conclusion:1)To diagnose HCMV viremia, multiple methodologies must be used in conjunction;2)PCR appear to be the most sensitive assay for detection of active virus infection in blood and for establishing the effectiveness of DHPG treatment,which should be discontinued only after viral DNA disappearance
Partially supported by Min.Sanità,Contract no.4204 18 and no.4204 24.

2108 ORAL AND PERIANAL CYTOMEGALOVIRUS ULCERATION IN AIDS: A CLINICAL REVIEW.

McCormick Shelagh*; Nelson,M*; Barton,S*; Gazzard,B*.
*Westminster Hospital, London, England.

OBJECTIVE: To evaluate the clinical presentation and outcome of cytomegalovirus (CMV) oral and perianal ulceration in HIV positive patients.
METHODS: All HIV positive patients with oral and/or perianal ulceration presenting between March 1985 and November 1989 were reviewed. CMV infection was diagnosed by typical histological changes and confirmed by fluorescent monoclonal antibody studies.
RESULTS: Four patients had perianal disease and one oral. All had a previous AIDS diagnosis and a T helper cell (OK T4) count of less than 100 per mm^3 (mean of 40). All patients were treated empirically with acyclovir without response but the ulcers healed on foscarnet (3) or ganciclovir (2). The oral ulcer failed to respond initially to foscarnet but subsequently healed on ganciclovir. One patient died during the course of treatment and two subsequently at 20 and 40 days. Two patients developed further evidence of CMV disease (one with retinitis and one with colitis).
CONCLUSION: Oral and perianal CMV ulceration are late presentations of AIDS. Patients with oral or perianal ulcers which do not respond to standard therapy should undergo biopsy.

2109 BIOCHEMICAL AND IMMUNOLOGICAL STUDY OF THE CEREBROSPINAL FLUID (CSF) IN HIV-POSITIVE PATIENTS.

Leonardi Antonino*, G. Ribizzi*, Piersantelli N** G. Imberciadori°, A. Bo°, P. Cuneo-Crovari°.
Depts. of Neurology* and Hygiene°, Univ. of Genoa, Dept. Infect. Dis. Hosp. "Galliera"**, Genoa, Italy.

Up to Dec. 1989 we performed routinary cytochemical study of the CSF in 44 HIV+ patients with neurologic signs belonging to CDC groups I (n= 3), III (n= 3), IV B (n= 10), IV C (n= 28).
Compared to 43 HIV-negative bacterial or viral Meningo-Encephalitides (ME), HIV+ have low CSF glucose with significantly higher frequency (75% vs. 25%; Chi-sq. p<.001) indipendently from stage of disease and superimposed CNS infectin.
The finding might express defective carrying of glucose by brain capillary endothelia infected by the HIV or inhibition of Neuroleukin, homologous to Phosphohexose-Isomerase, by the gp 140 of the HIV.
Intrathecal synthesis of IgG (pathological IgG index and CSF oligoclonal bands) is more frequent (Chi-sq. p < .001) among the HIV+, showing autochtonous humoral immune activation. CSF and serum Beta-2Microglobulin (B2M) and Neopterin (N) were assayed in 66 HIV+ patients and 10 healthies. 10 HIV+ (IV A n= 5; IV C n= 5) were neurologically asymptomatic; 19 IV B and 37 IV C or D had neurologic disease.
In these 37 mean CSF and serum B2M and N are significantly raised (p < .05 at Fischer's and Scheffe's tests in all comparisons vs. controls). Moreover, B2M and N are higher in CSF than in serum, so suggesting ongoing cell-mediated immune response within the CNS.

2110 CARE REQUIREMENTS FOR AIDS PATIENTS ON A TRIAL OF FOSCARNET FOR THE TREATMENT OF CMV RETINITIS

Baird, Barbara; Coleman, P.; Allen, M.; Smelskis, M.; Smartt, E.; Martell, D.; Reizes, Y.; Williams, J.; Masur, H.; Polis, M.
Warren G. Magnuson Clinical Center, National Institutes of Health, Bethesda, Maryland, USA

Objective: To characterize the care requirements and resources necessary for patients (pts) with AIDS enrolled in a trial of intravenous foscarnet for CMV retinitis.
Methods: Pts were considered eligible if they had peripheral CMV retinitis and agreed to Hickman catheter insertion. Inpatient treatment consisted of 21 days of foscarnet (60mg/kg q8h) followed by outpatient foscarnet maintenance (90mg/kg qd) until relapse was documented ophthalmologically. Chart reviews and nurse interviews were conducted to quantitate the length of hospitalization, the amount of nursing care required and to assess factors accounting for hospitalization and nursing care of pts while enrolled in the clinical trial.
Results: Inpatient days ranged from 19 to 92 (mean 39, median 35.5) for a total of 854 for 22 pts. Extended hospitalizations occurred in 21/22 (95%) pts and were due to: medical complications unrelated to foscarnet in 6, foscarnet related complications in 2, difficulty in discharge associated with arranging home infusion therapy in 9, and both medical and discharge complications in 4. Indwelling catheter complications developed in 6/22 (36%) pts; 4 cases of sepsis, 2 thromboses, and 2 physical displacements resulting in a mean prolonged hospitalization of 9.2 days per pt. New opportunistic infections were identified in 8/22 (36%) pts during this study. A mean of 12 (range, 4 to 20) hours of nursing care was required per pt per inpatient day.
Conclusion: Pts with AIDS and CMV retinitis are prone to develop complications of their disease and therapy; this may require unanticipated care by physicians and nurses. Health care insurance benefits and state and local health care resources vary and must be considered in order to effect a smooth transition from inpatient to outpatient care. These factors should be considered when estimating personnel and financial resources required to complete a clinical trial.

2111 USEFULNESS OF HIGH DOSE ACYCLOVIR AS PROPHYLAXIS FOR CMV

Metroka, Craig E.*; Josefberg, H.**
*St. Luke's/Roosevelt Hospital Center, New York, New York, **Brown University Medical Center, Providence, RI.

Objective: An open study of the efficacy and tolerance of high dose acyclovir.
Methods: We studied 120 patients who were at high risk for CMV from 12/87 to 1/90. All patients had <150 CD4+ cells/mm^3. Preliminary data analysis is presented.
Results: The mean CD4+ cells at the time of treatment initiation was 64 (range, 4 to 146). The mean duration of follow-up was 15.5 mos (range, up to 24 mos). 2/120 pts receiving acyclovir 800 mg po 5x/day (4.0 grams/day) developed invasive CMV. Both pts were subsequently treated with ganciclovir and 1 died of progressive, disseminated CMV 12 wks after diagnosis. 0/120 pts receiving acyclovir developed Herpes simplex or Herpes zoster and there was clearing of hairy leukoplakia in all 16 patients who presented with hairy leukoplakia. 1 pt developed CMV retinits after discontinuation of acyclovir for 4 wks. Side effects included nausea and vomiting in 4 pts and pain at the site of prior Herpes zoster in 1 pt. Dose reduction by half in 5 pts led to invasive CMV in 3 pts. 34 pts receiving high dose acyclovir developed other OI's or malignancies; 20 have died, death was due to CMV in 1 of the prophylaxis failures. In contrast 9 of 14 pts who refused treatment developed invasive CMV.
Conclusion: This study strongly suggests that acyclovir is useful as prophylaxis of CMV, Herpes simplex, and Herpes zoster, as well as clearing of hairy leukoplakia.

2112 SELECTION OF FLUCONAZOLE-RESISTANT YEASTS IN AIDS PATIENTS UNDER FLUCONAZOLE PROPHYLAXIS.

Gilquin, Jacques* ; Lavarde, V.** ; Meggle, F.** ; Acar, J.F.*

* HOPITAL SAINT-JOSEPH, ** HOPITAL BROUSSAIS, PARIS, FRANCE.

Objective : Fluconazole is a triazole antifungal compound effective against C. albicans, the most prevalent agent of candidiasis ; some species are naturally resistant : C. krusei, T. glabrata. The aim of this study was to evaluate the risk of selection of yeasts resistant to fluconazole and their clinical implication.

Methods : 10 AIDS patients received orally fluconazole 50 mg, 3 days/week, over a period of 4 to 6 months in prophylaxis, after an initial therapy for an oral candidiasis due to C. albicans with fluconazole 50 mg/day/14 days. Clinical and microbiological follow-up were performed every month ; yeasts were quantified in CFU/ml (throat washing with 10 ml sterile water).

Results : Under prophylaxis, after three to four months, we observed the selection of 1 T. glabrata and 2 C. krusei in 3 patients. In two cases, the patients were only carriers without oral lesions ; only one patient presented a pseudomembranous candidiasis due to C. krusei.

Conclusion : Fluconazole is effective against C. albicans infections, but the prophylaxis with this agent needs further evaluation to determine the risk of selection of naturally resistant strains very difficult to cure.

2113 HISTOPLASMOSIS IN ACQUIRED IMMUNE DEFICIENCY SYNDROME: AUTOPSY FINDINGS.

Khardori, Nancy**, Johnson, P.C.*, King, T.**. VonBehren, L.A.**, Tewari, R.P.**, Sarosi, G.*

*University of Texas, Houston, TX and ** Southern Illinois University School of Medicine, Springfield, IL

OBJECTIVE: Patients with AIDS have progressive disseminated histoplasmosis (PDH) involving numerous organ systems including the skin, gastrointestinal tract and brain. This report describes the autopsy findings in 8 of 48 patients we have recently described with PDH and AIDS from Houston Metropolitan area. The study was undertaken to study qualitative and quantitative patterns of host response and proliferation of H. capsulatum in AIDS patients with disseminated histoplasmosis.
METHODS: Cases of PDH in AIDS patients were collected from infectious disease specialists in Houston and the surrounding area. Autopsy records were available for review on eight of these patients.
RESULTS: All patients had extrapulmonary dissemination. Histopathology of all involved tissues revealed predominantly necrotic picture with no or poor granuloma formation. The involved organs were laden with numerous intracellular and extracellular H. capsulatum without a significant tissue reaction. Organs involved other than those of the monocyte-macrophage system (lymph nodes, spleen, liver and bone marrow) were brain (1), adrenal (3), kidney (2) and GI tract (1). PDH was the cause of death in all 8 patients.
CONCLUSIONS: The pathological features of PDH in AIDS described in this report conform to the definition of "infant type" of disseminated histoplasmosis. The host-parasite interaction in PDH occurring in patients with AIDS is that of severe parasitization with uninhibited proliferation of H. capsulatum.

2114 STUDY CLINIC-TERAPEUTIC PATHOLOGIC OF 10 CASES OF DISSEMINATED HISTOPLASMOSIS AND AIDS IN SÃO PAULO - BRAZIL.

Del Bianco Rosana*;Neves M.A.S;Neves F.D;Mendonça M;Prado S.P; Stocco M.J;Araujo F.M;Cavallari M.M;Pires C.F.M;Rosenthal C.
*Centro de Referência e Treinamento - AIDS,Hospital Emilio Ribas, Instituto Adolfo Lutz.

Objective: We analysed 10 cases with Disseminated Histoplasmosis and AIDS in relation to epidemiology, clinical and laboratory diagnosis and treatment of these patients.
Methods: Clinical,laboratory and pathologycal findings were reviewed retrospectively in all the patients that we had seen with histoplasmosis and HIV. One case, in which death occured shortly the AMB tratment was not use.
Results: The patients were male men with 20-45 years old. 04(40%) were homosexual,03(30%) bisexual,01(10%) drug addict and homosexual and 01 heterosexual. All of them were living in São Paulo city in different zones and had fever,limphadenopathy,hepatoesplenomegaly while diagnosing the Histoplasmosis. 07 (70%) presented the diagnosis of Histoplasma Capsulatum while the lymphnode biopsy, one(01)presenting in sputum and culture the Histoplasma althogether with the lymphnode that suffered biopsy. In one(10%) by palate biopsy and 01(10%)from liver and lung biopsis with Histoplasmosis. 07 patients received Amphotericin B.02 patients used only Ketoconazole for the treatment during the period of 7-14 months and one case didn't receive only drug.
Conclusion:Clinical findings must be investigated as early as possible if Histoplasmosis is suspected.

2115 CRITERIA FOR PRESUMPTIVE DIAGNOSIS OF NEUROTOXOPLASMOSIS: ARE THEY ADEQUATE? A REVIEW OF 80 CASES.

Sohler, Marzia Puccioni*; Correa, R.B.*; Perez, M.A.**; Schechter M.**; Ramos Filho, C.F.** and Novis, S.A.P.*

Dept. of Neurology* and AIDS-Programme**, University Hospital, Federal University of Rio de Janeiro, Brazil.

Objective: To evaluate the adequacy of criteria used for presumptive diagnosis of Neurotoxoplasmosis (NT).
Methods: Review of medical records of all patients with a presumptive diagnosis of cerebral toxoplasmosis seen in a tertiary hospital in R.J., Brazil. Diagnosis was based on clinical, serological and computorized tomography (CT) data. All patients were treated with standard doses of Sulphadiazine and Pirimethamine, response to treatment was used as surrogate for correct diagnosis. Outcome in two study periods (1986-87 and 1988-89) was compared.
Results:

	1986-87	1988-89	p
Total n. patients	280	373	
Neurotoxoplasmosis	6% (18/280)	17% (62/373)	p < 0,001
Death	39% (7/18)	55% (34/62)	p < 0,0001
I.C. - Death	29% (2/7)	50% (17/34)	p < 0,003

I.C. - Death: Intracranial Hypertension related death.

Conclusions: In the present study an increase in the frequency of Presumptive diagnosis of NT was observed. NT-related mortality increased significantly, due to cerebral masses unresponsive to empiric treatment.
Due to the large and increasing number of person . with AIDS and neurological disease, cerebral biopsies in all patients is an impossibility. Hence, further studies are needed to better define criteria to be used in presumptive diagnosis of NT, especially in areas where NT is highly prevalent.

2116

PRIMARY PROPHYLAXIS OF TOXOPLASMIC ENCEPHALITIS IN AIDS PATIENTS

Iribarren Jose Antonio, Arrizabalaga J., Garde C., Rodriguez F. J., Garmendia M. T., Cilla G.
Hospital N. Sra. Aranzazu, San Sebastián, Spain.

Objective. To evaluate the use of primary prophylaxis of TE in AIDS patients or with advanced HIV infection.
Methods. We have evaluated the presence of IgG antibody to Toxoplasma (IgGTx) and the development of TE in all patients diagnosed having AIDS between january 1988-october 1989. We have considered patients undergoing secondary prophylaxis against Pneumocystis carinii (SPPCP) taking one Fansidar (F) tablet weekly and we have compared the incidence of TE between IgGTx (+) patients having F and not having F.
Results. Out of 125 AIDS patients, 102 survived for more than six months. 44 (43%) showed IgGTx (+) out of which 9 took F as SPPCP with an average follow-up of 10.5 months (2-21). 11/33 (33%) of IgGTx (+) patients who weren't taking F developed TE. In contrast, 1/9 (11%) of the group that was taking it and 1/58 (1.8%) of the one who were IgGTx (-). Moreover the patient taking F and developing TE, took F only for two months showing signes of TE three months after the last dosis of treatment.
Conclusion. Primary prophylaxis with F is efficient in the prevention of TE in AIDS patients. Therefore, it's usage should be considered in AIDS patients, and, probably, in patients with advanced HIV infection and IgGTx (+).

2117

CEREBRAL TOXOPLASMOSIS : SURVIVAL ANALYSIS IN 41 CASES

Narciso Pasquale*, Antonucci, G.*; Armignacco, O.*; Galgani, S.**; Tozzi, V.*; Visco, G.* .
* L. Spallanzani Hosp. for Infectious Diseases,
** San Camillo Hosp.,Rome,Italy.

Objective: To evaluate efficacy of conventional treatment and presence of prognostic clinical and laboratory characteristics affecting survival in AIDS patients (pts) with cerebral toxoplasmosis.
Methods: Since 1987, 41 consecutive pts with cerebral toxoplasmosis were followed up for a mean period of 9 months (range 1-28). Diagnosis was established according to the CDC presumptive criteria. Survival was analyzed according to the method of Kaplan and Maier and statisical significance was determined with the Mantel-Haenszel technique.
Results: Twenty-five pts presented focal neurological signs and 16 pts an altered mental status too. Twenty-nine pts had multiple lesions and 12 single ones at imaging findings. Mean CD4+ cells count was 90/mm3, mean period between onset of neurological symptoms and starting of the therapy was 17 days. Overall survival at 15 months was 47.8%. The only clinical feature indipendently associated with shorter survival was an altered mental status (p <0.02). Presence of multiple lesions, low CD4+ cells count (<90/mm3), and delayed starting of therapy (> 17 days) were not associated with shorter survival.
Conclusion: In our experience, the presence of an altered mental status at the beginning of therapy is the best indicator of shorter survival in cerebral toxoplasmosis.

2118

RELEVANCE OF CNS TOXOPLASMOSIS AS AN OPPORTUNISTIC INFECTION IN RIO DE JANEIRO, BRAZIL.

Ismael, Carla*; Miguez, LA*; Signorini, OJHP*; Sion, FS*; Graça, MHP*; Morais-de-Sá, CA*.
* AIDS Referral Center, Gaffrée & Guinle University Hospital (UNI-RIO), BRAZIL.

Objective: To study epidemiology, clinical features, survival and opportunistic infections (OI) associated with CNS toxoplasmosis.
Methods: We studied 87 (20,4%) individuals diagnosed with CNS toxoplasmosis from 426 AIDS patients (CDC-criteria) attended at our Hospital between Dec 85 and Dec 89. The diagnosis of CNS toxoplasmosis was based on history, physical examination, CT scan, serologic studies, lumbar puncture and response to treatment (sulfadiazine 1g every 6h p.o.; pyrimethamine 75mg followed by 25 mg per day; folinic acid 10mg p.o. daily).
Results: Our group consisted of 86 (92%) men, 7 (8%) women; 66 (76%) white, 21 (24%) black, median age was 37 years. Risk groups were homo/bisexual 72 (82,7%), blood recipients 10 (11,4%) and IVDU 5 (5,7%). Candidiasis was the most frequent OI associated with CNS toxoplasmosis (65 pts - 74,7%), followed by TB (34 pts - 39%); Criptosporidium (29 pts - 33,3%); P.carinii (18 pts - 20,6%) and KS (6 pts - 6,8%). Convulsion (32 pts - 36,7%) was the most common clinical sign, followed by headache (26 pts - 29,8%), lessening of consciousness (20 pts - 23%) and visual abnormalities (12 pts - 13,7%). Sixty (68,9%) pts died during the study, of which 47 (78,3%) with CNS toxoplasmosis; 4 (6,6%) disseminated KS; 3 (5%) CMV; 2 (5,3%) miliary TB and 3 (5%) miscellaneous. The mean survival time was 9 months with 70% deaths occorring during the first year. Of 27 pts (31%) still alive in Dec 89, 20 (74%) had CNS toxoplasmosis as first manifestation of AIDS. The mean survival time was 20 months with 9,5% of cumulative survival (Cutler, Ederer) in 5 years. No alive pts developed PCP after treatment.
Conclusion: 1) CNS toxoplasmosis is a common OI in Brazilian AIDS patients. 2) Early diagnosis and treatment of CNS toxoplasmosis provide a long-term survival. 3) High death rate was due to discontinuation of treatment or late diagnosis. 4) TB was the most frequent life-threatening infection associated with CNS toxoplasmosis.

2119

STRUCTURAL AND FUNCTIONAL CORRELATIONS OF INTESTINAL COCCIDIOSES IN AIDS

Chow, Ken*; Reka, S.*; Orenstein, J.M.**; Kotler, D.P.*
*St. Luke's-Roosevelt Hospital Center, Columbia U., New York, ** George Washington University School of Medicine, Washington, D.C., USA

Objective: To determine the effects of intestinal coccidioses upon small intestinal mucosal architecture, sugar absorption and epithelial cell digestive enzymes in patients with AIDS.
Methods: Jejunal biopsies were obtained from 10 AIDS patients with diarrhea due to the microsporidian, Enterocytozoon bieneusi(MICRO), 7 AIDS with diarrhea due to cryptosporidiosis (CRYPTO), 12 AIDS without small intestinal pathogens (AIDS CTL), and 4 asymptomatic heterosexuals (HET CTL). Transmission EM had been performed in 21/29 AIDS. Villus and crypt heights and cellularity were measured in sections and brush border disaccharidase specific activities were determined in homogenates. D xylose abosorption tests also were performed.
Results: Patients with MICRO and CRYPTO had villus atrophy, crypt hyperplasia, decreased disaccharidase activites, and lower serum xylose concentrations as compared to AIDS CTL and HET CTL. Sucrase/lactase and maltase/lactase (p=0.002) ratios were higher in MICRO and CRYPTO, implying functional immaturity of villus enterocytes.

	Villus #cells	Crypt #cells	Lactase units	Sucrase units	Maltase units	Serum xylose mg/dL
MICRO	51±2*	50±9**	4±1*	22±7***	129±33	15±1*
CRYPTO	49±4	48±8	9±2	21±4	126±29	12±2
AIDS CTL	103±12	27±2	27±3	54±10	210±27	36±3
HET CTL	83±8	23±1	19±1	58±12	200±31	—

*p<0.001 ; **p<0.01 ; ***p<0.005, by Anova

Conclusions: 1) The patterns of intestinal injury in microsporidial and cryptosporidial infections are similar and resemble tropical or nontropical sprue, 2) small intestinal structure and function may be preserved in AIDS patients without small intestinal infections.

2120 ANTIGENS OF CRYPTOSPORIDIUM PARVUM RECOGNIZED BY IMMUNE SERA AND SALIVA FROM HIV INFECTED INDIVIDUALS.

Marshall, Robert; Toerner, J.; Kotler, D.*; Flanigan, T.;
Case Western Reserve University, Department of Medicine, Cleveland, Ohio,
*St. Lukes-Roosevelt Hospital Center, Columbia Univ., New York, New York.

In persons with AIDS, Cryptosporidium parvum (Cp) infection causes life-threatening, continuous diarrhea. In contrast, immunocompetent individuals are able to mount an effective immune response and clear the infection in 2-6 weeks. Experimental infection in mice and clinical data in patients suggest mucosal and serum antibody may be important in eradicating Cp. We identified 5 HIV positive individuals with Cp infection (defined as diarrhea and Cp on two stool exams) who subsequently were able to clear the infection (normal bowel movements for 6 months and negative stool exam). In order to investigate those antigens which may be responsible for stimulating a protective immune response, sera and saliva from these individuals were analyzed by Western blot against an oocyst/sporozoite antigen preparation separated by SDS PAGE. In 3 of 5 individuals, serum antibody reacted most strongly with an ~80 Kd antigen. In addition, 3 of 5 sera reacted with a high m.w. antigen of ~130 Kd and an antigen of ~50 Kd. Two of 5 sera recognized a previously reported band of 23 Kd. In comparison, serum from an HIV positive patient with uncontrolled cryptosporidiosis recognized over 20 antigens from m.w. 200 to 23 Kd. In order to investigate the secretory immune response, saliva from 2 individuals who recovered from infection was analyzed by Western blot and recognized antigens of a high m.w. of ~130, and ~140 Kd. These specific antigens recognized by immune sera and saliva of HIV positive individuals who cleared infection may be important in further investigation of the immune response.

2121 TREATMENT OF GASTROINTESTINAL CRYPTOSPORIDIOSIS WITH PARAMOMYCIN

Gathe, Jr., Joseph*; Piot, D.*; Hawkins, K.*; Bernal, A.*; Clemmons, J.*; Stool, E.*
*Special Disease Unit, Park Plaza Hospital, Houston, Texas U.S. A.

Objective: To describe the efficacy of Paromomycin (P) in the therapy of gastrointestinal cryptosporidiosis (GIC) in AIDS patients.
Methods: Retrospective chart review of 23 episodes of GIC in twelve patients over a 24 month period. GIC was confirmed by stool examination with modified acid fast staining and/or histopathologic examination of biopsy matierial. All patients had diarrhea, over five stools/day; except, one patient with cryptosporidiosis of the ampulla of Vater and obstructive jaundice. P dosing ranged from 1500-2000 mgm/day for a median of 14 days (range 4-176 days). Complete response (CR)--symptom improvement, diarrhea eradication, and weight gain. Partial response (PR)--symptomatic improvement with at least a 50% decrease in stool frequency.
Results: All patients responded to therapy (16CR, 7PR). Follow-up stools in 7CR patients revealed organism eradication. All PR patients ended with less than 3 stools/day, but failed to gain weight. Relapse occurred in 6 of 9 patients available for long term follow-up. All responded to re-treatment (6CR, 5PR). One patient received P for maintenance for 176 days without recurrent diarrhea. One patient with GIC of the ampulla of Vater had relief of signs of obstruction and a negative biopsy after therapy. Mild nausea occurred in two patients. No hematologic, hepatic, renal or CNS toxicity was noted.
Conclusion: P proved efficacious in the control of GIC, with excellent tolerance, minimal toxicity and retention of activity even with chronic use. We advocate this drug as a first line agent for GIC.

2122 DICLAZURIL IN THE TREATMENT OF CRYPTOSPORIDIAL DIARRHOEA IN AIDS.

Connolly Gerard*; Youle,M*; Gazzard,B*.
*Westminster Hospital, London, England.

OBJECTIVE: To assess the efficacy of compassionate use of sodium diclazuril on cryptosporidial diarrhoea in AIDS patients.
METHODS: Nine HIV antibody positive patients presenting with persistent cryptosporidial infection previously treated with a macrolide antibiotic who had stool volumes greater than one litre a day were treated with diclazuril 200mgs-400mgs daily. Duodenal and rectal biopsies and 3 stool specimens were analysed for cryptosporidium immediately pre and post therapy. Stool volumes were measured for 3 days prior to and daily during treatment, food being allowed as tolerated but the dose of anti-diarrhoeal drugs was constant.
RESULTS: Four patients died of overwhelming diarrhoea during the treatment period (between 7 and 10 days). Treatment did not eradicate cryptosporidial infection - the organism continued to be identified in the stools of all patients and was present histologically in the same number pre and post treatment. There was no change in stool volumes.
CONCLUSION: From this short pilot study it is clear that diclazuril has no effect on cryptosporidial infection in the seriously ill. There was no toxicity attributable to the drug.

2123 ASSOCIATION BETWEEN SEVERE FALCIPARUM MALARIA AND HUMAN IMMUNODEFICIENCY VIRUS - 1 (HIV-1) INFECTION IN NDOLA, ZAMBIA.

SIMOOYA, OSCAR O, MWENDAPOLE RM, SIKATEYO B, MUKUNYANDELA M
TROPICAL DISEASES RESEARCH CENTRE, BOX 71769, NDOLA, ZAMBIA.

Severe falciparum malaria is typically a complication of malaria in young children and nonimmune visitors to endemic regions. In Zambia, about 6% of indegenous adults develop cerebral malaria (CM) the most fatal complication of malaria. In view of the high HIV-1 prevalence we decided to explore the possibility of an association between the two conditions. Of 39 serum specimens obtained from CM patients in 1982/3, 1 (3%) was HIV seropositive, whilst 3 (16%) of the 19 seen in 1986/7 were HIV-1 seropositive using the Wellcozyme immunoassay. No failure in the humoral response to Plasmodium falciparum malaria using an indirect fluorescent antibody technique (IFAT), was demonstrated in the CM patients. Amongst 42 patients with clinical AIDS, 35 (83%) were HIV-1 seropositive of whom, 4 (11%), had falciparum malaria as well even though they showed no signs of complicated malaria. Fourteen of the patients with serogically confirmed AIDS had an inadequate humoral response to malaria using the IFAT although this finding was insignificant. It was concluded that CM is not a complication of malaria in an HIV immunocompromised host and that AIDS patients infected with falciparum malaria may not necessarily develop severe malaria.

2124 AMOEBIC ABSCESS OF THE LIVER IN PATIENTS INFECTED BY HIV. REPORT OF 8 CASES AND REVISION OF LITERATURE.

Villarreal Carmen; Cano C.; Estrada J.;Jimenez E.
Hospital of Infectious Diseases Medical Center "La Raza" IMSS, Mexico, City.

Objective: To let know that the amaebic abscess of the liver, in spite of being so frequent in our country, is rare in patients infected by HIV.
Methods: A selection was made of all the patients with infection by HIV and amoebic abscess of the liver in a period of 5 years. A clinical variety of HIV was established according to the Atlanta CDC classification, as well as the time of evolution of the amoebiasis, clinical studies, ultra-sound and/ or hepatic gammagraphy, amoeba serology response to treatment and evolution.
Results: Out of 650 patients, amoebic abscess of the liver were found in only 8 of them (1.23%) Four belonged to group II (carrier), three to group III (persistent lymphoadenopathy) and one to group IV year old lung and ganglionar tuberculosis , they all presented fever, four (50%) diarrhea, hepatology and hepatomegalia. Only one of them presented leucocytosis. Five had significant titles in the amoeba serology. All of them were treated with Metrodinazol and responded very well to the treatment. There were no deaths during the acute event.
Discussion: The low incidence of amoebic abscess of the liver in patients infected by HIV calls our attention. Even more so if we take into account the fact that amoebiasis is frequent among homosexuals even in developed countries.

2126 INVASIVE MYCOBACTERIUM GORDONAE IN PATIENTS SEROPOSITIVE FOR HUMAN IMMUNODEFICIENCY VIRUS.

Barber, Thomas W*, HW Farber**
*Division of Infectious Disease, Boston City Hospital and
**Pulmonary Center, Boston University School of Medicine, Boston, MA.

The nontuberculous mycobacteria Mycobacterium gordonae is rarely associated with invasive disease; however, of the reported cases, one occurred in an AIDS patient. To determine if, as with other nontuberculous mycobacteria, the incidence of M. gordonae infection had increased in patients infected with HIV, we reviewed the positive mycobacterial cultures from 1987-1989 at Boston City Hospital. We identified fourteen sputum cultures positive for M. gordonae and found that these patients formed two distinct groups. In ten patients there was no evidence of invasive disease with M. gordonae. These patients had underlying pulmonary and systemic diseases, but no evidence of HIV infection. Eight patients received no antituberculous therapy; one received Isoniazid (INH) for a positive tuberculin test and a normal chest radiograph; another was treated for culture-positive pulmonary tuberculosis and improved. All four patients with evidence of invasive pulmonary disease were seropositive for HIV; only one had had a previous opportunistic infection. Each presented with respiratory and constitutional symptoms, an abnormal chest radiograph, and only M. gordonae isolated from sputum. All isolates were resistant to INH and Pyrazinamide. Three patients received appropriate antituberculous therapy and exhibited clinical and radiologic improvement. These patients each had fewer than 50 T4 cells/mm^3 and T4/T8 of less than 0.4. The fourth patient was lost to follow-up prior to institution of therapy. In seropositive HIV patients, sputum isolates of M. gordonae, especially in the appropriate clinical setting, likely indicate invasive disease. Antibiotic sensitivities of the organism should be determined and patients treated with a regimen of drugs active against the isolate.

2127 MYCOBACTERIUM XENOPI INFECTION IN AIDS

Almeida, Victor*; Beidas, S.**
*University of Medicine and Dentistry of New Jersey, **Seton Hall University Graduate School of Medicine, New Jersey, USA.

Objective ; To describe the prevalence and response to therapy in M. xenopi infection in HIV-1 infected patients.
Methods: From 1985-1989, 143 atypical mycobacterial cultures were reported from the mycobacterial laboratory at Saint Michael's Medical Center. Five of these isolates were identified as M. xenopi. Patient charts were retrospectively reviewed.
Results: There were 3 women, 2 men; ages 34.8 years +/- 2.3 SD. All patients were HIV-1 Class IV CDCcriteria. Three patients had acquired HIV through sexual contact, and 2 through drug abuse. Diagnosis of M. xenopi was made by sputum culture in 2 patients; Bronchoalveolar Lavage and urine culture in 1 patient; Pleural effusion culture in 1 patient, and blood culture in the last patient. Two patients were treated with INH/Rifampin, 1 patient was treated with Ciprofloxacin/Ethambutol. The 3 treated patients died 9, 11, 14 months after therapy was started. The 2 non-treated patients died within one month of diagnosis.
Conclusion : M. xenopi is an uncommon infection in patients infected with HIV-1 (3.5 % of atypical mycobacterial cultures isolated). Antimycobacterial therapy appears to be beneficial in prolonging survival in this group of patients.

2128 IMPACT OF AIDS ON THE TUBERCULOSIS PROBLEM IN A URBAN POPULATION IN MEXICO.

Carlos Avila*, M. Hernández*, A. Galicia.* E. Herrera*, E. Sada**, J. Sepúlveda*.
*Directorate of Epidemiology, and **National Institute of Respiratory Diseases, Secretariat of Health, Mexico City.

Objective: To assess the seroprevalence of HIV infection in Tuberculosis (TB) patients and estimate the risk of developing TB associated with HIV infection.
Methods: Two different populations of TB patients were selected: hospital and community based clinic outpatients. To determine the attributable risk and etiologic fraction, a community based case-control study was initiated within the latter population. Cases were those aged 20-50 years with TB diagnosis confirmed microbiologically. Four controls were randomly selected from a community based sampling frame and matched by age group, sex and neighborhood.
Results: As of December 1989, a total of 99 TB patients have been enrolled: 51 men and 48 women with a mean age of 40 years. Among these patients 13 reported receipt of transfusions, and 7 homosexual contact. Sites of infection were pulmonary in most (n=96), followed by lymph nodes (n=1), intestinal (n=1), and meninges (n=1). All HIV positive TB patients had pulmonary infection. The overall prevalence of HIV antibodies in TB patients was 6.5%. Five (10.2%) of 49 community TB patients and 1 (2.3%) of 42 hospital TB patients tested HIV positive.
Conclusion: The seroprevalence is consistent with previous studies. The interest of this study is to determine the number of cases of TB that are explained by HIV infection so that we may design more effective intervention strategies.

2129 SYPHILIS - SEROLOGICAL AND CLINICAL RESULTS IN HIV INFECTED PATIENTS

Meigel, Wilhelm, A. Plettenberg, W. Bahlmann, E. Weitz
Allgemeines Krankenhaus St. Georg, Hamburg, Germany

Objective: To determine the prevalence of syphilis (S) in HIV infected patients (pat) and to describe and interpret the laboratory findings from examinations of blood and cerebrospinal fluid (CSF).
Methods: We investigated 224 HIV inf.pat (10 women, 214 men, 198 were homo- or bisexuel) for laboratory and clinical signs of S. In all pat a TPHA test was performed. Pos. TPHA tests were followed by FTA-ABS, FTA-ABS-IgM and cardiolipin tests. In pat with pos. FTA-ABS-IgM test an examination of the CSF was required. In addition we analysed the CSF in all pat with pos. FTA-ABS- and neg. FTA-ABS-IgM tests in which the examination of CSF was performed for other indications.
Results: A pos. TPHA test was found in 78 pat (35 %). 73 pat were also pos. in FTA-ABS test. In 10 of these pat a pos. FTA-ABS-IgM test was found. An examination of the CSF was done in 8 of the 10 cases. In 5 pat (63 %) we found signs of neurosyphilis (NS).In addition in 14 pat with pos. FTA-ABS and neg. FTA-ABS-IgM test an examination of CSF was performed. The laboratory findings of the CSF showed, that in 3 of these pat (14 %) a NS was present.
Conclusion: 1) The prevalence of an old or acute S was 35 %. 2) In 63 % of the pat with pos FTA-ABS-IgM test we found signs of a NS, which influenced the therapeutic regimen. Therefore an examination of CSF should be performed in all pat with pos. FTA-ABS-IgM. 3) In 3 of 14 cases with pos. FTA-ABS and neg. FTA-ABS-IgM test a NS was diagnosed by an examination of CSF. Therefore an examination of the CSF should be considered also in HIV-infected pat with pos. FTA-ABS and neg. FTA-ABS-IgM test, especially if other signs suggesting an infection are found.

2130 COMMUNITY-ACQUIRED BACTEREMIA(CAB) IN INTRAVENOUS DRUG ABUSERS (IVDAs) WITH HIV INFECTION

Arrizabalaga,Julio; Iribarren,J.A.; Garde,C; Rodriguez-Arrondo,J.F.; Idígoras,P.; Arenzana,J.M.
Hospital N. Sra. Aránzazu, San Sebastián, Spain

Objetive: Assessing the hospitalization frecuency of IVDAs with HIV infection and CAB, the organisms involved, and the different ways of appearance of the clinical pattern.
Methods: The medical records of IVDA and infected by HIV patients, admited to the AIDS unit of our hospital, since its opening in march 1988 have been surveyed, focusing on patients who presented positive blood cultures during the first 48 hours after admitance.
Results: 32 episodes of CAB were recorded in 24 patients, out of 502 hospitalized IVDAs with HIV infection, wich amounts to 6.35% of admitances of such patients. Salmonella enteritidis (43.7%), Streptococcus pneumoniae (18.7%) and Staphylococcus aureus (16%) were the most common organisms. In 16.6% of cases the reason for hospitalization, was unrelated to bacteremia. Only one patient was neutropenic. Leukocitosis appeared only in 3 (9.3%); the remaining 87.6% showed values within normality.Only one patient (3.1%) died as a result of bacteremia.
Conclusion: CAB represented the 6.35% of the admitances of such patients. This diagnosis should be taken into account, although it may be concealed by different patterns,and the leukocite count may be within normal values. If suspected, it should be lead to start a empiric therapy with broad-spectrum antibiotics.

2131 PNEUMOCOCCAL BACTEREMIA AS A MARKER FOR HIV INFECTION WITHOUT AIDS

Chirurgi, Valerie A.; Edelstein, H.; McCabe, R.
U. of California, Davis, CA, USA and Martinez VAMC, Martinez, CA, USA.

Objective: Since bacterial infections are more frequent in AIDS than in controls, we investigated whether screening patients or subgroups of patients with pneumococcal bacteremia for HIV infection would be productive.
Methods: Medical records of adults with pneumococcal bacteremia identified from January, 1987 through April, 1989 at 2 acute care general hospitals in northern California were reviewed retrospectively. The number of patients for whom pneumococcal bacteremia was the presenting manifestation of HIV infection was determined. In addition, the clinical characteristics of HIV seropositive patients with pneumococcal bacteremia were compared with patients with pneumococcal bacteremia at low-risk for HIV infection.
Results: Six (15%) of 41 patients with pneumococcal bacteremia were HIV seropositive. Five were not known to be seropositive before bacteremia, and the sixth patient was asymptomatic. Three had ARC, and 3 were asymptomatic. Intravenous drug abuse was the risk factor for HIV infection in 3 patients. HIV seropositive patients were significantly younger (mean years ± SEM 42.3 ± 4.0 vs 61.4 ± 3.1, Student-Newman-Keuls Test $p<.05$), had significantly fewer underlying diseases (17% vs 96%, Fisher Exact Test $p=.0004$), and fewer complications of pneumococcal bacteremia than bacteremic patients with no risk for HIV infection. In addition, there was no mortality in the HIV seropositive bacteremic patients compared to 44% mortality in low-risk bacteremic patients. Of note, no patient with AIDS had pneumococcal bacteremia.
Conclusion: Patients presenting with pneumococcal bacteremia should be evaluated for HIV infection, especially if young and/or have no underlying disease that predisposes to pneumococcal bacteremia.

2132 STAPHYLOCOCCUS AUREUS BACTEREMIA IN INTRAVENOUS DRUG USERS (IVDU): THE ASSOCIATION AND IMPACT OF HIV-1 INFECTION

Montecalvo, Marisa A; Steger, KA; McCabe WR; Craven DE
Boston City Hospital, Boston, Massachusetts USA.

Objective: To determine the effect of HIV-1 infection on the clinical course and outcome of S. aureus bacteremia in IVDU.
Methods: Hospitalized IVDU with S. aureus bacteremia were offered testing for HIV-1 antibody and followed prospectively. Standardized data collection forms were used to assess the risk factors, source of bacteremia, complications and outcome of bacteremia.
Results: Of the 25 IVDU studied, 17 were HIV+, 8 were HIV-; 84% were male, 72% black, 24% Hispanic, 4% white. HIV+ IVDU were more often homeless (30% vs. 13%), had prior bacteremia (24% vs. 0%), and more often shared needles (91% vs. 40%, p=0.06). Bacteremia was community-acquired in 12 (71%) HIV+, 7 (88%) HIV- IVDU. Endocarditis was present in 47% of seropositives and 50% of seronegatives. Septic pulmonary emboli and joint inflammation were lower in the HIV+ group (35% vs. 62%). HIV+ IVDU received additional antibiotics for other infections more often (65% vs. 33%) and had more reactions to antibiotics (24% vs. 0%). Days in the hospital and mean febrile days were similar for both groups; hospital fatality rates were 12% for HIV+ vs. 0% for HIV- IVDU.
Conclusions: Compared to HIV- IVDU, HIV+ IVDU with S. aureus bacteremia were more likely to be homeless, indulge in risky behavior, and have had prior bacteremia. Evidence of endocarditis, and severity of S. aureus infection were similar for the two groups, but HIV+ IVDU received more antibiotics and had more reactions associated with antibiotic therapy.

2133 USE OF THE GROSHONG CATHETER IN THE MANAGEMENT OF AIDS-RELATED OPPORTUNISTIC INFECTIONS

Freeman, E.; Moeller, L.
Davies Medical Center, San Francisco, CA. U.S.A.

Objective: To describe the catheter maintenance behaviors and selected physical markers of HIV infected patients with Groshong (Cath-Tech, Davol) catheters.
Methods: A convenience sample (N=35) of patients with CMV retinitis were enrolled in a 12 month prospective study. Markers of disease progression (CD4 counts, p24 antigens), nutritional status (serum albumin, diet history, serial weights), and catheter-related infections were followed along with monthly assessments of care rendered patients' Groshong catheters.
Results: Mean=8 months for single catheter use. CD4 at baseline ranged from 0-214 (xCD4=49). All patients received zidovudine and/or ganciclovir. p24 results fluctuated. Admission serum albumin mean=3.2mg/dl. Mean weight loss on study=3.5kg. Diet histories varied. Maintenance behaviors remained consistent with baseline teaching for a mean=3 months after insertion of catheter. Organisms cultured from blood as follows: S. epidermidis (4), S. aureus (3), P. aeruginosa (3), E. coli (1), and M. avium intracellulare (1). Organisms from the exit site: S. aureus (5), S. epidermidis (2), and P. aeruginosa (2).
Conclusion: All blood and catheter exit site infections reported on study were controlled by antibiotics. Wide variances in maintenance behaviors after month 3 were not implicated in exit site infections. 31 (89%) catheters remained until the end of study

2134 OTHER INFECTIONS IN HIV-POSITIVE CHILDREN FROM THE NOSOCOMIAL FOCUS IN ELISTA

Sidorenko, Svetlana; Pokrovsky V.V.
Central Research Institute of Epidemiology, 3-a,Novogyreyevskaya, Moscow, USSR

Objective: To determine the prevalence of other infections in children HIV-infected during the nosocomial outbreak in Elista.
Methods: Sera of the children aged from 8 months to 10 years were tested for the presence of antibodies to cytomegalovirus, to Toxoplasma gondii, to HBs and HBe antigens of Hepatitis B-virus in IFA tests of "Labsystems" and "Bering-Verke" firms.
Results: In 2 patients only IgM antibodies to cytomegalovirus were found, 16 children had only had IgG antibodies. And 3 children had both IgM and IgG antibodies. 4 out of 25 children tested to IgG Toxoplasma gondii were seropositive. 6 of 21 tested to the presence of IgM turned out to be seropositive. 12 children of 30 had HBs and HBe anticens.
Conclusion: Increased frequency of discovery of the markers of other infections in children HIVinfected during the nosocomial outbreak in Elista is the evidence of immunity decrease and high transmission intensity of these infections in the focus.

2135 THE DEVELOPMENT OF A NURSING ELECTIVE IN HIV INFECTION FOR UNDERGRADUATE NURSING STUDENTS

Handy, Catherine*, Smith, D*
*Mount Sinai Medical Center, New York, NY

Objective: An Elective in HIV disease was developed for undergraduate nursing students inorder to attain two goals: 1.To provide comprehensive information on the spectrum of HIV disease. 2.To provide an avenue for those practitioners to work with persons with HIV infection in a "hands on" practicum in both in-patient and outpatient settings.
Methods: An initial needs assessment was performed with area Nursing School Deans, Clinical Nursing Dirs., and Nursing students. After evaluation of assessment, a core group of Nursing Specialists in HIV disease was brought together. They identified specific content about HIV disease which nursing would need to learn. They then developed a curriculum based on this content and the results of the needs assessment.
Results: One area university requested that the Mt. Sinai Medical Center faculty teach this newly developed elective HIV Infection: A Nursing Challenge at their campus to junior and senior nursing students. The final curriculum included content on Immunology, Epidemiology, Infection Control, Patient Management I&II, Psychosocial and Sexual Aspects, Counselling, Patient Education, and Research. 21 students enrolled and 14 completed the course.
Conclusion: Course evaluations were overwhelmingly positive, and reflected a significant decrease in fears regarding caring for persons with HIV infection. One criticism was that students wanted more clinical time than was allotted. Students responded very positively to being taught by nurses who were clinically involved in patient care. The curriculum is being modified to allow for more clinical time, and we have been asked by another area School of Nursing to offer this elective. We would recommend nurses in other clinical settings to consider a similar program.

TRACK B: CLINICAL SCIENCE & TRIALS

2136 NURSE-PATIENT INTERACTION WITH THE TERMINALLY ILL AIDS PATIENT IN PALLIATIVE AND ACUTE CARE SETTINGS

Lynch, Ann; Pepler, C.
Royal Victoria Hospital, Montreal, Quebec, Canada

Objective: The purpose of this pilot study was to examine the nature of the nurse-patient interaction during physical care for patients with acquired immunodeficiency syndrome and for patients with terminal cancer on an acute medical unit and in a palliative care setting (PCU).
Methods: Subjects included identified terminally ill patients with AIDS or cancer on an acute medical unit and PCU who were deemed competent by psychiatric exam or who were responsible for their own decision making and who could communicate verbally. Data were obtained through tape recordings of up to six hours with each of the 15 patients, six terminally ill AIDS patients on the medical unit and nine terminally ill cancer patients in the palliative care unit. An exploratory qualitative analysis of the nurse-patient interactions was subsequently undertaken.
Results: The tape recordings were transcribed and analyzed to examine the content of the interactions and communication techniques for identification of themes. The content themes included control, well-being, humor, uncertainty, and routines. The process themes identified were validation, problem-solving and therapeutic interaction.
Conclusion: The complexities of dying with AIDS have made the care of these patients a tremendous challenge. This study hopes to initiate a data base for understanding the content and process of interactions with terminally ill AIDS patients. Further research could include delineation of the major nurse-patient interaction themes which are basic to comprehensive care of all patients.

2137 ADENOSINE DEAMINASE(ADA) LEVELS IN TEARS OF PATIENTS WITH AIDS AND ATL

Eto Kotaro, Sanevoshi Yasuhide, Ogushi Reiko, Shirao Makoto, Yoshioka Hisaharu*, Yokoyama Mitsuo
Department of Immunology, *Department of Ophthalmology, Kurume University, School of Medicine, Kurume, Fukuoka, Japan.

Objective : The determination of enzymatic activity associated with purine nucleotide metabolism in tears of patients with retrovirus infection was carried out.
Method : Approximately 100µl tear was collected by capillary action with the use of 10µl glass capillary tube from patients and healthy controls. The colormetric method detecting the decrease of nicotine adenine dinucleotid was applied to an automatic analyzer (Hitachi Model-705) for the assay of ADA activity.
Results : The enzyme levels in the tears were significantly elevated in AIDS and ATL patients as compared with the healthy controls. The tear of patients with AIDS and ATL were found to show much higher levels of the enzyme than that of AIDS and ATL carriers. Furthermore the enzyme levels in tears of uveitis patients with ATL were markedly elevated than that of ATL patients.
Conclusion : The measurement of adenosine deaminase activity in tear provides useful clinical information for monitoring the course of uveitis with retrovirus infection.

2138 HIV-1 AND HTLV-I INFECTION IN HIGH RISK BEHAVIOR INDIVIDUALS IN BELO HORIZONTE, BRAZIL

Vidigel, PG*; Greco, DB*; Paulino, U*; Kline, RT**; Quinn, TC**.
*Faculty of Medicine, Federal Univ. of Minas Gerais, Belo Horizonte, Brazil and **Johns Hopkins University, Baltimore, MD, USA.

Objective: To study the prevalence and interaction of HIV-1 and HTLV-I infection in high risk behavior individuals.
Methods: HIV-1 and HTLV-1 seroprevalence were evaluated in 738 patients attending clinic due to risk behavior, symptoms of HIV infection or anxiety related to the AIDS epidemic. Antibodies to HIV-1 and HTLV-I were determined by enzyme-linked immunosorbent assay (EIA) and confirmed by Western blot (WB) analysis.
Results: 292/738(39.6%) patients had antibodies to HIV-1 by EIA and WB analysis. 51(6.9%) were HTLV-I EIA positive; by WB analysis, 31(4.2%) were negative, 11(1.5%) were indeterm. and 9(1.2%) were positive for antibody to gag and env gene products. Antibodies to both retroviruses were detected in 1(0.75%) asymptomatic, 1(1.6%) patient with PGL, 4(6.5%) with ARC and in no AIDS patients.
Conclusions: High prevalence of HIV-1 antibodies (39.6%) among these patients reflects their risk behavior. The small number of persons with HTLV-I (1.2%) may relect a low prevalence of infection in this area. The low rate of coinfected individuals (0.7%) precludes evaluation of the possible interaction of HIV-1 and HTLV-I infections. The high false-positive rate found with the HTLV-I EIA suggests an urgent need for HTLV-I assays with improved specificity for screening of this retrovirus in these populations.

2139 PROGNOSTIC VALUE OF T CELL AND T CELL SUBSETS IN THAIS INFECTED EARLY WITH HIV

Sirivichayakul, Sunee*; Panmoung, W.**; Phanuphak,P.*; Hanvanich, M.*; Ruxrungtham, K.*
Department of Medicine* and Microbiology**, Faculty of Medicine, Chulalongkorn University, Bangkok, Thailand.

Ojective: To evaluate T cells in HIV infected Thais. 187 patients with newly confirmed HIV infection were studied for CD3+,CD4+ and CD8+ cells at an interval of 4-6 months. Different types of risk behavior and different clinical stages at entry were compared and their progression studied.
Results: Initial T and T cell subset counts did not differ significantly among male bisexuals (N= 70), intravenous drug users (IVDU, N= 60), female heterosexuals (N = 16 of which 68.75% were sex workers), male heterosexuals (N= 21) or blood product recipients (N= 3). Almost all of the IVDU and female sex workers were individuals recently infected with HIV and uncovered by mass screening. A graded decrease of total CD4+ cells was observed in asymptomatic HIV patients (N= 65, 1073.9 ± 719.0) followed successively by PGL (N= 91, 1067.3 ± 644.7), ARC (N = 16, 791.8 ± 574.1) and AIDS (N= 13, 332.0 ± 316.0). Four asymptomatic HIV patients (including PGL) progressed to ARC and AIDS during 1 4 years of follow-up (mean follow-up 1.1 ± 0.5 years). These include 1 blood recipient, 1 bisexual, 1 male heterosexual and 1 female heterosexual. There was no correlation between the initial CD4+ cell levels and the likelihood of clinical progression.
Conclusion: Our results indicate that T cell abnormalities occur early in Thai subjects with HIV infection. As a group, the defects correlate well with advancing disease. Sequential, rather than initial T cell assessment is of more prognostic value.

2140 VALIDATION OF THE JUSTICE PROGNOSTIC STAGING SYSTEM IN MEXICAN AIDS PATIENTS.

Ponce-de-Leon, Samuel*; Ponce-de-Leon, S.; Quiñones, F.; Henne, O.; Ruiz-Palacios, G.; Sanchez-Mejorada, G. Instituto Nacional de la Nutricion. Mexico City, Mexico.

OBJECTIVE: To evaluate the predictive ability of the Justice prognostic staging system in mexican AIDS patients.
METHODS: we reviewed the charts of 98 male AIDS patients who attended to the National Institute of Nutrition from February, 1983 to September, 1988. None of them ever received specific antiviral HIV treatment or immunomodulators. Average age was ($\bar{x}$±SD) 33.8±8.9 years. Recognized risk factors were as follows: sexual activities 87(89%), blood transfussion 2(2%) and unknown 9(9%). The needed clinical information was obtained at zero time without knowledge of the ultimate outcome. Survival analysis was made with Kaplan-Meier method, 95% confidence intervals for median survival time were calculated according to Brookmeyer and Crowley.
RESULTS:

STAGE	no. of patients	Median Survival days	(95% CI)	Survival rates % 4mo	6mo	12mo
I	32	270	(162,485)	87	69	38
II	35	94	(41,167)	39	31	17
III	31	28	(7, 61)	13	9	0
TOTAL	98	114	(78,167)	49	38	19

Logrank $x^2 = 47.48$ $p < 0.001$
CONCLUSION: The Justice prognostic staging system seems to be practical in most countries since it is based in clinical data and simple laboratory tests.

2141 PREDICTIVE VALUE OF TOTAL LYMPHOCYTES COUNT AND SERUM ALBUMIN LEVEL FOR SURVIVAL IN AIDS PATIENTS.

Ponce-de-Leon, S.; Ponce-de-Leon, Sergio*; Quiñones, F.; Henne, O.; Sanchez-Mejorada, G.; Ruiz-Palacios, G. Instituto Nacional de la Nutricion, Mexico City, Mexico.

OBJECTIVE: To establish the value of total lymphocytes count (TLC) and serum albumin level (SAL) as independent predictive features for survival in AIDS patients.
METHODS: We retrospectively analized 113 cases of AIDS diagnosed from 1983 to 1988 according to the CDC criteria, obtaining the TLC and SAL value at the time on which the AIDS was diagnosed (or in which the patient was admitted to our hospital) - zero time - and correlated it with their survival time. None of the patients received any antiviral or immunomodulator therapy. The patients were grouped according to their TLC into three categories: Group 1, ≥1500 lymphocytes/mm³; group 2, =1499-500 lymphocytes/mm³; group 3, <500 lymphocytes/mm³. Cutoff value for SAL was 2g/dl. Statistical analysis was made with the Kaplan-Meier method and adjustment for covariates was performed with the Cox proportional hazards regression analysis using Epilog (version 3.06) program. 95% confidence intervals for median survival time were calculated according to Brookmeyer and Crowley.
RESULTS: Median survival time was: for TLC: 334,156 and 47 days (groups 1,2,3), and for SAL 156 and 7 days. These results were highly significant and remained so after adjustement for age, year of diagnosis and other markers of organic damage ($p < .0005$).
CONCLUSION: TLC and SAL are simple, non-expensive, world-wide available procedures useful to predict survival time in AIDS patients.

2142 PROGNOSIS AFTER ACUTE TUBULAR NECROSIS (ATN) AMONG PATIENTS WITH HIV INFECTION

Lopes, Guilherme Santoro; Santos, O.R.; Marques, L.P.J.; Patrioio, P.J.M.; Figueiredo, W.M.; Nery, A.C.F.
Universidade do Rio de Janeiro (UNI-RIO), Rio de Janeiro, Brazil.

Objective: To study the prognosis of patients, belonging to group IV of the Centers for Disease Control (CDC) classification for HIV infection, after renal failure due to ATN.
Methods: Two hundred, fifty-seven patients were studied. Diagnosis of ATN required a sudden elevation of serum creatinine concentration (SCr), not promptly reverted by rehydration and associated with clinical signs of sepsis, hipovolemia or the use of nephrotoxic drugs.
Results: Thirty patients (11.7%) with ATN were identified. SCr ranged from 2.3 to 10.4 mg% (X=5.73, s=2.9 mg%). In 18 patients (60%), it was above 5.0 mg%. Supportive dialysis was used in 5 of these cases. Six patients (20%) restored, at least partially, renal function. Nevertheless, one month after the diagnosis of renal failure, 29 (96.7%) were dead. The remaining patient died 3 months later. Deaths weren't directly related to renal failure, but resulted from other severe complications that these patients presented.
Conclusions: Although it wasn't the direct cause of death in any case, the presence of ATN indicated a very poor prognosis. Thus, ATN may be a useful clinical marker to be employed in clinical staging systems for patients belonging to group IV of CDC classification for HIV infection.

2143 ELECTROPHYSIOLOGICAL SCREENING FOR PERIPHERAL AND AUTONOMIC NERVOUS SYSTEM INVOLVEMENT IN VARIOUS STAGES OF HIV-INFECTION: RELATION TO AUTONOMIC FUNCTION TESTS AND AUTONOMIC LUNG FUNCTION.

Malessa, Rolf*, Ohrmann, P.*, Brockmeyer, N.**, Schwendemann, G.*, Rimpel, J.*, ***Konietzko, N..
Dept. of *Neurology, **Dermatology, University Clinic Essen, ***Ruhrlandklinik, Essen, FRG.

Objective: HIV-polyneuropathy is common in AIDS and concurrent autonomic nervous system involvement has become a matter of controversal discussion. We therefore evaluated these neurological complications by electrophysiological means and related it to established autonomic function tests and autonomic lung function in different stages of HIV-infection (CDC;WR).
Methods: In a prospective study 38 HIV-infected subjects (HIV-S) (no drug or alcohol abuse, no diab. mellitus, no lung disease) were investigated. Modalities included nerve conduction velocity and amplitude of the tibial and sural nerve potential (Atib, Asur), F-wave, peripheral autonomic surface potentials (PASP), 5 autonomic function tests (AFT), spirometry and bronchial response to inhaled carbachol (body plethysmography)
Results: All subgroups (CDC II-IV, WR 1-6) revealed significantly decreased Atib and Asur and increased F-wave latencies. PASP latencies were longer in HIV-S ($p<0.01$) compared to controls. On average HIV-S with pathologic PASP showed a higher bronchial sensitivity. AFT revealed a smaller 30:15 ratio in advanced stages (CDC IV) ($p<0.05$).

2144 NEUROPSYCHOLOGICAL TESTS IN HIV-PATIENTS: WHICH TESTS ?

Bellis, Frédérique; Chavanet, P.; Giroud, M.; Brunet, M.; Potier, H.
Hopital du Bocage DIJON; FRANCE

Objective: to find the most pertinent tests in order to simplify the psychometric analysis of HIV infected patients

Methods: patients: HIV-pts were compared with seronegative controls; tests: intelligence quotient (IQ) and the vocabulary tests, graphic-motor efficiency test (Zazzo; 2 subtests) and evaluation of dementia (JL.Signoret; 4 subtests), depression scale (Montgomery-Asberg). Statistics: discriminant analysis.

Results: the cultural level was similar in both groups. No significant depression was found. The efficiency of the barrage test was decreased in HIV patients. When barrage test of 2 signs was used, the results were significantly lower for HIV infected patients. The dementia tests were not different for both groups. Four tests were really discriminant: V1 (number of signs examined in one minute to point out the target), In2 (number of mistakes to point out two targets) and, time-lag evocation of 6 figurative drawings and the digit span (table, $p<0.01$). The sensitivity was high: 100% for AIDS pts, 87% for the others; the validity for quantitative tests was 94% (only 2 HIV-pts were free of psychometric abnormalities.)

	dementia evaluation tests		Zazzo tests	
mean +SD:	time-lag evocation	digit span	V1	In2
control (n) :	4.75+0.44(28)	11.32+1.18(28)	279.35+53.5(17)	5.33+5.2(17)
HIV pts (n):	3.68+0.94(16)	9.75+2.01(16)	221+65(16)	9.66+4.9(16) .

Conclusion: 1- psychometric abnormalities do exist early in HIV disease in almost all HIV-pts. 2- psychometric analysis could be only : time-lag evocation and digit span for the evaluation of dementia and V1 and In2 for the evaluation of the graphic and motor efficiency.

2145 AIDS IN SUDANESE CHILDREN

Hashim*, M.Sir, El-Hag**, A.E.; Osman*, E.M.; El-Shiekh***, F.S.; El-Tilib*, I.A.
*University of Khartoum, Khartoum, Sudan, **National Public Health Laboratory, ***Blood Transfusion Services, Khartoum Teaching Hospital, Khartoum, Sudan.

Objective: To detect Hiv positive cases, describe the manifestation and the course of the disease, detect and trace the source of infection and to identify the strain of the virus.
Method: This is mostly hospital based study, screening eight groups of children considered at risk of having the infection or hazards of contracting it. These are children receiving frequent blood transfusion, Malnutrition, Chronic Diarrhoea, Recurrent and Chronic Infection, Malignant Diseases, New Born and Infants, Chronic Diseases as well as Displaced Children.
Result: So far 320 children belonging to these groups have been screened. Only six children were Hiv positive. All had symptoms. Two patients have Haemophilia, one chronic diarrhoea, one malnutrition and two with fever, cough, weight loss and lymphadenopathy diagnosed as Tuberculosis. The presentation and course of disease are described. Two patients died.
Conclusion: Prevalence rate in Northern Sudan is still very low. Apart from the two patients with Haemophilia, the source of infection could not be traced. The magnitude of the medical, social and psychological problems are enormous and puzzling.

2146 SPEECH ACQUISITION IN 26 CHILDREN BORN TO HIV-POSITIVE MOTHERS

Condini, A.; Cattelan, C.; Axia, G.; Laverda, A.M.; D'Urso, M.R.; Viero, F.;
Child Neuropsychiatry Service, Department of Pediatrics, University of Padua, Italy.

Object: Twenty-six children born to HIV-positive mothers (13 infected, 13 non-infected; age range 18-30 months) were studied for speech development. Between infected and non-infected children, we did not find statistically significant differences in the Development Quotient (Brunet-Lezine scale) values, although analysis of specific neuropsychological functions revealed some differences between infected and non-infected children, with particular reference to language development.

Methods: Two groups of children born to HIV-positive mothers were compared. The first group was composed of 13 infected, but not ill, children; the second of 13 non-infected children. All 26 children were normal at neurological examination. Three comprehension and three production tasks were given to each subject. In addition, each child's mean length of utterance (MLU) was obtained by observations of natural interactions with parents.

Results:

	M.L.U.	P* Drawings	P Model Objects	P Verbs	C* Drawings	C Model Objects	C Verbs
INFECTED	Failure 10	Fail. 6	Failure 7	Fail. 6	Fail. 6	Failure 5	Fail. 5
CHILDREN	Success 3	Succ. 7	Success 1	Succ. 5	Succ. 1	Success 0	Succ. 2
NON-INFECT.	Failure 3	Fail. 2	Failure 6	Fail. 7	Fail. 7	Failure 8	Fail. 8
CHILDREN	Success 10	Succ. 11	Success 12	Succ. 8	Succ.12	Success 13	Succ.11
p	.01	n.s.	.05	n.s.	.05	.025	n.s.

(Legends: P*=production names of drawn objects, model objects, verbs C*=comprehension names of drawn objects, model objects, verbs of action.)

No significative differences between the two groups are found but the delay in speech among infected children under 24 month of age is significantly more evident in comparation to the other group of children. Our study dealt with transversal observation of children.

2147 EVALUATION OF PSYCHOLOGICAL NEEDS AMONG HIV PATIENTS (P) AND HEALTH CARE PROVIDERS IN A DIVISION OF INFECTIOUS DISEASES (DID).

Misrachi, Anita*; Josse, E.*; Matot, J.P.**; Clumeck, N.*
*Div. of Infectious Diseases and **Medico-Psychological Unit, St Pierre University Hospital, Brussels, Belgium.

In order to evaluate the role of a psychologist and the need for psychological support among in- and out-P followed in a specialized AIDS center, we collected prospectively during a one-year period the following informations: 1) Number and type of support given by the psychologist to the P and the relatives. 2) Need for social worker's assistance. 3) Need for help to the health care staff working in the DID.

Results: One hundred and seven out of 460 P (23.3%) required psychological assistance. The mean number of interview was 6.2 (range 1-30); 40% of these P were living alone; 88% required social worker's assistance. Two-third required their first psychological support whilst they were hospitalized for HIV associated disease. Main reasons for psychologist help were: announcement of HIV seropositivity (28 P), psychological readjustment during asymptomatic stage (28 P), at first somatic symptoms (40 P) or at terminal stage (14 P). In addition to this work with P, 1/3 of the psychologist time was devoted to support to other health care workers or to coordinating activities with community-care people.

Conclusion: The multidisciplinary global approach of HIV P required from the psychologist to provide help to 23% of P population and to spend 1/3 of his time to support other health care providers. This new extended dimension of health care should be taken into account when setting up dedicated AIDS units.

2148 HIV-INFECTION AND PSYCHOSIS

Naber, D., Riedel, R.R., Niederecker, Michael
Psychiatric Hospital of the University of Munich, West-Germany

Although numerous case reports on psychotic symptoms in HIV-positive patients have been published, there is considerable disagreement on incidence or prevalence of psychosis in HIV-infected subjects.
Patient population consisted of 576 HIV-positive subjects (240 in early, 336 in late stages of infection). They were either seen by psychiatrists, neurologists or internists only once or for 1-4 years.
Six patients had psychotic symptoms (two a paranoid-hallucinatory syndrome, three a delirious state and one a manic-depressive syndrome). Diagnoses were: Exogenous or organic psychosis n=4, schizophrenia n=1, manic-depressive illness n=1.
These data do not indicate that incidence or prevalence of psychosis is markedly elevated in HIV-infected patients. The various diagnoses such as endogenous psychosis (schizophrenia or manic-depressive illness), drug-induced psychosis or psychogenic psychosis have to be considered or excluded before an HIV-induced organic pschosis is diagnosed.

2150 3'-AZIDO-3'DEOXYTHIMIDINE (AZT) THERAPY REDUCES HIV REPLICATION IN TREATED PATIENTS

Escaich S*, Ritter J**, Retomaz G***, Sepetjan M**, Trepo Christian*.
*INSERM Unité 271, Lyon ; **Laboratoire d'Hygiène Faculte Lyon Nord, Lyon ; ***Hôpital Hotel Dieu, Lyon France.

Objective : Several studies have shown the efficacy of treatment by AZT in HIV infection Efficiency of AZT was documented by its clinical benefits and by the reduction of p24 antigenemia. In this study, we have looked for the antiviral effect of AZT in infected subjets by monitoring prospectively HIV isolation from peripheral blood lymphocytes (PBL) of infected patients.
Methods : Eighteen symptomatic subjects (CDC class IVA-D) were treated by AZT (20 mg/kg/day) given every 4 hours. The follow up time was one year. P24 antigenemia was tested in serum. PBL of treated patients were cocultivated with normal PBL for HIV isolation, before and during the treatment.
Results : Out of 9 patients with p24 Ag, 8 became negative and one had a decrease in p24 Ag level within three months of starting therapy. In this group of patients, only one became negative for HIV isolation. By contrast, among 9 patients without p24 antigenemia, 7 became negative in culture within the first three months of treatment. Following an average time of 9 months, the inhibitory activity of AZT disappeared, p24 rebounced and cultures became positive again for HIV in all cases.
Conclusion : Monitoring of HIV replication by virus isolation is more accurate than P24 Ag titration. Using the standard AZT regimen, only P24 Ag negative patients transiently inactivated HIV replication, suggesting that those patients may be the best candidates for sustained stabilisation.

2151 EVALUATION OF ZIDOVUDINAEMIA AND OF SOME SEROLOGICAL PARAMETERS IN PATIENTS TREATED FOR AT LEAST 18 MONTHS.

Icardi GianCarlo*, Piersantelli N.**, Rizzo F.°, Guida B.**, Cassola G.**, Marchetto E.* *Inst Hyg Prev Med, Dpts of Infect Dis Hosp **Galliera and °S. Martino, Genoa, Italy.

Objective: To assess HIV infection evolution in anti-HIV positive patients treated with Zidovudine for at least 18 months. Methods: From the beginning of this study (Sept.'87) 135 patients have been enrolled to be treated with AZT (1200 mg/die). Among them, 5 died between the 9th and 15th month of follow-up, while 50 subjects continued therapy for at least 18 months. Subjects were checked up regularly to evaluate clinical and lab parameters (Karnofsky index, CD4, B2microgl, etc.) Moreover, since Sept.'88 Zidovudinaemia has been regularly monitored by a RIA test (ZDV-Trac RIA). Statistical analysis was performed by variance analysis (ANOVA). Results: AZT kinetics was preliminarly studied in 11 patients. After the assumption of a single dose, AZT peaks up, within 30'-90', and its level decreases under 130 ng/ml between 180'-240'. After 1 day of therapy, Zidovudinaemia settles on high values. Then we decided to collect samples from all subjects 120' after assumption, every 2 weeks. AZT mean titre at month 18 of follow-up was 683.4 ng/ml (s=107.3) and 701 (s=198.7) respectively in AIDS and in ARC patients. We observed a significant increase of CD4 lymphocyte number during the first 6 months of treatment in 40 subjects with ARC (basal = 222; month 6 = 338). The other parameters we took into account didn't show any significant change. Three out of 30 patients HIVAg posit at the beginning of the study, became negat during the follow-up, whilst 4 of the 25 initially negat subjects became posit. Two subjects progressed from ARC to AIDS during the study. No patient had to give up therapy or to reduce dosage except for 2 patients with AIDS and 1 with ARC. In these cases dosage was reduced to 800 mg/die Conclusions: The employed dosage mantained AZT mean titre costantly over the minimum effective level, even if wide individual variations were observed. In the 2 patients whose infection progressed, AZT was costantly below 100ng/ml. There was a dissociation between the lab parameters, which didn't change significantly, and mean survival time of the treated patients. This could be due to the advanced stage of infection of the subjects.The mean survival time of AIDS patients turned out to be longer in treated subjects if compared to what we observed when AZT was not available.

2152 HIV: ITS INFLUENCE ON LOWER GENITAL TRACT NEOPLASIA.

Smith James Richard*+, Botcherby M*, Hepburn M**, James M*, Byrne M*, Wells C*, Mason P+, Forster S M*. *Department of Genito-Urinary Medicine, St Mary's Hospital, +Department of Gynaecology, Samaritan Hospital for Women, London. **Royal Maternity Hospital, Glasgow.

A high incidence of cervical dysplasia has been noted in HIV seropositive women. We have enrolled a group of 43 HIV seropositive women and, to date, a case matched control group of 10 HPV seronegative women matched for risk factors associated with cervical intraepithelial neoplasia (CIN). These risk factors include age, age of first sexual intercourse, number of sexual partners, smoking and past history of sexually transmitted diseases.

COLPOSCOPICALLY DIRECTED BIOPSIES ON HIV SEROPOSITIVE WOMEN

Patients	Transmission IVDA*	HET*	BT*	NORM*	NOT DONE	HPV*	CIN1	2	3	INV	VIN*	VAIN*
No of	19	21	3	3	25	8	4	2	1	0	3	1
% of	44%	49%	7%	7%	58%	19%	9%	5%	2%	0%	7%	2%

On cytology and histology 23% of HIV seropositive patients had CIN and 63% had evidence of HPV infection. There were 4 HIV seropositive patients who were symptomatic for HIV disease and therefore, clinically immunocompromised. They showed a significant increase in abnormality on cytology and histology ($p<0.005$). The comparison of the asymptomatic HIV seropositive group with the case matched seronegative controls suggest that HIV seropositivity in the absence of immunosuppression does not increase the risk of lower genital tract neoplasia. THIS WORK HAS BEEN FUNDED BY THE AIDS VIRUS EDUCATION AND RESEARCH TRUST (AVERT). *IVDA=IV Drug Addict. HET=Heterosexual. BT=Blood transfusion. Norm=Normal. HPV=Human Papilloma Virus. VIN=Vulval Intraepithelial Neoplasia. VAIN=Vaginal Intraepithelial Neoplasia.

2153 BLEOMYCIN PLUS ZIDOVUDINE THERAPY FOR ADVANCED AIDS-RELATED KAPOSI'S SARCOMA.

Knani L, Gonzalez-Canali G, Bouslama K, Varette C, Navarro-Carola E, Roussard P, Picard O, Imbert JC.
Hôpital Saint Antoine, Paris, France.

Prior opportunistic infections (OI) and CD4 cell count < 300/mm3 are poor prognosis factors for response in AIDS-related Kaposi's sarcoma (KS) to interferon-alpha (INF-a) alone or associated with Zidovudine (AZT). Between O6/88 and 12/89 we treated 18 consecutive patients (pts) with advanced AIDS-related KS with Bleomycin (BLM), 5 mg IM for 3 days every 2 weeks (9 pts) or 6 mg/m2 IV for 3 days every 3 weeks (9 pts). Pts received also daily 600 mg oral AZT. All patients were homosexual men, mean age was 36 years (24-52). BLM-AZT was given as first-line therapy in 3 pts and as second-line in 15 pts. Eleven pts had been treated with AZT-INF-a. Initial stage for BLM therapy (Kriegel staging system) was : stage I (IA=4, IB = 2) for 6 pts , stage II (II A= 3, IIB= 1) for 4 pts , stage IIIA for 3 pts and stage IV (IVA = 1, IVB = 4) for 5 pts. All pts had either O.I. (6 pts) or CD4 cell count < 300/mm3 (17 pts), 10 had a CD4 cell count < 50/mm3. Nine pts had positive plasma HIV p 24 antigen. No complete response was observed; eight (44%) patients achieved a partial response (6 stages I- II), 6 (33%) a stabilisation, and 4 (23%) had a progressive disease (3 stages III-IV). The IV and IM schedules appeared to give similar results. Neither hematologic nor pulmonary toxicity of BLM-AZT was observed. The mean duration of treatment was 4 months. Eleven patients developed 16 OI in a mean time of 5 months , 5 out of them died in a mean time of 7 months after BLM therapy. BLM AZT is an acceptable treatment in advanced AIDS-related KS with only 23% of progressive disease but life expectancy is not improved, due to a major frequency of OI

2154 SENSITIVITY, SPECIFICITY AND PREDICTIVE VALUE OF THE BANGUI CLINICAL DEFINITION

Sow S.* ; Diouf G.* ; Faye/Ndao M.A.* ; Coll A.M.*
* Faculty of Medicine - University of Dakar- Senegal

Objective : To determine sensitivity and specificity of the Bangui clinical definition ; To appreciate predictive value fo different criteria of the Bangui clinical definition.
Methods : Reviewed investigation of check-sample cases : all seropositive symptomatic patients hospitalized in Infectious Diseases Service between 1986 and 1989. Check-sample patients : it concerned all seronegative patients with clinical suspicion of AIDS hospitalized in th same service. Sensitivity, specificity and predictive value have been studied for different criteria of the definition. 134 patients cases have been checked and among them 94 patients with HIV1, 31 with HIV2 and 9 dual infection were recorded. The median age was 34 years old and male to female ratio (3.4.). Sensitivity varied for different registered criteria : weight loss (95%), prolonged asthenia (71.64%), chronic cough and pneumonia (71.64%), chronic diarrhoea (68.65%), neurological signs (55.22%). It was 90% for a score higher or equal to 12 and 98.28% according to 2 major and 1 minor signs. Generalized Kaposi, repeated zooster and oral thrush got a good specificity and a reliable predictive value.
Conclusion : The Bangui definition involved insufficiencies and could be improved in inserting other cirteria from analyse of prospective and multicentric study results.

2155 RESULTS OF SCREENING FOR CYTOMEGALOVIRUS (CMV) RETINITIS

Fisher, Evelyn; Nussbaum J.; Frasier K.
Henry Ford Hospital, Detroit, Michigan, USA

Objective: Screen for CMV retinitis (CR) in ambulatory persons with HIV (P) who lack symptoms of CR and have either CD4 lymphocyte counts/mm^3 (CD4) <200 or declining clinical status.
Method: P were referred from the HIV clinic to Ophthalmology CMV screening clinic over 6 mos (57 P had 1 exam, 6 P had 2).
Results: CR was found in 4/63. 32/63 P and 3/4 with CR had prior CDC-AIDS. CD4 for the group screened showed mean of 115, median of 78. Most recent CD4 was <200 for 49/61. CR was found in 4/27 with CD4 <50 and 0/34 with CD4>50 ($p = 0.067$ by Fisher's exact test). CR location was central in 2 P; one of these actually had been having unreported symptoms (cloudy area in visual field) for 2 wk. Of the 2 peripheral CR, one progressed to central within 1 wk. HIV retinopathy was noted in 15/36 with CD4<100 and 0/25 with CD4>100.
Conclusion: 1) The highest yield in finding CR may be in P with CD4<50; 2) greater efforts are needed to educate P about the symptoms of CR with emphasis on unilateral vision change, subtle field defects, and usual lack of pain or redness. (A P education sheet will be presented.)

2156 THE RORSCHACH TEST IN DIFFERENTIAL DIAGNOSIS OF HIV ORGANICAL BRAIN PATHOLOGY.

de Bertolini, Claudio*; Baldo, M.*, Rupolo, G.P.* Francavilla, E.**
* University of Padua, Padua, Italy , ** Padua General Hospital, Padua, Italy.

This study has been carried on with a group of subjects in treatment for HIV infection at the Regional Centre for AIDS at the University Hospital of Padua (Italy).
All the patients under observation, who had previously undergone a psychodynamical approach focused on repeated interviews, were submitted, by the authors, to the Rorschach test.
The Wechsler Adult Intelligence Scale was also adopted to contribute to the evaluation of the patients.
On the grounds of the results achieved, it is possible to hypothesize the existence of a precocious differential diagnosis between depressed patients and patients presenting HIV organical brain symptoms.

2157 PYRIMETHAMINE-SULFADOXINE (FANSIDAR) IN THE PREVENTION OF PNEUMOCYSTIS CARINII PNEUMONIA (PCP)

Zubero Zuriñe*; Arrizabalaga J.; Iribarren J.A.; Garde C.; Santamaría J.M.*; Muñoz J.
Hospital N. Sra. de Aránzazu. San Sebastián. *Hospital Civil de Basurto. Bilbao. Spain.

Objetive: Assessing the efficiency of Fansidar in preventing PCP relapses.
Methods: During the period comprised between january 1988 and august 1989, 42 patients presentig PCP started a secondary prophylaxis with Fansidar, one tablet a week, independent from the drugs used to treat the acute episode. In january 1990, the efectiveness of such medicament in preventing PCP relapses, as well as its toxicity, are evaluated. The effectiveness of the medicament as a primary prophylaxis in patients presenting a positive toxoplasma serology (PTS) is assessed as well, taking into account that 33% of AIDS cases within our field, with a PTS have presented toxoplasmic encephalitis.
Results: 2 PCP relapses (4.75%) have been recorded. The prophylaxis period has ranged between 2-23 months (x=10.8). The prophylaxis had to be stopped in 4 patients (9.5%) due to toxicity (3 of them about secondary granulopenia, 1 about dermic rash). 2 of 13 patientes (15.3%) with a positive toxoplasma serology developed toxoplasmic encephalitis.
Conclusion: Fansidar has proved efficient in preventing PCP relapses, offering low toxicity and easy dosification. The presence of toxoplasmic encephalitis has disminished more than 50% in patients taking Fansidar with a PTS.

2158 MATERNAL HIV INFECTION AND DRUG USE ASSOCIATED WITH AN INCREASE INCIDENCE OF TWIN GESTATION

Wiznia, Andrew*; Gurdin, P**.; Bolasogno, P**.; Greene, M.**; King, L**; Rendon, M**.
*Bronx Lebanon Hospital, Bronx, NY, USA
** Leake and Watts Children's Home Inc., Yonkers, NY, USA

Objective. To evaluate the incidence of twins in foster children born to HIV-infected, drug using mothers,.
Method. The birth records of 80 children born to HIV infected mothers who are currently enrolled in the Leake and Watts specialized foster care program were evaluated for multiple births and HIV status.
Results. Of a total of 80 children, there were six sets of twins (12 children) (7.9%). Four sets were dizygotic and the birth records of two sets were not available. All mothers admitted to using "crack" and other drugs during pregnancy. Both children in 3 sets were HIV uninfected; one child was infected in one set, and in two sets the HIV status is still indeterminate. The regular foster care division of this agency cares for 500 children from similar socioeconomic and ethnic groups report with one set of twins (0.2%). The NY City Dept. of Health reported an incidence of twins of 1.2% in 1988.
Conclusion. The incidence of twinning in children born to HIV infected women is unexpectedly high in a select foster care population. This high incidence may be due to either drug intake during pregnancy or other, yet to be identified, factors.

2159 PHARMACOKINETICS OF ZIDOVUDINE IN PATIENTS WITH LIVER CIRRHOSIS

Taburet, Anne-Marie*; Naveau S.**; Zorza G.*; Colin J.N.*; Chaput J.C.**; Singlas E.*
*Clinical Pharmacy Bicêtre Hospital, **Gastroenterology Béclère Hospital, Paris France.

Objective: The pharmacokinetics of zidovudine (ZDV) was investigated in patients with hepatic failure after single dose oral administration (200 mg).
Methods: fourteen HIV seronegative patients with cirrhosis were included. They were divided in three groups according to the severity of the liver disease quantitated by the Child-Pugh's score (range 6 to 12). Plasma and urine concentrations of ZDV and its glucuronidated metabolite (GZDV) were measured simultaneously by HPLC. Results were compared to those obtained in 6 healthy volunteers.
Results: The following mean (± SD) pharmacokinetic parameters were obtained :

	ZDV		GZDV	
	Patients	Controls	Patients	Controls
Cmax -µmol/l-	11±5*	4±1	7±3**	15 ± 3
Tmax -h-	0.8±0.9	0.6±0.2	1.3±0.9*	0.8±0.2
AUC -µmol.h/l-	20±6**	5±1	25 ± 11	24 ± 5
half-life -h-	2.4±1.2*	1.0±0.4	2.4±1.4*	0.9±0.2
MRT -h-	2.9±1.0**	1.5±0.3	3.9±1.4*	1.7±0.4

* $p<0.05$, ** $p<0.01$

Increase in ZDV concentrations in patients is a consequence of a marked drop in oral clearance (10±4 vs 38±15 ml/min/kg). Interindividual variation is high among patients and no difference could be established between the three groups. Rate of formation of GZDV is reduced in cirrhosis which led to a decrease in the AUC ratio of GZDV and ZDV (1.3±0.6 vs 4.6±0.7) which was directly related to the severity of cirrhosis.
Conclusion: To avoid important cumulation of ZDV after repeated dosing in patients with AIDS and hepatic impairment, a dosage adjustment could be proposed.

2160 FINDINGS AND MANAGEMENT IN 50 HIV-INFECTED PATIENTS WITH POSITIVE ORAL CANDIDA CULTURES

Silverman, S., Jr.; Luangjarmekorn, L., Gallo, J.; Migliorati, C.
University of California, San Francisco, California, USA.

Objective: Oral candidiasis is a common complication of HIV-infected individuals. The purpose of this study was to evaluate clinical and laboratory findings and to assess the impact on efficacy of antifungal treatment.
Methods: This preliminary report describes findings in 50 HIV-positive, candida culture positive subjects (49 males, 1 female; mean age: 39 years). The group had been known HIV-positive for a mean of 28 months, and 30 met the CDC definition for AIDS (63% KS, 21% PCP).
Results: Thirty-four had oral signs of candidiasis, with almost half having both atrophic (red) and pseudomembranous (white) components. In quantitating the cultures, the higher colony forming unit counts in general were correlated with clinical signs and pain. The most common oral manifestations were periodontal disease (66%), hairy leukoplakia (44%) and xerostomia (26%). The most common candida species was albicans (42/50). Response to initial antifungal therapy was satisfactory clinically, but erratic regarding CFU quantitation, species changes and bacterial emergence.
Conclusion: In summary, oral candidiasis is a complex infection with uncertainties as to the significance of fungal quantitation and speciation appropo to achieving control.

2161 SPECTRUM OF CLINICAL MANIFESTATIONS OF CRYPTOCOCCAL NEOFORMANS MENINGITIS IN HIV INFECTED PATIENTS.

Nelson Mark*; Bower,M*, Hawkins,D*; Gazzard,B*.
*Westminster Hospital, London, England.

OBJECTIVE: To review the presenting features of Cryptococcal neoformans meningitis (CNM) in HIV infected patients both at initial presentation and at relapse.
METHOD: The clinical manifestations of CNM were reviewed in all patients with CNM who were also HIV positive.
RESULTS: Twenty one patients had a diagnosis of CNM, proven by cerebrospinal fluid microscopy and/or culture. Of these 6 died during the initial treatment course. There were 15 relapses in 11 patients, despite treatment with fluconazole 200mgs daily, and 4 patients remain well.

	Initial presentation	Relapse
Headache	100%	73%
Neck stiffness	90%	53%
Pyrexia	90%	40%
Photophobia	71%	47%
Nausea/vomiting	38%	20%
Backache	14%	27%
Papilloedema	14%	13%
Focal neurology	0%	7%

CONCLUSION: The commonest symptoms as in previous studies were fever and headache present in 80-90% of patients but in our series neck stiffness and photophobia occur in a much greater percentage than in previous studies (30%). We believe meningism is an important sign in CNM especially at first presentation.

2162 EFFECTS OF HIGH-DOSE GLYCYRRHIZIN (SNMC: STRONGER NEO-MINOPHAGEN C) ON HEMOPHILIA PATIENTS WITH HIV INFECTION

Mori,Kazuo.Sakai,H.Suzuki,S.Akutsu,Y.Ishikawa,M.*;Aihara,M. Yokoyama,M.Sato,Y.Sawada,Y.**;Endo,Y.***;Sasaki,H.Hayashi,T.****; Suzuki,Z.*****;Uchida,T.******
*Tohoku Univ.,**Hirosaki Univ.,***Akita Univ.,****Yamagata Univ., *****Iwate Univ.,******Fukushima Univ.,Sendai,Japan.

Objective: Forty two hemophiliacs with HIV infection were treated with high-dose glycyrrhizin, Stronger Neo-Minophagen C (SNMC).
Methods: The dose was 100-200ml of SNMC in twenty one patients and 400-800ml in the other 21. The patients was divided into an asymptomatic carrier (AC) group and AIDS related complex (ARC)/AIDS group. SNMC was administered intravenously daily for the first 3 weeks, every second day for the following 8 weeks to 42 HIV positive hemophilia patients in accordance with the protocol proposed by the Japanese National Research Committee.
Results: CD4/CD8 ratio and CD4 positive lymphocyte counts did not change during the treatment period. However, significant improvement was noted in some cases. A slight increase in mitogenic responsiveness to PHA, Con A and PWM mitogen was noted in most patients of both groups, especially in the AC group administered over 400ml of SNMC. Furthermore, complete improvement was noted in liver dysfunction, which has been thought to be a major problem in hemophiliacs treated with blood products. In addition clinical symptoms associated with HIV infection, such as lymphodenopathy, oral candidiasis, skin rush, anorexia, night sweat etc, noted in patients with ARC/AIDS, were improved considerably in many cases.
Conclusion: Prophylactic administration of high-dose SNMC to HIV positive hemophiliacs having impaired immunological ability and liver dysfunction was considered to be effective to prevent the development from AC/ARC to AIDS.

2163 THRUSH(T) CAN BE PREVENTED IN AIDS/ARC PATIENTS(pts.): RANDOMIZED(R) DOUBLE-BLIND PLACEBO(P)-CONTROLLED STUDY OF 100 MG FLUCONAZOLE(F) DAILY

Lang, Onnie S.*; Greene, S.I.†; Stevens, D.A.‡
*,‡AIDS Program,Divs. of †Derm. and ‡Infectious Dis.,Dept. Med., Sta. Clara Vly. Med. Ctr., ‡Inst. Med. Res.,†‡Stanford U., San Jose and Stanford,CA,USA.

Objective: To determine whether oropharyngeal candidosis (T) can be prevented by prophylaxis(PR).
Methods: 25 pts. with history ≥1 episodes T and cleared at outset were R to oral P or 100 mg F/day x12 wk. Pts. were seen weekly x4, then monthly x2 and when symptomatic. If T, defined by exam plus positive KOH smear and/or C. albicans culture occurred,PR stopped and pts. given conventional Rx,then PR resumed. PR also resumed after interruptions for possible toxicity. After R, we could put 5 pts. on F(open phase,OP). Analysis by Fisher exact, Wilcoxon.
Results: T occurred in 0/12 F,8/13 P on R;events T/pt. mean 1.2 v. 0;events/pt.-wk. 0.13(116.5 pt.-wks.) v. 0(112.5)(P <0.005 all 3 comparisons). Possible toxicity (headache, nausea, rise liver test(LFT),etc.) occurred in 10/12 F, 9/13 P;LFT rise (20-50%>normal) 7 v. 5;marked(>1.5-3x normal) 3 v. 1(P>0.3 all 3). In 4 R terminated due to possible toxicity(2F,2P). Colonization also cleared on F(2/10 v. 7/8 at end R,P=0.02);seborrheic dermatitis, nonfungal opportunists unaffected. One T occurred in OP in admitted noncompliant pt. (total OP and R=71.5 F pt.-mos.);in contrast, events on P,after R or OP,during interruptions:total 35 T,1 candida esophagitis,1 cryptococcemia in 92.3 pt.-mos. off F. During R, 2 pre-existing tinea, 1 onychomycosis(ON), 1 cryptococcuria responded on F;3 tinea and ON were unchanged or worse on P,1 tinea developed(1/1 tinea,ON then response during OP).
Conclusion: T with attendant symptoms,taste loss,food aversion,etc. is preventable by F PR with nil toxicity;effect on other mycoses also shown.

2164 THE TWO YEAR PROGRESSION TO PCP IN HIV PATIENTS WITH A CD4+ CELL COUNT ≤ 200x10^6/L OR CD4 % ≤ 20.

Lidman Christer; Lindbäck Stefan.
Department of Infectious Diseases, Roslagstulls hospital,Stockholm,Sweden.

Objective: Patients with low CD4+ cell count and/or low percentage CD4+cells risk AIDS and particularly PCP. Therefore CDC (USA) has recomended primary PCP prophylaxis to HIV patients with CD4+ cell count ≤ 200 x 10^6/l or CD4 % ≤ 20. Are these limits equal with regard to prognosis?
Methods: Patients seen 1987 at Roslagstulls hospital with CD4+ cell count ≤ 200x 10^6/l (Group A) or CD4 % ≤ 20 (Group B) were followed-up for AIDS, PCP, and survival at 6, 12, 18 and 24 months.
Results: Group A consisted of 85 patients (HS/BS 65, IVDU 13, Transfusion 3) with CD4+ cell count 1-200 ($\bar{x}$=136) x 10^6/l. Group B (n=206, HS/BS 121, IVDU 65, Transfusion 6)had CD4% between 0.2-20 ($\bar{x}$=14.7). Table below shows the cumulative percentage for AIDS,PCP and death in these two groups of patients.

		AIDS	PCP	DEATH
GROUP A	6 mo	20	18	1
	12 mo	33	31	4
	18 mo	40	36	11
	24 mo	45	41	25
GROUP B	6 mo	8	6	1
	12 mo	14	11	3
	18 mo	17	13	8
	24 mo	20	16	9

Conclusion: The progression rate to PCP was more than two times higher in patients with CD4+ cell count ≤200x10^6/l than for patients with CD4+ %≤ 20. These findings must be considered in study design and recommendations for primary PCP profylaxis.

2165 THRUSH(T) CAN BE PREVENTED IN AIDS/ARC PATIENTS(pts.): RANDOMIZED(R) DOUBLE-BLIND PLACEBO(P)-CONTROLLED STUDY OF 100 MG FLUCONAZOLE(F) DAILY

Lang, Onnie S.*; Greene, S.I.†; Stevens, D.A.‡
*†‡AIDS Program,Divs. of †Derm. and ‡Infectious Dis.,Dept. Med., Sta. Clara Vly. Med. Ctr., ‡Inst. Med. Res.,†‡Stanford U., San Jose and Stanford,CA,USA.

Objective: To determine whether oropharyngeal candidosis (T) can be prevented by prophylaxis(PR).
Methods: 25 pts. with history ≥1 episodes T and cleared at outset were R to oral P or 100 mg F/day x12 wk. Pts. were seen weekly x4, then monthly x2 and when symptomatic. If T, defined by exam plus positive KOH smear and/or C. albicans culture occurred,PR stopped and pts. given conventional Rx,then PR resumed. PR also resumed after interruptions for possible toxicity. After R, we could put 5 pts. on F(open phase,OP). Analysis by Fisher exact, Wilcoxon.
Results: T occurred in 0/12 F,8/13 P on R;events T/pt. mean 1.2 v. 0;events/pt.-wk. 0.13(116.5 pt.-wks.) v. 0(112.5)(P <0.005 all 3 comparisons). Possible toxicity (headache, nausea, rise liver test(LFT),etc.) occurred in 10/12 F, 9/13 P;LFT rise (20-50%>normal) 7 v. 5;marked(>1.5-3x normal) 3 v. 1(P>0.3 all 3). In 4 R terminated due to possible toxicity(2F,2P). Colonization also cleared on F(2/10 v. 7/8 at end R,P=0.02);seborrheic dermatitis, nonfungal opportunists unaffected. One T occurred in OP in admitted noncompliant pt. (total OP and R=71.5 F pt.-mos.);in contrast, events on P,after R or OP,during interruptions:total 35 T,1 candida esophagitis,1 cryptococcemia in 92.3 pt.-mos. off F. During R, 2 pre-existing tinea, 1 onychomycosis(ON), 1 cryptococcuria responded on F;3 tinea and ON were unchanged or worse on P,1 tinea developed(1/1 tinea,ON then response during OP).
Conclusion: T with attendant symptoms,taste loss,food aversion,etc. is preventable by F PR with nil toxicity;effect on other mycoses also shown.

2166 POSITIVE AND NEGATIVE CHANGES IN RESPONSE TO THE THREAT OF AIDS: PSYCHOLOGICAL ADJUSTMENT AS A FUNCTION OF SEVERITY OF THREAT AND LIFE DOMAIN

Hart, Christian B., Taylor, S.E., Kemeny, M.E., Dudley, J.
University of California, Los Angeles, California, USA

Objective: Taylor (1988) posits that individuals facing severe threat interpret threatening information so as to minimize negative implications and maximize benefits. The current study sought to investigate psychological changes in different areas of life and associated with varying levels of threat from AIDS.
Method: The sample consisted of 292 gay and bisexual men participating in the UCLA Multicenter AIDS Cohort Study (MACS) who knew both their HIV status and CD4 cell level. Participants completed a questionnaire examining how the threat of AIDS changed 5 life domains: daily activities/priorities, view of the future, view of the self, view of the world and interpersonal relations. Three groups defined low to high severity of threat: HIV negative men, HIV positive men with normal CD4 cell levels, and HIV positive men with depleted CD4 cell levels.
Results: On average, subjects reported significantly more positive than negative changes. Daily activities, priorities, and interpersonal relations were characterized by positive changes. View of the world was typified by negative changes. Increased negative changes in view of the future were associated with greater severity of threat. In view of the self, CD4-depleted HIV positive men reported the most negative changes while HIV positive men with normal CD4 levels described few negative changes even compared to HIV negative men.
Conclusion: Overall, the results suggest that gay men successfully derive benefit from the threat of AIDS--up to a point, after which negative changes may be difficult to minimize. Other implications and results will be discussed.

2167 TREATMENT OF HIV-INFECTION WITH D-PENICILLAMIN

Harrer Thomas *, Hunzelmann N*, Peukert M **, Zorr B***, Bauer A****, Kalden JR*
* Medizinische Klinik III of the University of Erlangen-Nürnberg, FRG,
** ASTA Pharma AG, 6000 Frankfurt, FRG, *** Institute for Clinical and Experimental Virology of the Free University of Berlin, FRG , **** Institute for Clinical and Molecular Virology, University of Erlangen-Nürnberg, FRG

Objective: To study clinical, immunological, virological effects and compatibility of D-Penicillamin in HIV-1-infected patients.
Methods: 10 HIV-1-infected patients (WR1:2,WR2:5,WR3:2,WR4:1) were treated. 7 received D-Penicillamin orally in an escalating dose up to 1800 mg/d for 8 weeks. 3 patients were treated 47,157 and 240 days respectively with an dose escalation of 300 mg/w up to doses of 1800 mg/d and 2100 mg/d respectively. Test-criteria: HIV-isolation of peripheral blood cells, p24-antigen in serum, lymphocyte subpopulations, mitogen induced in vitro proliferation of lymphocytes, serum levels of immunglobulins and beta-2-Mikroglobulin,Neopterin excretion in urine.
Results: HIV culture (in all patients) and detectable HIV-antigen (in three patients) were not influenced by therapy. Immunological parameters showed alterations but without a significant trend. In 5 patients side effects were observed: 3 skin rashes after 9, 22 and 27 days, in one case accompanied with extreme fatigue and collapse. 1 patients developed a severe agranulocytosis combined with nephropathy and loss of taste (all symptoms were reversible). 1 patient presented a reversible nephropathy after 240 days of treatment together with a progress of the HIV-infection with emergence of a massive hairy leukoplakia. In one patient both an improvement of folliculitis and an enlargement of lymphnodes could be observed.
Conclusion: No significant improvement of the tested immunological or virological parameters could be demonstrated. However the value of the virological test criteria for the monitoring of clinical trials has still to be established.

2168 AFRICAN HISTOPLASMOSIS IN THREE HIV PATIENTS (P).

Arendt, Victor*; Gerard, M.*; Pelseneer, J.**; Gottlob, R.***; Clumeck, N.*
Divisions of *Infectious Diseases, **Mycology and ***Pathology, St Pierre University Hospital, Brussels, Belgium.

Disseminated Histoplasma capsulatum (HC) infection in HIV P is well described. In contrast African histoplasmosis has been reported in the setting of AIDS in only 2 P. We report the cases of 3 additional P with Histoplasma duboisii (HD) infection, diagnosed in Belgium.

No.	Age	CD4/mm³	Organ involved
1	72	16	Peritoneal nodules and lymph nodes, liver, spleen, bone marrow.
2	65	5	Bone marrow, lymph nodes, liver, spleen, lung, blood.
3	62	0	Brain (associated with brain lymphoma).

All P were Caucasian heterosexual male P and had lived in Central Africa during more than 25 years. Diagnosis was not suspected during life in P 1 and 3 and was discovered as associated pathology in both. Clinical presentation of HD infection in AIDS P is unusual, being disseminated rather than localized to skin, bone or lymph nodes as in normal host. Disseminated disease in hosts who had left endemic area since many years suggests the possibility of an asymptomatic carrier state. This has never been described before.
HD must be stressed as an opportunistic pathogen in HIV P originating from Central and West Africa.

2169 SICK AND WELL PERINATALLY HIV INFECTED CHILDREN AND THEIR COGNITIVE DEVELOPMENT

Nozyce, Molly; Wiznia, A.; Caffrey, B.; Caspe, W.
Bronx-Lebanon Hospital Center, Albert Einstein College of Medicine, Bronx, New York.

Objective: To assess cognitive development in sick and well perinatally HIV infected children.
Methods: The Pediatric HIV unit at Bronx-Lebanon Hospital currently provides comprehensive care to 90 children from a low SES community where a multiplicity of economic and social problems exist. Twenty-seven of these children have been identified as perinatally infected. They range in age from 3 months to 9 years 11 months. For purposes of analysis, the children were divided into two groups: Group I consisted of 19 children below 3 years of age (mean age=18 months) and Group II consisted of 8 children above 3 years of age (mean age=5 years). The Bayley Scales of Infant Development were administered to all children in Group I and the Stanford-Binet Intelligence Scale (L-M) was administered to children in Group II.
Results: Analysis of the data indicates that significant developmental delays were noted in 79% of children in Group I, but in only 37% of the children in Group II. When the children were stratified according to the severity of their medical problems, all the children in Group II with significant developmental delays were found to be the most seriously ill i.e. multiple hospitalizations, etc. (chi sq significant at <.01 level). There was no significant correlation between developmental delay and severity of illness in Group I.
Conclusions: These results appear to indicate that HIV infection in infancy may be only one of a number of pre and post-natal insults that effect developmental performance.

2170 HIV STATUS AND CLINICAL CHARACTERISTICS OF PATIENTS WITH ACUTE PERIPHERAL FACIAL NERVE PALSY AS SEEN AT KENYATTA NATIONAL HOSPITAL:

AMAYO ERASTUS* KWASA, T.O.* GILKS **
*Department of Medicine, University of Nairobi, Kenya
**University of Oxford, U.K.

Objective: To determine the HIV status, and the clinical characteristics of patients with peripheral facial nerve palsy.
Methods: Between April to December 1989 32 consecutive patients referred to the Neurology clinic with acute peripheral facial nerve palsy were studied. To each patient HIV antibodies were tested by both Wellcozyme and Dupont and considered positive only when both test were positive. The degree of facial weakness was expressed on a score of 0-5 with 0 complete paralysis and 5 normal. Each patient was followed monthly and at 6 months the final assessment done.
Results: The mean age of the whole group was 36.8±14yr with a M:F ratio 2.2:1. 25% (8/32) patients with a mean age of 34.25±13 tested positive. Out of these 50% (4/8) had generalized lymphadenopathy. 1 herpes zoster and 1 generalized pruritic rash. These findings were absent in seronegative group. The average severity of weakness in both group was grade 3 at the onset. At 6 month 25% (2/8) of the seropositive had complete recovery in contrast to 29% (7/24) of HIV-ve there being no stastical difference at P>0.05.
Conclusion: Patients with peripheral facial nerve and HIV+ve tend to have feature of early HIV disease. The short term recovery of facial weakness is no different from those who are seropositive as compared to seronegative.

2171 DEPENDENCE OF AIDS-RELATED BRAIN LESIONS UPON THE PRESENCE OF HIV-1 IN THE CENTRAL NERVOUS SYSTEM

Gosztonyi, Georg*; Artigas, J.**
*Institute of Neuropathology, Free University, Berlin, **Institute of Pathology, Auguste-Viktoria-Hospital, Berlin, Germany.

Objective: To differentiate direct effects of HIV and opportunistic pathogens from the indirect ones in AIDS encephalopathy.
Methods: Brains and spinal cords of 50 selected patients with HIV-1 infection, 90% of them with neurological symptoms, were morphologically examined by means of conventional histology, immunohistochemistry and, a part of them by "in situ" hybridization, and correlative analysis was made.
Results: They are presented as correlations between major neuropathological syndromes and the presence of HIV-1 (p24 and gp41 antigens, and HIV-specific nucleotide sequences), and opportunistic pathogens (mainly CMV and toxoplasma

	Cases	HIV-1	Opportunistic agents
HIV encephalitis	22	22	8
Nodular encephalitis	31	13	31
Vacuolar leukoencephalopathy	26	13	7
Vacuolar myelopathy	23	13	5
Spongiform poliodystrophy	14	6	5
Diffuse leukoencephalopathy	7	5	2

Conclusions: HIV encephalitis correlates directly with the presence of HIV in the brain. Nodular encephalitis seems to depend upon the direct influence of opportunistic agents. Diffuse leukoencephalopathy, vacuolar leukoencephalopathy, vacuolar myelopathy, and spongiform poliodystrophy are not produced directly by a living organism in the CNS but, more likely, are the consequences of global metabolic and/or toxic alterations.

2172 HIV-ASSOCIATED PSYCHOSIS

Harris, MJ; Sewell, Daniel D; Atkinson, JH; Grant, I; Heaton, R; Jeste, DV.
University of California, San Diego and San Diego Veterans Administration Medical Center, San Diego, California, USA

Objective: To study new onset psychotic symptoms, not secondary to a primary psychiatric or medical disorder, which occur in HIV-positive and AIDS patients. There is little information in the literature regarding this.
Method: We reviewed case reports in the literature, retrospectively reviewed the cases in our medical center and began our own study of patients with HIV-associated psychosis. Psychiatric, neurologic, neuropsychologic and medical evaluations were performed and patients followed prospectively.
Results: Common clinical features at time of presentation included: subacute onset of psychiatric symptoms; delusions in 95% patients, hallucinations in 64%, thought disorder in 59%, disturbance of mood or affect in 83%, bizarre behavior in 48%, anxiety or agitation in 52%, and memory or cognitive impairment in 37%. Neurological exam was normal in 79%, with mild motor deficits in 21%. CT was abnormal in 38% of patients with cortical atrophy being the most common finding. EEG was abnormal in 50%, showing predominantly diffuse slowing. The majority of patients with abnormalities on CT and EEG also had a diagnosis of AIDS and tended to have a progressively downhill course resulting in death within several months secondary to dementia or opportunistic infections. The psychotic symptoms and agitation improved with neuroleptics but patients were susceptible to side effects.
Conclusion: HIV testing should be done in patients with new-onset psychosis and risk factors for viral infection. Neuropsychological testing results and possible association of psychosis to AIDS dementia will be discussed.

2173 SUBJECTIVE SLEEP DISTURBANCE IN HIV ILLNESS

Brown, Stephen; Atkinson, H.; Gutierrez, R.; Pace,P.; Grant, I.; and McCutchan, J.
University of California at San Diego, La Jolla,Ca.

Objective: To examine the prevalence of sleep complaints in HIV+ and HIV- homosexual men and community controls.
Methods: HIV+ and HIV- ambulatory homosexual men (N=97) in a longitudinal cohort study and a heterosexual control group (N=18) were examined with the Hamilton Depression and Anxiety Rating Scales. Participants were screened to exclude current alcohol or drug abuse. Responses to the three sleep specific questions on the Hamilton Depression Rating Scale were summed and compared. Group differences were analyzed using the Mann-Whitney U test.
Results: The proportion with any sleep complaints:

CDC IV	CDC II&III	HIV- homosexuals	HIV- Heterosexuals
52%(N=19)	38% (N=48)	40%(N=30)	11%(N=18)

The mean Hamilton totals for the four groups were: Depression;10.0, 8.8, 5.0,& 4.72 and for Anxiety; 8.94, 5.6, 4.2, and 4.4 respectively (CDC IV, CDC II&III, HIV- homosexuals, HIV-heterosexuals).CDC IV men reported more sleep disturbance than heterosexual controls (p=.002). There was a trend for the CDC IV men to report more sleep disturbance than either CDC II&III or HIV- homosexual controls (p=.07 and p=.1 respectively). HIV- and CDC II&III homosexuals reported more sleep disturbance than HIV-heterosexuals (p= .01). CDC II&III men and HIV- gay men did not differ in their reporting of sleep disturbance.While the total Hamilton Anxiety Scale scores was higher for CDC IV men, there was no difference in anxiety or depression scores between the other three groups to account for the increased sleep complaints in HIV+ and HIV- gay men.
Conclusion:Subjective sleep disturbance is common in men at high risk of AIDS and is particularly high in CDC IV men.The high prevalence in HIV- and CDC II&III homosexual men indicates a need for objective sleep recordings to evaluate reported insomnia.

2174 COMUMITY-ACQUIRED BACTERIAL PNEUMONIA IN PATIENTS WITH HIV INFECTION

Falcó Vicente, Fernández de Sevilla T, Alegre J, Ocaña I, Ferrer A*, Martínez-Vázquez JM. Services of Internal Medicine-Infectious Disease Unit and Microbiology*. Hospital Vall d'Hebron. Barcelona. Spain.

Objective: To investigate the etiologic agents of community-acquired bacterial pneumonia in patients with HIV infection.
Methods: We have studied prospectively all cases of bacterial pneumonia in HIV infected patients between February 1988 and April 1989. Information from each patient includes the clinical and physical findings, chest roentgenography, routine laboratory data, therapy and outcome. We have also recorded Gram stain and sputum culture, blood cultures, culture of pleural fluid when it was present and serologic tests for M. pneumoniae and L. pneumophila. Bacterial pneumonia was defined as the presence of an acute illness with respiratory symptoms and a new infiltrate on chest roentgenogram, an sputum Gram stain showing more than 25 polymorphonuclear cells and fewer than 10 epitelial cells per low-power field, and the isolation of an organism as the only respiratory pathogen in sputum cultures, blood cultures or pleural fluid culture. Results have been compared using X2 test to those obtained from 400 patients with bacterial pneumonia and without HIV infection.
Results: A total of 34 HIV infected patients, 26 men and 8 women, were diagnosed of bacterial pneumonia. Twenty-nine (85%) were IVDU. Twenty-three patients were classified (CDC 1987) in group II, 3 in group III and 8 in group IV. Fifteen episodes (44%) were caused by S. pneumoniae and 6 (17.6%) by H. influenzae. Other microorganisms isolated were S. aureus, B. catarrhalis and M. pneumoniae in one case each one. In 10 patients (29.5%) no germ was identified. Five (33.3%) episodes of pneumococcal pneumonia were associated with bacteremia. Respiratory failure developed in 3 cases. No patient died. Four hundred patients without HIV infection were admitted because of pneumoniae at the same time. Eigthy-four (21%) were caused by S. Pneumoniae, 13 (3.3%) by H. influenzae and no germ was identified in 227 (56.7%).
Conclusions: 1)Community-acquired pneumonia is common in patients with HIV infection and IVDU are affected more often. 2) S. pneumoniae and H. influenzae are the main etiologic agents. 3) Pneumococcal and H. influenzae pneumonia are more frequent in HIV infected patients than in general population ($p<0.01$).

2175 SEROCONVERSION AND PCR AMPLIFICATION OF HIV-1 PROVIRUS AMONG HEMOPHILIACS RECEIVING FACTOR VIII CONCENTRATE.

Keable, Helene*; Ferreira, O. *; Sheridan, K.*; Growe, G.**; Tsoukas, C.**; Bianco, C.*
*The New York Blood Center, New York, U.S.A., **The Multicenter Canadian Hemophilia Immune Study, Canada.

Seroconversion of hemophiliacs receiving Factor VIII concentrate to HIV-1 has been documented. However, virally inactivated products could contain non-infective HIV-1 antigens capable of inducing an immune response and positive serology without proviral integration.
To examine this possibility, the PCR technique was used to study six patients with Hemophilia A who were part of a prospective study being carried out in Canada. They entered the study in early 1985, seroconverted for HIV-1 between September 1986 and September 1987. Until that time they had received dry heat treated Factor VIII concentrate from both volunteer and paid donors. They had no additional risk factors for HIV exposure, and no evidence of immunosuppression. PCR was performed on DNA extracts of pelleted cells from two plasma aliquots preceding and from two aliquots following seroconversion, obtained a 6 month intervals. Primer pairs were SK38-39 (*gag*) and SK68-69 (*env*). PCR products were analyzed by liquid hybridization with the ^{32}P-labeled probes SK19 and SK70.
Four of the 6 patients were positive for *gag* and *env* sequences at the time of seroconversion. One was negative throughout. One was positive for *gag* only six months prior to serconversion. By early 1990 none of the patients had developed AIDS.
These results indicate that seroconversion and viral integration were temporaly correlated in these Hemophilia A patients. They also suggest that antibody response to viral antigens which may remain in virally inactivated plasma products is not a frequent event.

2176

NATURAL PROGRESSION OF CD4 VALUES AMONG HIV-INFECTED CHILDREN WITH ADVANCED SYMPTOMS

Wright Marie, Connor E, Roach B, Oleske J. Children's Hospital of New Jersey and UMD-New Jersey Medical School, Newark, New Jersey, USA.

Objective: To evaluate the longitudinal changes in CD4 values among children with advanced symptomatic HIV infection.
Methods: Longitudinal CD4, %CD4 and CD4/CD8 were collected for 27 children prospectively followed in the Children's Hospital AIDS Program (1981-1989) who had CDC defined AIDS or advanced ARC. Those with Lymphoid Interstitial Pneumonitis as their only criteria for AIDS and those who received antiretroviral treatment were excluded. Time 0 was defined by the first recorded CD4 value.
Results: Sufficient data were available for analysis for a 9 month interval and the mean±SEM are shown below.

	0 mos	3 mos	6 mos	9 mos
CD4%	18.3±2.2	16.7±3.1	15.4±2.8	7.3±2.3
CD4/mm^3	561±116	475±152	613±163	251±92
CD4/CD8	0.62±0.1	0.58±0.19	0.62±0.17	0.37±0.12

Conclusion: Among children with AIDS and advanced ARC, CD4 values were stable or decreased over a 9 month period of observation. This natural history CD4 data will be useful for comparison to CD4 values from similar children in antiretroviral treatment trials.

2178

CLINICAL RESPONSE TO DDI IN PATIENTS FAILING ZIDOVUDINE (AZT) THERAPY BECAUSE OF ZIDOVUDINE-RESISTANT HIV.

BACH, Michael C.*, DUNKLE, Lisa M.** Maine Medical Center, Portland, ME, USA*, Bristol-Myers, Co., Wallingford, CT, USA**

Six of seven patients with documented in vitro resistant HIV to zidovudine (IC50 4.98-16.1) responded clinically to DDI therapy. These patients were all clinically failing while on AZT without any evidence of underlying opportunistic infections or tumors. HIV isolates taken prior to DDI therapy were sensitive to DDI in vitro (IC50 0.24-2.0). Impressive reductions in P24 antigen, falls in serum LDH and improvement in clinical status were noted following DDI treatment.

All patients have been followed for 3 to 6 months. Detailed clinical laboratory and virologic data will be presented.

There does appear to be clinical correlation in some patients with in vitro zidovudine resistance. DDI is effective in some patients infected with zidovudine-resistant HIV.

2177

HIGH DOSE CONTINUOUS IV INFUSIONS OF SOLUBLE CD$_4$ (sCD$_4$)

Sun, W.; Virani, N.; Hawkes, C.; Wagner, K.; Oster, C.; Tramont, E.; Burke, D; Redfield, R.

Introduction: sCD$_4$ (SK7F 106528) is a recombinant DNA CHO cell line derived extracellular portion of the native CD$_4$ molecule that binds HIV gp120 and blocks HIV infection and syncythia formation of CD$_4$(+) cell lines. Objective: Because the in vitro anti-viral effects are generally seen at higher concentrations (>10 mcg/ml), sCD$_4$ was given at 1mg/kg/day by continuous intravenous infusions via Centroseal subclavian line for 8 weeks to assess safety and toxicity, pharmacokinetics and, short-term effects of sCD$_4$ on virus load and antigen load. Volunteers were p24 Ag(+), plasma and PBMC HIV culture(+) and not on other anti-viral drugs. Results: There were no clinical adverse effects at this high dose (electrolytes, BUN/cre, cre cl, urine protein, LFT's, coags). In particular, there were no changes in the creatinine clearance. A moderate drop in Hgb was noted but there was no hemolysis. CD$_4$ levels, CD$_4$/CD8 ratios, and in vitro lymphocyte proliferation were unchanged. The steady state concentration of rsCD$_4$ was 0.6 mg/ml plasma. At this serum level, lymphocytes had to be pre-washed to determine CD$_4$+ counts. The effect on viral P24 antigen and viral load will be determined. Conclusion: This ongoing phase IIB study shows 1) no serious clinical toxicity related to 1mg/kg/d, 2) sCD$_4$ follows simple first order pharmacokinetics, 3) P24 levels and viral parameters will be discussed.

2179

ANTI HIV1 PROTECTIVE REACTIVITY MEDIATED BY MONOCLONAL ANTIBODIES AGAINST p24-CORE-PROTEIN

Grunow, Roland*; Franke, L.*; Marx, U.*; Döpel, H.*; Jondal, M.**, v. Baehr, R.*
*Humboldt Univ. Berlin, Med. School, Dept. of Immunology, GDR, **Karolinska Institute, Dept. of Immunology, Stockholm, Sweden

Objective: A panel of murine and human monoclonal antibodies (mabs) has been developed against p24 core protein of the HIV-1. These mabs were studied with regard to their protective reactivity in HIV infected cell cultures and in the antibody dependent cell mediated cytotoxicity (ADCC).
Methods: The murine mabs were obtained by immunization of mice with recombinant p24-protein and fusion of the spleen cells with murine myeloma cells. The human mabs were developed by cell fusion of peripheral blood lymphocytes from healthy non-infected men with the heteromyeloma CB-F7. The anti-infectious reactivity of the mabs was tested in cell cultures freshly infected with HIV-1. The ADCC was carried out with normal mononuclear cells as effector cells and various target cells.
Results: Some but not all anti-p24 mabs differing in their idiotypes showed a delayed spread of HIV infection in the cell culture assays. These results were supported by the reactivity of the mabs in an HIV-specific ADCC. Various kinds of target cells showed different sensitivities in this assay [illegible] depending on p24 antigen surface expression.
Conclusions: Mabs against the p24 core protein could recognise HIV-1 infected living cells, kill them by ADCC and thereby [illegible] could mediate a protective mechanism against HIV-1.

2180

*Hernández, Victor R.C.; **Gagnon, Tim.
*Harvard Graduate School of Education, Cambridge,MA.
** Department of Corrections, Commonwealth of Mass.

Objective: Investigate the extent of AIDS/ HIV awareness and education in a medium security penal institution with a male population. From this information, design a comprehensive health program for inmates and penal institution staff.

Methods: The instrument for data collection was a questionnaire. Distributed to a random group of inmates. These subjects consisted of inmates who expressed interest in an AIDS educational material or a class. None of the subject had recieved any formal AIDS education. Although they were questioned (questionnaire #8). about what was their source of information about AIDS. Data was assessed by analyzing and correlating the data by using a Harvard Graduate School of Education VAX SAS data program. The following categories were supplied with information from the questionnaire: 1. Background info about inmate. 2.Knowledge of extent of AIDS/ HIV infection, transmission, and prevention. 3. Attitudes and behaviors with regard to latter. 5. Suggestions from inmates about how to distribute materials and info about AIDS.

Results: Indicate a %65 correct knowledge base. Attitudes indicate a serious desire for education and support. Behavior practices indicate a %60 risky behavior practice (Active). Additionally, ethnicity is diverse, many inmates dues for release within 10 years.
Conclusions: Education classes taught to inmates who inturn teach fellow inmates, directory of services, AIDS info library.

2181

RADIOTHERAPY FOR THE TREATMENT OF AIDS RELATED KAPOSI'S SARCOMA: AN UPDATED ANALYSIS

Quivey, Jeanne Marie*; Wara, W.M.*; Berson, A.M.**
*University of California, Department of Radiation Oncology, San Francisco, CA, USA,
**University of California, Department of Radiation Oncology, San Diego, CA USA.

Objective: The optimization of radiotherapy techniques for the treatment of Kaposi's sarcoma requires an in-depth analysis of tumor response, complications, and cost of different regimens.

Methods: A retrospective review of 300 patients with AIDS-related Kaposi's sarcoma treated with radiation therapy at the University of California, San Francisco, Department of Radiation Oncology was conducted with tabulation of time, dose, and fractionation data as well as tumor response, duration of local control, and treatment complications.

Results: 914 fields were treated with typically 3 fields treated per patient. Eighty percent of fields included the skin, 9% the mucous membranes of the upper aerodigestive tract, 2% the lung and bronchus, 2% the genitalia, 2% lymph nodes and 5% other sites. Response to treatment was over 90% with a median time to local progression greater than 18 months and an actuarial freedom from relapse at six months of 65%. Although no difference in local response or control was detected with different fractionation regimens, the incidence of moderate to severe complications was significantly lower when a single fraction of 8 Gy was used. (P=.001).

Conclusion: The 8 Gy regimen appears to give equivalent response to more prolonged fractionation schedules while minimizing both cost and risk to the patient. While the study is retrospective in nature, it can serve as a guide to continue to optimize treatment for AIDS-related Kaposi's sarcoma.

2182

BRIEF VERSUS LONG-TERM PSYCHOTHERAPEUTIC INTERVENTION AMONG HIV PATIENTS : WHAT ARE THE INDICATIONS ?

Matot, Jean-Paul; Misrachi, A.; Josse, E.; Dopchie, N.
St Pierre University Hospital, Brussels, Belgium.

The wide variety of HIV patients' psychological needs led us to point out several criteria enabling the choice between brief or long-term psychotherapeutic interventions (defined by the number and frequency of sessions). This work results from our clinical activity as psychoanalytical therapists with HIV in- and outpatients followed in a Division of Infectious Diseases. We retrospectively studied the files of the first 40 patients entering a psychotherapeutic process after May 1st, 1989. A twelve-points anamnestic data collection investigates : 1) The course and treatment of HIV infection; 2) the life style and some social aspects; and 3) the context of the first psychotherapeutic sessions. Six factors seem to influence the kind of intervention : 1) The infection staging. 2) The initiation of an AZT treatment. 3) The in- or outpatient status at the time of the first session. 4) Significant objectal loss during the previous years. 5) Patient's involvement in self-actualizing activities or relationships. 6) Several interactive characteristics of the course of the first session.
In conclusion, we developed the following hypotheses : a) Most of the abovementioned factors are related to the status and the outcome of the narcissistic failure among HIV patients. b) Brief psychotherapeutic interventions seem to be indicated when the patient has or rapidly finds an actual narcissistic support. c) Long-term psychotherapies are indicated when the patient/ therapist relationship represents the main source of narcissistic reconstruction.

2183

MOOD CHANGES DURING BLINDED PEPTIDE T TESTING

Linde, Rhonda*, Mayer, K.*, Parker, E.S.**, Moon, M.*, Bridge, P.***.
*Fenway Community Health Center, Boston, MA.,
**University of Southern California, Los Angeles,CA.,
*** National Institute of Mental Health, Bethesda, MD.,USA

Objective. To ascertain mood related change in 32 CDC Group IV HIV patients receiving intranasal Peptide T (D-ala-1-peptide-T-amide), a homologue of VIP and gp-120, and a gp-120 receptor blocker.
Methods. Patients were given intranasal Peptide T (1.2, 6, or 30 mg/day) in a random dose assignment, blinded, placebo controlled on-off-on design for 24 weeks with change dates at weeks 12 and 16. Mood state measures were POMS subscales and Beck depression inventory.
Results. Patients showed significant ($p \leq .05$) improvements in POMS subscales after 12 weeks for tension, depression, anxiety, vigor, fatigue, and confusion. Only vigor showed significant reversal during 4 week drug withdrawal. Other subscales remained at plateau from weeks 12-24. Clinically inconsequential, but statistically significant, improvements are present in depression scores from the Beck, and were most pronounced in the lowest dosage group.
Conclusion. There appear to be potentially some clinically significant mood effects associated with initial Peptide T administration in an on-off-on design. No neurotoxicity was observed.

2184 IMMUNE ABNORMALITIES OF HEMOPHILIACS IN RELATION TO HIV-1 INFECTION.

Akao, Masafumi; Yorifuji,H.; Hada,M.; Ikematsu,S. and Fujimaki,M.
Tokyo Medical College, Dept. of Clinical Pathology, Shinjuku, Tokyo, Japan

Objective : To investigate the immunopathogenic mechanisms of HIV-1 infection in hemophliacs, we have done multiple immunological analyses according to CDC classification. Subjects and Methods : During 7 months period (1988/89), 82 hemophiliacs (age 6-64) were involved in this study. The following immunological parameters were examined : lymphocyte subsets (single and two-color flow cytometory analysis) in peripheral blood, lymphoproliferation towards PHA, ConA and PWM, the leveles of β_2-microglobulin, immunoglobulins, P24 antigen, P24 antibody, CH50, circulating immune complexes (C1q-EIA method and Raji cell method), NK cell activity, TNF(ELISA), IFNγ (bioassay) and IFNγ (RIA) in the serum of hemophiliacs. Results : 1)We found various immune abnormalities in 44% of seronegative hemophiliacs. It was conceivable that these abnormalities could be caused by clotting factor concentrates. 2)The leveles of TNF(315$\pm$785 pg/ml, max:3200pg/ml, n=32), IFNα (max:45U/ml, n=32), IFNγ (0.3$\pm$0.6U/ml, max: 2.3U/ml, n=32) in the serum of seropositive hemophiliacs tended to be elevated as clinical stage of HIV-1 infection became worse. TNF(125 $\pm$325pg/ml, max:1250 pg/ml, n=45), IFNγ (0.2$\pm$0.6U/ml, max:2.3U/ml, n=27) were also detected seronegative hemophiliacs. 3)The possibility existed that there were different meaning of circulating immune complexes detected by C1q-EIA method and Raji cell method. We deduced the former was derived from clotting factor concentrates, the latter was from HIV-1 infection. Conclusion : Of special interest is the in creased leveles of immune complexes, TNF and IFNγ in seropositive hemophiliacs but also in seronegative hemophiliacs. These findings would suggest the kye to settle the immune abnormalities of hemophiliacs.

2185 PROVIRAL HIV-1 SEQUENCES SHOW RAPID EVOLUTION IN ENV AND STRONG SELECTION FOR FUNCTION

Balfe Peter, Simmonds P.; Bishop J.O and Leigh Brown A.J.
Dept. of Genetics, University of Edinburgh, Scotland.

Use of a double PCR technique has allowed us to sequence directly amplification products of individual HIV provirus molecules obtained from peripheral blood mononuclear cells (PBMCs). In contrast to published claims, we have observed a very low frequency of defective molecules: 1 frameshift and 1 stop codon only in a total of 66 kilobases from env and gag, despite the observation, in the regions flanking the CD4 binding domain in env, of many insertions or deletions as well as substitutions. No strong bias in substitution pattern was noted and the overall transition/ transversion ratio was 1.5.

A total of 66 sequences, 250bp in length, from the env-CD4 domain were obtained from 6 haemophiliacs infected from a single batch of Factor VIII in 1984; using PBMCs obtained in April - July 1989 (5 years post-infection). We can use the divergence between samples within an individual and between individuals to estimate rates of evolutionary change in HIV. The mean distance found between sequences within an individual is 3.35%, whilst that seen between individuals is 15.6%. These data indicate a large amount of divergence from the common founding event. However, most patients are much more similar to each other than to published sequences. One patient yielded sequences that were highly diverged from the others but this represented a recent change in this patient; proviral sequences from an earlier time point in this individual were more similar to those seen in other individuals.

3000 SEXUAL PRACTICES OF FEMALES INVOLVED IN MULTIPARTNER SEXUAL CONTACTS IN URBAN AREAS OF ETHIOPIA IN RELATION TO HIV TRANSMISSION.

Almaz G.Kidan*, Khodakevich L.**, Hailu N.*, Mengistu M.*, Bekele S.*, Fekerte B.*, Hawlte B.*
* Ministry of Health, Department of AIDS Control, ** WHO Team Leader, AIDS Control Programme, Ethiopia.

Objective: To obtain base line data on sexual practices of females involved in multipartner sexual contacts (MPSC) in major towns of Ethiopia in relation to the spread of HIV infection.
Subjects and Methods: Randomly selected females working mainly at bars from 23 towns of Ethiopia were interviewed during the second half of 1988 on their social status and sexual practices.
Results: The average age of the group under the study was 24.2 years and over four fifth of females practicing MPSC were within the age of 15 to 34 years. 99.1% reported to be not married; 59.5% of them were divorced. 17.8% of all females have reported one or more episodes of sexually transmitted diseases, gonorrhea was the leading cause. Most of the women (6144 - 93.5%) practiced peno-vaginal sex only. The most popular contraceptives were oral pills which were used always or often by 2771 females (42.2%).
Conclusions: Females in the most productive age are involved in MPSC (prostitution) in major towns of Ethiopia. Most of them have been divorced or were never married. Peno-vaginal sex is a prevailing practice among the study group. Oral pills are the most popular contraceptives.

3001 DIFFERENCES IN STATED BEHAVIOR OF FEMALE AND MALE IVDUS

Anderson Rachel, Jain S, Flynn N, Bailey V, Sweha A, *Wicks S. Univ. Ca., Davis, *The Effort, Sacto., CA USA

OBJECTIVE: To study stated behavioral differences between female and male IVDUs as captured by our questionnaire.
METHODS: Educational/behavioral questionnaires were administered to IVDUs (769) and their sexual partners (116) attending drug treatment programs (DTP) in Sacramento, CA. Subjects were interviewed from 8/87 to 8/89 and their blood was tested for the presence of HIV antibody.

RESULTS:	Female(N=324)	Male(N=445)	p
Heroin as DOC	264 (81%)	335 (75%)	ns
Currently in DTP	267 (82%)	332 (74%)	<0.05
Frequently Share N	165 (51%)	175 (39%)	<0.005
Frequently Disinfect N	155 (48%)	181 (41%)	ns
Have Primary Sex Partner	227 (70%)	257 (58%)	<0.001
Condoms - Vag. Sex	83 (26%)	81 (18%)	<0.05
Condoms - Anal Sex	19/127	12/163	<0.05
Sex with IVDU	281 (86%)	337 (75%)	<0.0005
Drink Alcohol	111 (34%)	226 (50%)	<0.00001
Employed	65 (20%)	149 (33%)	<0.0001
Have Been to Jail	216 (66%)	344 (77%)	<0.005

CONCLUSIONS: 1. Of those reporting needle sharing behavior, women report sharing more frequently, more sexual contact with IVDUs, more unprotected, receptive anal intercourse than reported by men. Female IVDUs appear to be at higher risk not only from their drug using behavior, but also from their high-risk sexual practices. 2. Differences in practices between female and male IVDUs suggest the need for different approaches to education/prevention for these two subsets of IVDU population.

3002 SEX, DRUG USE AND HIV INFECTION. PATTERNS AMONG FILIPINO MEN AND WOMEN AT HIGH RISK

Bugasao, Teresita Marie P.*, Monzon,OT.**, and Giannone, P.***
*Kabalikat ng Pamilyang Pilipino Foundation, Metro Manila, Philippines
**Department of Health Research Institute for Tropical Medicine, Metro Manila, Philippines
***Family Health International, North Carolina, U.S.A.

OBJECTIVE: To describe the AIDS related knowledge and attitudes and the risk taking behaviors of men and women sex workers in the Philippines as inputs to ongoing development of appropriate and effective programs and strategies.
METHODS: 640 women randomly selected from the government social hygiene clinic and 250 men recruited from identified establishments in Metro Manila were interviewed. A semi-structured questionnaire developed from a series of focus group discussions with similar population group was used. Data were analyzed to assess the extent to which certain factors may facilitate or hinder their risks of HIV infection.
RESULTS: Over 35% of the men and women had heard of AIDS but were misinformed about modes of transmission and relevant signs and symptoms. Previous STD infections were reported in 35% of the men and women. More than 65% of the men were bisexual and 90% of women were heterosexual in practice. Two groups of women sex workers could be differentiated-massage parlor and sauna bath attendants with higher number of sex partners, and bar nightclub girls with higher prevalence of oral drug use. Men had similar number of sex partners and drug use as the bar girls. About 45% of men engaged in either active or passive anal sex compared with less than 20% of the women. No difference could be noted among men and women with regards low condom use.
CONCLUSION: The widespread practice of unprotected sex with multiple partners, history of STDs and practice of anal sex in men were identified as HIV risk factors among all sex workers. These existing practices and misinformation about AIDS were utilized in the development of an ongoing AIDS education intervention program for the same population.

3003 HIV TRANSMISSION IN COVERT HOMOSEXUAL BEHAVIOR AMONGST "CLOSETED" HOMOSEXUAL/BISEXUAL MEN

Bennett, Garrett P. Westmead Hospital/AIDS Council of New South Wales, Sydney, Australia.

Objective of Research: To identify the degree to which covert homosexual/bisexual men in western Sydney were at risk for HIV transmission and what AIDS prevention strategies might be effective in targeting these men.
Methods: Social survey techniques were used and subjects were recruited from 2 sources: anonymous meeting places for male-to-male liaisons (e.g. public parks and toilets) and through personal columns in suburban (non-homosexual) newspapers. Filter questions were used to exclude any who were more than marginal participants in a gay lifestyle.
Results: These 2 groups (meeting places and newspapers) were significantly different. The newspaper group was more covert about its homosexuality, less interested in affectional activity with men, and had more sexual activity with women (48%:83%). They were equally well able to identify sexual methods of HIV transmission, but the newspaper group was more likely to have unprotected intercourse with both men(15%:35%) and women(75%:83%).
Conclusion: Male homosexual behavior varies between, and is understood differently by, different groups of men. The level of high-risk behavior and the reasons such behavior may or may not be altered also vary. Access to information does not, by itself, alter behavior. AIDS prevention strategies must recognise and acommodate the differing forms of covert homo and bi-sexuality

3004 Prevention of Perinatal Transmission of HIV

Berman, Stuart M., Sterk C., Galavotti C. Centers for Disease Control, Atlanta, Georgia, USA

Objective: To report progress to date of projects to prevent perinatal HIV transmission.
Methods: Eight demonstration projects evaluate and facilitate the use of contraception among women who are infected with HIV or at highest risk of becoming infected.
Results: The projects, are a major vehicle for CDC to develop perinatal HIV prevention interventions which if effective may subsequently be implemented by State programs. Projects address 2 factors determining HIV seroprevalence among newborns: HIV prevalence among women (15-44y) and birth rates among those who have HIV-infection. Efforts have focused on limiting increases in prevalence of HIV among women. Effective program development requires data concerning about reproductive decision-making among women who are intravenous drug users (IVDUs) and sex partners of IVDUs-(the mothers of 75% of perinatally acquired AIDS cases). In 10 cities, women who are crack users, IVDUs, sex partners of IVDUs, prostitutes, or have HIV-infection are identified in public clinics, obstetric units, and drug treatment programs, through referral by community organizations, and by outreach. A total of 3000 women will be followed to determine efficacy of referral and use of contraception; risk reduction efforts will be evaluated. Pregnancy rates, knowledge, attitudes, and determinants concerning use of contraception will be assessed. Descriptions of enrollees to date and their use of contraception will be provided.
Conclusions: Projects should provide information to direct efforts by State and local health departments to prevent perinatal HIV transmission.

3005 BISEXUALITY AND RISK BEHAVIOR IN LIMA, PERU

Bossio, Luis*; Gilvonio, J*; Carovano, K**
*Movimiento Homosexual de Lima, Peru
**AIDSCOM/The Johns Hopkins University, Washington, DC USA

OBJECTIVE: To measure the prevalence of bisexual behavior among those men having sex with men and to compare levels of knowledge, perception of risk and sexual behaviors of gay and bisexual men in Lima, Peru.

METHOD: A simple KAP survey was utilized to survey men in public social settings frequented by men who have sex with men. The survey was administered by volunteers from MHOL-Peru, a local gay community organization.

RESULTS: Initial survey results from 354 men revealed that 70% (n.248) reported engaging in sex exclusively with other men and 30% (n.106) reported engaging in sex with both men and women. Research identified many similarities among the population; the majority of men from both groups have a relatively high level of knowledge about AIDS, do not use condoms most of the time and perceive themselves to be at low or no risk for AIDS. Bisexual men, however, reported even lower levels of perceived risk and significantly lower levels of condom use with their female partners than their male partners.

CONCLUSIONS: Further research is needed to explore the hypothesis that AIDS prevention information targeting men who have sex with men may not convey the importance of protected sex with female partners as well; given the high level of bisexual behavior, this is critical. This behavior pattern may be been to parallel the findings that among female sex workers who may have protected sex with clients, many continue to engage in unprotected sex with their regular partners.

3006 UTILIZATION OF ADDICTION TREATMENT SERVICES AMONG ACTIVE INTRAVENOUS DRUG USERS

Carney Anne, Solomon L, Vlahov D, Cohn S. ALIVE Study, Johns Hopkins School of Hygiene and Public Health, Baltimore, MD, USA

Objective: To determine the utilization and demand for mental health counseling and addiction referral services, among IV drug users (IVDUs).
Methods: IVDUs, recruited from extensive community outreach into a longitudinal study of HIV infection, were informed during the course of a study visit, of the availability of mental health counseling and addiction referral services. Participants were referred upon demand. Individual counseling sessions, needs assessment planning, and treatment referrals were completed.
Results: During a 12 month period, 1732 IVDUs who denied current enrollment in a drug abuse treatment center (DATC) came to the study clinic; 249 (14%) requested counselling services at least once. Of the 249 individuals, the presenting problems were divided into four categories; request for substance abuse referral 151 (60%), socio-emotional problems 35 (14%), request for additional HIV education 29 (11%) and crisis intervention 12 (4%). 96% reported drug use during the prior six months, 92% used cocaine, 38% denied prior history in a DATC, and 35% were HIV-1 seropositive. 151 (9%) requested referral to DATC; for a subsample of 65 referrals, 21 (32%) enrolled in a DATC.
Conclusion: These preliminary data indicate that IVDUs will utilize mental health counselling and addiction referral services, although estimates exclude use of alternate referral sources and ineligibility for a DATC. Interventions to improve availability and access to mental health and addiction treatment services for drug abusers are indicated.

3007 SELF-DEFERRAL OF BLOOD DONORS IN LATIUM, ITALY

Chierchini, Patrizia* and the LATIUM AIDS Collaborative Group.
*Regional Epidemiology Unit, Rome, Italy.

OBJECTIVE: to evaluate the efficacy of the introduction of a self-deferral procedure (SDP) of blood donors in the Latium Region.
METHODS: blood donations are routinely tested for HIV since 1985. From January to June 1989, 46,741 candidates to donation (32,168 new [ND] and 13,577 repeat donors [RD]) underwent SDP, based on the self-administration of a standardized questionnaire to exclude from donation individuals who might find themselves during the serological "window period". SDP was not applied to 35,847 blood donors. Prevalence of self-deferral (SD) and of HIV seropositivity was determined in different groups of donors.
RESULTS: the mean prevalence of SD (MPSD) was 4.2% among ND and 0.5% among RD. HIV prevalence was 3.2 per 10,000 (95% CI 1.56 to 5.98) in ND with SDP and 4.4 per 10,000 (95% CI 1.76 to 9.04) in ND without SDP. Higher prevalence values have been observed in centers that, even if claiming to have an active SDP, in fact did not implement it (6.2 per 10,000, 95% CI 1.28 to 18.1), but also in centers with a MPSD among repeat donors above the regional average: this could be due to an incorrect policy of recruitment of RD.
CONCLUSION: the decrease of HIV prevalence in the donated blood units could be do to both the SDP and the usual exclusion of the seropositive donors. Efficacy of SDP is limited by heterogeneity of implementation and management of the program. More emphasis should be placed on the correct selection of donors. A correct use of SDP, together with collection of blood units from RD, highly improves the safety of the blood supply.

3008 HIV STATUS AND RISK BEHAVIORS AMONG WOMEN SEXUAL PARTNERS OF IVDU'S IN PUERTO RICO

Colón, Héctor*., Robles, R.*, Aponte, L.*, Matos, T.*

Objective: To examine the AIDS epidemiology and reported risk behaviors of female sexual partners (FSP) of IV drug users in Puerto Rico and discuss how these results help in planning and developing HIV prevention policies.

Methods: As part of risk reduction research demonstration project, funded by NIDA, 200 FSP of IVDU's (non IVDU's themselves) were recruited from public housing projects within the Metropolitan Area of San Juan. Blood samples were drawn and analyzed for the presence of HIV antibodies using ELISA and Western Blot techniques. And an interview schedule with a focus on sexual behavior, drug use, and AIDS information was administered.

Results: Rates of HIV seropositivity among groups of FSP's recruited at different localities within a 6 month period did not exceed 7% while IVDU's have consistently tested positive at rates of 45% or higher, double the ratio shown by AIDS surveillance data. FSP's reported use of high levels of non IV drugs: 32.9% use of marihuana; 57.2% cocaine; 37.5% heroin. The majority, 88%, had had a single sexual partner during the last 6 months. High risk sexual behavior was quite prevalent: 28.1% and 22.5% report oral and anal sex respectively; and less than 3% report always using condoms irrespective of type of sexual practice (vaginal, oral or anal).

Conclusion: Data shows high risk sexual behavior is quite prevalent among FSP's. On the other hand this group, critical in reducing the spread of the epidemic to the non IVD user population, is accessible to face to face prevention strategies.

* Research Institute, Department of Anti Addiction Services, San Juan, Puerto Rico.

3009 COCAINE USE AMONG LONDON PROSTITUTES

Day Sophie*, Ward H*, Mezzone J*, Donegan C*, Hanson L*, Harris JRW. Jefferiss Wing Clinic; *also Academic Dept. Public Health, St. Mary's Hospital, London W2, UK.

Objective: To determine patterns of cocaine use in relation to HIV risks.
Methods: Two groups of prostitutes were interviewed about drug use: 86 participants in a clinic study of HIV/STD risk (gp.A); 64 participants in a non-clinic study on the streets of West London (gp.B). Follow-up interviews were conducted with a sub-group of 46 clinic attenders (gp.A1) about cocaine use in relation to sexual behaviour.
Results: In a standardised interview of risk behaviour, 50 of 86 women (58%) in gp.A reported ever using cocaine. Twenty-nine (34%) reported current use (past 3 months); 6 of these reported use of freebase cocaine/crack. In gp.A1, 19 of 46 women (41%) reported current use of cocaine, 14 at work and 6 of these only ever at work. Cocaine use was reported by women working on the streets and in hotels, through escort agencies and madames, in flats and saunas and through private referral. Reports suggest an increase during 1989 in cocaine-bookings (where cocaine use is a condition of commercial sex). Two of 23 women reported unsafe sex exclusively in association with cocaine-bookings. In gp.B, 15 of 64 women (23%) reported current cocaine use, of whom 12 used freebase cocaine or crack.
Discussion: Cocaine use is common in all types of prostitution and reportedly increasing at work in relation to client demand, where it may be associated with HIV risks. In these groups, crack use cannot be analysed independently since the terms freebase and crack were interchangeable and reportedly linked with other forms of cocaine use in all cases. These results indicate a different pattern of cocaine use in the London sex industry at the current time than that reported elsewhere.

3010 SEXUAL BEHAVIOUR IN INTERNATIONAL TRAVELLERS - A PILOT STUDY

Conway, S.C., Slack, R.C.B. & Gillies, Pamela A.
University of Nottingham Medical School, Nottingham, U.K.

Objective: To assess the extent of risk behaviours for HIV transmission amongst international travellers & identify risk factors for such behaviour.
Methods: An anonymous self-administered questionnaire was sent to an age-sex stratified random sample of 978 patients aged 16-40, from 5 family doctors' lists. Information was asked only of those who had travelled abroad in 1988 or 1989, on health related experience including sexual behaviour, on last trip abroad, and on sexual behaviour in the U.K. The response rate was 56%.
Results: Of 545 respondents, 354 (145 men, 209 women) had been abroad; 143 were single, 210 married or living with a partner. Thirty (8.5%) travellers had "a romantic or sexual relationship" with a new partner on their last trip, 17 (4.8% of travellers) had had sexual intercourse; 9 (53%) of 17 people reporting sexual intercourse used condoms, 4 sometimes and 5 on all occasions; 4 used other forms of contraception and 4 no contraception. Men [X^2=4.03,df=1,p<0.05], single people [X^2=35.42,df=1,p<0.001], and younger people [X^2=36.89,df=4,p<0.001] were significantly more likely to have had a sexual relationship on their last trip abroad - 12% of men and 6% of women travellers formed a relationship whilst 8% of men and 2% of women had sexual intercourse. Of single people, 20% (28) had a relationship and 10% (15) had sexual intercourse; 25% of travellers (18) aged 16-20, 12% (7) aged 21-25, and only 2% (5) aged 26-40 formed a relationship. Sexual behaviour appeared to be related to increased alcohol consumption whilst abroad.
Conclusion: A substantial proportion of young single people form sexual relationships whilst travelling abroad. Further research is needed to develop and target appropriate health guidelines for those travellers most at risk.

3011 A FOLLOW-UP STUDY OF DRUG ADDICTS UNDERGOING COMPULSORY TREATMENT IN STOCKHOLM 1986-1989.

Fugelstad Anna*; Ågren G**.
*Sabbatsberg and S:t Göran Hospitals, Stockholm **Social Welfare Administration, Stockholm.

Objective: To study mortality, HIV incidence/status and ongoing drug abuse profile in a cohort of compulsory treated drug addicts.

Methods: Patients comprized of all drug addicts in Stockholm treated 1986-1988 according to the Swedish law on compulsory social care of alcohol and drug abusers (LVM). LVM is applied in special cases when voluntary treatment has failed or is not possible. LVM permits compulsory institutional care during 4 months.

Results: All 152 drug addicts except six were HIV-tested and 58 were positive. There was one case of seroconversion after the initial testing in 1985 or 1986. During the total follow-up period 21 addicts died. The annual mortality rate was 12.3 % among HIV-positive addicts and 8.1 % among those negative. 25 persons were referred to methadone maintenance treatment and their social behavior pattern was improved Most of the remaining group have relapsed into intensive intravenous drug abuse.

Conclusion: In this hard core group of drug addicts there has only been one case of seroconversion in spite of a poor overall outcome of treatment. Individual resistance to infection may be a contributive factor.

3012 PSYCHOLOGICAL FACTORS CONTRIBUTING TO ADOLESCENTS' PERCEPTIONS OF AIDS RISK

Gladis, Madeline; Michela, J; Walter, H; Vaughan, R; Kasen, S; Exner, T; Ragin D; Ehrhardt, A.
HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, New York, New York, USA

Objective: To assess adolescents' perceptions of their risk of contracting AIDS and to examine factors that may be associated with the tendency to minimize or misperceive this risk.
Methods: A questionnaire was administered to 296 tenth-graders from high schools in New York City and a neighboring suburban county. This questionnaire contained measures of AIDS-related behaviors and beliefs, and measures of psychological constructs hypothesized to influence risk judgments.
Results: There was a significant association between perceived risk and scores on a behavioral risk index, suggesting that behavior is used as a basis for calculating personal risk. However, 75.5% of the students believed that they are at less risk for AIDS than their peers, and risk judgments were not always reflective of degree of involvement in AIDS-related risk behaviors. Those classified as repressors on a measure of respression-sensitization were significantly more likely to minimize their absolute risk. Knowledge was associated with both absolute and comparative risk judgments. Perceived absolute risk was related to three measures of motivation to reduce risk.
Conclusions: The results of this study, which indicate that emotional responses can act as a barrier to accurate risk appraisal in teens, have implications for how risk information is communicated in the context of AIDS education campaigns.

3013 WHAT SERVICES ARE GLASGOW STREET PROSTITUTES PAID FOR? : AN ETHNOGRAPHIC STUDY

Green Stephen T*; Goldberg D**; Christie P**; Thomson A***
Infectious Diseases Unit*, CD(S)U** and HIV Counselling Clinic***, Ruchill Hospital, Glasgow, UK.

It is frequently assumed that prostitutes services exclusively involve "conventional" sex (eg intercourse, orogenital sex, masturbation). From May 1988 to April 1989, 71 street prostitutes (76% drug injectors) were interviewed in detail concerning services clients paid for other than those above. These included:- stripping; masturbating themselves; defaecating or urinating within client's view; receiving physical abuse (usually being whipped); administering physical punishment (eg whipping; damaging genitalia by direct blows, biting, burning or squeezing; burning with cigarette); non-traumatic abuse (eg spitting, urinating or defaecating into the client's mouth); supplying soiled undergarments; lesbian sex (with female client or male client's female partner); role-playing in erotic scenarios (eg lying naked in a coffin); participating in obscene conversation; looking at obscene (including paedophilia) literature; helping clients to cross-dress; allowing clients to suck breast milk. Unlike many forms of "conventional" sex, most of these activities involve absolutely no risk of HIV. Other points of interest to emerge were: at least 18/71 were receiving regular Depo-Provera injections (I/M medroxy-progesterone; Upjohn) as a reliable contraceptive; during menstruation some women placed absorbent sponges into their vagina to allow prostitution to continue; some clients examined girls for injection sites prior to sex to exclude IDUs (thought to be most likely to be HIV+ve). Whatever the moral standpoint taken, prostitutes' services reflect a response to existing demands.

3014 Intravenous drug users in France: a sample survey of AIDS-related behavior and knowledge attitudes.

Guiguet, M.* Cohen, M.** Wells, J.° and Valleron, A-J*
*Centre Coopérateur de Données sur l'Immunodeficience Humaine, INSERM SC4 and U263, Paris, France, ** INSERM U21, °Center for Health Affairs, Project Hope, Chevy Chase, Maryland,USA

Objective: : To describe the knowledge and the behavior of intravenous drug users.
Methods: : A French national sample of 2294 subjects, age 16-50, was administrated an anonymous questionnaire during a peronal interview on knowledge and risk behaviors related to AIDS
Results: 41 people report intravenous drug use (IDU). All the IDUs, except one, indicated that they perceive the risk of AIDS to be very high for IDUs. They are much more likely than the general population (GP) to think they will develop AIDS (X^2=23.4, p<.001). IDUs act upon their anxiety: They are much more likely to have had an HIV test (63% IDU vs 13% GP, p<.0001). They also report a substantial modification in needle sharing: 23 (56%) report having shared a needle in the past five years, but among the fourteen IDUs who report they did not stop injecting, only 2 report having shared a needle in the last month. Concerning sexual behavior, IDUs report higher risk behavior than the GP. Controlling for age, the IDUs are more likely to have had multiple partners (p=.001), bisexual partners (p=.02) and IDU partners (p<.0001).
Conclusion: This work emphasizes the need for prevention programs directed toward intravenous drug users which emphasize reducing multiple risk factors and not only needle sharing.

3015 CHANGES IN SEXUAL BEHAVIOR OF HETEROSEXUAL MEN AND WOMEN WITH MULTIPLE (PRIVATE AND COMMERCIAL) PARTNERS

Hooykaas, Christa *; Van der Pligt, J**;
Van der Linden, MMD*; Van Doornum, GJJ*; Coutinho, RA*
* Municipal Health Service of Amsterdam, Amsterdam, The Netherlands;
** University of Amsterdam, Amsterdam, The Netherlands

Objective: The purpose of this study was to describe changes in sexual behavior of heterosexual men and women with multiple partners. Methods: Between October 1987 and April 1989, heterosexual men and women with 5 or more sexual partners were recruitement at a STD-clinic. In 20 months 512 heterosexuals entered the study, and were asked to return 3 times a year for follow-up study. Analyses (Chi-square, t-test, ANOVA) were performed with respect to private or commercial partners (PP resp. CP) on changes over time (3 visits) in number of partners, sexual techniques and condom use. Results: 339 heterosexuals had at least 1 follow-up visit. The number of PP decreased for men from 5.5 to 2.5 (p<.01), for women from 4 to 2 (p<.01). Clients decreased the number of CP from 8 to 6 (ns), and prostitutes decreased the number of CP from 87 to 63 (ns). No changes over time were found in the frequency with which sexual techniques were practised, with PP or CP. No changes in the frequency of condom use with PP were found; 10% always used condoms and 45% (men) to 60% (women) never used condoms with PP. Some increase in always using condoms was found for clients with CP (45% to 55%, ns), and for prostitutes with CP (73% to 85%, ns).
Conclusions: Sexual behavior of heterosexuals with multiple partners has a stable pattern over time. Only the number of partners was subject to change. Using condoms more often for heterosexuals with multiple private partners, should be emphasized more in prevention activities.

3016

ADOLESCENT SCHOOL-BASED AIDS KNOWLEDGE AND ATTITUDE SURVEY

Hudson, Ruth; Freeman, A.; Krepcho, M.; Petty, A.
Dallas Cnty. Health Dept., Dallas, TX USA.

Objective: A 1989 survey of secondary school populations tested knowledge on HIV, condoms, transmission, risk perception, and prevention. Methods: A 94 question survey was designed and administered to students in 2 public school districts grades 7-12. Results: The 874 students' ages ranged from 11 to 20; all major ethnic groups were represented. Students scored well on HIV/AIDS questions (mean % correct 84%), but scores on knowledge of condom usage were poor (mean % correct 52%). Seventy two percent lacked knowledge that condoms should be used with water-based lubricants. Preventive scores revealed that 84% knew abstinence would prevent HIV infection. When students were asked why sexually active teens would not use condoms over 50% felt that condoms were embarrassing to buy or uncomfortable. Thirty seven percent of the students felt at risk for HIV. Students ranked TV, magazines, and teachers as their major sources in learning about HIV. Students identified AIDS hotlines and health departments as HIV/AIDS resources. Conclusions: Adolescents in Dallas County have a high degree of factual knowledge about HIV/AIDS. Students know about condom effectiveness but their knowledge and negative attitude was high. Future planning to educate adolescents needs to consider bridging the gap between knowledge, attitude, and actual behavior change.

3017

AGE AND ETHNIC DIFFERENCES IN HIV-RISK BEHAVIORS AND KNOWLEDGE OF IV-DRUG USERS

Humfleet, Gary L.*; Rhodes, F.*; Baker, J.* and Martin, D.**
*AIDS Research and Education Project, California State University, Long Beach, CA, USA, **Harbor-UCLA Medical Center, Torrance, CA, USA

Objective. To examine age and ethnic differences in HIV-related risk behaviors, history of drug use, and HIV-related knowledge of IV-drug users.
Methods. As a part of an ongoing outreach education project, 567 IV-drug users participated in a standardized interview prior to counseling/education. The interview assessed drug use, HIV-related risk behaviors (both drug and sex-related) and HIV-related knowledge. Participants ranged from 20 to 65 years of age. Ethnicity of subjects was 46% Black, 16% Hispanic, and 38% White. Comparisons were made for age and ethnicity.
Results. Multivariate and univariate analyses of variance revealed differences in patterns of drug use for both age ($p < .001$) and ethnicity ($p. < 001$). Older subjects reported shooting up more frequently than the younger subjects. Younger IVDUs were significantly more likely to share cookers or cottons and inject in a group setting than were older IVDUs. Whites reported higher incidence of amphetamine use, while minority participants reported higher incidence of cocaine use. Minority participants were more likely than white participants to frequent shooting galleries. AIDS-knowledge level of Blacks was lower than that of Whites while knowledge of Hispanics was lower than both. No differences were found for number of sex partners or frequency of condom use.
Conclusion. These results indicate that AIDS education and intervention programs must take into account behavior and knowledge differences that exist within specific subpopulations of IVDUs. The need for continued education, particularly in minority communities, is supported.

3018

SURVEY OF SEXUAL BEHAVIOR RISK FACTORS FOR HIV INFECTION IN INCARCERATED ADOLESCENTS

Huscroft, Susan; Morris, R.; Re, O.; Baker, C.; Aquino, K.; Roseman, J.
County of Los Angeles/Department of Health Services, Los Angeles, CA, USA

OBJECTIVES: To assess high risk factors for HIV infection related to sexual behavior. To use such data to assist in the development of early intervention educational programs for high risk youth.
METHODS: The minors in Los Angeles County juvenile halls who requested counseling about AIDS and the Voluntary Testing Program were given individual interviews by specially trained health educators. The minors were asked about their sexual behavior using a standardized questionnaire.
RESULTS: 1038 sexually active minors were interviewed. The average age of the first voluntary sexual encounter was 13.4 years for females and 12.9 years for males. The vast majority of sexual activity was heterosexual with only 8% homosexual activity for females and 2.7% for males. Condom use was low: 37%. Rectal sex—male/female was 13%, and among males was 1.6%. Approximately 50% reported oral sexual activity. 15.1% of the females and 9.6% of males admitted trading sex for favors. 24.3% of the females and 9.1% of the males had sex with IV drug users. 10.4% of the females were pregnant at the time of the survey and 45.8% reported previous pregnancies. 20% of all minors had children.
CONCLUSIONS: Sexual activity started at an early age. Condom use was low. Their sexual behavior puts these minors at high risk for HIV infection. With this data we were able to focus our early intervention program on reducing the specific high risk sexual behaviors of our minors.

3019

SAFE SEX PRACTICES OF FEMALE PARTNERS OF HEMOPHILIC MEN

Killinger, Joyce F.; Kroner, B.L.; White, G.C.II; Hilgartner, M.W.; Goedert, J.J. NCI Multicenter Study of AIDS in Hemophilia, Bethesda MD, USA.

Objective: To evaluate current sexual practices of female sexual partners (FSP) of HIV-infected men with hemophilia.
Methods: Confidential self-administered questionnaire data collected in 1988-89 from 135 FSP were examined for compliance with various safe-sex strategies.
Results: 15 (11%) of the FSP were HIV-positive and 120 (89%) were HIV-negative. Since 1987 there have been no documented HIV seroconversions in this cohort. Simultaneously, the proportion of FSP either abstaining from intercourse or always using condoms has increased from about 30% to over 60%.

Intercourse activity	HIV-positive FSP	HIV-negative FSP
None	2 (13%)	9 (8%)
Condoms always	8 (53%)	66 (55%)
Condoms > 1/2 of times	1 (7%)	23 (19%)
Condoms < 1/2 of times	0 (--)	13 (11%)
Condoms never	4 (27%)	9 (8%)

Frequencies of intercourse and condom usage were generally independent, except only 15% of those who had sex most often (> 3/week) used condoms.
Conclusion: Safe sex education messages provided by our hemophilia centers and other sources appear to have been successful in preventing HIV transmissions since 1987 in this cohort of FSP. This success has been achieved through a combination of two strategies--sexual abstinence or use of condoms if intercourse is practiced. Nonetheless, fully 38% of the FSP who remain HIV-negative practiced intercourse without a condom, indicating that educational intervention and motivation must be vigorously continued.

3020 STUDY OF SEXUAL BEHAVIOR AND HIV INFECTION IN A POPULATION OF TANZANIA BORERING HIV-1 ENDEMIC AREAS.

Konings, E.[1], Siso, Z.[2], Brubaker, G.[2] Anderson, R.[1], Kibauri, D.[2], Matongo, S.[2], Massessa, E.[2], Shao, J.[3], Scott, G.[1], Clayton, Y.[4], Lynch, J.[4], Levin, A.[4], et al. 1. London, UK; 2. Shirati, Tarime and Musoma Hospitals, Tanzania; 3. Muhimbili Medical Center, Dar-es-Salaam; 4. CRC, London, UK.

Objectives: (1) to investigate heterogeneity in heterosexual activity and rates of partner change in urban, rural and potentially high risk populations, aged 15 to 49, of the Tarime District, NW Tanzania. (2) to look at the prevalence of HIV infection and syphilis in these populations with regards to sexual behavior.
Methods: A random sample of 931 rural and 140 urban subjects and a high risk group of 300 bar and hotel workers were interviewed about their sexual histories and tested for HIV and syphilis antibodies.
Results: Preliminary results for the rural area indicate a mean age at first intercourse of 15.8 for men and 14.9 for women. In the urban sample, men had their first sexual experience on average at the age of 17.0 while women were 15.3 years old. In the high risk group the mean age at first intercourse for men and women was 16.9 and 15.0, respectively.
Conclusion: Correlations and patterns between and within demographic and behavioral groups and indicators of HIV and syphilis infection will be presented.

3021 AIDS EDUCATION TOWARDS YOUNG PEOPLE IN SIX FRENCH CITIES.

LERT France, LERT Henri.
Lab GESTE-SP, INSERM U88, Saint-Maurice, France

Objectives:French policy regarding AIDS education towards adolescents remained unclear until 1988 despite young people were considered as a target group. The aim of the study was to describe: 1) AIDS education activities towards different groups of young people in different social and epidemiological environments; 2) the involvment of institutions in AIDS prevention.
Methods: Six cities were chosen in three different french regions: Two high prevalence areas, Ile de France and Provence-Alpes-Cote d'azur, and a medium prevalence area, Haute-Normandie. Two cities have about 10 000 inhabitants. All institutions dealing with young people were studied: high schools, vocational schools, outreach teams, youth clubs, social services, employment agencies, hostels.
Results: A majority of professionnals dealing with young people are concerned about HIV infection and willing to participate in AIDS education. In five cities, many educational programs were carried out in school settings, mainly from 1988. In one of the small cities, fear of parents reactions were allegated to prevent the implementation of AIDS education programs; Actually negative parents reactions were scarce in other places. Most activities were undertaken on a voluntary basis with poor financial support from public funds. AIDS education methods are usually poor: unclear objectives, poor training of educators, no evaluation. Education programs focus on knowledge and rely on lectures about aids transmission, aids disease, condom and less frequently about attitudes towards seropositive people. Most programs do not include neither sex education nor drug use prevention.Only a few programs were targeted to unemployed, street adolescents, street addicts or poorly educated young people, even in high prevalence areas. Training programs for social workers were implemented with public funds during 1989.
Conclusion: There is a great concern about HIV infection in the french society but AIDS prevention remain limited until 1989 because of the lack of clarity of public policy, the poor training and experience in health education especially regarding drug use and sex education.

3022 INCIDENCE OF PREGNANCIES AMONG ANTI HIV+ WOMEN AWARE OF THEIR SEROPOSITIVITY IN ITALY (APULIA).

Lo Caputo S.,Salamina G.,Grisorio B.,Resta F.,Fera G.,Potenza D.,Cataldini S.,Angarano G.,Pastore G.,Schiraldi O.for the Apulian Infectivologic Collaborative Group for AIDS-Clinic of Infectious Diseases Univ.Bari-ITALY

OBJECTIVE:To evaluate the number of pregnancies and their progression in women aware of their seropositivity in relation to preventive measures adopted in a multicenter study set up in a region of South Italy (Apulia).
METHODS:227 women,representing 18.1% of the total population of seropositive subjects studied,have been followed up.Of these 137 IVD abusers,71 partners of anti HIV+(most IVD abusers),10 blood recipients,9 prostitutes.Each patient had periodic laboratory and clinical examinations.On these occasions emphasis was placed on the importance of the use of condom in sexual intercourse,with the aim of avoiding a continuous exchange of the virus between seropositive partners and limiting the risk of vertical transmission.
RESULTS:Among the patients studied,48 women(21.1%)had pregnancies while being seropositive;of these 51 concluded,20 pregnancies occured in women(13 partners 7 drug addicts)fully aware of their seropositivity.Only 3 chose volountary interruption of pregnancy.8 of the children born were infected and 2 of them died.It should be noted that over half of these 20 women asked for medical consultation at an advanced stage of their pregnancy,probably due to lack of self care and concern for their welfare.
CONCLUSIONS:Despite accurate medical advice the risk of a further rise in vertical transmission of HIV remains in drug addicts.There still exists the need for more effective preventive measures regards this population.

3023 AIDS ANXIETY AND RISKY SEXUAL PRACTICES IN SEX INDUSTRY INTRAVENOUS DRUG USERS

London, Julie ; Wolfe, R.; Sorensen, J. L.; Choi, K. H.
UCSF Center for AIDS Prevention Studies (CAPS), San Francisco.

Objective: To compare sex industry intravenous drug users (IVDUs) with other IVDUs on attitudes about AIDS, sexual practices and risk reduction efforts.

Method: Ninety eight IVDUs (64 men and 34 women) enrolled in a 21-day outpatient treatment program were interviewed. Two of its men and 13 of its women were sex industry workers. Self-report measures included AIDS knowledge, perceived threat, sexual practices and drug use in the last month, risk reduction knowledge, response efficacy, self-efficacy and communication skills.

Results: Sex industry IVDUs reported more anxiety and susceptibility about AIDS. They engaged in riskier sexual practices than other IVDUs, but reported a higher percentage of condom use (44% versus 18.9%).

	$\bar{X}$ (Sex Industry IVDUs-n=15)	$\bar{X}$ (Other IVDUs-n=83)
Perceived Susceptibility	43.3	28.1
Anxiety	2.4	1.6
# of Male Partners	42.1	0.68
Vaginal Intercourse	34.3	10.3
Oral-Genital Sex (active)	31.3	4.3

Conclusion: While sex industry IVDUs report using condoms more than other IVDUs, their amount of sexual activities leaves them feeling an appropriate increase in anxiety and vulnerability to HIV infection. This should be useful for intervention efforts.

3024 BLOOD DONOR RECRUITMENT IN AFRICA - MEETING THE AIDS CHALLENGE

Mangwire, I.*, **Wallace, B., **Gabra, G., **McAllister, K.,
*Zimbabwe Red Cross, Harare, Zimbabwe, ** League of Red Cross and Red Crescent Societies, Geneva, Switzerland.

OBJECTIVE: To identify the main constraints limiting donation of blood by low-risk donors in Anglophone Africa, in order to develop health education and marketing strategies which will enable the creation of a low-risk pool of regular donors.
METHODS: Focus group research on groups of donors, lapsed donors and non-donors in a number of Anglophone African countries was carried out to determine motivations and anxieties regarding blood donation. Low-risk donor populations in Zimbabwe were identified through HIV antibody test results from various donor groups. A workshop was held in order to use the focus group and HIV antibody test results to develop health education messages and innovation strategies for reaching targeted donor populations with low rates of HIV infection.
RESULTS: Results of field testing will be presented to demonstrate the effectiveness of strategies as perceived by target audiences. A marketing plan for creation of a safer pool of regular donors was developed. Policy guidelines were written for handling donors in the era of AIDS.
CONCLUSION: The recruitment and retention of safe blood donors is a key element in global blood safety. Strategies for donor recruitment should include appropriate AIDS information, and will be more effective in meeting the perceptions of target groups if health education and marketing methods are utilized. Policy guidelines are needed to ensure the safe, appropriate and sensitive handling of seropositive blood donors.

3025 PREDICTORS OF SAFE NEEDLE USE AMONG INTRAVENOUS DRUG USERS

Margolis, E.*; Catanzarite, L.**; Biernacki, P.*; Feldman, H.W.*.

* Youth Environment Study (YES), San Francisco, CA, USA.
** Dept. of Sociology, Stanford University, Stanford, CA, USA.

Objective: To identify predictors of safe needle use among intravenous drug users (IVDUs). Safe needle use (SAFEIV) was defined as: always cleaning needles with bleach, alcohol or boiling water; or never sharing needles.
Methods: Structured interviews were completed with 752 out-of-treatment IVDUs. Contingency table analysis was employed, with chi-square statistics to assess statistical significance of bivariate associations between categorical variables.
Results: 60% of the IVDUs in this sample used needles safely. Compliance was primarily due to cleaning behavior. Age was a negative predictor of SAFEIV, due to a lower propensity to share needles among older users. SAFEIV did not differ by race, gender or sexual orientation, but did differ by drug used. Cocaine injection was negatively associated with SAFEIV, as cocaine users were less likely to clean needles.
Conclusions: There was no association between SAFEIV and receiving AIDS-related information from drug treatment programs, television or radio. SAFEIV was impacted by effective outreach. Receiving information from a street-based outreach project was a positive predictor of SAFEIV (chi-square = 3.65, $p<.056$), due to differences in cleaning behavior (chi-square = 3.88, $p<.049$).

3026 CHARACTERISTICS OF IV-DRUG USERS RETURNING FOR FOLLOW-UP AND THOSE LOST TO FOLLOW-UP IN A COMMUNITY RESEARCH STUDY

Martin, David J*; Rhodes, F**; Humfleet, G**
*Harbor-UCLA Medical Center, Torrance, California, USA, **AIDS Research & Education Project, California State University, Long Beach, California, USA

Objective. To identify differing characteristics (demographic, AIDS-risk) of IV-drug users returning for six-month follow-up and those who failed to return.

Methods. Standard initial-interview data on selected demographic, drug-use, and drug- and sex-related AIDS-risk behaviors were compared in IV-drug users who subsequently returned for follow-up (N=99) and those who failed to return for follow-up (N=247).

Results. Multivariate and univariate analyses of variance revealed that IV-drug users who returned for follow-up were older and more likely to have a stable living situation (i.e., less likely to be homeless and more likely to live with their sex partners) and reported later age of first regular drinking and first intoxication. IV-users who returned reported less frequent injection behavior than did individuals who returned and less frequent use of heroin and heroin-and-cocaine than did those who failed to return. They also reported having sex for drugs and money less often than individuals who returned for follow-up.

Conclusion. These results suggest that IV-drug users who are relatively inaccessible for follow-up may be at higher risk for HIV infection than are those who are accessible. These individuals appear to have a greater need for social and community services, which may prove to be a useful avenue for providing AIDS information. Intensive and innovative outreach and intervention strategies are needed to reach these individuals.

3027 THE RELATIONSHIP BETWEEN HIV RISK BEHAVIORS AND PERCEPTION OF INFECTION RISK AMONG INTRAVENOUS DRUG USERS (IVDU's)

McBride, Duane C.*; McKay, Carolyn Y.**; McCoy, Clyde B.**; Chitwood, Dale D.**
*Andrews University, Berrien Springs, Michigan, USA,** University of Miami, Miami, Florida, USA

Objective: The objective of this research was to examine the relationship between risk behaviors and perceptions of risk for HIV infection in a street population of intravenous drug users in Miami, Florida.
Methods: The sample consisted of 718 IVDU's not in treatment who had used drugs IV within the last six months. While a variety of behavioral data were collected, for this analysis, seven variables were focused on: (1) sex (2) ethnicity (3) how often used drugs IV (4) how often used "shooting gallery" (5) how often cleaned needles (6) number of sexual partners (7) perception of extent of risk for HIV infection. Chi Square and Pearson's r were used to examine the relationship between perception of infection risk and the other variables listed.
Results: The results indicated that overall, only 10.4% of the IVDU's perceived themselves at high risk for AIDS. While there were differences by extent of risk behaviors, those differences were small and generally were not statistically significant. Those who engaged in the highest risk behaviors such as shooting four times a day or never cleaning needles did not perceive themselves at significantly greater risk for HIV infection.
Conclusions: The data indicate that prevention programs directed toward reducing high risk behavior among IVDU's face a major barrier in overcoming the denial of infection risk by those engaged in high risk behaviors.

3028

THE RELATIONSHIP BETWEEN PARTNER STATUS, SEXUAL PRACTICES AND REPORTED CONDOM USE AMONG MEN IN TRINIDAD AND TOBAGO

McCombie, S.*; Helquist, M.**; Woods, W.**; Renaud, D.***; Cleghorn, F.***
*University of Pennsylvania, Philadelphia, PA, **AIDSCOM, Academy for Educational Development, Washington, DC, ***Caribbean Epidemiology Center, Port of Spain, Trinidad and Tobago.

Objective: To investigate factors related to the use of condoms among men at risk for HIV in Trinidad and Tobago.

Methods: 303 men attending an STD clinic and 22 men attending an HIV clinic in Port of Spain, Trinidad were interviewed about condom use in 1989.

Results: 85% reported sex with women only, 10% with women and men, and 5% men only. Almost half (45%) had not used a condom in the last month. Condoms were more likely to be used with casual than regular female partners. Men who had sex with men were more likely to use condoms with regular male partners than regular female partners and during passive versus active anal intercouse. They were also more likely to say that a steady couple should use a condom and less likely to exhibit a negative attitude toward using condoms, but did not differ from heterosexual men in overall frequency of condom use or in compliance with a partner's request to use a condom.

Conclusions: The frequency of condom use is low among men at risk in Trinidad and Tobago. Promotion strategies need to be designed to address negative attitudes about using condoms and provide guidelines for negotiating with potential partners.

3029

A COMPARISON OF HIV RELATED RISK BEHAVIOUR BETWEEN A NON-CLINIC SAMPLE OF INJECTING DRUG USERS AND ATTENDERS AT A NEEDLE EXCHANGE CLINIC

McKeganey N.P. Barnard M.A. Social Paediatric and Obstetric Research Unit, University of Glasgow

Objective: To compare relative levels of HIV related risk behaviour between injecting drug users in contact with a needle exchange service and those purchasing injecting equipment at a retail pharmacy located in an area where drug injecting is widespread.
Methods: Semi structured interviews with 102 individuals within a retail pharmacy and 51 individuals attending a needle exchange clinic.
Results: The age distribution of both groups was similar with an under-representation on both of female injecting drug users and individuals aged under 20. 47% of the needle exchange group and 54.3% of the pharmacy sample had non drug injecting sexual partners. Condom use was lower in the pharmacy group (21.1% compared to 31.4%). Needle sharing was reported by 51.4% of the pharmacy group and by 58.8% of the needle exchange group.
Conclusions: This study is identifying higher levels of HIV related risk behaviour among a sample contacted at a non clinic site compared to attenders at a needle exchange. However significant levels of risk behaviour have been identified for both groups.

3030

DETERMINING FACTORS OF THE CHANGES IN INFORMATION, ATTITUDE AND PRACTICES CONCERNING STD AND AIDS. A PROSPECTIVE STUDY AMONG UNIVERSITY STUDENTS IN PARIS

MENARES J. ECHEVARRIA P., CHWALOW J*.
INSERM Unité 263. 2 Pl Jussieu 75251 Paris Cedex 05 * INSERM U21

Objective : Exploration of the knowledge, attitude and practice of University students about health, STD and AIDS. Study of the factors of change from 1988 to 1993. Creation of a dynamic link with the students allowing health education recommandation regularly assessed and adjusted.
Methods : The interviews, the group discussions and a pilot phase were followed by a questionnaire of 140 items, strictly anonymous and non mandatory was completed by 648 male and female students, 17 to 22, from the 1st year of University in a 1/5 random sample. 203 000 data were collected.
Results : A feed back report was released showing along with the results of the questionnaire a lack of information and the need to be sensitized and motivate the students to adopt attitudes and behaviors revealed lacking, or to correct them if they are inappropriate : 41,8% of the students having had sexual intercourse claims having changed their practice because of AIDS, 19% of them think they should carry a condom with them and 10,3% say they use condom "if necessary". 65,4% of the students claims they are ready to take part in an information program on AIDS prevention for other young people.
Informal relay groups of volunteers regularly discuss with the research team about a theme chosen by themselves about STD and/or AIDS and their difficulties to adopt a preventive measures. Students comment upon that experience around them (feed in). Then, they report on the reaction they met (diagnostic) which allows to further adjust information.
A 128 pages book is now being distributed among all students of the University preparing the second phase of the prospective study where changes and factors associated will be assessed.

3031

ETHNOGRAPHIC STUDY OF HOMOSEXUAL PRACTICES IN MEN FROM MEXICO.

PALACIOS M, IZAZOLA J, RAMOS M, MONDRAGON MANUEL, RAMIREZ O, RAMAH M.
General Directorate of Epidemiology. Ministry of Health. Mexico.

OBJECTIVE: To describe behavioral patterns in men with AIDS risky sexual practices to determine a psycho-social typology for proposing targetted alternative education.
METHODS: A qualitative anthropological study based on the analysis of results obtained in previous quantitative and qualitative studies and on interviews with members of this population.
RESULTS: Historically religion and machismo, toghether with low educational levels, have led to discrimination and stigmatization of homosexuals anbd bisexuals by Mexican society. However, whilst understanding and acceptance is possible, this population is not integrated into society. This population presents different behavior according to urban or rural situation, socio-economic level, education, age, and self-acceptance of homosexuality. Main currents, according to these variables are covered by the following subgroups in the homosexual population in Mexico City; gay prostitutes, young gay gangs, poor urban gays, subway gays, street boys, recently arrived indian gay men, disco gays, intellectuals, closet gays, stereotyped gays, bisexuals by choice and bisexuals out of social pressure.
CONCLUSIONS: Education aimed at homosexual groups in Mexico has considered populations as homogeneous and stereotyped. However, previous studies have shown that among male homosexual population there is a great diversity of behavior. Until recently, education was aimed at some gay subgroups, such as "intellectuals" or "disco" gays, who are the most socially obvious. Nevertheless, alternatives must be found to target AIDS education/information to other subgroups with high-risk sexual practices for whom the messages media and information channels used to date are of little or no use.

3032

AIDS RELATED RISKS AND THE SEX INDUSTRY: A SCOTTISH STUDY

Morgan Thomas, Ruth; Plant, M.A.; Plant, M.L.; Sales, J.
University of Edinburgh, Edinburgh, Scotland.

Objective: To determine the extent to which sex workers and their clients in Edinburgh engage in AIDS related risk activities.
Methods: Single phase, cross sectional survey. Respondents were self-identified sex workers (108 males, 179 females) and clients (206 males, 3 females), contacted by a non-random method ("snowballing"). Data were elicited in face to face interviews using standardised schedules relating to over 300 variables. These include biographical characteristics, details of involvement in sex industry, services sold/purchased, condom usage, health, non-paying partners, alcohol and illicit drug use and AIDS related knowledge.
Results: 25.1% of sex workers and 13.1% of clients had used drugs intravenously, 14.7% and 6.1% were currently using. 76% of sex workers always/usually asked, while 27.7% of clients at least sometimes refused to use condoms for penetrative intercourse. 38.3% of sex workers and 60.2% of clients reported no history of sexually transmitted diseases, 66.2% and 42.9% had attended Genito Urinary Medicine Clinics. 55.8% of sex workers and 26.9% of clients reported having had HIV antibody tests, 7.7% and 3.4% reported a positive result. Differences between subgroups will be discussed.
Conclusion: The majority of sex workers and clients acknowledge the possible risk of HIV transmission, however, a minority are not adopting harm minimization strategies for various reasons. Policies to assist the sex industry in implementing such strategies need to be adopted. Further research needs to be carried out in a variety of locations, into 1) the correlates of risk taking in the sex industry, 2) why sex workers and clients seem unable to implement safer sexual practises, and 3) the social, political and legal barriers which prevent the minimizing of harm in the sex industry.

3033

IMPACT OF AN STD/AIDS HEALTH EDUCATION PROGRAMME AMONG FOUR GROUPS OF WOMEN WORKING AS PROSTITUTES IN KENYA

Ngugi, Elizabeth N.*, Njeru, E.K.*, Kariuki, A.**, Plummer, F.A.*,***, Moses, S.*,***, Muchunga, E.K.*.
*University of Nairobi, Nairobi, Kenya; **Ministry of Health, Republic of Kenya; ***University of Manitoba, Winnipeg, Canada.

OBJECTIVES: To assess the efficacy of STD/AIDS health education and condom promotion programmes targeted at women working as prostitutes in altering behaviour and reducing the incidence of sexually transmitted diseases.
METHODS: A total of 462 women working as prostitutes in 4 different locations in Kenya were interviewed in a baseline survey in January and February 1989. Health education and counselling related to the treatment and prevention of STDs and AIDS, including condom promotion, was provided through community meetings and small group discussions, as well as individually by trained peer health educators. A post-intervention survey was conducted during November and December 1989.
RESULTS: The proportion of women who knew how to use condoms increased from 77% to 94% over the study period ($P < 0.05$). Women reporting always using condoms increased from 5% to 32%, and those reporting never using condoms decreased from 77% to 49%. At one site, a 25% decrease in clinical presentations for STDs at health centres in the study area was observed over the course of the study period.
CONCLUSIONS: This focussed intervention was effective in altering self-reported behaviour related to STD/AIDS prevention. The observed decline in STD presentations at health centres in one study site was likely a result of programme activities. Interventions targeted at high risk groups can have an important impact in altering sexual behaviour and STD transmission.

3034

HIV-RELATED KNOWLEDGE AND ATTITUDES AMONG FEMALE PROSTITUTES AND SEXUAL PARTNERS OF IV DRUG USERS IN SAN JUAN AND JUAREZ

Pares-Avila, J.M.*; Harrold, L.*; Ramos, R.**; Gonzalez, A.***; Hammett, T.*; Hunt, D.*; Clark, J.*; *Abt Associates Inc., Cambridge MA, USA; **US-Mexico Border Health Association, El Paso TX, USA; *** Puerto Rico Dept. of Anti-Addiction Services, Rio Piedras, Puerto Rico. [Supported by NIDA contract 271-88-8224]

Objective: Identification of differences in sociodemographic and cultural factors among women at high risk for HIV infection in San Juan, PR and Juarez, Mexico.
Methods: As part of a U.S. National Institute on Drug Abuse-funded AIDS outreach and intervention project, standardized data on sexual and drug use behaviors, as well as AIDS knowledge and attitudes were collected on over 200 female prostitutes and sexual partners of IV drug users in Juarez and over 300 in San Juan.
Results: Juarez and San Juan women contacted by the project differed significantly. Many more sexual partners than prostitutes were recruited in San Juan; the reverse was true in Juarez. This influences project strategies as well as target population characteristics. Differences in variables of interest included background HIV seroprevalence, family and acquaintance networks, drug use patterns, sexual behaviors, AIDS-related knowledge and attitudes toward HIV antibody testing and prevention strategies. With a much higher prevalence of HIV infection and disease in San Juan, women there were more knowledgeable about AIDS and desirous of HIV testing. They were also much more likely to be drug-involved. Juarez subjects had less formal education, but family and acquaintance support networks were more influential in fostering receptivity to HIV risk reduction. Fear of customer resistance or partner retaliation was less problematic in Juarez.
Conclusions: Cultural and sociodemographic factors differ significantly across populations of latina women. These factors may significantly influence the effectiveness of HIV risk reduction intervention programs.

3035

THE RISK OF AIDS-TRANSMISSION BY BLOOD-TRANSFUSION-AS SEEN BY THE TRANSFUSION RECIPIENT

Delord, Y* ; Diallo, M* ; Reviron, Denis *Auquier, P** ; Cotte, G* ; San Marco JL**
* CRTS, Marseilles, France . ** Public Health Service, Marseilles, France. .

Objective : The risk of AIDS-transmission by blood-transfusion is now considered to be very small. However, the perception of that risk by the transfusion-recipient should perhaps not be neglected. We have therefore studied, within the framework of a more general enquiry into the experience of transfusion from the recipient's point of view, how this risk is regarded by the patient.
Methods : 178 transfused patients were questioned after a double random selection which ensured their representativity of the population. The replies were analysed taking account of the characteristics of the patients : age, sex, previous blood-donors, surgical or medical reasons of their transfusion, using statistical tests of Chi 2, student and multifactorial analysis.
Results : 31 % consider that the risk of transmission of an infectious disease by transfusion is high or very high ; 58 % quoted AIDS as being more frequently transmitted by blood-transfusion than any other infection (including non-A non-B hepatitis) ; for 34 % of the patients questioned, there exists a risk of AIDS-infection for the blood-donor : this fear is particularly characteristic of patients over 60 (PV < 5 %) ; 40,4 % of transfused patients were ignorant of the fact that they had been transfused. This percentage is almost entirely due to the population transfused for surgical reasons (PV < 1 %).
Conclusion : The high number of patients uninformed about their transfusion and the over-estimation by the patients of the transfusional risk of infection, incite us to develop information of patients about transfusion.

3036 STRESSORS, SOCIAL SUPPORTS AND RISK BEHAVIORS OF RUNAWAY AND GAY YOUTHS.

Rosario, Margaret; Rotheram-Borus, M.J.; Bradley, J.; and Koopman, C.
HIV Center for Clinical and Behavioral Studies, New York State Psychiatric Institute and Columbia University, NY, NY, USA

Objective: To examine the stressful events, social supports and high risk behaviors of runaway and gay youths because HIV prevention efforts for adolescents engaging in multiple risk behaviors may be hampered by youths' numbers of stressful events and may be related to their social supports.
Method: Forty-seven male and 43 female runaways and 36 gay males, aged 12-18 and predominantly Black and Hispanic, were recruited from four community agencies in New York City. The youths were interviewed on stressful life events (covering the domains of family, moving, school, peer, self, health and gay stressors), social supports, and sex and drug use risk behaviors.
Results: (1) During the previous 3 months, 72% of the stressors were experienced by more than a fifth of the female runaways; 62% of the stressors by male runaways; and 32% of the stressors by gay males. These data are about four times the rate reported by more typical adolescent samples. (2) Whereas 90% of youths turned to peers for support, over 40% of youths also turned to their family. (3) Social supports were associated with specific risk behaviors; e.g., both youths' number of sexual partners and number of sexual encounters were related to number of peers who used alcohol ($p < .05$).
Conclusion: HIV prevention efforts with high risk adolescents need to increase the stability of these youths' lives, and help them to identify realistic sources of support for safe acts.

3037 Why Some Do Not Return for Their HIV Test Results: A Summary of 3 Studies

Deborah Rugg*; D.L. Higgins*; D. Schnell*; D. Sweet**; M. Hovell***; R. Fagan*; R. Miller*; J. Becerra****; J. Parga****; H. Quinones****
* Centers for Disease Control, Atlanta, Georgia
** University of California, San Francisco, Ca.
*** San Diego State University, San Diego, Ca.
**** Centro Latinoamericano de Enfermedades de Transmission Sexual, Departamento de Salud de Puerto Rico, San Juan, Puerto Rico

Objective: To determine predictors of failure to return for HIV test results from 3 separate studies.
Methods: 3 separate studies using similar psychosocial, behavioral and demographic questions (with Spanish translations) and self-administered questionnaire methods were conducted in California (5 sites, n=2,916), Georgia (1 site, n=698), and Puerto Rico (3 sites, n=399) HIV Counseling and Testing Sites (CTS). These studies were conducted between February 1987 and January 1989 Site and counselor characteristics were examined in each study as well as the role of confidential vs. anonymous testing.
Results: Failure to return rates ranging from 11-60% were observed across the nine sites. While the individual characteristics of those who failed to return varied considerably, site characteristics (e.g. client/staff ratio, specific counselors, and confidentiality issues) were consistently correlated with failure to return.
Conclusion: These 3 studies suggest that to increase return rates, more attention should be paid to characteristics of testing sites; less concern should be given to individual characteristics.

3038 CONDOM USE AND AIDS-RELATED KNOWLEDGE AND BEHAVIORS AMONG PATIENTS OF AN INNER CITY PUBLIC STD CLINIC

Steinberg, Judith; Howland, J; Hingson, R; Moye, J; McNiff, K; Britton, G. Boston University School of Medicine, Boston, Massachusetts, USA.

Objective: To determine the condom use, sexual and substance using behaviors, and knowledge of AIDS of patients of an inner city, public sexually transmitted disease (STD) clinic.
Methods: Patients presenting to an inner city STD clinic during specified times of each clinic session were asked to complete a 30 minute, interviewer administered questionnaire prior to seeing a health care provider. Survey results were analyzed using chi square, T-test and multivariate logistic regressions.
Results: The participation rate was 76% - 162/214; 78% male; 74% black; 97% heterosexual; mean age 28. Although 27% of respondents were members of one or more high risk groups for HIV infection, 40% of these thought they were not likely to get AIDS. Substantial knowledge deficits regarding HIV transmission were detected. Sixty-two percent of respondents had used condoms in the prior 6 months, but only 25% had used them consistently. In a multivariate analysis predicting condom use, education level, perception of condom use among peers, and interpersonal relationship with sex partner were significant variables; age, sex, race, cost, embarrassment in obtaining condoms and mean number of sexual partners were not significant.
Conclusion: STD clinic patients are a high risk population for HIV infection. The knowledge deficits and barriers to condom use detected in this study should be targeted in AIDS educational interventions accompanying routine treatment of STD's.

3039 ADOLESCENT MEDICAL PATIENTS: RISK FOR HIV INFECTION, MEDICAL AWARENESS OF RISK, AND HIV TESTING

Stiffman, Arlene R., Washington University, St. Louis, MO, USA

Objective: This paper examines the extent to which adolescents in primary care had behavioral risk indicators for HIV infection, clinic awareness of that risk, and HIV testing.
Methods: Subjects, from ten cities across the United States, were selected for interviews in the order that they presented for health care, beginning in November 1984. The youths were questioned about their sexual behavior and drug and alcohol use, as well as social environment, and utilization of services. Additional data comes from reviews of medical charts, and reinterviews in 1989-90. Frequency distributions and chi-square analyses were performed.
Results: The clinics were aware of the behavior of only 1/2 of the youths who reported engaging in homosexual behavior, and 1/3 of the youths engaging in prostitution or intravenous drug use. Clinic discussion of condoms occurred for only 10% of the high risk youths, the same level as that for the lower risk youths. One-third of those youths have been tested for HIV infection, the same rates as for the lower risk youths. Almost all of the youths who were tested continued their high risk behavior and continued to be infrequent users of condoms.
Conclusion: Clinics must screen adolescents and young adults for HIV risk and focus interventions and testing on those youths who most need them.

3040 A PILOT PROGRAMME OF EDUCATION ON AIDS IN SECONDARY SCHOOLS AIMED AT ADOLESCENTS

Urcelay, Arantzazu; Elizalde, B.; Zubia, I.; Urturi, M.; Basterrechea, M.; Zulaica, D. - Servicio Vasco de Salud. San Sebastian. Spain

OBJETIVE: To improve the knowledge of the students and to encourage the adoption of appropriate attitudes and behaviour for the prevention of HIV infection and discrimination.

METHODS: The programme on Aids, carried out with 500 adolescents of both sexes in schools in the Basque Country (Spain), was developed in the following stages: 1)Preparation of teaching material - A manual for the teacher and a manual for the student. 2)Offer of the course to 10 schools. 3)Training of volunteer teachers. 4)Evaluation of the students' knowledge and attitudes (before and after the course experience) and the satisfaction and usefulness derived from the programme. 5)Evaluation by the teachers concernet of the teaching material, their ability to put into use, and the teaching methods used.

RESULTS: 1)The knowledge of the students improved and attitudes of rejection decreased (27%-13%). The students showed great satisfaction with the programme and confirmed its usufulness. 2)The teachers confirmed that they were able to carry out the programme. 3)The results depended on the commitment and enthusiasm of the teacher, not the subject matter they were teaching.

CONCLUSIONS: 1)The active participation of students improves the results in terms of their attitudes and behaviour. 2) A lack of previous sexual education was observed. 3)The evaluation of this experience has made it possible to desing a programme which is being carried out on a voluntary basis in 40% of schools in the Basque Country in the school year 89-90.

3041 HOMOSEXUAL MEN AND BLOOD DONATING

Valle Sirkka-Liisa;Sarna,S.
University of Helsinki, Finland.

Objective:To determine the frequency of voluntary, unpaid blood donating in a cohort of homosexual men (HOS) before and during a follow-up study in 1983-1989 in Helsinki, Finland.
Methods: Serial interviews (1-6) of 302 HOS by the same investigator (S-L V). Instructions for HOS on voluntary abstaining from blood donating were given by The Finnish Red Cross in 1984. At every visit, this recommendation was discussed and heavily emphasized.
Results: At first visit, 161/302 (53.4%) of the HOS had ever donated blood. 64/161 (39.7%) had done so before 1978 and 97/161 (60.3%) in 1978 or later. At subsequent visits, it turned out that some men still donated blood despite repeated personal counselling:

		# men who donated blood		
Visit	never	before 1978	1978 or later	total
1	141	64	97	302
2	272	0	2	274
3	229	0	6	235
4	185	0	1	186
5	146	0	0	148
6	116	0	1	115

Conclusion: Although the vast majority of HOS ceased donating blood, some men (3%) still did so despite official instructions and repeated personal counselling. Given the latency of HIV-1 antibody production and the current lack of rapid antibody tests in routine screening, it is clear that this practise may jeopardize the safety of blood component therapy.

3042 BEHAVIORAL CHANGE IN ADDICTED PROSTITUTE WOMEN.

Van den Hoek Anneke, van Haastrecht HJA, Coutinho RA.

Municipal Health Service, Amsterdam, the Netherlands.

Objective:To study sexual behavioral changes among addicted prostitutes participating in a longitudinal study.
Methods: From december 1985 to april 1989 151 female drug users enrolled in a longitudinal study. 127/151 women had a history of prostitution and 104/127 women had been prostituting in the six months preceding intake. These 104 current prostitutes of whom at intake 35 (34%) were infected with HIV were asked about their number of clients, sexual techniques and condom use. We evaluated behavior reported at 5 subsequent visits.
Results: No difference was seen in the proportion addicted women reporting prostitution at different visits, neither in the place of work nor in frequency of practising vaginal, orogenital, or anal contact. A strong decrease was seen in the mean number of clients per month (from 80 at the first visit to 32 at the fifth visit). This reduction was stronger among seropositive women than among remaining participants and not due to illness progress. An increase in the use of condoms was seen. At the first and fifth visit condoms in vaginal contact were always used by 27% and 66% resp and in orogenital contact by 25% and 59% resp. Gonorrhea was less frequently reported during the follow-up period (by 29% and 3% resp.).
Conclusion: Less men probably visited addicted prostitutes as a result of the AIDS epidemic and its publicity/prevention campaign. In addition these data suggest that addicted prostitutes are willing and able to reduce the risk for the heterosexual transmission of HIV.

3043 KNOWLEDGE OF UNIVERSAL PRECAUTIONS FOR BLOODBORNE INFECTIONS AMONG HEALTH-CARE WORKERS AT LONG-TERM CARE FACILITIES

Villarino, Margarita E.*, Giuliano D.**, Jarvis W.*
*Centers for Disease Control (CDC), Atlanta, GA, USA, **Hospital Services Laboratory, Los Alamitos, CA, USA.

OBJECTIVE: To prevent HIV and other bloodborne infections in health-care workers (HCW), the CDC has recommended that universal precautions (UP)--control measures designed to treat all patients as potentially infective--be used in all health care settings. This study was designed to assess knowledge of UP among HCW at long-term care facilities (LTCF).
METHODS: In September 1989, we surveyed a convenience sample of 45 HCW (24 registered nurses [RN] and 21 licensed practical nurses [LPN]) at 35 LTCF.
RESULTS: Although 36 (80%) HCW knew that UP applied to all patients, only 12 (27%) knew that UP apply only to bloodborne but not other types of pathogens. Fourteen (31%) knew that warning labels on laboratory specimens of known HIV-infected patients are not recommended, and only 8 (18%) agreed that a UP sign should not be posted on an HIV-infected patient's door. Most (80%) HCW were not aware of a protocol at their LTCF for managing adverse exposures (percutaneous, mucous membrane or open wound) to blood. Overall knowledge of UP varied by HCW's level of education (10/24 [41.6%] RN but only 3/18 [14.3%] LPN correctly answered at least 80% of UP-related questions, Odds Ratio [OR] = 4.29, p = 0.043), but not by LTCF size (8/24 HCW in LTCF with ≤99 beds vs. 5/21 HCW in LTCF with >99 beds, OR = 1.60, p = 0.48).
CONCLUSION: These results show that knowledge of UP and appropriate management of adverse exposures is inadequate among HCW in LTCF. Because the care of patients with AIDS or HIV infection is a new and growing responsibilty for many LTCF, greater efforts to educate LTCF-HCW about UP are necessary if adverse exposures and bloodborne infections are to be prevented.

3044 HOMOSEXUAL BEHAVIOUR IN A COHORT OF GAY AND BISEXUAL MEN IN ENGLAND AND WALES

Weatherburn, Peter****, Coxon, APM**, Davies, PM*, Hunt, AJ*, McManus, TJ***, Project SIGMA,
*South Bank Polytechnic, London , UK, **University of Essex, UK, ***King's College Hospital, London, UK, ****University College of Wales, CArdiff, UK

Objectives: To estimate the norms of sexual behaviour in a cohort of gay and bisexual men in England and Wales particularly safer sexual behaviour.
Methods: Interviews about sexual behaviour were obtained from gay and bisexual men, 310 in London and 620 outside London.
Results: Sexual behaviour is found to be significantly determined by men's gay relationship status and this effect is mediated by age. Those with a regular partner are significantly more likely to do any given act and also to do them significantly more often. For example, 33.5% of those in a monogamous relationship compared to just 16.3% of those with no regular partner had engaged in receptive anal intercourse in the previous month ($p<<0.01$). Moreover, only 43% of subjects always used a condom for receptive anal intercourse and this is significantly less common when intercourse is with a regular sexual partner. Differences exist between subjects in London and outside in terms of sexual behaviour patterns, numbers of sexual partners and penetrative sexual partners (psp's) and in condom use ($p<0.01$). Men in London report a 30% fall in annual numbers of sexual partners compared to a 16% outside London. Similarly for psp's London subjects report a 57% fall compared with just 12% outside London.
Conclusion: Risky sexual behaviour is significantly more common amongst men with regular sexual partner. Furthermore, it is far more commonplace outside London. Health education needs to specifically address these problems.

3045 DRUGS AND AIDS - THE SWISS PUBLIC OPINION

Zimmermann, Erwin*; Hausser,D.*; Jeangros,C.*; Zeugin,P.**
*University of Lausanne, Lausanne, Switzerland, ** IPSO, Zurich, Switzerland

Introduction: In most major Swiss cities sterile syringes have been available in pharmacies or through needle exchange programs since 1987. Remaining opposition to general distribution of clean syringes comes from politicians who argue that public opinion is unfavorable to this kind of aids prevention.
Methods: Late 1989, a public opinion survey was conducted by IPSO using a stratified representative sample of 703 Swiss 17 to 70 years old. The main indicators are : (1) perceptions and attitudes regarding the drug problem in general, (2) acceptability of various measures of primary drug and AIDS prevention
Results: Approximately 50 % of the respondents indicate concern about the drug problem in the country and 27 % say that they personally know at least one drug injector. Drug related problems most often mentioned are : physical and mental deterioration of drug addicts (91 %), offenses committed by drug consumers (90 %), the risk of HIV propagation (88 %). - Regarding **drug abuse prevention**, the interviewees overwhelmingly favour (1) prevention programs aimed at adolescents (91 %) and supportive assistance to youngsters in trouble (93 %) and, (2) repressive measures against organized drug dealers (91 %) and drug money launderers (88 %). Most also feel that IV-drug users should be helped. Despite strong awareness of procurement-related criminality, only 11 % feel that drug users should be sent to prison on the grounds of their consumption habits alone. Well informed that needle sharing is by now a major cause of the further spread of HIV, 86 % of the population agree with a large distribution of syringes.
Discussion: Results indicate a good climate for drug and drug-related aids prevention in Switzerland The threat of the spread of HIV from drug injectors to the general population may have contributed to a more realistic perception of the drug problem over the last two or three years. In order to meet today's expectations of the Swiss population, politicians are well advised to acknowledge that public opinion plebiscites primary drug prevention through national campaigns and strongly advocates supportive assistance to consumers and repressive actions against the big drug business

3046 VOLUNTARY HIV TESTING PROGRAM FOR INCARCERATED ADOLESCENTS IN LOS ANGELES COUNTY

Baker, Charles; Huscroft, S.; Morris, R.; Re, O.; Schultz, B.; Zeljkovic, S.
County of Los Angeles/Department of Health Services, Los Angeles, CA, USA

OBJECTIVES:To determine if minors who perceive themselves to be at risk for HIV infection after education and counseling will seek testing within a juvenile detention facility.
METHODS:Group AIDS education classes were conducted by health care staff within Los Angeles County juvenile halls. These minors were offered individual interviews regarding high-risk behavior. The interviews, conducted in a private setting, assessed the minor's risk factors and educated the minors about their high risk behavior. The minors were then advised about the alternate-anonymous HIV testing sites they could attend upon their release from custody. They were also offered to be tested within the juvenile halls.
RESULTS:Interviewed were 1069 minors-19.2% females and 80.8% males. Average age was 16 years for the females and 16.7 years for males. Blacks and Hispanics accounted for 72.2% of the females and 84% of all males. Seventy eight percent (78%) of the minors interviewed requested to have HIV testing while incarcerated within the juvenile halls. Of these, 92% were tested before release. Two minors were found to be HIV positive resulting in an HIV seropositivity of 2.6/1000. Two other minors were ELISA positive and indeterminate on Western Blot.
CONCLUSION:Perception of risk was shown by high number of minors wishing HIV testing, this attitude being perhaps a reflection of the education program and intensive counseling. HIV serpositivity of 2.6/1000 relfects a high degree of infection as compared to our last HIV unlinked seroprevalence survey conducted in 1989 (1.0/1000).

3047 NATIONWIDE TRENDS IN NUMBERS OF HIV TESTS AND POSITIVE TESTS AT PUBLICLY FUNDED COUNSELING AND TESTING SITES, U.S., 1988-89

Bowen, G. Stephen, Moore, M., Cahill, K., Kirby, C.D.
Centers for Disease Control, Atlanta, Georgia, USA

Objective. To describe trends by demographics, risk exposure, and site type.
Methods. Since 1988, CT data in aggregate form have been reported quarterly by demographic characteristics, risk exposure, and type of testing site.
Results. Since 1985, the number of voluntary HIV testing sites has increased from less than 500 to 5,013, and approximately 2.5 million publicly funded tests (including 150,000 positive tests, from an estimated 135,000 people) have been performed.

	JAN-MAR 1988 #HIV+/#TESTS (%POS)	JULY-SEPT 1989 #HIV+/#TESTS (%POS)
TOTAL	5,077/89,947 (5.6)	11,615/258,513 (4.5)
Stand-alone clinics	3,373/46,552 (7.3)	5,935/ 97,177 (6.1)
STD clinics	960/14,796 (6.5)	2,360/ 81,554 (2.9)
Drug treatment ctrs	6/ 255 (2.4)	229/ 4,856 (4.7)
Men sex w/men (MSM)	1,147/ 7,423 (15.5)	4,389/ 27,160 (16.2)
IVDU	488/ 4,572 (10.7)	2,126/ 19,022 (11.2)
Heterosex, part risk	492/21,679 (2.3)	1,650/ 90,114 (1.8)
Heterosex, no risk	89/14,002 (0.6)	1,498/ 60,253 (2.5)

MSM and IVDU account for 50% and 22%, respectively, of HIV+ tests. Although only 2% of heterosexuals were HIV+, because of the large number tested, 33% of HIV+ tests were in this category.
Conclusions. Demand for CT services has expanded since 1985. Counseling must focus on risk behaviors of both clients and their sex partners. Testing should continue in sites which are accessible and provide services to persons who engage in high risk behavior in areas of high HIV prevalence.

3048 COMPARISON OF HIV TEST RESULTS FROM COUNSELING AND TESTING SITES AND OTHER HEALTH CARE SETTINGS IN NEW JERSEY

Costa, Samuel; Godorov, B.; Ganges, L.; O'Connor, T.
New Jersey Department of Health, Trenton, New Jersey USA

Objectives: Compare HIV test results and population characteristics from HIV Counseling and Testing sites (CTS) with those from expanded counseling and testing efforts at health care settings in New Jersey from June 1988-August 1989. Methods: Demographic information without identifiers and HIV test results were collected over a 15 month period (6/88-8/89) for all clients in clinics designed solely for HIV counseling and testing (CTS) and at expansion sites in other health care settings (sexually transmitted disease, drug treatment, etc). Differences in seropositive findings and client characteristics between the site types were analyzed. Results: Nearly 31,000 clients were tested at all sites, with about 11% testing positive for HIV infection. At the CTS sites, 13% of about 16,000 clients were seropositive, while only 8% of nearly 15,000 expansion sites clients were HIV positive ($p<.0001$). Significant differences ($p<.0001$) in client characteristics during that time period include more of the following groups at CTS sites: homosexual/bisexual men (12.6% vs. 1.3%); intraveneous drug user (18.3% vs 13.5%); heterosexual patners of those at risk (14.8% vs 5.7%). The bulk of clients reached through other health care settings were those heterosexuals who had exchanged sex for drugs and/or money (41.6% vs 21.4%) and those with unknown risk (35.3% vs 28.7%). Conclusion: The CTS sites are more likely to attract individuals with higher HIV infection rates who are not being served in other health care settings where testing and counseling are available. This emphasizes the importance of these freestanding CTS sites which reach high risk individuals who are not being counseled and tested in other settings.

3049 DETERMINANTS OF HIV TESTING AT AN INNER CITY PRENATAL CLINIC

DeBuono, Barbara*; DeCiantis, Mary Lou*; Maynard, Edward**; Oh, William**. *Rhode Island Department of Health, Providence, RI,USA, **Women and Infants Hospital, Brown University, Providence, RI,USA.

OBJECTIVE: Pediatric HIV infection is emerging as an increasing problem in Rhode Island with most cases occuring due to perinatal transmission from an infected mother. A survey for risk factors coupled with simultaneous blinded testing for HIV infection was conducted at Women & Infants Hospital (WIH) Prenatal clinic between April, 1988 through March, 1989 in order to assess the accuracy of risk factor self-reporting as a means of identifying HIV infected prenatal clients.
METHODS: The WIH clinic serves a population thought to be at high risk for HIV infection. Women seen at the clinic for their first prenatal visit were interviewed and encouraged to consent to HIV antibody testing as recommended by a health care provider. Simultaneously, an anonymous survey of discard blood drawn at that visit was used to determine the seroprevalence of HIV infection of the entire cohort. Risk factor survey forms, without identifiers were not linked to anonymous blood samples.
RESULTS: Of 1053 women in the study population,45% were age 21 or below,40%, nonwhite, 64% single. Only 15 (1.4%) engaged in prostitution, 23 (2.2%) were IVDUs, and 116 (11%) had had an HIV test in the past. Forty-six (4.4%) had had a sexual partner who was an IVDU, 14 (1.3%) had been partners of a bisexual male. HIV testing was recommended to 224 (21%) of the study population.
A logistic regression model demonstrated that the greatest predictors of being recommended for HIV testing included having lived in Haiti, (Odds Ratio 6.79), being the sexual partner of an IVDU (Odds Ratio 3.76) or the sex partner of an HIV tested individual (Odds Ratio 14.25). Of the 1053 study participants, blood specimens in 940 women were available for blinded HIV testing (85%). Five or 0.53% were HIV positive. During the same period, blood from every infant born in RI was anonymously tested for HIV and 24 of 14,833 were positive (0.16%).
CONCLUSION: Despite its status as an inner city clinic, WIH does not see a prenatal clientele that is at high risk for HIV infection. While the WIH clinic seropositivity rate was 3 times higher than the state's, the rate was still low (0.53%). Despite the low seroprevalence, routine HIV testing may be cost effective for this clinic population.

3050 BACK-CALCULATION PROJECTIONS OF THE LOS ANGELES COUNTY AIDS EPIDEMIC USING A LOTUS SPREADSHEET

Bregman, Dennis; Kerndt, PR**; Waterman, S.**
*University of Southern California, Los Angeles, California, USA, **Los Angeles County Department of Health Services, AIDS Epidemiology Program, Los Angeles, California, USA.

OBJECTIVE: To develop a simple method for projecting the Los Angeles County (LAC) AIDS epidemic with back-calculation using a Lotus spreadsheet.
METHODS: Lotus spreadsheets were used with LAC AIDS cases diagnosed through 1987. The first spreadsheet corrected for underreporting, reporting delays and the 1987 change in the defination of AIDS. A second spreadsheet projected the epidemic using back-calculation by minimizing the chi-square goodness of fit between the observed and expected number of new cases with a 'data table 2' function for combinations of Weibull parameters which described the curve of new infections and the incubation period. The spreadsheet estimated the cumulative and annual number of new and living infected, diagnosed and deceased patients. Survival curves for living cases were based on published data and can be changed. The 95% confidence intervals for these estimates are based on chi-square contour curves of the Weibull parameters.
RESULTS: By back-calculation it appears that homosexual/bisexual infections crested in LAC in 1981 and then descended to a plateau of several hundred annnually after 1985. The number of new AIDS cases will crest at 3149 in 1990; however, the number of living cases will continue to increase to 4900 in 1993 and thereafter will slowly decline. The IVDA epidemic to date accounts for less than 10% of the LAC AIDS cases and will continue to slowly increase.
CONCLUSION: The annual number of new homosexual/bisexual AIDS cases diagnosed in LAC will plateau in 1990 and thereafter will decline. The number of living cases, however, will continue to increase through 1993. This Lotus spreadsheet program provides an easy method of epidemic and endemic forcasting that can be adopted for use in other areas of the country.

3051 TRANSMISSION OF HIV-INFECTION IN THE MALE-HOMOSEXUAL POPULATION IN THE USSR

Eramova, Irina; Pokrovsky, V.V.
Central Research Institute of Epidemiology, 3-a,Novogyreyevskaya, Moscow, USSR

Objective: To evaluate HIV-infection prevalence among homosexuals in the USSR.
Methods: Western Blot HIV-antibody testing; seropositive gay-men partners' notification and questioning.
Results: Among 27 male-homosexuals connected by sexual contacts in 1987 4 gay-men turned out to be seropositive. 3 of those 4 had multiple sexual intercourses with foreigners. In the other group of gay-men, connected by sexual relations in 1988, 15 of 95 were found to be seropositive. Only 2 of those 15 had sexual contacts with foreigners. None of the tested used condoms regularly, and 56% never used condoms at all.
Conclusion: The reported data show that HIV transmission in the native population of male-homosexuals began in 1987-1988. No experience in safe sex among them gives ground to think of rapid spread of HIV in this group.

3052 PHYSICIAN'S ATTITUDES TOWARDS HIV SCREENING AND CONTACT TRACING IN THE PROVINCE OF QUEBEC

Fortin, Christian; Boyer, R.; Duval, B.; Godin, G.*; Nadeau, D. Unité de Recherche Clinique sur le Traitement du SIDA, Centre Hospitalier de l'Université Laval, Québec, * Université Laval, Québec, Canada.

Objectives: Objectives of the study were to measure the acceptability for the physicians of the nominal declaration of asymptomatic seropositive patients and the physicians' reaction regarding their involvement in contact tracing.
Methods: A mail survey was conducted from June 12 to July 31, 1989, through a questionnaire sent to a representative sample of the 15,000 physicians of the province of Quebec. Out of the 1,530 physicians contacted, 879 (57.5%) returned the questionnaire before the deadline. Opinions and attitudes were measured with Likert-type scales.
Results: Sixty-one percent of the respondents completely agree with the nominal and confidential declaration to public health authorities of positive anti-HIV tests carried on asymptomatic patients. It must be noted however that 15.6% are at least rather opposed to this type of declaration. A multivariate analysis based on six sociodemographic variables (age, sex, language, geographical area, type of practice and source of income) was used. Physicians practicing specialized surgery and/or paid on a fee-for-service basis are the only two variables showing a statistically significant association ($R^2 = 0.25$ $p<.0001$) with physicians in favor of the declaration. Only 34.5% of the physicians consider they should be responsible for contact tracing. The multivariate analysis revealed that English-speaking physicians ($R^2 = 0.25$ $p<.00001$) rather agree with their involvement in contact tracing.
Conclusion: Our survey clearly demonstrates that physicians approve the nominal and confidential declaration of seropositive patients and suggests that physicians do not want to be directly involved in contact tracing.

3053

HIV TRANSMISSION AMONG THE MARRIED WOMEN

MOHAMED MEERAN*;RaviNathan,R**;MallikaJohnson; Padmarajan,S*,Jayapaul,K*.

*Institute of Sexually Transmitted Diseases;Madras Medical College,Madras**Stanley Medical College,Madras-INDIA.

Objective: By counselling and contact tracing, the spouses of seropositive men were screened for HIV antibodies in Madras,South India.

Methods: Blood samples were collected from women living with seropositive men attending the institute for the study of STD Government General Hospital, Madras.ELISA was used for screening.

RESULTS: Out of 68 seropositive men only 34 were married.Among the spouses living with seropositive men,29 women were found to be seropositive.They deny any extramarital contact,i.v. transmission, drug abuse or any perverted sexual practices.All were symptom free.

Conclusion: Housewives get the STD infection only through their partners in our part of the world.So it is mandatory to screen all the partners of HIV SEROPOSITIVE married men and also to be counselled to protect the partner from the risk of contracting the HIV infection.

3054 THE AIDS NATIONAL LABORATORY NETWORK IN MEXICO: DEVELOPMENT AND CONTROL.

MORALES, ROSA ARMINDA, MOSQUEIRA, C., SOLER, C., GARCIA, M.L., VALDESPINO, J.L., SEPULVEDA, J.
General Directorate of Epidemiology. Ministry of Health. Mexico.

OBJECTIVE: To analyze the AIDS National Laboratory Network (ANLN) development and its operation in a Latinamerican country, Mexico's case.
METHODS: The structure and number of laboratories in the ANLN, including training programs for laboratory personnel; reagents testing, selection, purchase and distribution; internal as well as external quality control procedures and prevalence data obtained through the network are analyzed in terms of their relationship with the Mid-term Program for AIDS Prevention.
RESULTS: The ANLN includes 102 laboratories. Ninety-nine are peripheric facilities where screening tests are done, two work as reference laboratories with confirmatory tests and quality control procedures. Finally there is a research laboratory currently working on confirmatory test reagents' production and viral isolation. Continuous training is a very important feature of the ANLN. This is guaranteed by an annual national course and several state courses.Technical manuals are continuously updated and distributed to all laboratories within the network.
Reagents used by these laboratories are selected through comparative studies analyzing sensitivity, specificity and operativity. Screening techniques are ELISA and agglutination; Western Blot is used for confirmatory tests. Distribution guarantees reagents' temperature control. Both the reagent's quality and laboratory procedures are continuously assessed and supervised.
Prevalence in blood donors has varied from 0.1 to 0.3% in the 1988-89 period. Prevalence in groups with high risk practices fluctuated from 9.6% to 6.2%. Half a million tests are carried out by the ANLN, 78% are blood donors and 22% persons with high risk practices. The ANLN is an essential instrument for the National AIDS Prevention and Control Program and supports several strategies such as: blood centers, detection services, epidemiologic surveillance, and patients' care.
CONCLUSIONS: The ANLN supports the preventive activities of the National AIDS Program and has implemented a network currently consisting of more than 100 laboratories.Extension of the network is considered.

3055 THE USE OF MALE STD HISTORY AS AN INDICATOR FOR PROGRAM MONITORING AND EVALUATION

Sokal, D[1]; Kouyate B[2]; Ouedraogo C[2]; Ouedraogo J[3]; Ouaro G[4]; Ouedraogo LH[5].
[1]AIDSTECH/FHI, North Carolina, USA; [2]Health Education Div., Min of Health & Social Affairs (MSAS), Burkina Faso; [3]Div of Social Reintegration, MSAS, Burkina Faso; [4]City Health Dept., Ouagadougou, Burkina Faso; [5]Epidemiology Div., MSAS, Burkina Faso.

Objective: To develop an evaluation methodology for sexually transmitted diseases (STDs) analogous to WHO's standardized 30-cluster vaccination coverage survey which is used to evaluate vaccination programs.
Methods: Pilot questionnaires including questions on STD history were administered to 100 male STD patients (MSTD) and to 100 women with multiple partners (WMP).
Results: Responses from WMP appeared to be incomplete and unreliable. Only 13% of WMP admitted to a recent STD, despite having a median of 3 to 5 different partners per day. Responses from MSTD appeared to be much more reliable. Although 32% denied having a previous STD, this was significantly correlated with younger age. Sixteen men denied having a sexual partner within the past 4 weeks. This was significantly correlated with longer duration of their present STD. While WMPs reported high levels of condom use, only 43% of MSTD reported ever buying condoms. 86% of MSTD were between 15 and 30 years of age. 16% reported having had a previous STD within the past 6 months.
Conclusions: Periodic questionnaire surveys of male STD history, number of partners and condom use (in both MSTD and asymptomatic men) may provide an inexpensive method for rapid periodic assessment of prevention programs.

3056

ACTIVITY OF FRENCH FREE AND ANONYMOUS HIV TESTING FACILITIES

PATRIS,C.; CHAPELLON,S.; BRUNET,JB.
Ministry of HEALTH, PARIS, FRANCE.

Objective : To evaluate the activity of the french network of alternative test sites.
Methods : Information on institutional features and individual data (age, sex, serological status) on subjects using the 115 centers created in 1988 are collected annually by the French Ministry of Health.
Results : In 1988, 37159 visitors have used these centers wich represent a mean activity of 12 visitors per center per week. Only 10% of the centers have received more than 20 visitors a week.
Differences in level of activity are linked with environmental (urban or rural) institutional features of the centers. Testing facilities located in primary health care centers count for 32% of the total number of testing sites, and 62% of the visiting subjects compared respectively to 68% and 38% for hospital based sites. Rates of visits per 1000 inhabitants was 7 in Paris, between 2 and 3 in 4 departments and less than 2 in all others.
61% of the visiting subjects were male and 50% were between 20 and 30 years of age, women being younger in mean than men.
After initial counselling 3.5% of these subjects decided not to be tested.Among the tested subjects, 4.7% were HIV positive, 2.6% among women and 6% among men.
By comparison with estimation of the overall testing activities performed in France through public and private laboratories, alternative test sites represents around 5% of this activity in 1988.
Analysis of 1989 activity is underway.
Conclusion : In high prevalence areas, alternative test sites offer a service widely used by the population. Demographic features of visitors fit well with AIDS epidemiology. Added to first year activity, 1989 results will allow a better use of funds earmarked for this network.

3057

HIV INFECTION IN STREET YOUTH IN BELO HORIZONTE , BRAZIL: RISK BEHAVIOR AND SEROPREVALENCE

Pinto, Jorge A.*; Greco,D.B.*; Paulino,U.H.M.*; Halsey, N.A.**; Ruff, A.**; Ribeiro, G.J.C.*; Antunes, C.*,**; Adams,I.K.*; Souza , M.A.*.
* Federal University of Minas Gerais , Belo Horizonte , Brazil,
** Johns Hopkins University , Baltimore , MD , USA.

OBJECTIVE: As part of the project:"HIV in street youth: epidemiology and prevention", risk behavior for HIV infection was evaluated in a sample of street youth in Belo Horizonte, from March to October,1989.
METHODS: (Survey 1) Anonymous evaluation of HIV infection in 433 blood samples from institutionalized youth and (Survey 2), after proper consent,of 96 street minors (10 to 18 years) randomly selected from 1 Institution , regarding HIV and other sexually transmitted diseases. In both surveys, HIV tests were performed by EIA with WB confirmation; syphilis was evaluated by VDRL.
RESULTS: (Survey 1) HIV was positive by EIA (not confirmed by WB),in 1 child; VDRL was positive in 4(0.9%).(Survey 2) Strict criteria for street children were met by 46 participants (50%). Their mean age=13.3 years; 80% were male; 59% related sexual activities , beginning at age of 11.4 years; three (11%) children had homosexual activities and 7(26%) had remunerated sex; 39(85%) related the use of recreational drugs (IVDU=10%);STD was present in 8(17%) of them; HIV was positive in 1(2%). The remaining 46,differed in the following characteristics: none had remunerated sex, none had STDs, none used IV drugs and HIV was negative in all of them.
CONCLUSION: Despite the low prevalence of HIV infection,a considerable number of street children engage in risk behavior practices,justifying studies evaluating seroprevalence, health status and education/intervention programs to help modify behavior to decrease the risk of AIDS.

3058

ASSESSMENT OF THE EXTENT TO WHICH HIV COUNSELING AND TESTING EXISTS IN PRIVATE PRACTICE IN NEW JERSEY AND THE IMPACT OF CONTINUING MEDICAL EDUCATION

Sensakovic, John*; Helm, C.**; Davidson, R.***; Saunders, S.****; Dixon, R.*****
*St. Michael's Medical Center, Newark,NJ; **UMDNJ-RWJ Medical School; ***The Academy of Medicine of New Jersey; ****The New Jersey Dept. of Health; *****Helene Fuld Medical Center

Objective: To assess physicians' attitudes and activities in regard to counseling, testing and the management of HIV infection, and the impact of continuing medical education (CME) in AIDS.
Methods: A state-wide (anonymous) mail survey of approximately 10,000 member physicians of the Medical Society of New Jersey was conducted in August of 1988 and repeated in late September of 1989. Major predictor variables include CME credits in AIDS and the number of AIDS patients in the physician's practice. Major outcome variables include respondents' reported attitudes towards and active personal involvement in HIV counseling, testing and management and sex/needle partner notification; and knowledge and utilization of the 16 New Jersey Counseling and Testing Sites.
Results: Two thousand and forty eight questionnaires were returned in 1988 and 1069 in 1989. In 1988 30% reported taking CME in AIDS and 48% in 1989. Significant positive relations were found between CME in AIDS and reported active personal involvement in HIV counseling, testing, management and partner notification. Similar positive relations were found for the number of AIDS patients in the physician's practice. For both of these predictor variables the weakest relations found were for the partner notification outcome variable. Only 13% (1988) and 28% (1989) could identify a New Jersey Counseling and Testing Site and even fewer referred patients to a CTS.
Conclusions: CME in AIDS has a significant positive effect on reported active personal involvement in HIV counseling, testing, management and partner notification. However significant numbers of physicians do not participate in AIDS related CME nor do they report active personal involvement in HIV counseling, testing and management and especially not in partner notification. The importance of partner notification must be more strongly emphasized in CME in AIDS.

3059

HIV ANTIBODY TESTING IN WOMEN SEXUAL PARTNERS OF IVDU

Wermuth, Laurie, Falcone, H., Sorensen, J.
University of California, San Francisco Center for AIDS Prevention Studies (CAPS), San Francisco, California, U.S.A.

Objective: To examine the association between HIV risk-related circumstances and participation in HIV antibody testing among women sexual partners of intravenous (IV) drug users.
Methods: We interviewed 77 women sexual partners of IV drug users, excluding women who currently injected drugs. We examined the predictors of HIV antibody testing by regression analysis.
Results: Univariate analysis produced significant simple correlations between receiving HIV antibody testing and 3 of the 4 predictor variables: subject's history of IV drug use (p<.001), known HIV infection in sexual partner (p=.010), and participation in a methadone maintenance program (p=.001). Partner's needle sharing practices were not significantly related to the woman's testing behavior. Multiple linear regression analysis indicated that the woman's IV drug history explained significant variance in testing behaviors above and beyond that explained by participatnion in a methadone treatment program (p=.012).
Conclusions: Knowing that one's sexual partner is HIV infected and having injected drugs in the past may be the leading factors motivating women sexual partners of IV drug users to seek HIV antibody testing. Having access to testing in methadone treatment programs appears to be a key mediating factor. Thus, there is a need for programs that provide testing to sexually-at-risk women who do not have contact with drug treatment programs.

3060 REPORTED, SELF-PERCEIVED, SERIOUS BODY FLUID EXPOSURES AMONG EMERGENCY MEDICAL TECHNICIANS, PARAMEDICS, & FIREFIGHTERS

Bolon, Terrance, Patrone-Reese, J., Dearmas, L., Fayne, T., Tulsie, N.
Univeristy of Miami School of Medicine, Miami, Florida, U.S.A.

OBJECTIVE: To evaluate the number of reported, self-perceived, serious body fluid exposures among Emergency Medical Service (EMS) Workers in the field.
METHODS: EMS staff reportedfluid exposures to shift supervisors. At this time an anonymous, self-administered, 46 item, questionnaire was completed. Twelve fire/rescue departments with 2623 EMS workers were included. The study was conducted over 90 days with 57,912 medical rescue calls received.
RESULTS: Twenty-nine individuals reported serious fluid exposures, of which 3 reported 2 or more routes of exposure, and 14 reported 2 or more types of body fluid contacts.

	ROUTE OF EXPOSURE			
FLUID INVOLVED	Needlestick	Non-intact skin	Intact Skin	Mucous Membrane
Blood	4	2	20	2
Saliva			3	1
Saliva w/blood		2	10	
Urine/Feces			2	
Urine/Feces w/blood		1	3	

Twenty-four of the exposures were reported to be self-inflicted, 3 accidental from another employee and 2 unreported. Of the above 51 exposures, 76% were not CDC-defined serious exposures, of this number 97% involved fluid contact to intact skin.
CONCLUSION: Education programs for this cohort need to be evaluated for accurate definitions of serious body fluid exposures. As shown in this study, inaccurate information leads to reporting of exposures that are not serious.

3061 RISK REDUCTION AND HIV SEROPOSITIVITY: AN EVALUATION OF THE CHICAGO MODEL AMONG INTRAVENOUS DRUG USERS

Booth, Robert*; Brewster, J.*; Koester, S.*; Wiebel, W.**
*University of Colorado Health Sciences Center, Denver, Colorado, USA
*University of Illinois, Chicago, Illinois, USA.

Objective: This investigation focused on the effectiveness of an educational intervention model in modifying risk behaviors among intravenous drug users in three cities. In addition, the study examined the association of HIV serostatus with both risk taking and risk reduction.
Methods: Intervention and assessment targeted high volume intravenous drug use sites in Baltimore, El Paso and Denver. Following the "Chicago Model", indigenous outreach workers served as prevention advocates and recruited nearly 800 subjects for structured interviews and serology tests. Evidence of recent injection preceded inclusion in the study. Follow-up interviews and additional serology tests, conducted at six month intervals over a two year period, were obtained on 70% of those sampled. Changes in risk behaviors were analyzed utilizing multiple regression, multiple comparisons and non-parametric tests (where there were problems with homogeneity of variance).
Results: Analysis of baseline data found Baltimore subjects significantly less at risk according to number of needle sharing partners, borrowing needles, sharing a "cooker", injection in shooting galleries, cleaning needles, use of disinfectants, number of sexual partners and use of condoms, than either their cohorts in El Paso or Denver.
Conclusion: Street outreach began in Baltimore approximately two years before (NIDA) funding for El Paso and Denver. These results appear to suggest that there is potential to moderate risk through intervention. Analysis of follow-up data, coupled with serology tests, will further address the success of intervention within intravenous drug using populations.

3062 LESSONS LEARNED FROM A COMMUNITY-BASED AIDS PREVENTION PROGRAM IN LIMA, PERU

Kathryn Carovano*; Sevilla, R.**; Bossio, L.**; Caceres, C.**
*AIDSCOM/The Johns Hopkins University, Washington, DC USA
**Movimiento Homosexual de Lima, Peru

OBJECTIVE: To assess the viability of an integrated community-based, volunteer-oriented, AIDS prevention program for men having sex with men in Lima, Peru.

METHOD: A prevention strategy was developed incorporating three distinct program elements: a peer-outreach program targeting men in public social settings; an AIDS information hotline promoted through both community and mainstream channels; and a safer sex workshop series. One paid staff member was responsible for each program, though all other "staff" volunteered their services. A secondary thesis explored whether the heterogeneity of the population requires diverse services to reach a discrete population and/or serve discrete needs.

RESULTS: All programs operated successfully during the six-month pilot phase. Response to the services indicated an unmet demand for information. Data collected from respondents indicated that while some overlap existed, diverse populations were being served by each intervention. Data also indicated that though levels of knowledge about AIDS was generally high, persistent risk behavior consistently characterized the majority of men.

CONCLUSIONS: Programs that offer consistent information through varied channels can complement each other and respond to the diverse characteristics of the population of men having sex with men. Volunteers exist as a resource that can be tapped in developing countries to establish low-cost, community-based prevention programs.

3063 ATTITUDES OF IVDUS TOWARD NEEDLE EXCHANGES AND OVER THE COUNTER PURCHASE OF SYRINGES

Comerford, Mary; Chitwood, D.; McKay, C.,
Anderson, R., Page, J.B.
University of Miami School of Medicine, Miami, Florida.

Objective: To assess attitudes of IVDUs in Miami, Florida, toward a needle exchange (NE) and over the counter purchase (OTCP) of syringes in pharmacies, both of which are currently illegal.
Methods: Current and former IVDUs (275) were interviewed about their attitudes toward NEs and the OTCP of syringes.
Results: Most IVDUs approved a NE (85%) or OTCP of syringes (77%). Of current IVDUs, 88% approved of a NE and 90% approved OTCP. Of these who approved a NE, 69% would utilize one; 87% of those approving OTCP reported they would obtain syringes in this manner. Among all active IVDUs, regardless of attitude toward the programs, 80% said they were likely to use a NE and 81% felt they would use OTCP. Only 4% of the active IVDUs felt either program would increase their frequency of injection and 41% of IVDUs who shared syringes in the past 6 months reported they would no longer share and an additional 31% would share less often. A majority (71%) felt OTCP would be more effective than a NE in reducing sharing.
Conclusion: A large majority of IVDUs approved and reported likely utilization of both programs. Those IVDUs actively sharing believed OTCP of syringes would be more effective in reducing their sharing frequency than would a NE. OTCP of syringes may be an alternative to NEs in communities reluctant to establish NE programs.

3064 UGANDA'S FIRST AIDS-IN-THE-WORKPLACE PROGRAM

Cohn, Paul* Kaswarra, Joel**
*USAID/Uganda **Federation of Uganda Employers

Objective: To establish the first African AIDS prevention program in the workplace.
Method: In 1988, there were 790,522 mostly adult Ugandans projected to be HIV infected; in 1989 1 million. The members of the Federation of Uganda Employers (FUE) have 400,000 employees. FUE, with funding from USAID/Uganda, started a long term workplace prevention program. Having noted that people are more likely to change their behavior through contacts with respected peers, FUE and USAID decided to use the peer educator model to achieve strengthening of low risk behavior and voluntary modification of high risk behavior. FUE trains trainers in commercial and industrial firms to train peer educators. Each involved company has incorporated this AIDS prevention program into its health and safety program.
Results: FUE trainers have so far trained 115 trainers in 14 companies who are now beginning to train employees as peer educators. Peer education is accepted by the company as part of their work. FUE is establishing an incentive system in which the educators will sell condoms and retain a portion of the income. We as yet have no measures of results except anecdotal self reported behavior changes which are positive. Medical doctors in Kampala report that treatment of STDs, once the mainstay of their practices, is now very rare.
Conclusion: A peer educator system relying on personal contact may lead to strengthening of safer sex behavior and voluntary changes in higher risk sexual behavior. Condom distribution is essential in voluntary behavior change.

3065 THE ROLE OF BEHAVIORAL AND ATTITUDINAL RESEARCH IN DESIGNING INFORMATION PROGRAMS ON AIDS IN THE PHILIPPINES

Dayrit, Manuel*; Abad, M.**; Hernandez, E.*; Debus, M.***
*Department of Health, Manila, Philippines, **Trends, Inc., Quezon City, Philippines, ***Porter/Novelli/AIDSCOM, Washington, D.C.

Objective: Acknowledging the opportunity of time in a country with low recorded incidence of HIV infection, the Philippine Department of Health decided to use data from extensive behavioral and attitudinal surveys to better understand target audiences in order to design media campaigns and educational programs specifically targeted at at-risk individuals.
Methods: A total of 18 focus group discussions and 15 mini-KAPB surveys were conducted between November 1988 and June 1989 among purposive samples of male and female sex workers, men who have sex with men, male and female young adults and male and female expatriate workers in Metro Manila--all populations in which infection has been identified or which are perceived to be at risk of infection. All surveys included identical or similar batteries of questions on demographic, psychographic, behavioral and attitudinal variables to facilitate comparisons between survey samples.
Results: Surveyed samples yielded comparable high levels of awareness and perceived susceptibility to AIDS, based in large part on health beliefs rooted in misconceptions about transmission vectors. Significant variations in psychographic and behavioral data yielded useful insights into specific differences in potential approaches to specific audiences.
Conclusion: Overall the data suggest that, in order to increase ability to assess risk accurately, misconceptions about AIDS transmission must be reduced. A general information media campaign has been launched with this objective in mind, with specific variations for specific audiences.

3066 AN EVALUATION OF THE FURTHER DEVELOPMENT OF SYRINGE-EXCHANGES IN ENGLAND

Donoghoe, Martin; Dolan, K.A.; Stimson, G.V.

Centre for Research on Drugs and Health Behaviour, Charing Cross and Westminster Medical School, London, England.

Objective: To assess the national development of syringe-exchanges in the UK since the 1987/88 pilot programme.
Method: Data collected from 700 clients attending 18 syringe-exchanges providing free injecting equipment in England, April-September 1989, and compared with clients attending 1987/88.
Results: In 1989 35% were first time attenders. Many clients did not utilise the service primarily for HIV prevention. There were no improvements in the attraction of younger clients (mean age 1987/88 27.8 years; 1989 28.1 years); shorter term injectors (mean length use 1987/88 8 years; 1989 8.6 years) or women (21% in both studies female). The 1987/88 clients had less contact with other drug services (26% compared with 45%). Reported syringe sharing rates (21% shared in the previous four weeks) were lower in 1989 than 1987/88 (range 27% to 36%). Many clients were sexually active (82% in the previous year). In 1987/88 80% were sexually active in the previous three months.
Conclusions: Syringe-exchanges continued to attract new clients in 1989, but difficulties in attracting some groups indicate the need for innovative service development. Trends to lower sharing rates are evidence of the importance of syringe supply in HIV prevention.

3067 "IT IS BETTER TO BEG FORGIVENESS, THEN TO ASK PERMISSION": A CHRONICLE OF PREVENTION POINT NEEDLE EXCHANGE

Downing, Moher, Case, P, Clark, G, Dietrich, R, Garcia, D, Prem, R.
Prevention Point Research Group, San Francisco, USA

OBJECTIVES: To demonstrate the effectiveness of a street-based needle exchange (NE) program, to continue building support in ethnically diverse communities, and to affect public opinion and public health policy.
METHODS: Prevention Point (PP) committed civil disobedience to challenge existing paraphernalia laws. PP created an anonymous, street-based NE program using focus groups of potential clients and ethnographic mapping of potential sites. PP collaborated with many diverse organizations to expand to additional neighborhoods, and to move public policy toward establishing a sanctioned NE program.
RESULTS: On Wednesday, 1/17/90, 2620 needles were exchanged with 427 clients. In the 15 months that PP has operated, 53,132 syringes have been exchanged with 10,856 client contacts. Apparent demographic information was collected. Of these contacts, 2497 (23%) were women, 8302 (76%) were men, and 57 (.5%) were of unknown gender. Of these, 101 (.9%) were Asian, 3113 (29%) were Black, 1174 (11%) were Latino, 74 (.6%) were Native American/Alaskan Native, 6329 (58%) were White, and 65 (.5%) were from other ethnic groups.
Two leading AIDS advocacy groups, The Latino Coalition on AIDS/SIDA and The Third World AIDS Advisory Task Force, joined in coalition with PP and established a third site. Following publicity around the PP program and accompanying public pressure, a coalition of community-based organizations, drug treatment, health, and human service agencies formed the Needle Exchange Community Task Force. The Task Force developed a protocol for comprehensive HIV intervention among IDUs which includes NE.
CONCLUSIONS: PP has increased the options available for HIV prevention to IDUs, has created a broad base of community support for NE, and has pushed local health and city officials to establish NE as public policy. With $360,000 budgeted for NE in the Mayor's HIV Task Force Report, and official public policy supporting NE, it is clear that archaic paraphernalia laws are the only obstruction to San Francisco's sanctioned NE program.

3068 AIDS PREVENTION IN THE UGANDAN WORKPLACE: IS THE MODEL REPLICABLE IN OTHER AFRICAN COUNTRIES?

Dunnigan, Ken*; Kasswara, J.**; Stone, D.***; Weeks, D.***

*AIDSCOM/Academy for Educational Development, Washington, D.C.;**Federation of Ugandan Employers, Kampala, Uganda; ***AIDSCOM/The Johns Hopkins University, Baltimore, Maryland.

Objective: To determine whether a peer education model of prevention can be successfully implemented in a Ugandan workplace setting and to examine practical lessons which will help determine its replicability in other African countries.

Methods: Through the Federation of Ugandan Employers (FUE), an AIDS prevention program has been instituted in 20 private sector workplace settings, representing some 20,000 employees. The model is based upon the training of peer educators, whose task it is to encourage and support positive behavior changes among co-workers. Successful implementation is measured by numbers of peer educators trained and the quality of interaction with co-workers. Replicability is measured in terms of labor intensity, cost, degree of acceptability, and potential for successful outcome.

Results: This peer education model is labor intensive, requiring much monitoring and follow-up. To date, a cadre of 300-400 peer educators has been produced and behavioral outcomes are being measured. A summative evaluation is also underway. The model has generated enthusiasm among employers, who may, however, underestimate the degree of employer commitment needed in realizing this model.

Conclusion: There is strong indication that the model is replicable, and this must be weighed against the high degree of effort involved. Our experience suggests that employers may want to couple this approach with less labor-intensive strategies.

3069 THE AVAILABILITY OF STERILE SYRINGES IN THE FEDERAL REPUBLIC OF GERMANY AND THE OFFER BY AIDS-SERVICE ORGANISATIONS AND DRUG COUNSELLING CENTRES FOR AN EXCHANGE OF SYRINGES

Friedrichs, Christiane, Michels, I., Deutsche AIDS-Hilfe, Berlin, West-Germany

Together with sexual transmission, the sharing of syringes is the main method of transmission for HIV amongst intravenous drug users. Easy access to sterile syringes is an important measure for the prevention of AIDS, it can help drug users to avoid the risks involved in syringe sharing, to initiate or stabilize 'safer use'. The aims of drug free counselling and treatments offered in the Federal Republic of Germany are complemented by the aims of reducing health risks in order to keep drug users in the drug scenes healthy by means of counselling and care during the time of their addiction. Various models for the distribution of syringes in the Federal Republic of Germany are presented: the distribution via pharmacies, syringe exchange programmes of AIDS-Service Organisations and Drug Counselling Centres in different German cities (Bremen, Hamburg, Hannover, Essen), the distribution via syringe machines in Bremen, Berlin and North Rhine-Westphalia. Problems and resistance to the free distribution of syringes (especially in prisons) will also be shown.

3070 INFECTION CONTROL GUIDELINES FOR HOME HEALTH-CARE OF PATIENTS WITH AIDS/HIV INFECTION

Garner, Julia S., Bell, D.M.
Centers for Disease Control, Atlanta, Georgia, U.S.A.

Objective: To prevent infection transmission between patients with AIDS/HIV infection and home health-care workers (HHCW).
Methods: After consultation with experts and review of recommendations for infection control and prevention of HIV transmission in health-care settings, the Centers for Disease Control developed infection control guidelines for home health-care of patients with AIDS/HIV infection.
Results and Conclusions: The guidelines incorporate the strategy of universal precautions to prevent parenteral, mucous membrane, and skin exposures to bloodborne pathogens, including appropriate barrier precautions to prevent blood contact, careful use and disposal of needles, and appropriate disinfection and waste disposal strategies. The guidelines also recommend that HHCW should: 1) be current on immunizations such as measles, mumps, rubella, influenza, and hepatitis B, 2) wash hands after touching urine or saliva, 3) wear gloves during contact with diarrhea and wash hands carefully after removing gloves, and 4) wear gloves when touching infective lesions. To prevent varicella-zoster transmission, HHCW who have not had chickenpox should not provide care to a person who has either chickenpox or zoster, and HHCW recently exposed to chickenpox who have not yet had the disease should not provide care from day 10 through day 21 after exposure.
Recommendations to prevent transmission of tuberculosis should be followed, especially during cough induction procedures including aerosolized pentamidine treatments. If HHCW are exposed to blood, semen, or vaginal fluid of patients with AIDS/HIV infection, they should contact the occupational health section of the employing agency, their doctor, or health department to obtain further evaluation, treatment, and advice.

3071 BUSINESS-BASED INTERVENTION TO PROMOTE CONDOM USE AMONG HIGH RISK INDIVIDUALS

Hahn, Ginger,* Cohen, D.**, MacKinnon, D.***
*Public Health Foundation, **University of Southern California, Department of Family Medicine, and LA County Sexually Transmitted Disease Program, ***University of Southern California, Institute of Prevention Research

Objective: To promote condom use by increasing availability of condoms to high risk individuals through local businesses.
Methods: Local business were asked to participate in a condom distribution program in which individuals showing an anonymous ID card would be eligible to receive a bag of 10 free condoms. High risk individuals (patients with a history of STDs, drug users, released inmates, prostitutes, persons with multiple sexual partners) were identified by many different professionals: private practice physicians, public health nurses, contact investigators, and probation officers.
Results: Recruiting business was difficult. In one area, 14 out of 300 approached agreed to participate. However, the 31 participating businesses experienced no difficulty in administering the condom distribution. Over 1,300 anonymous cards were distributed and 3,800 condoms redeemed over a 6 month period. The study is ongoing. In December, 1989 520 condoms were redeemed by 30 individuals. Attitudes of businesses, of participants, and of professionals who recruited participants will be discussed.
Conclusion: Enough local businesses can be recruited to meet the current demand by high-risk individuals for free condoms. This method of increasing condom availability deserves further evaluation and is inexpensive to administer.

3072 A COOPERATIVE HEALTH SERVICE AND HIV PROGRAM PROTOCOL FOR BLOOD & BODY FLUID EXPOSURE FOLLOW-UP OF EMPLOYEES AND SOURCE PATIENTS.

Josephson, A. Ph.D, MPH, CIC, Bottone, J. RN, MPA, Gerber, M. MD, Oppermann, A. MA. SUNY-Health Science Center at Brooklyn, Brooklyn, New York.

Over a two year period beginning in January 1988, our hospital had 237 documented incidents of employee exposure to blood, body fluids and/or injuries with sharp objects. Most exposures 201(84.8%) were by needle or sharp object penetration and 171(72.2%) were to high risk fluids. Early in 1988 following the institution of a hospital HIV program we implemented a protocol involving employee and source patient counseling, testing and follow-up. We gave employees two testing options; either an immediate post exposure HIV test with 3, 6 and 12 month follow-up testing in health service (HS) or a saved specimen for future testing. Of the 195 employees who came to HS after the protocol was initiated, 172(88.2%) agreed to one of the two testing options with 143(60.1%) choosing the immediate testing option. The source patient was known and alive in 166(70%) of the incidents; we approached 69(41.6%) physicians for permission to seek their patient's consent to HIV testing. While 51(74%) MD's agreed, only 34.5% of the patients counseled gave consent for testing. Most patient refusals 23/36(64%) were based either on the perception that their lifestyle rendered them a no risk exposure to the employee (20) or the knowledge that their HIV status (3) was negative. The most common reasons for not asking physician permission to approach patients was: patient expired or was discharged 32(19.8%); patient's HIV status was known or they previously refused to be tested 19(11.7%). For the last five months of 1989 we have offered AZT to employees with high risk exposures. Sixteen of 17(94%) who were offered AZT took it; with 3 discontinuing the drug when the patient tested negative. Of 11 who took the drug and returned for follow-up 5(45%) experienced nausea and/or vomiting with 1 also experiencing fatigue and malaise.

3073 CONDOMS' USE BETWEEN CULTURE AND FEAR.

Lagrange Hugues*; Bouhet B.*; Denni B.**; Lhomond B.*; Zorman M.**.

P.R.O.M.S.T., *C.N.R.S, **University of Grenoble, France.

Objective: study changes in sexual behavior and, specifically, change in condoms' use in response to AIDS.
Method. The examined population is a representative sample (drawn by quota -sex, age, place of living) of 1511 people, 18 to 59 years old, living in the Rhône-Alpes region (South-East of France), interviewed during spring 1989. Predictors:-Number and type of sexual partners (regular, occasional, new); -Fear and subjective proximity with HIV-infected people. Outcome: -Use of condoms in various sexual contexts.
Results. -The proportion of condoms'users among heterosexual multipartners is strongly influenced by contraceptive habits and sexual contexts. The proportion of condoms users with an occasional partner is 4 to 5 times higher among those who utilise condoms as contraceptives in one sexual context (e.g. with their regular partner) than among those who do not.
-Among heterosexuals who don't use condoms as a contraceptive, personal fear of AIDS and subjective proximity with HIV-infected people foster utilisation of condoms in most contexts.
Conclusion. The policy implications are that national authorities should reorganise education programs on ealth in order to promote condom use among youngsters as a contraceptive and means of protection against STD.

3074 COMPUTERIZED ELECTRONIC TELEPHONE DIRECTORY ANL SERVICES(MINITEL): EVALUATION OF QUESTIONS AND ANSWERS OVER 1 1/2 YEARS IN THE FIELD OF AIDS & STD PREVENTION.

LIVROZET J.M. *, MODOLO I. *, PENET D. *, RETORNAZ G. *.
* ALS, LYON; FRANCE.

OBJECTIVE: A program of prevention of AIDS and sexual transmitted diseases (STD) was organized in Villeurbanne (100.000 inhabitants) during October 1988. Computerized electronic telephone directory and services (MINITEL) was used as medium for education. Users ask questions to a physician with computers disposed in public areas, or connected by phone (MINITEL) at home. This experience was performed for now 1 1/2 year.
Questions are anonymous and answers are delivered until 48 hours .
RESULTS: 300 questions were listed during the first three months. A sample of 42 questions was analized: 26.8 % were on seroconversion, symptoms or incubation; 26.1 % were on the transmission of HIV infection; 11.9 % on other STD; 9.5 % on evolution of AIDS .
DISCUSSION: The program seems to have concerned young people asking questions on prevention more than people with AIDS.

3075 IMPACT OF CONDOM USE TO PREVENT HIV TRANSMISSION AMONG MALE HOMOSEXUALS IN BAHIA, BRAZIL

Mott, Luiz*; Moreira, E. D.*; Ribeiro, T. T.*; Badaró, R.*; Johnson, W. D., Jr.**
*Federal University of Bahia, Salvador, Brazil; **Cornell University Medical College, NY.

Objective: To evaluate the seroprevalence of HIV infection after introduction of a condom-use program by "Gay Group of Bahia" (GGB).
Method: A point prevalence sero-survey of HIV infection in the male homosexual community of Bahia before and after an intensive education and condom distribution program.
Results: A 1986-1987 survey of 109 homosexuals in Bahia revealed a HIV seroprevalence of 19%. Since the survey, condoms have been distributed twice weekly, to the participants in the sex education program of the GGB. A cross-sectional study of the group in December 1989 revealed that the HIV seroprevalence rate was 12% among the 96 gays surveyed. The mean age of the entire group was 26 years. An analysis of their current sexual practices revealed that 61% routinely used condoms. The mean total number of sexual partners during the past 5 years was 33 (range 1-1000). The prevalence of STDs during this same period was 38%.
Conclusion: The implementation of an intensive educational program and the distribution of free condoms to the members of the homosexual community by the GGB has been associated with a decrease in the seroprevalence of HIV.

3076 CLIENTS REFUSE CONDOMS, SEX WORKERS WIN

Pareja, Reynaldo; Castillo, Mercedes, Rosario, Santo
Academy for Educational Development, PROCETS, COIN

Objective: To determine the most common arguments used by clients of sex workers who refuse to use condoms. Further, to explore the most effective counter arguments, strategies and actions of female sex workers to convince clients to use condoms.

Method: The qualitative research technique of focus groups was used. Eight sessions (of 10 sex workers each) were held. Participants were recruited from bars, streets and brothels. Anecdotical information suggested client's arguments for condom refusal were related to sensation, self image and incorrect folkloric beliefs.

Results: Reduced sensation and lack of feeling were the most frequent arguments reported. Clients also fear that condom use will negatively affect their potency, fertility, virility, and sexual identity. Condoms in general are perceived as unconfortable, harmful, or damaging to their "macho" image. They also contribute to loss of control of the sexual activity.

Conclusions: These arguments can be converted into counter arguments for sex workers to respond to clients. Explicit material like "flash cards" can be designed to help them negotiate condom use. Training sessions will help them learn how to use arguments.

3077 AIDS RISK REDUCTION AMONG FEMALE IVDUS AND FEMALE SEXUAL PARTNERS OF IVDUS, 1988-1989

Powers, Bernadette; Penn, S.; Aldrich, M.R.; Little, S.; Biernacki, P.; Feldman, H.W.
Youth Environment Study (YES), San Francisco, California, USA.

Objective: To show the impact of a female outreach team(SPIRITS) emphasizing family roles and responsibilities, in reducing high risk sexual behavior of female intravenous drug users (IVDUs) & female sexual partners (SPs) of IVDUs especially women of color.
Methods: A specially trained SPIRITS team was fielded in 1988 by YES to access women at high HIV risk, and to provide: group and individual counseling, safer sex workshops, bleach and condoms, agency referrals, client advocacy, and repeated follow-up. Behavioral changes were recorded through qualitative field data.
Results: From 6/88 to 6/89, SPIRITS made 4,724 individual client contacts and 7,829 group counseling/safer sex workshop contacts; distributed 12,850 bottles of bleach and 25,236 condoms. Clients were 51% black, 27% white, 17% Latina, 5% other ethnicity. In early workshops 15% reported regular or "always" condom use; in later workshops this increased to 50%.
Conclusions: By emphasizing family roles and responsibilities, providing AIDS education and resources for prevention through individual contacts, group counseling and safer sex workshops, an all-female outreach team can have significant impact on risk reduction among female IVDUs and SPs.

3078 MOBILE AIDS PREVENTION PROGRAM (MAPP)--"AIDSMOBILE": DELIVERY OF AIDS INFORMATION AND CONDOMS TO YOUTH IN HIGH HIV-SEROPREVALENCE NEIGHBORHOODS

Shultz, James*, Zimmerman, R.*, Scotkin, D.**, Withum, D.***
*University of Miami, Miami, Florida, USA;**MAPP, Miami, Florida, USA;
***Dade County Public Health Unit, Miami, Florida, USA.

Objective: To present evaluation data for an innovative community-based street-outreach intervention that distributes AIDS information and condoms to sexually-active adolescents in the highest-risk neighborhoods of Miami.
Methods: Operating from a motor home (the "AIDSMOBILE"), MAPP staff distribute AIDS literature and condoms to low SES neighborhoods with large percentages of American Black, Haitian, and Hispanic residents.
Results: From July, 1988 through December, 1989, AIDS materials and/or condoms have been distributed to more than 200,000 person-contacts. 250,000 pieces of literature and 400,000 condoms have been distributed. In the last 6 months, 70% of clients were males. Racial distribution: 34% American Blacks, 31% Hispanic, 28% Haitian, 7% white. The rate of acceptance of condoms varies by race: condoms were received by 99% of Black males and females who received AIDS literature; 80% of Haitian males and females; 66% of Hispanic males (34% of Hispanic females); and 61% of white males (47% of white females). The majority of contacts are adolescents and young adults (ages 15-24); condoms are not provided to youth under age 15.
Conclusion: MAPP has demonstrated both community acceptability and efficacy in the delivery of AIDS information and condoms to youth-at-risk. In addition to more rigorous evaluation of current activities, feasibility studies are planned to explore the use of the AIDSMOBILE as a recruitment and referral source to medical care, counseling-and-testing, and community services; and the expansion of services to new neighborhoods and cities.

3079 NATIONAL SURVEY OF SYRINGE-EXCHANGES IN ENGLAND

Stimson, Gerald*; Lart, R.**
*Centre for Research on Drugs and Health Behaviour, Charing Cross and Westminster Medical School, **Goldsmiths' College, London, England.

Objective: To establish the number of syringe-exchanges; describe models of service delivery; and identify patterns of development.
Method: A questionnaire posted to agencies operating syringe-exchanges in England in February 1989 (55 replied). A syringe-exchange was defined as a facility for drug indicators to obtaine sterile and return used injecting equipment, available free on a regular basis at a known location. Excluded were retail pharmacy sales, and supply by health workers on an individual basis.
Results: There were approximately 120 exchanges by the end of 1989. Most were operated by existing drug agencies (76%), with a few in pharmacies (15%) and other health facilities (5%). Stand-alone schemes were uncommon (4%). Pharmacies presented fewest barriers to access, but offered few services. Drug agencies presented more barriers, but offered more services. Average number of clients per week was 21, with 14 syringes supplied per visit. About 1 million syringes were issued in 1988. Estimated demand is 13.5 to 27 million syringes per annum.
Conclusion: There has been a major expansion of syringe-exchanges but supply does not meet demand. Central co-ordination, supervision and direction is lacking. Future development should consider the merits of a public health model of syringe distribution, prioritising access and maximising supply, versus a client based drug agency model emphasising a range of services. Separation of supply from disposal should be considered.

3080 RAPID AMBULATORY OPIATE DETOXIFICATION : A NEW APPROACH IN AIDS PREVENTION FOR INTRAVENOUS DRUG USERS.

M.E.Waugh, I.A. Diakogiannis, P.G. O'Connor, R.S. Schottenfeld, and B.J. Rounsaville, Yale University School of Medicine, CT, USA.

More than 60% of the new cases of AIDS in Connecticut are related either directly or indirectly to intravenous drug use. To evaluate a strategy for potentially reducing this high risk behavior we evaluated ambulatory outpatient detoxification (AOD) as a method for initiating treatment for intravenous drug users (IVDU's).

Eighty three opiate addicted IVDU's not currently in treatment were identified through an AIDS outreach prevention program and had the following features: mean age 34 years, 55 males, 51 whites, 25 blacks, 6 hispanics, 65% reported needle sharing in the previous 6 mo., and prevalence of HIV infection was 28%. All 83 patients were evaluated for a clonidine or a clonidine/naltrexone AOD, and were offered HIV testing and counseling and medical care. Twelve patients were excluded from AOD due to medical or psychiatric reasons. Of the 71 attempting AOD, 81% (58/71) successfully completed detoxification. Of the 58 patients who completed detoxification, 72% (42/58) were successfully referred to long term relapse prevention programs, and 65% (38/58) completed at least 1 month of treatment.

Our preliminary results suggest that AOD is effective in initiating drug treatment in IVDU's and thus may be effective in reducing transmission of HIV infection. Six month follow-up data of drug abuse treatment and needle use and sharing will be reported.

3081 OCCUPATIONAL PERCUTANEOUS EXPOSURE TO BLOOD: A DECISION ANALYSIS ON THE ROLE OF ZIDOVUDINE PROPHYLAXIS.

Allen, UD*; Guerriere, M**; Detsky, AS***; Read, SE*; *The Hospital for Sick Children, **St. Michael's Hospital and ***The Toronto General Hospital, Toronto.

Objective: We conducted a decision analysis to determine the preferred treatment option for health care workers (HCW) who have had percutaneous exposure to blood.
Methods: The options were to treat all exposed persons with short-term Zidovudine (AZT), treat no one or stratify HCWs by doing serological testing on the "donor" blood; treating the HCW with short-term AZT if the "donor" is HIV-positive ("TEST" option). Baseline probabilities for the risk of seroconversion, AZT short-term complications, conditional sensitivity and specificity of Western Blot, were obtained from the published literature. The effectiveness of AZT is not known. The measures of outcome were expected utilities. The analysis was done using the statistical software, SMLTREE.
Results: The baseline results showed that the preferred option was to test the "donor" blood and administer AZT to those HCWs who have been exposed to HIV-infected blood. One-way sensitivity analyses showed that this option was preferred when the risk of seroconversion ranged from 0.15% to 20% , if the effectiveness of AZT was 40% or greater or if the risk of AZT complications was 20% or greater. Sensitivity analyses also showed that the preferred option did not change for a range of conditional sensitivity of Western Blot, covering the range obtained in reference laboratories. Overall, the margin between the "TEST" option and not treating any HCW, was quite narrow and was sensitive to variations in utility estimates that incorporated individual preferences based on knowledge of AZT complications, including malignancy. The result was also sensitive to test specificity, with the preferred option being to treat no one if Western Blot specificity is less than that obtained in reference laboratories (<98%).
Conclusions: (1). AZT should be offered to HCWs exposed to HIV-infected blood. (2). Individual HCW's preferences based on the risks of toxicity, including malignancy, should be incorporated in the decision making process. (3). The decision should be based on testing done in a reference or comparable laboratory. (4). If other baseline parameters remain unchanged, the effectiveness of AZT should be 40% or greater to be useful for post-exposure prophylaxis of HCWs.

3082 AIDS AND MEDICAL WASTE: NEW TECHNOLOGIES SUCH AS DESTRUCTION AND DISINFECTION VERSUS TRADITIONAL INCINERATION.

Brown, James W.*; Blackwell, H.**. *New Jersey State Solid Waste Advisory Council, Trenton NJ **New Jersey Public Health Association, Raritan, New Jersey, USA.

Objective: Fear of AIDS by the general public was partially responsible for the advent of stringent new Federal (USA) and State regulations addressing disposal of medical waste. These statutes require medical waste to be rendered both non-infectious and unrecognizable. A new process of mechanical destruction and disinfection has been introduced, the objective of this study is to compare this to on-site incineration.
Methods: Incineration of medical waste was compared to mechanical destruction and chemical disinfection with respect to costs, emissions, approvals and licensing, disinfection of medical waste, and community acceptance.
Results: Both incineration and mechanical/chemical treatment were able to render medical waste non-infectious and unrecognizable. Incineration had the disadvantages of temperature variability, difficulties in licensing, permitting and community approval, air emission problems (nitrous oxides, hydrogen chlorides), ash removal, and higher costs.
Conclusion: Mechanical/chemical treatment offers substantial environmental, aesthetic, and monetary advantages over on-site incineration. Ultimately it may help reduce the spiralling costs of medical waste disposal exacerbated by the AIDS epidemic.

3083 THE AIDS TRAVELLING ROAD SHOW: EVALUATION OF A PEER EDUCATION PROGRAM ON AIDS AWARENESS AND PREVENTION IN THE HIGH SCHOOL

Caron, Françoise*; Newell, Murray**; Otis, Joanne***; Lambert, Jean***
*CLSC Longueuil Ouest, Longueuil, Quebec, Canada; ** Lemoyne D'Iberville High School, Longueuil, Quebec, Canada; *** University of Montreal, Montreal, Quebec, Canada.

Objective: To evaluate the short term effects of a peer education program on AIDS.
Methods: 21 boys and 24 girls (ages 14-15) from 2 schools in the Montreal area received a peer education program. Peer educators are secondary IV students (ages 15-16) who have undergone an intensive week long program on AIDS. In a 2 1/2 hour workshop, these students share their expertise through dramatizations, demonstrations and discussions with other students. 45 students completed a pretest and post-test.
Results: The paired sample t-tests indicate a significant difference between pre and posttest scores on all constructs except intention.(1) Attitudes toward PWA's improved ($p < .000$) (2). Perception of risk increased from 6.8 to 9.15 on a scale of 1 to 12 ($p < .000$) (3). Knowledge on modes of transmission improved ($p < .000$) and even more significant is the change in knowledge with respect to condom utilization ($p < .000$) (4) Attitudes toward condom use are more positive ($p < .03$) and fewer barriers to condom use are perceived ($p < .05$). The high intention to use the condom remained unchanged.
Conclusion: These results suggest a peer education program can be effective in changing knowledge and attitudes about AIDS. It would be interesting to determine if these effects are long lasting.

3084 EVALUATION OUTCOME MEASURES OF HOSPITAL-BASED PROVIDER AIDS EDUCATION SERVICES

Duke, Sharen I*; Goldberg J, Drucker E**; Epstein I, Sacks H***; Gillette P****
*NYC Department of Health, NY, USA, **Montefiore Medical Center, Bronx, NY, USA, ***Mt. Sinai Medical Center, NY, USA, ****SUNY Health Science Center at Brooklyn, NY, USA.

Objective. To develop, implement and evaluate AIDS education programs for hospital-based women's health providers so that AIDS prevention and risk-reduction services can be incorporated into routine care.
Methods. A quasi case-control study method was used to evaluate the effectiveness of provider education programs in three hospital settings. Pre- and post-training questionnaires measured changes in provider knowledge, attitudes and medical practices regarding women and HIV issues.
Results. Provider knowledge increased from 73.4% to 83.8% cumulative correct responses. Knowledge among controls increased slightly but was lower overall (69.5% to 76.2%). Routine provision of AIDS information to patients increased from 42.9% to 53.7% pre- to post-intervention. Negative attitudes toward perceived risk populations (homosexuals, IVDUs, women with multiple sex partners) were inversely correlated with provision of general AIDS information to patients. Of providers with negative attitudes, 75.6% did not routinely provide AIDS information (<60% of the time). This proportion decreased to 63.7% post-intervention. Providers with positive attitudes who routinely provide general AIDS information increased from 53.8% to 61.3% pre- to post-intervention. Providers for whom religion was important were less likely to provide AIDS information to patients than providers for whom religion was not important.
Conclusion. While providers scored high on knowledge of AIDS epidemiology and prevention, these knowledge levels did not affect their provision of routine AIDS information to patients. Positive attitudes toward perceived risk populations were correlated with provider practice. The data suggest that medical education should focus on provider attitudes and the necessity of maintaining a separation between personal views and professional services.

3085 HEALTH CARE WORKER (HCW) CUTANEOUS EXPOSURES (CE) TO BLOOD AND OTHER BODY SUBSTANCES (OBS) BEFORE AND AFTER UNIVERSAL PRECAUTIONS (UP) TRAINING

Fahey, Barbara*; Koziol, D*; Banks, S*; Henderson, D*.
* National Instutites of Health, Bethesda, Maryland, USA

Objective: To compare the self-reported frequencies of CE to blood and OBS from all patients and from HIV+ patients in HCW before and after UP training.
Methods: HCW enrolled in a prospective study of risk for occupational HIV infection were asked to report estimated monthly frequencies of CE for the prior year. Annual estimates of CE based on these data were obtained both before and after UP training. Patient and/or specimen contact and CE to blood and OBS (sputum, urine, feces, and other fluids) were evaluated separately during the two survey periods. HCW were screened annually for HIV by EIA.
Results: No HCW reporting CE acquired HIV infection. Annual CE frequencies:

	Pre-UP Training					Post-UP Training				
CE	HCW	CE Any Pt.		CE HIV+ Pt.		HCW	CE Any Pt.		CE HIV+ Pt.	
Type	No.	Total	Mean	Total	Mean	No.	Total	Mean	Total	Mean
Blood	559	10008	17.9	2712	4.9	269	1932	7.2†	516	1.9†
OBS	559	10848	19.4	2856	5.1	269	2268	8.4†	576	2.1†
TOTAL	559	20856	37.3	5568	10.0	269	4200	15.6†	1092	4.1†

† $p < 0.005$ compared to pre-UP training

A matched analysis on 200 HCW responding to both surveys had similar findings, though a decrease in CE was not observed in each HCW.
Conclusion: CE frequency decreased but was not eliminated after UP training; UP training and implementation may have contributed to a decreased rate of CE.

3086 EVALUATION OF UNIVERSAL PRECAUTIONS CAMPAIGN AT 9 DE JULHO HOSPITAL - SÃO PAULO - BRAZIL

Ferreira,A.C.;Gouveia V.;Peraccini M.H.;Tranchesi,R.;Fernandes, M.E.;Burattini.M.;Lima,V;Machado,C.
Foco-Center of Infectology Infection Control Committee
9 de Julho Hospital - São Paulo - Brazil (9 J.H.).

The Universal Precautions for body fluids(UP) as a routine in a hospital is a great challenge for Infection Control Committee.In February 1989 an Educational Campaign with this objective was started at 9 J.H.. In order to evaluate the efficacy of our educational strategy a standarized questionnaire with 21 closed questions (Aids, Hepatites, UP measures,and isolation procedures) were distributed for medical doctors, nurses, nurses aid, and laboratory technicians from different units of the hospital. The authors analyzed a sample of 250 questionnairies, 84,7% of the hospital employers from 6 units: Emergency room, Surgical Center, ICU, Wards Blood Bank and Laboratory. The results showed a better knowledge about hepatites transmission than on Aids. The knowledge about UP were about 86,3% in Surgical Center Laboratory and wards. Aroud 83% of the employers know when UP is indicated but approximately 40% of them do not know the risk of HIV infection in an assymptomatic patient. This strategy allows us to improve and implement the educational intervention for areas in need.

3087 ANALYSIS OF SUNY BROOKLYN EXPERIENTIAL HIV EDUCATION PROGRAM FOR PROVIDERS.

Gillette, Peter N.*; Sogolow, E.D.*; McDonald, F.J.**; and Landesman, S.H.* *SUNY HSC-Brooklyn, NY, USA **Fordham University, NY, USA

Objectives. To use experiential learning, rather than predominantly didactic methods, to educate health care providers to routinize risk assessment and risk reduction practices.
Methods. A time series design was used to assess the effectiveness of a one-day training program and its impact on practice. A self-selected group (n=275) of physicians, nurses, social workers and others from New York City attended intensive, day-long, training sessions in groups of 18 to 40. Evaluation was by pre- and post-training questionnaires with knowledge, practice, attitudinal and demographic variables. Follow-up evaluation of changes in practice was done on a 10% matched sample 3-6 months later.
Results. Time 1 (baseline) knowledge was uneven: although 98% were able to answer general questions of HIV risk correctly, 48% misunderstood more specific items. Time 2 (end-of-training day) data suggested discordant thoughts and actions: 74% reported comfort discussing sex with patients, but only 54% reported doing so; comparable items were 89% comfortable discussing drugs, 85% reported doing so. Sex education viewed as part of job, 85%, but sex practices discussed with patients, 54%. Time 3 (follow-up) showed comfort in discussing sex was unchanged, 74% to 76%, but discussing sex increased 54% to 71% ($p<.01$). Both comfort and discussing drugs increased to 95% each ($p<.01$).
Conclusions. Experiential education programs may facilitate the ability to change practice routines. Interesting knowledge-practice discrepancies still exist which may respond to a new model of on-site training being developed.

3088

RADICAL INTERVENTION ON EARLY STAGE OF HIV INFECTION PREVELANCE IN THE CITY OF LODZ

Gorski, Tadeusz*; Lipinska, K.*; Bergiel, A.**; Korczynski, E.***

* Sanitary Epidemiological Station. ** Hospital for Infectious Diseases. *** Polyclinic of Venereology, Lodz, Poland.

OBJECTIVE : A restraint of HIV infection prevelance among risk group persons depends on the level of their HIV/AIDS knowledge and a professional and general public AIDS education in a large city.
METHODS : The use of HIV-1 antibody tests (Abbott Diagnostics) among homosexual/bisexual men, prostitutes and their clients, drug abusers and blood donors has been carried out for screening to detect HIV infections. People were instructed on AIDS, the healthy attitudes and risk behaviours by the questionnaire study based on AIDS risk knowledge test recommended by J.A.Kelly et al. (University of Mississippi Medical Center, USA). The intervention campaign in 1988/1989 was performed by a special joint consultation body and a surveillance service.
RESULTS : An overall positivity rate of 0.009% was found by HIV-1 ELISA and Western Blot. HIV-1 infected people have been found among homosexual/bisexual men - 7, prostitute-drug abuser - 1, blood donors - 3, foreign students - 2. All HIV-1 infections except one (drug user) were imported to the city.
CONCLUSION : These are good results of early preventive activities in the city with the population exceeding 1 million, it is ineffective in city alone. The HIV/AIDS prevention should be provided in the whole country and, subsequently in the world.

3089

Evaluation of a school-based AIDS educational program

Hornung, R., Wydler, H., Tschopp, A., Gutzwiller, F.
Institute for Social- and Preventive Medicine of the University of Zurich (Switzerland)

Objective: To evaluate the effects of a school-based AIDS educational program aimed at 13-16 year-old pupils attending primary schools in the canton of Zurich.
Methods: Empirical basis was a stratified random sample of 479 pupils in 32 classes. Both, pupils and teachers in the 32 classes were questionned by a highly standardized questionnaire. Because of the compulsory character of the intervention a study design including a control group was not feasible. It happened by chance that 16 of the selected classes had already got the intervention, the other 16 classes not yet. Objectives of the intervention were defined on four levels: cognitive level (knowledge of the modes of transmission and of preventive measures), emotional (e.g. compassion with AIDS-affected persons), affective (e.g. fear regarding to sexuality), behavior-oriented level (internal/external control). The scales were established by factor-analytic procedures. Bivariate and multivariate methods of analysis (multiple stepwise regression) have been used.
Results: A consistent effect of AIDS-education could be demonstrated on the cognitive level ($p < .01$), a rather weak on the social level ($p < .01$). There were no negative effects on the sexual feelings of the pupils with intervention. An impact on the behavior-oriented level could not be shown.
Conclusion: School-based AIDS intervention has a provable effect on knowledge and attitudes.

3090

SUBSTANTIAL IMPROVEMENT IN ADHERENCE TO UNIVERSAL (BARRIER) PRECAUTIONS AMONG EMERGENCY DEPARTMENT HCWs FOLLOWING IMPLEMENTATION OF POLICY

Kelen Gabor, Fleetwood D, DiGiovanna T. Division of Emergency Medicine, Johns Hopkins University, Baltimore, MD.

Objective: To determine the effect on HCW behavior of an institutional policy mandating adherence to Universal Precautions, with repercussions for non compliance.

Methods: During July 1989, exactly 1 year after a previous study using the same methodology, health care workers (HCWs) were observed 24 hours a day in the emergency department performing procedures on every patient with critical illness or injury who required immediate intervention. HCWs were blinded as to the purpose of the observer. Mid-year between the two studies, the institution initiated a policy mandating compliance with infection control precautions. Educational programs were unchanged. Expected precautions were based on type of intervention and bleeding status of the patient. Interventions were classified as major, minor, or physical exam only. Bleeding status was defined as profuse, active or none. For major procedures or profuse bleeding, all precautions were required (gloves, gown, mask eye protection). For minor procedures or active bleeding, at least gloves were required.

Results: During the month, 125 HCWs performed 1,419 procedures on 168 patients. Overall adherence improved to 74.4%% compared to 44.0% in the previous year ($P<.01$). Most providers improved substantially: residents 58% to 82%, attendings 38% to 64%, consultants 43% to 65%, nurses 44% to 75%, radiology 14% to 79% (each $P<.01$). Paramedics, who are not accountable to the institution failed to improve: 8% to 14%.($p>.2$). Adherence during major procedures improved from 17% to 55%, and in the face of profuse bleeding from 19.5% to 47% ($P<.01$). At least gloves were worn 85% of the time when indicated. Spot checks up to 2 months following the study revealed adherence to precautions was maintained at 73%.

Conclusion: As evidenced by comparing paramedics to other providers, implementing Universal Precautions as policy can dramatically improve provider compliance.

3091

A POOLING METHOD FOR ANTI-HIV TESTING IN ECUADOR

Leoro-Monroy, Galo*; Archbold, E.**; Sánchez, M.*; Herrera, C.*; Chiriboga, R.*, and Weilbauer, F.*
* Ecuadorian Red Cross, Quito, Ecuador.
** Family Health International, RTP, NC, USA

Objective. To develop and evaluate a simple, practical and reliable pooling method based on two commercial test kits without compromising the assay's sensitivity and specificity.
Methods. One thousand samples from blood donors were analyzed using Abbott's and Organon Teknika's test kits. Samples were assayed by each test kit both by routine single well and as 3 samples per pool per well. For pooling, the total volume of three combined sera was substrated from the total amount of sample diluent recommended by the manufacturer. Thus, the final dilution of each pooled sample relevant to the total volume in each pool per well was the same as that recommended by the manufacturer. No modification was made to the cut-off values. All positive samples were confirmed by Western Blot analysis.
Results. Correlation for the two methods ranged from 98 to 100% on all Western Blot positive samples. Specificity was lower and ranged from 92 to 96%.
Conclusions. Our method is simple, practical and reliable in detecting HIV seropositive samples with the added advantage of significant economical savings.

3092 GENERAL VS. TARGETED INFORMATION EFFORTS. A COMPARATIVE EVALUATION OF THE EFFECTS OF TWO CAMPAIGNS ON FRENCH MALE HOMOSEXUALS.

Pollak, Michael* ; Schiltz, Marie-Ange*
*CNRS-GSPM, paris, France.

Objective : The french government has organised, in 1988 and 1989, a general information campaign and a campaign targeted to the male homosexual population. The aim of this research is to evaluate the comparative effects of these campaigns on french male homosexuals in terms of information and behavior changes.
Methods : Questionnaire survey in the male homosexual population (sample size 1200).
Results : The targeted information campaign reaches the most organised segment of the gay population, concentrated in big cities (30 % of the overall population going out at least once in a gay meeting place or reading a gay journal). The general campaign reached 90 % of homosexuals, including the ones not participating in organised forms of gay life. 10 % could be reached by neither campaign. No significant differences in the level of information, already high before the campaigns. Behavior changes attributed to the campaigns are highest in the subgroup reached by both campaigns, 25 % of homosexuals reached by the general campaign only felt not concerned by them.

Conclusion : General and targeted approaches to prevention should not be opposed, they reach different population segments. Themes and images refering to homosexual behavior should be introduced in general campaigns as they reach also homosexuals not identifying with a gay community.

3093 HIV RISK-FACTOR REDUCTION COUNSELING BY MEDICAL HOUSESTAFF

Wheat, Mary, Devons C, Solomon S, Hyman R. Montefiore Medical Center, Albert Einstein College of Medicine, Bronx NY, USA

Objective: To assess HIV risk-factor assessment and counseling behavior in 86 medical housestaff in a Bronx municipal hospital. Methods: Questionnaire self-report with a response rate of 93%. Means compared using paired t-test. Results: Housestaff assess smoking behavior in 95% of new patients, intravenous drug use in 81% and sexual behavior in only 51%, $p<.001$. They counsel 85% of intravenous drug users (IVDUs) vs. 33% of all clinic patients, $p<.001$. When counseling IVDUs, housestaff focus on drug use as the main mode of transmission: 73% recommend not sharing needles vs. 53% who recommend condom use, 38% "safe sex", and 26% discussing risk with sex partners, $p<.001$. Only 40% suggest HIV testing. Housestaff confidence that IVDUs will change behavior was equally low for both sexual and drug risks, 1.5 on a 4-point scale. Perceived housestaff discomfort was higher for discussing sexual behavior as compared to drug use, 2.4 vs. 1.5 (4-point scale, $p<.001$). Seventy-four percent of housestaff were "moderately" or "very" interested in learning to take a 60-second sexual history; 70% were "moderately" or "very" interested in improving sexual counseling skills. Conclusions: According to self-report, housestaff often counsel IVDUs about reducing drug-use transmission of HIV, but tend to ignore the risk of sexual transmission. Housestaff discomfort discussing sexual behavior may contribute to this difference. Nonetheless, significant interest in improving sexual assessment/counseling skills exists. These results demonstrate that enhancing housestaff HIV risk-reduction counseling demands interventions which emphasize the importance of sexual transmission, facilitate competence in discussing sexual behavior, and address the belief that IVDUs will not change risk behaviors.

3094 AIDS - STATISTICS OF MORTALITY AS AN INFORMATION RESOURCE.

Barbieri,Débora*;Buchala,C;Laurenti,R;Teixeira,P.R;Reis,R.S;Lima,L.O.
*Secretariat of Health of the State of São Paulo.São Paulo - SP - Brazil.

The bad filling up of the death certificate underdimenssion the statistics of mortality.It causes serious distortions and defect analisis of the health reality of the population.The preocupation with the underreporting of AIDS led to a cooperative study between the Public Health College of São Paulo University and the Epidemiological Surveillance of the Reference and Training Center of the State of São Paulo.We selected for the analisis all the death certificates from people with age ranging from 20 to 49 years old died in São Paulo State in 1984 and observed wich of them had in any item AIDS being mentioned or other indicative pathology.By this investigation we found 65 AIDS cases wich were compared with the known datas through the AIDS compulsory notification.The Epidemiological Surveillance of São Paulo State received 48 death notifications of AIDS patients occured in 1984.From this 48 cases, 3 weren't of the age group researched.All of them were previously notified AIDS cases.Through the difference between the investigation of death certificates and the notified cases, we found 20 cases that were underreported in the year of 1984.It is remarkable once that we know that in 1984 we had 78 new AIDS cases notified to the Epidemiological Surveillance of the State of São Paulo.In this way we can say that our underreporting in 1984 was about 26%.

3095 DIFFERENCES IN DEMOGRAPHICS AMONG HIV INFECTED PATIENTS AT THE MEDICAL COLLEGE OF VIRGINIA (MCV) VERSUS VOLUNTEERS FOR OUTPATIENT CLINICAL AIDS RESEARCH IN RICHMOND, VIRGINIA

Berry, Alison; Gurkin, M.; Taylor, R.; Settle, J.
Medical College of Virginia, Richmond, Virginia, USA.

Objective: Efforts to enlist volunteers for AIDS studies are frequently concentrated at recruiting HIV infected people from areas with similar demographics that reflect the general HIV population. The aim of this study was to compare the characteristics of subjects who volunteered locally for outpatient clinical studies with those of the HIV population seen in our clinic at MCV.
Method: Demographic features and risk factors for both groups were reviewed and statistically analyzed by Fisher's exact test for significance.
Results: MCV is following 435 HIV infected patients. Of these, 42% are white, average age is 35, and 46% have no health insurance. Their major risk factors for acquiring HIV are gay sex 50%, intravenous drug use (IVDU) 23%, heterosexual contact 12%, gay and IVDU 7%, and blood products 2%. Twenty-seven patients were recruited for outpatient studies. Of this group, 93% are white ($p<.001$), average is 34 (NS), and 85% have health insurance ($p=.001$). All acquired HIV from gay sex ($p<.001$). Sixty-three percent were recruited into the studies through physician referral. Thirty percent were enlisted from gay community organizations or peer communication. Only 7% were respondents from ads in gay papers or bars.
Conclusion: Although regions may vary, groups to be targeted for outpatient clinical AIDS research may differ from the clinical population. Physician referral remains a singificant factor for enrolling patients in AIDS studies. Support groups and peer encouragement are also influential.

3096

HIV/AIDS & YOUNG PEOPLE - TOWARDS A CRITICAL RESEARCH AGENDA

Warwick, Ian; Aggleton, Peter. Faculty of Education, Bristol Polytechnic, Bristol, England.

OBJECTIVES: To identify some of the research agendas that operate around HIV/Aids and young people which limit effective health education and health promotion. To identify policy and practice alternatives.
METHODS: Via a critical reading of recently published research reports on young people and HIV/Aids, a series of age differentiated typologies of youth and 'adolescence' were identified. The adequacy of these was assessed both in relation to findings from a survey of young people's beliefs about HIV/Aids (n=700) and in relation to the extent to which they provide useful insights into HIV/Aids.
RESULTS: In relation to HIV/Aids, young people are generally constructed as emotionally, socially and/or cognitively deficient. These representations inform the research agendas of a wide range of behavioural and attitudinal studies of relevance for health education/promotion. Data from a recent survey of young people's beliefs which did not adopt this frame of reference, and from health education and health promotion activities carried out in connection with the AVERT Young People and AIDS project (a UK based participatory approach to HIV/Aids health education/promotion), suggest that class, gender, ethnicity, able-bodiedness and sexuality may be better indicators of the views and behaviours of young people than are the social, emotional and cognitive qualities generally ascribed to them.
CONCLUSIONS: Future research should critically analyse some of the ways in which youth and 'adolescence' is generally portrayed. More attention needs to be paid to the manner in which class, gender, ethnicity, able-bodiedness, sexuality and age inter-relate to determine HIV/Aids-related youthful subjectivities and behaviours.

3097

MEASURING TIME TO AIDS USING TRUNCATED AND INTERVAL CENSORED DATA.

Carey, Vincent; Munoz A, Hoover D, Odaka N, Taylor J, Chmiel J, Kingsley L, VanRaden M; for the Multicenter Cohort Study (MACS), Bethesda, MD, USA

Objective: Develop and apply nonparametric statistical procedures to estimate AIDS-free time in cohorts incorporating interval censoring (due to imprecise determination of AIDS onset) as well as truncation (selective exclusion of individuals having short times from seroconversion to AIDS).
Methods: During the first 5-1/2 years of follow-up, 483 AIDS cases were observed among 1882 seroprevalents(SP) at entry and 32 AIDS cases were observed among 301 seroconverters(SC). Of the AIDS cases, 26(5%) were interval censored. Imputation of the unknown times since SC for SP individuals was based on levels of hematologic variables at entry. Parametrization of the likelihood function in terms of hazards at each time of AIDS diagnosis leads to simple self-consistency equations that give explicit solutions in the case of no interval censoring. Multiple imputation methods were used to estimate the variance of the cumulative hazards(H) at 6,12,...,76 months. These estimates are compared to previous estimates obtained by ignoring the interval censoring.
Results: The table below shows the estimates of the cumulative hazard (H) derived from 100 imputations.

		MONTHS FROM SEROCONVERSION				
MLE		12	24	36	48	60
Interval	H	.0074	.0332	.0852	.1570	.2413
Censoring	St. Dev. H	.0042	.0074	.0108	.0140	.0158
Ignoring	H	.0071	.0314	.0812	.1491	.2293
Int Cens	St. Dev. H	.0041	.0074	.0105	.0134	.0153

Conclusions: Incorporation of the interval censored cases led to slightly higher estimates of the cumulative hazard. Given the low percentage of interval censored data, no considerable difference was observed between the two methods. Using the limited information from cases with imprecise determination of AIDS onset may be important for cohorts with a substantial number of cases lacking precise dates of AIDS onset.

3098

FACTORS AFFECTING RETENTION IN A LONGITUDINAL AIDS RISK REDUCTION STUDY OF GAY MEN

Freeman, Anne C; Petty A; Hedrich A; Branch S
Dallas County Health Department, Dallas, TX USA

Objective: To determine demographics, reported risk behaviors and attitudes of men who failed to return for a second visit and to plan more effective retention methods. Methods: Dallas County is participating in a longitudinal study of HIV infection risk reduction of gay men. Men are enrolled through the antibody test site, complete a survey, participate in risk reduction counseling, and have an antibody test. Each man is to return every six months to repeat the process. The registration is anonymous so no reminders can be used. Results: Of the 814 men enrolled 405 (50%) have returned. Age range was 18-75, 90% were white, 57% were college graduates. Men who dropped out were more likely to be non-white, less well educated, did not learn their test results, had had a previous positive test, or were antibody positive on their first test. 58% who self-classified as high risk and 63% who felt they were at no risk dropped out. The variables that contributed to retention in a stepwise linear regression were HIV negative test, previous negative test, education and not feeling helpless about AIDS. The data were also examined by date of enrollment. Conclusions: Recruitment through the alternative test site and the gay press results in a highly select group of participants. Men who had already learned of their positive antibody status were most likely to drop out: Future efforts must make continued participation attractive to positive men.

3099

RECENT DATA LENDS SUPPORT TO THE SUGGESTION OF AN 18 YEAR MEAN INCUBATION TIME FOR AIDS

Greatbatch, Wilson*; Holmes, William**
*University of Buffalo, **State University College at Buffalo, Buffalo, NY

OBJECTIVE: A previous abstract presented by us in Montreal last year provided data suggesting that the AIDS pandemic, as evidenced by Transmission-Acquired AIDS (TA-AIDS), is following a Weibull distribution pattern with a shape factor of B=2.2 and a mean incubation time of 18 years. Our objective here is to show that accumulation of another year's TA-AIDS data tends to lend support to our original suggestion.
METHOD: Previous estimates of the incubation time of AIDS have often relied upon relatively small (under 300 case) samples and/or questionable estimates of the date of infection. Probably the only AIDS group for which the date of infection is reasonably ascertainable is the TA-AIDS group. We examined 3049 TA-AIDS onsets reported to CDC through December 1989. Of these we rejected 1041 for uncertain date of infection, or for uncertain date of onset. To the remaining 2008 cases we tried fitting 35 Weibull distributions with shape factors of B=2.0 to B=2.5, and with mean incubation times of 8 yrs. to 20 yrs.
RESULTS: We found a best fit at a shape factor of B=2.2 and a mean incubation time of 18 years. This is still considerably longer than the 10+ years estimated by others, but the difference is decreasing each year.
CONCLUSION: [1] Our analysis suggests that the USA AIDS epidemic, as evidenced by TA-AIDS cases, is still following a Weibull distribution with a shape factor of B=2.2, and a mean incubation time of 18 years. Our analysis suggests a peak of TA-AIDS infections rising to 257 cases/yr. in 1984 and then falling precipitously to under 25 cases/yr. in 1987.

3100

THE USE OF HEPATITIS B CORE ANTIBODY AND HIV-1 DENSITOMETRIC FINDINGS TO ANALYZE NONRESPONSE IN THE NATIONAL HOUSEHOLD HIV SURVEY

McQuillan, Geraldine; Ezzati T.*; Visscher W.**; Stevens R.***; *National Center for Health Statistics, Hyattsville, MD, USA; **Research Triangle Institute, Research Triangle, NC, USA; *** N.Y. State Health Department, Albany, NY, USA.*

Objective: To determine if differential response occurred in the National Household Seroprevalence Study (NHSS) pretest, by comparing the distribution of antibody to hepatitis B core antigen (anti-HBc) in the NHSS with the National Health and Nutrition Examination Survey (NHANES III) and by estimation of the risk of disease in infected individuals using densitometric analysis of the HIV-1 Western blots.
Methods: Anti-HBc and HIV serology was performed on 1375 individuals in the Dallas County pilot of the NHSS. Antibody to HIV was quantified by densitometric analysis of Western blot positive samples.
Results: The prevalence of anti-HBc in the NHSS was 9% in whites, 18% in blacks and 4% in hispanics compared to 2%, 8% and 5% respectively in NHANES III. The ratio of antibody to gp41 to g24 was evenly distributed. A ratio of ≥2 indicating risk of more rapid disease progression, was found in 20% of HIV positives.
Conclusion: The NHSS sampling scheme over sampled individuals at high risk for HIV infection. The NHANES III is a random sample of the U.S. population. It was expected and confirmed by these data that the prevalence of anti-HBc would be higher in the NHSS than NHANES III if high risk individuals participated in the survey. The distribution of the densitometric analysis provides information that infected individuals at increased risk of developing disease also participated in the survey.

3101

SURVEILLANCE, EPIDEMIOLOGY AND MATHEMATICAL MODELS TO DESCRIBE AND FORECAST HIV EPIDEMIC.

Perucci, Carlo A.; Abeni D.; Arcà M.; Carboni A.; Pantano P.; Spadea T. - Regional Epidemiology Unit, Rome, Italy.

OBJECTIVE: to integrate surveillance data, results from analytical studies, and mathematical modelling to forecast the HIV epidemic in Latium (Italy).
METHODS: -Newly diagnosed HIV infections and AIDS cases monitored since 1985 (RHSS and RASS). Reliable AIDS incidence data and minimum HIV prevalence estimates by sex, age and risk provided. -Program of HIV testing at hospital admission for pregnant women (PHHA), set up in March 1989 to provide estimates of HIV prevalence in reproductive-aged women. Validity of RHSS in various population groups assessed by comparing RHSS and PHHA data. -Cohort study of IVDUs. -Ongoing cross-sectional study on IVDUs behaviours. -Multi-population, "complex-choice mixing" model of the HIV epidemic. Simulation results under various hypothesis compared with RHSS data.
RESULTS: a minimum, surveillance-based, estimate of HIV prevalence in Latium by mid-1989 is 5,444 (1.06 per 1,000 inhab.). A validity adjusted estimate of about 9,000-10,000 HIV prevalent cases was produced. Data at the 9th-10th years of the simulated epidemic, corresponding to the incidence peak among IVDUs and to the very beginning of the epidemic spread among the "general population", fit the estimated HIV prevalence and the observed AIDS incidence fairly well. Assuming zero HIV incidence from now on AIDS incidence will be increasing until 1993, not returning to present levels before 10 years.
CONCLUSION: surveillance data and mathematical modelling have to be concurrently used to describe and forecast the HIV epidemic. On the basis of behavioural parameters used, and in absence of sound prevention efforts, a considerable heterosexually transmitted HIV epidemics can be predicted.

3102

SHORT-TERM PREDICTIONS OF AIDS CASES IN FRANCE

PILLONEL J.*; DOWS A.**; LAPORTE A.*; BRUNET JB.*
* Ministry of HEALTH, PARIS, FRANCE.
** WHO Collaborating Center of AIDS, PARIS, FRANCE.

Objective : To make short-term predictions of AIDS cases for all cases and separately for 2 transmission groups (homo-bisexuals and IV drug-users).
Methods : 1) Differents curves were fitted with the AIDS incidence up to june 1989 by half-years of diagnosis after adjustment for reporting delays.
2) Short-term predictions were produced using these models.
6 curves were tested: for the linear trend, the quadratic curve and the exponential curve, coefficients were estimated by least squares. For the box-cox procedure (linear and quadratic) and the linear-logistic curves, coefficients were estimated by maximum likelihood.
Results : Analysis shows that best fits with the past incidence of AIDS cases are obtained :
1) For all cases, by using the linear-logistic, linear and quadratic curves;
2) For homo-bisexuals, by the same curves;
3) For IV drug-users, by the 2 box-cox and the quadratic curves.

predictions of cumulated cases

	all cases		homo-bisexuals		IV drug-users	
end of	lin-log.	quad.	lin-log.	lin.	quad.	box-cox lin.
1989	10500	11000	5400	5500	2000	2100
1990	14500	16000	7200	7500	3300	3700
1991	19000	22000	9000	10200	4900	6000

Conclusion : Most appropriates curves are linked to the stage of the epidemic: as the 2 majors transmission groups are in differents stages, projecting AIDS incidence by extrapolation method should be done by group of transmission and added instead of projecting cases as a whole.
For none of the group, the exponential model gave a good fit with the observed incidence.

3103

COMPARISON OF HIV SEROSTATUS IN IVDUs WITH AND WITHOUT NORMAL VENIPUNCTURE

Brodie, Barbara*, Vranizan, K.*, Kefflew, A.*, Osmond, D.*, Moss, A.R.*. *University of California, San Francisco, California USA.

Objective: To compare the difference in rates of seropositivity in IVDU's with normal venipuncture and those requiring arterial/femoral access.
Methods: Heterosexual IVDUs recruited from drug treatment programs were screened for HIV. A notation was made whenever an arterial or femoral access was necessary.
Results: Those requiring arterials/femorals were 3.7% of all bloods drawn. The overall rate of seropositivity was 11.2%. Rates were not significantly different when subjects were grouped by type of venipuncture.

Phlebotomy	HIV+(%)	HIV-
By Art/fem stick	4 (8.9)	41
By normal venipuncture	132 (11.3)	1040

Blacks were overrepresented in the art/fem group (40%) as compared to 23% in the normal venipuncture. Although all 4 seropositives in the art/fem group were black, HIV seropositivity rates among blacks were the same in both groups (22% vs 24%).
Conclusion: We expected IVDUs who could not provide blood by normal venipuncture to have a higher exposure to HIV. However, there was no significant difference in rates of seropositivity between the two groups, even with the overrepresentation of blacks in the art/fem group.

3104 EVALUATION OF A LATEX AGGLUTINATION ASSAY FOR DETECTION OF HIV-1 ANTIBODIES IN A DEVELOPING COUNTRY

Muchinik, G.*; Campestri, Reinaldo*; Rickard, E.*; Cañizal, A.M.*; De Rosa, M.F.*; Cahn, P.**.
*Instituto de Investigaciones Hematologicas, Academia Nacional de Medicina, Buenos Aires, Argentina; ** Hospital Juan A. Fernandez, Buenos Aires, Argentina.

Objective: To describe the efficiency of a rapid and easy-to-use assay for HIV-1 antibodies, suitable for use in developing countries.
Methods: A latex agglutination (LA) assay (Cambridge BioScience Corp., Worcester, MA) was evaluated for screening HIV-1 antibodies using 88 sera and 2 spinal fluids (sf) from high risk individuals. Results were compared with ELISA (Abbott Laboratories, Delkenheim, W. Germany) and confirmed by immunofluorescence and EnvaCore (Abbott Lab., Delkenheim, W. Germany).
Results: Out of the 56 HIV-1 positive-confirmed samples (2 sf), LA detected all of them . A false positive reaction occured in one patient. Data demostrated an overall specificity of 100% and a sensitivity of 97%.
Conclusion: In our hands these results showed that this rapid assay was highly sensitive and specific. The test also proved to be extremely rapid , easy to learn and to perform.
We conclude that this test will be shown to be a very useful tool for small blood banks and small laboratories in developing countries.

3105 COMPARISION OF TWO SEROLOGICAL ASSAYS FOR HUMAN IMMUNODEFICIENCY VIRUS ANTIBODY DETECTION.

Damiani Moisés E., Andrade Arzabe R., Scholz D. H. , Rossel E., Valdez E., Espada S. A.. Lab. Immunology and AIDS. INLASA MPS & S P. La Paz, Bolivia.

INTRODUCTION.- Two comercial available assays for the detection of Human Immunodeficiency Virus (HIV) antibodies: Abbott Retrocell HIV-1 (Passive Hemmaglutination Test) and Parmacia HIV 1&2 Combi (IgG EIA) were tested with 968 samples form subjects known to be ar risk for sexual transmited disease.
OBJETIVE.- Comparision of the two assays to know about sensibility and specificity.
METHODS.- All the assays tested in the National Center of Reference for AIDS in INLASA, 968 samples were tested ussing both serological assays.
RESULTS.- In the passive Hemmaglutination Test we found 40 positive samples and in the EIA 4 positive samples. The positive samples retested by W.B. (Immunoblot Du Pont/HIV) gave only 3 positive samples.
CONCLUTIONS.- This study gave us that in Passive Hemmaglutination Test - (Abbott Retrocell) we have 100% of sensibility and 96% of specificity and in EIA (Pharmacia) Test we have 100% of sensibility and 99.8% of specificity.

3106 INDIRECT IMMUNOFLUORESCENCE ASSAY FOR ANTIBODIES TO HUMAN IMMUNODEFICIENCY VIRUS USING TRANSFORMED T4 HeLa CELLS.

Forghani, Bagher; Hurst, J.; Chan, C.
Viral and Rickettsial Disease Laboratory, California State Department of Health Services, Berkeley, California, USA.

Objective: We have explored the suitability of transformed T4 HeLa cells as a source of antigen in indirect immunofluorescence assay (IFA) for detection of specific antibody to human immunodeficiency virus (HIV) in human sera compared to the use of HIV-infected T-lymphoid cell line.
Methods: HeLa cell monolayers were prepared in Lab-Tek 8-chamber slides (Miles Laboratories, Indiana) and infected with HIV. At 96 hrs post infection the culture media were removed, the monolayers rinsed briefly in H_2O without drying and fixed in acetone for 10 min. For IFA diluted human sera were incubated 20 min at 37°C, washed, reacted with anti-human conjugate for 20 min at 37°C, and read with a fluorescence microscope.
Results: We have established a "carrier" culture which is ideal for preparing IFA slides. We tested 102 sera with questionable enzyme immunoassay results; subsequent IFA yielded 30 positives using lymphoid cells and 33 positives using T4 HeLa cells; these results were confirmed by Western blot.
Conclusion: T4 HeLa cells have the following advantages over lymphoid cells currently being used in HIV serology: 1) HeLa cells can be easily infected with cell-free or cell-associated HIV: 2) HeLa cells are 3-4 times larger than lymphocytes and support a greater amount of viral antigen, which is advantageous in IFA. Since the cells grow as monolayers, the specific staining of cell membranes, nuclei and cytoplasm are readily distinguishable. Non-specificity has been a major problem in lymphoid cells due to Fc receptor and "cytophilic" antibodies, and HeLa cells lack such characteristics.

3107 HIV SEROLOGY IN MEXICAN BLOOD BANKS: THE QUALITY CONTROL PROGRAM OF THE CENTRO NACIONAL DE LA TRANSFUSION SANGUINEA

Juárez-Figueroa, Luis* Herrera Ortiz, Flor*
*Centro Nacional de la Transfusión Sanguínea. México City.

Objective: To verify the proficiency of Governmental blood banks laboratories screening donors for HIV-1 antibody, in the middle of 1989, an external quality program was initiated, sending a sera panel with known reactivity, twice a year to 207 blood banks.

Methods: With a serum of a single donor, positive for HIV-1 antibody, 3 dilutions were prepared: 1-"strongly", 2- "moderately" and 3- "weakly" repeteadly reactives. In addition, we send 4 negative sera. Results were reportd to the CNTS for evaluation.

Results: We have received at the moment 156 reports (75.4%).

False negatives with "strongly" reactive sera	1 (0.5%)
False negatives with "moderately" reactive sera	8 (3.9%)
False negatives with "weakly" reactive sera	12 (5.8%)
False positives with negative sera	7 (3.4%)

Conclusion: Reagents for screening of HIV antibody presently used in Mexico seem to perform adecuately. False negative in "strongly" reactive sera, as well as 2 false negatives with the "moderately" reactive sera were due to clerical error, increasin the number of false positives. We conclude that efforts should be directed to improve laboratory organization in order to avoid clerical errors.

3108 ABILITY OF WELLCOZYME HIV 1+2 TO DETECT HIV1 AND HIV2 ANTIBODIES IN EUROPEAN AND AFRICAN SERA.

Léonard Guy*, Ranger S.*, Verdier M.*, Sangare A.**, Weinbreck P.***, Blanc S.****, Denis F.*
* Virological and *** Infectious diseases departments, CHU Dupuytren, Limoges, France. ** Pasteur Institute, Abidjan, Ivory Coast, **** Wellcome Diagnostics, Paris, France.

Objective : To evaluate ability of new Wellcozyme HIV1+2 EIA test using recombinant (core and env) HIV1 antigens and env synthetic peptid HIV2 to detect HIV1 and HIV2 antibodies in European and African sera.
Material and Methods : 240 sera (160 African and 80 European) were tested. The serotype, determinated by double HIV1 and HIV2 Western blot (Diagnostics Pasteur) were as follow : 57 HIV1, 85 HIV2, 15 double profile HIV1+2, 29 indeterminate (gag p17 and/or p24 and/or p55) and 54 negative.
HIV seropositivity was determinate using WHO criteria.
The Wellcozyme test was performed according to the manufacturer's recommendations. Results were expressed as the ratio R=specimen absorbance/cutoff absorbance.
Results : All HIV1 sera were detected (one serum with a ratio=1.3 and the others with a ratio equal or superior to 5) and all HIV2 sera gave strong reactivity (one serum R=5, the others R>8). The double profiles HIV1+2 were detected with strong reactivity (R>8).
Among indeterminate patterns, the 22 African sera gave negative results and 6 out of 7 European showed repetitive positive results (1<R<2). Negative results were found with the 54 negative sera, but ratios were lower with African than with European sera.
Conclusion : All HIV1 and/or HIV2 sera were detected.
The majority of positive sera from asymptomatic or AIDS African or European patients gave strong reactivity with ratio equal or superior to 5, a few indeterminate sera gave lower reactivity. This new Wellcozyme test is of great interest for all countries where HIV1 or HIV2 antibodies have been detected.

3109 RELIABILITY OF VISUAL HIV TEST READING - THE ZAMBIAN EXPERIENCE

Maboshe, Mwendaweli*; Nkhata, K.J*; Syabula, C*
*Tropical Diseases Research Centre, Ndola, Zambia.

Objective: To re-screen blood from various blood donor Centres for anti-HIV antibodies.
Methods: Duplicate samples from blood donors in 3 Centres were rescreened for anti-HIV antibodies using Wellcozyme Recombinant ELISA. An ELISA reader was used in the reference laboratory but visual reading was employed in the screening Centres.
Results: As shown in table below, 77(7.9%) of the 978 samples re-tested gave a disparity in results between the reference laboratory and the screening Centres. The disparities were different for each Centre.

Screening Centre	Number positive	Number re-screened	Number positive	Disparity
1	81 (10.5%)	770	140 (18.2%)	59 (7.7%)
2	20 (37.0%)	54	21 (38.9%)	1 (1.9%)
3	24 (15.6%)	154	41 (26.6%)	17 (11.0%)
TOTAL	125	978	202	77

Conclusion: Visual reading of HIV test result (Wellcozyme Recombinant ELISA) is subjective and may lead to unreliable results.

3110 RAPID LATEX AGGLUTINATION ASSAY FOR SCREENING OF ANTIBODIES TO HUMAN IMMUNODEFICIENCY VIRUS IN AFRICAN BLOOD DONORS. THE ZAMBIAN EXPERIENCE.

Rosemary. M. Mwendapole, K. Nkhata, E.C. Chimfwembe.
Tropical Diseases Research Centre, Ndola, Zambia.

Objective. To evaluate the performance of a rapid latex agglutination assay, Recombigen HIV I LA (LA) for antibodies to human immunodeficiency virus HIV I in a routine Hospital blood Bank in Africa.
Methods. The performance of the rapid Latex Agglutination assay was evaluated in a routine Hospital Blood Bank in Zambia against two ELISAs (Wellcozyme Wellcome diagnostic and Recombigen HIV EIA Cambridge Bio Science) and karpas cell test for detection of antibodies to Human Immunodeficiency Virus in 102 Zambian Blood donors (including prison inmates) The samples were first screened by the Hospital technician by latex Agglutination and Wellcozyme ELISA and then retested at a Reference Centre (TDRC) using Wellcozyme, Recombigen EIA and Karpas cell test.
Results. The results of the latex Agglutination assay performed by the Hospital Technician compared favourably (21 positive and 81 negative) with the two ELISAS (Wellcozyme and Recombigen HIV, EIA) and Karpas cell test (22 positive, 80 negative) performed in the TDRC Reference Laboratory. A 99% agreement of results between latex Agglutination and Wellcozyme was observed for the 102 samples; only one sample was positive on latex Agglutination and negative on Wellcozyme.
Conclusion. The latex Agglutination was found to be easier and faster to perform than the ELISA. Therefore the Latex Agglutination assay is recommended for use as a Screening test for HIV antibody in Laboratories in Africa where Blood Banks are not well established.

3111 A WHO GLOBAL SURVEY ON THE MAINTENANCE OF HIV DIAGNOSTIC EQUIPMENT

Norton, Christine*; Biles, J.**; Tarantola, D.*; Esparza, J.*
*Global Programme on AIDS (GPA), **Laboratory Supplies Procurement
World Health Organization (WHO), Geneva, Switzerland

Objective: The survey was designed to determine the operational status of diagnostic equipment for HIV serology in countries with a National AIDS Control Programme.
Methods: The countries selected all have National AIDS Control Programmes (NACP) formulated with WHO technical suport. Ninety-eight (98) countries in the 6 WHO Regions received questionnaires containing 6 questions regarding the number and operational status of ELISA readers and washers, the existence of local and/or foreign repair/maintenance facilities and barriers to proper repair/maintenance of the equipment under study. The brand names and models of inoperational equipment were also requested.
Results: Forty-two (43%) of the 98 countries responded to the questionnaire. Eleven (1.4%) out of a total of 760 readers and 9 (1.6%) out of a total of 578 washers were reported not operational. Twenty-five countries responded that repairs could be done locally and five had their equipment maintained abroad by the manufacturer. The most common problems were related to availability of spare parts, lack of local service or delayed service, lack of manuals or tools and problems of payment for repairs.
Conclusion: For the responding countries, diagnostic equipment is in generally good operational condition. WHO/GPA will assist countries on request to ensure that maintenance/repair services are provided where necessary in order to ensure efficiency of HIV testing. Manufacturers and procurers alike should pay closer attention to prompt after-sales service.

3112 THE ITALIAN EXTERNAL QUALITY ASSESSMENT SCHEME FOR ANTI HIV SCREENING TESTS IN TRANSFUSION SERVICES. PRELIMINARY RESULTS.

Orlando Maria, Schinaia N., Chiarotti F., Piccinini P., Mozzi F.*, Pizzocolo G.**
Istituto Superiore di Sanità, Rome; *Policlinico of Milan; **University of Brescia; Italy.

Objective The first anti-HIV antibody (ab) testing kits were licensed in Italy in Spring 1985; anti HIV ab testing of donated blood had been recommended since July 1985 by the Italian Ministry of Health and by law enforced since January 1988. A National External Quality Assessment Scheme was set up in Italy in late 1988 by the Istituto Superiore di Sanità following the National AIDS Committee recommendations.
Aim of the programme is to measure the proficiency of Transfusion Services (T.S.) in detecting antibodies to HIV by screening test (ELISA) under actual testing conditions.
Methods 123/203 T.S. who asked to participate were enrolled in 1989. They were ramdomly selected on the basis of proportional regional distribution and yearly number of donations.
Five heat-inactivated and freeze-dried samples were dispatched for each survey: they included both HIV negative and HIV positive or WB indeterminate ones. The surveys contained duplicate samples to evaluate the within and between assay reproducibility. Results were analysed by the organizing laboratory and furnished to participants to allow a comparison betweem S.T. and to implement any required changes.
Results Nearly all (98%) T. S. were able to identify the HIV positive samples, while only 62% did the negative ones. As regards the WB indeterminate samples, a higher proportion were classified HIV negative than HIV positive by ELISA results.
Conclusion Although the scheme is in an early stage of development, the 1989 survey highlighted some problems, i. e. the need to introduce assessment of interpretation of both negative and low reactivity samples.

3113 INDIRECT IMMUNOFLUORESCENCE A RELIABLE, ECONOMIC AND ALTERNATIVE SEROLOGICAL ASSAY FOR THE DIAGNOSIS OF HIV-1 INFECTION

Sá Ferreira, José Antônio*; Ferreira, A.G.P.*, Souza, R.B.*; Lopes,D.L.*; Oliva,O.F.P.*; Marzochi,K.F.**; Peralta,J.M.***
*Bio-Manguinhos and **Hospital Evandro Chagas/FIOCRUZ & ***Instituto de Microbiologia/UFRJ, Rio de Janeiro, Brazil.

Objective: Evaluation of the IIF developed at FIOCRUZ-Brazil as an alternative technique for the detection of HIV-1 antibodies and comparison of results with those from a comercial western blot (WB).
Methods: Slides containing multiple spots of an HIV-1 infected and non infectedlymphoblastoid cell line (K37-3) suspension were prepared. The evaluation of the IIF-FIOCRUZ was performed using a serum pannel with 56 negative and 44 positive samples according to 5 EIAs (Virgo/Eletro-Nucleonics; Genetic Systems; Vironostika/Organon; Abbott and Pasteur), and 1 WB (Du Pont). In order to evaluate the IIF as an alternative technique for the diagnosis of HIV-1 infection, we studied 486 serum samples from an outpatient clinic of Rio de Janeiro(FIOCRUZ) and 468 serum samples from public health laboratories all over Brazil, wich perform only screening tests for HIV-1 and/or send the samples to be adequately confirmed at FIOCRUZ. Two EIAs, one of 1st (GS) and another of 2nd generation (Abbott) as well as one WB(Du Pont) were used in the study.
Results: No matter the origin of the samples the agreement of results between 2 concordant EIA and the IFF was 97,5%(842 out of 864). Considering divergent results between the 2 EIAs used (90 samples) and between IIF and the EIAs (22 samples), approximately 12% of all samples (112/954) did not give conclusive results. The serological diagnosis of the other (842 samples (88%) was conclusive based only on the 2 EIA and IIF.
Conclusion: IIF may be used as an alternative method in substitution to WB in undeveloped countries since it is widely used, easy to perform, economic and allows reliable and comparable results in a shorter period of time.

3114 WORKLOAD ANALYSIS AND COSTEFFECTIVENESS OF A POOLING TECHNIQUE FOR HIV SCREENING

Sánchez, Manuel*; Archbold,E.*; Leoro,G.*;Herrera,C.*; Chiriboga,R.*; Cardenas,A.; and Weilbauer,F.*
* Ecuadorian Red Cross, Quito, Ecuador.
**Family Health International, Research Triangle Park, NC.

Objective. To compare workload and costeffectiveness of ELISA HIV screening utilizing a pooling technique against single sample testing.
Methods. The College of American Pathologists workload recording method was utilized to asses workload requirements as well as productivity for both the pooling method and the standard procedure. Costeffectiveness was analysed by conventional accounting practices and the cost per test determined for each procedure. The pooling procedure consisted of groups of three sera being assayed simultaneously per ELISA test well instead of only one sample per test well.
Results.
At least a 40% reduction in overall hands on time was achieved when running a large number of test samples utilizing the pooling method. However, no significant difference was noticed when running a small number of samples (>33 and <96 samples). Costs were reduced to one third when samples were pooled mainly because reagents accounted for 85-90% of overall testing costs.
Conclusion. This simple yet reliable serum pooling method is more practical and productive in terms of workload requirements than single sample testing. In addition significant monetary savings are obtained.

3115 BLOOD SPOT TEST FOR SYPHILIS (BSTS): DETECTION OF SYPHILIS ANTIBODY IN NEWBORNS TESTED FOR HIV-1 ANTIBODY.

[illegible]ens, Roy*, Neal, M.*, Pass, K.*, Wiznia, A.** *Wadsworth Center for Laboratories and Research, Albany and **Bronx-Lebanon Hospital, New York, NY, USA

Objective: To develop a blood spot test for syphilis and to study the prevalence of syphilis and HIV-1 antibody in newborns.
Methods: Blood spots were made from adult blood or taken from anonymous newborn heel-stick specimens. Fluids eluted from 6.3mm spot-disks were tested by ELISA with cardiolipin antigen on microwell plates (ADI Diagnostics). The blood spot ELISA was optimized with serum tested by standard RPR reagin and T. pallidum specific antibody (TPA) (Organon Teknika) assays. Sensitivity was determined by test of RPR reactive specimens and dilutions; specificity by test of blood donors and newborns from low prevalence populations.
Results: Four of 106 (4%) newborns from a high HIV-1 prevalence population and none of 54 from a low prevalence population were BSTS/TPA positive. Eight of 44 (16%) HIV-1 antibody positive newborns were BSTS/TPA positive. There was 89% agreement between maternal serum RPR and spot BSTS results on 169 mother-newborn pairs, among these 1 of 7 BSTS/TPA positive and 3 TPA negative newborns were HIV-1 positive.
Conclusion: Syphilis antibody in newborn blood spots is detected by the ELISA BSTS. In this study, 19% (9/48) of HIV-1 positive newborns were syphilis antibody positive.

3116 DETECTION OF HIV-1 GENOME AMPLIFIED BY POLYMERASE CHAIN REACTION (PCR)

Tornesello, Maria Lina; Buonaguro, L.; Beth-Giraldo, E.; Giraldo, G.; Buonaguro, F.M.; Maccauro, E.; Monaco, M.; Curcio, F.;
Ist. Naz. Tumori "Fond. Pascale", Naples, Italy

Objective: To compare sensitivity and specifity of 4 methods for the detection of PCR amplified HIV-1 sequences: 1) direct incorporation of a^{32}P dCTP during the amplification; 2) hybridization reaction with γ^{32}P labeled probes a) in liquid phase; b) in dried agarose gels; c) on nylon membranes.
Methods: Direct labeling of the 114bp *env* amplified region was achieved by adding 0.5ul of aP dCTP (3000 Ci/mmol) at cycle 35 and by performing 3 further amplification cycles. In hybridization assays the 28mer SK19, γ^{32}P ATP (3000 Ci/mmol) labeled, was used as probe at a specific activity >1x10^{9} cpm/ug.
Results: Serial diluitions of DNA extracted from the infected cells E11 (1ug, 10ng, 100pg, 1pg) and from the HIV-1 recombinant plasmid pARV (1pg, 0.01pg, 0.1fg) have been amplified using, as primers, 28mers within the *env* region (SK38, SK39).
Hybridization techniques show higher specificity; the probe, in fact, detects mostly amplified virus sequences. The highest sensibility has been achieved by the liquid hybridization procedure, detecting 0.06 fg of viral DNA equivalent to 1 HIV DNA molecule in about 100.000 lymphocytes.
Conclusions: The liquid hybridization technique is currently used to detect HIV infection in 0-16 month children from HIV+ mothers and in patients with HIV undetermined Western blot.

3117 CLINICAL OUTCOME IN 35 ADULTS INFECTED WITH HIV2 (1985-1990)

Matheron,S.*; Bartczak,Sergio.*; Mas,S.*; Simon,F.*; Bletry,O.**; Brun-Vezinet,F.*; Coulaud,J.P.*; Saimot, A.G.*;
* Hôpital Claude Bernard-Bichat, ** Pitié-Salpêtrière, Paris, France.

Objective: To describe clinical presentation and outcome of HIV2 infection in 35 adults.
Methods:Thirty five cases of HIV2 infection detected from octeber 1985 to january 1990 were evaluated on a minimal biannual basis for clinical and immunological status. HIV2 diagnosis was confirmed in all patients (pts) by multiple methods including in all cases Elisa, Western Blot and RIPA.
Results: Pts: 20 men,15 women, aged 33.5 years (21-50); 29 originated from West Africa and 6 others had a connexion with this area. Three pts had a HIV1+HIV2 serological profile. At diagnosis of HIV infection, 25 pts were of the groups II-III/CDC, 6 were of the group IV A or IV C2/CDC(ARC), and 4 had AIDS with opportunistic infection (neurotoxoplasmosis: 1; pneumocystosis: 1; aspergillosis: 1; tuberculosis: 1; retinitis due to CMV and T. gondii: 1). Mean CD4 cell count was 491 ± 350/mm3. After a mean followup of 19 ± 13 months (2-50) clinical status remained stable in 23/25 pts of the group II-III/CDC; 2 progressed to the group IV A or IV C2/CDC (ARC). AIDS occured in 2/5 pts of the group IV A or IV C2/CDC (cryptococcosis: 1; neurotoxoplasmosis: 1), at 26 and 24 months; 5/6 AIDS cases died during this study, 27.2 months after diagnosis of HIV infection, and 18.8 months after diagnosis of AIDS. The fatality rate of AIDS cases observed during this study and a previous retrospective one was 14/17, after a mean followup of 37 ± 18 months.
Conclusion : 1) Signs and symptoms are similar to those reported for HIV1, 2) progression to AIDS was 8% at 19 months in patients followed > 6 month (n = 25). 3) Mean survival time was 30 ± 20 months after AIDS diagnosis.

3118 INCIDENCE OF AIDS IN SPANISH HIV INFECTED PATIENTS

Jose M Gatell; Podzamczer, D.; Clotet, B.; Ocaña, I.; Estany, C.; Zamora, L. and Barcelona AIDS study group.
Hospitals Clinic, Bellvitge, Tarrasa, Germans Trias, and Vall d'Hebron. Barcelona. Spain.

Objective: To describe the incidence of AIDS (CDC criteria of August 1987) among persons infected with the HIV in Barcelona (Spain) where drug addicts are the most frequent risk group and tuberculosis the most common initial manifestation of AIDS.
Methods: A total of 2300 people who were at high risk for AIDS, had enrolled in cohort studies of homosexual men, parenteral drug users and hemophiliacs before december 1987. A total of 1236 were either HIV seropositive at enrollment or seroconverted subsequently, and could be followed-up. 847 (69%) of the 1236 were parenteral drug addicts.
Results: The AIDS developed in 156 (12.6 %) during a median follow-up period of 36 months (range 12 to 86 months). Using actuarial survival calculations, the estimated 6-year cumulative incidence of AIDS among all HIV seropositive subjects was 24 % (range 17% to 34%; 95% confidence interval). Among the homosexuals, drug addicts and hemophiliacs cohorts the incidence at 6 years was 24%, 22% and 30% respectively (P>0.05). Comparing the survival functions the risk of developing AIDS was significantly greater among those presenting with, or developing during the follow-up period, a disease included in the CDC stage IV C-2 (P<0.0001).
Conclusion: The risk of AIDS development after 6 years of HIV infection was 24% and the progression rate among drug addicts was not significantly different than the progression rate of male homosexuals or hemophiliacs.

3119 SEROCONVERSION AND ROLE OF DIFFERENT VIRAL INFECTIONS IN RELATION TO HIV DISEASE IN ITALIAN HEMOPHILIACS.

Gringeri, Alessandro; Santagostino, E.; Tradati, F.; Simoni, L.; Mannucci, P.M.
Hemophilia & Thrombosis Ctr. A. Bianchi Bonomi, University of Milan, Italy.

Objective: to evaluate prevalence and prognostic significance of serological markers of different blood-borne viral infections in a population of Italian hemophiliacs with and without antibodies to HIV.
Study population: IgG antibodies to human cytomegalovirus (CMV), Epstein-Barr virus (EBV), herpes simplex virus (HSV), varicella-zoster virus (VZV) and toxoplasma were assayed in 78 anti-HIV positive and 24 anti-HIV negative Italian hemophiliacs, treated with the same intensity with USA-imported blood products, before the introduction of virus-inactivation methods.
Results: prevalence of anti-CMV, -EBV, -HSV, -VZV and -toxoplasma did not differ between anti-HIV positive and negative hemophiliacs. There was no difference in prevalence of anti-CMV, -EBV, - HSV, -VZV, and -toxoplasma between asymptomatic (CDC II/III stage) and symptomatic (CDC IV stage) anti-HIV positive hemophiliacs. These same serological markers were not significantly associated with CD4 and CD8 counts or CD4/CD8 ratio either in asymptomatic HIV-positive hemophiliacs or anti-HIV negative hemophiliacs.
Conclusion: the overall results are consistent with acquisition and progression of HIV infection independently of coincident CMV, EBV, HSV, VZV or toxoplasma infections.

3120 RISK OF PROGRESSION TO SYMPTOMATIC HIV INFECTION IN A GROUP OF HEMOPHILIACS WITH KNOWN TIME OF SEROCONVERSION

Karafoulidou, Anastasia*; Gialeraki, A.*; Hatzakis, A.**; Katsouyanni, K.**; Economidou, J.***; Markakis, C.*; Makris, P.*; Mandalaki, T.*
*Laikon General Hosp., Athens, Greece, **Athens Univ. Medical School, Athens, Greece, ***Evangelismos Hospital, Athens, Greece.

Objective: To determine the risk of symptomatic HIV infection.
Methods: Seroconversion to HIV was documented by ELISA and Western Blot or radioimmunoprecipitation in 61 hemophiliacs. The seroconversions occured between 1980-85. The patients were followed up semiannually and each time their clinical status was classified according to the CDC system.
Results: By November 1989 11 cases of CDCIV stage have been diagnosed including 4 cases of AIDS, 4 cases of CDCIV-C2, 2 cases of CDCIV-E and 1 case of CDCIV-A. The median follow up time was 4.8 years (range 1.2-8.3). Five years after seroconversion the risk of developing CDCIV stage was 13.0%. The most important determinant of risk for developing CDCIV was age at time of seroconversion.
Conclusion: The rate of symptomatic HIV infection development in this cohort of hemophiliacs with known time of seroconversion was slow. Data on the risk of symptomatic HIV infection are useful for planning the future number of HIV infected individuals who will need theurapeutic interventions.

3121 ACUTE HIV SYNDROME IS ASSOCIATED WITH HIGHER CD8⁺ COUNT, LOWER CD4⁺/8⁺ RATIO BUT NOT WITH RAPID PROGRESSION TO AIDS.

Kaslow, Richard; Deloria, M., Fox, R., Ho, M., Munoz, A., Murphy, R., Visscher, B. for the Multicenter AIDS Cohort Study (MACS), Bethesda, MD, USA.

Objective: To examine the reported relationship between the symptoms and signs of acute HIV infection and rapid progression of the infection.
Methods: In 262 HIV seroconverters (SCs) with sufficient data we evaluated symptoms and signs including fever, night sweats, fatigue, headache, muscle ache, and lymphadenopathy at the 1st seropositive (S+) visit. Actual # of clinical features and acute viral syndrome (AVS, ≥2 features) were examined. Progression was measured as time to AIDS, life table incidence of AIDS, and rate of 6-month $CD4^+$ cell loss. We also examined interrelationships between AVS, $CD4^+/8^+$ ratio, and time to AIDS.
Results: At 1st S+ visit 31 (12%) of SCs had AVS. AIDS developed in 6 (19%) with and 23 (10%) without AVS during an average of 3.1 years of follow-up (p=0.12). Mean time to AIDS was no different for those with and without AVS (29 vs 26 months, p=.39). The 3.5-year cumulative incidence of AIDS was 13%, 15%, 19%, 20% in men with 0,1,2,≥3 symptoms, respectively (p=.43). For men with and without AVS, 6-monthly rates of $CD4^+$ cell loss in the follow-up period were (mean ± SE): 113 ± 26 and 86 ± 7 (p=.47). At 1st S+ visit, relatively high $CD8^+$ counts and low $CD4^+/8^+$ ratios were found in larger proportions of men with than men without AVS (for $CD4^+/8^+$: 25/26 vs 146/200, p=.007).
Conclusion: Among SCs occurrence of AVS has little value for predicting early AIDS. AVS is associated with lower $CD4^+/8^+$ ratio due more frequently to a relatively high number of $CD8^+$ cells.

3123 VITAMIN B_6 AND IMMUNE FUNCTION IN HIV INFECTION

Mantero-Atienza, E; Baum, M; Beach, R; Javier, J; Morgan, R; Eisdorfer, C. Biopsychosocial Center for Studies of AIDS. University of Miami School of Medicine, Miami, Florida, U.S.A.

Objective: To determine plasma vitamin B_6 status and to evaluate its impact on immune function in HIV infected individuals.
Methods: Subjects were 100 HIV seropositive homosexual males who remained asymptomatic other than persistent generalized lymphadenopathy (CDC Stage III). Plasma vitamin B_6 status was assessed by red cell enzymatic assay. Indexes of immune status were determined with standardized techniques in the Clinical Immunology Laboratory.
Results: Overt vitamin B_6 deficiency was documented in 35% of the HIV infected subjects; an additional 12% had marginal vitamin B_6 status. This finding alone is important, as vitamin B_6 deficiency occurs very infrequently in the clinical setting. When the relationship between vitamin B_6 status and immune function was examined, a significant correlation between deficient vitamin B_6 status and numbers of both CD4 and CD8 cells as well as the CD4/CD8 ratio were seen ($p<0.05$ in all cases). In addition, response of peripheral blood lymphocytes to the phytohemagglutinin and pokeweed mitogens were also significantly influenced by vitamin B_6 status ($p<0.02$ and $p<0.05$, respectively). These results suggest that vitamin B_6 deficiency may contribute to the immunological dysfunction noted in these HIV infected subjects. To confirm the hypothesis, 12 subjects underwent oral supplementation with 20-25 mg pyridoxine daily. Upon normalization of their vitamin B_6 status, 8 out of 12 HIV infected subjects were able to significantly improve their CD4 cell number by an average of 121 ± 31 CD4 cells/mm^3 (range 7-291 cells/mm^3) over a 6 month period. Changes of similar magnitude were also seen in the functional parameters of immunity such as response to phytohemagglutinin.
Conclusion: Vitamin B_6 deficiency, while rare in the clinical setting, occurs with considerable frequency in HIV infected subjects. In HIV infected subjects with deficient vitamin B_6 status, a significant impact upon both immune cell number and function was observed. Furthermore, normalization of vitamin B_6 status resulted in a significant improvement in both CD4 cell number and in the functional parameters of immunity such as response to mitogens.

3124 AGE-SPECIFIC DIFFERENCES IN LYMPHOCYTE SUBPOPULATIONS ASSOCIATED WITH HIV-1 INFECTION

Transfusion Safety Study (TSS) Group* represented by Mosley, James W.** *Participating institutions in New York City, Miami, San Francisco, and Los Angeles; **University of Southern California, Los Angeles, California, USA.

Objective: To assess whether the increased cumulative prevalence of AIDS with increasing age may be explained by age-specific differences in HIV-1 effect on lymphocyte subpopulations.
Methods: TSS has data for 507 anti-HIV-1(+) and 315 (-) males with treated congenital clotting disorders. Lymphocyte subsets were determined by 2-color flow cytometry using 11 pairs of monoclonal antibodies.
Results: The cumulative proportion of infected subjects with AIDS did increase with age: e.g., age 13-19, 8%; age 45+, 20%. In persons not developing AIDS, some phenotypic subpopulations changed to a significantly different extent with age. The Table gives median absolute counts for 2 age groups.

Subset	Age 13-19 (n=123)			Age 45+ (n=94)		
	(-)	(+)	% diff.	(-)	(+)	% diff.
CD4+	578	562	- 3%	491	383	-22%
CD4+CD29+	277	192	-31%	468	205	-56%
CD8+	501	766	+53%	462	609	+32%
CD20+	266	230	-14%	279	152	-46%
CD14+	268	329	+23%	375	326	-13%

Conclusion: Increasing age is associated with differences in the effect of HIV-1 on lymphocyte subpopulations. (Supported by NHLBI Contracts No. NO1-HB-4-7003 and 9-7074.)

3125 LONG-TERM FOLLOW-UP OF HIV-INFECTED HAEMOPHILIACS: CORRELATION OF SEROLOGICAL MARKERS WITH PROGRESSION OF DISEASE

Preiser, Wolfgang*, Enzensberger, R.*, Storkel, F.°, Scharrer, I.°, Doerr, H.W.*. - University Clinics, *Dept. of Medical Virology and °Dept. of Medicine, Frankfurt a. M., W. Germany.

Objective: Different serological markers for monitoring disease progression in HIV-infected plasma product recipients.
Methods: 41 HIV-seropositive patients treated for various bleeding disorders have been followed for 48 months on average. Serum samples obtained at regular intervals were tested for HIV-p24 antigen by ELISA (Abbott), for anti-p24 and -gp41 antibodies by ELISA (Abbott) and Western blot (DuPont), and in some patients, β_2-microglobulin (β_2-m.) levels were estimated by microparticle EIA (IMx System, Abbott).
Results: On initial investigation, 32 patients (78.1%) were asymptomatic or had LAS versus 12 at the end of the study (29.3%), whereas 11 patients (26.8%) had developed full-blown AIDS by then. 8 patients so far have died of AIDS (19.5%); in all of them HIV-p24 antigenaemia was observed up to 50 months (average 27.3) prior to death and in all but one anti-p24 had become negative by ELISA. Overall prevalence of anti-p24 as determined by ELISA was 90.2% at the beginning versus 70.7% at the end of the study and prevalence of p24 antigen 12.2% versus 31.7%. Serum β_2-m. levels were elevated in all eleven patients examined in whom disease progressed (average 3.7 mg/l) with an average level of 4.2 mg/l in those who developed AIDS.
Conclusions: Development of AIDS and death from AIDS in HIV-seropositive haemophiliacs are associated with a decline in anti-p24 titres, HIV-p24 antigenaemia and elevated serum β_2-m.

3126 RELATIONSHIP BETWEEN SURVIVAL TIME AND PRESUMPTIVE OR DEFINITIVE DIAGNOSES OF AIDS INDICATOR DISEASES

Rahman, M. Abid; Fife, D.; van de Beek, L. AIDS Activities Coordinating Office, City of Philadelphia Department of Public Health, Philadelphia, Pennsylvania, USA.

Objective: To compare presumptive versus definitive diagnoses of pneumocystis carinii pneumonia (PCP) and esophageal candida (EC).
Methods: Study population consisted of AIDS cases (n=229 for PCP and 36 for EC) diagnosed after August 1987 in Philadelphia and surrounding counties. The study sample was restricted to 20-40 year old men. Cox-Mantel life table statisites, appropriate for censored data, were used to test the equality of survival curves.
Results: Neither life table nor overall mortality rates differed significantly for presumptive versus definitive diagnoses of PCP or EC. Presumptive diagnosis showed a lower median survival time as compared to definitive diagnosis for both diseases, but the differences were not significant ($p > 0.05$). The observed survival differences may have been influenced by ethnic and risk factor differences between presumptively and definitively diagnosed cases.
Conclusion: This study suggests that accepted clinical practices to diagnose some indicator diseases presumptively may be substituted for definitive diagnosis, if patient's condition will not permit invasive procedures for definitive tests. Further studies using national AIDS database, which allows for larger sample sizes for stratification, will be discussed.

3127 HHV-6 AND HIV IN SPAIN

Soriano V, Tor J, Riezu I*, Clotet B, Llibre J, Civeira P*, Prieto J*, Foz M, Ribas-Mundó M.
Hospital de Badalona "Germans Trias i Pujol" (Barcelona) and Laboratory of Internal Medicine, University of Navarra (Pamplona), SPAIN.

INTRODUCTION. HHV-6 is a new human herpesvirus isolated in 1986 from patients with lymphoproliferative disorders. In vitro, the virus has a cytopathic effect on T cells, the target cells of HIV. However, a transcriptional activation of HIV by HHV-6 has been demonstrated, supporting a synergistic immunosuppressive action of dual co-infection. We studied the prevalence of HHV-6 antibodies in HIV risk people in an attempt to correlate active HHV-6 infection and the progression to AIDS or the development of Kaposi sarcoma or Lymphomas in HIV+ subjects.

PATIENTS AND METHODS. We studied 102 Spanish serum samples using IFI in HSB-2 infected cells. The patients were classified in 5 groups (see table). A titer 1/40 was considered negative.

RESULTS.

	n	HHV-6 +	%
1. Blood donors	54	18	35
2. Lymphoprolyferative disorders	7	3	42
3. HIV negative drug abusers	11	4	36
4. HIV+ drug abusers (CDC - II)	14	7	50
5. AIDS patients (n=16):* KS	9	3	33
* Lymphomas	3	1	33
* OI	4	2	50

CONCLUSIONS. Not different prevalence of HHV-6 antibodies were found between all the groups studied. Serological data not support a probably rol of HHV-6 in the progresion to AIDS or in the development of KS or lymphomas in the HIV infected people. However, HHV-6 antibodies are not more frequent in HIV + subjects than patients with lymphoprolyferative disorders or blood donors.

3128

CLINICAL IMPACT OF HIV INFECTION PRIOR TO AIDS IN UNTREATED INDIVIDUALS.

Saah, Alfred; Hoover D, Bacellar H, Visscher B, Murphy R, Anderson R, Schrager L; for the Multicenter AIDS Cohort Study (MACS), Bethesda, MD, USA

Objective: Estimate the health, economic and emotional impact of HIV virus prior to AIDS diagnosis in an untreated population of homosexual men that eventually develop AIDS.
Methods: Health data collected at biannual longitudinal visits from 387 AIDS cases and 387 matched AIDS-free seropositive controls in the Multicenter AIDS Cohort Study (MACS) were compared. Depression score (CESD), full time employment status, persistent fatigue, oral thrush, symptom score: the number of ARC symptoms were analyzed by semester prior to the onset of AIDS in the case.
Results:

Semester before AIDS		-4	-3	-2	-1	0(after AIDS)
CESD	Cases	10.0	9.7	10.9 {*}	13.5 {*}	15.0
Score	Controls	8.7	9.3	9.4	10.0	9.5
Symptom	Cases	0.31	0.33	0.57	0.97	2.13
Score	Controls	0.13	0.15	0.14	0.17	0.16
Oral	Cases	8.1	7.8 {*}	21.0 {*}	30.0 {*}	58.0
Thrush%	Controls	2.1	3.1	3.3	4.2	6.1
Persistent	Cases	8.5	11.0 {*}	24.0 {*}	37.0 {*}	65.0
Fatigue%	Controls	9.9	5.3	5.3	10.9	6.7
Full-time	Cases	78.0	76.0	76.0	75.0 {*}	42.0
Employment%	Controls	77.8	80.7	75.0	77.0	80.3

{*} are between adjacent visits that differ with $P < 0.05$

The men who developed AIDS had significantly more depression (higher CESD score), persistent fatigue, oral thrush and AIDS symptoms than did the controls starting 1 year prior to AIDS. The groups did not differ with regard to full time employment until after the onset of AIDS.
Conclusions: A moderate deterioration in physical health and quality of life begins 1 year prior to onset of AIDS in individuals of this untreated population.

3129

FRACTION OF EXCESS TUBERCOLOSIS MORBIDITY ATTRIBUTABLE TO HIV2 INFECTION IN THE POPULATION OF BISSAU DISTRICT.

Sabbatani Sergio, V.Mangiarotti, A.Fabbri, V.Laudicina, F.Tedei, O.E.Varnier, A.Ferro. - Div. Mal. Inf. Osp. Maggiore Bologna. Tisiatria Osp. 3 Agosto Bissau. - Banco do Sangue - Bissau Guinea Bissau. - Ist. di Micr. Univ. di Genova. Italia.

The african population has a particular susceptibility for TB infection. The causes of this particular epidemiological situation are: 1) Social and economic conditions particularly bad with overcrowded houses. 2) Low number of cases sputum smear-positive for tubercolosis considering the patients with the disease. 3) Anti-tuhercolosis therapy isn't useful because the medical treatment is inadequate and interruptied by the patient. The extension of HIV epidemy has increased the risk of TB infection for these reasons: 1) The same social categories are interested by the two infections. 2) Conditions of immunodepression that favourite the TB infection. It's particularly interesting to establish the fraction of excess tubercolosis morbidity attributable to HIV infection. In the district of Bissau we had calculated this fraction by this formula: $Pe = 1-[(1 - Pc)/(1 - Po)]$. Pe is the population of cases excess attributable to HIV2, Pc and Po the percentages of HIV2 infected among tubercolosis patients and in the general population. All sera were subjected to Elavia Pasteur method for the detection of HIV1 - HIV2 antibodies and confirmed by tests of 2° and 3° generation. 14.8% of 121 tubercolosis patients is HIV2 positive, while among blood donors the HIV2 positivity is of 9-11% in 2 different consecutive six months. The fraction of excess tubercolosis morbidity in patients HIV2 infected in Bissau district is 4% to 7%. We conclude that in HIV2 patients a major susceptibility to morbidity for TB has to suggest a more careful control to make early a diagnosis and to isolate patients resulted sputum-smear positive for M. Tubercolosis.

3130

INFECTION WITH HEPATITIS B AND/OR HIV AMONG INITIALLY ASYMPTOMATIC HOMOSEXUAL MALES, BOSTON, MA, 1985-1988

Mayer, KH*,**; Saltzman, Scott*; Werner, BG***; Underdahl, J*; Moon, M*; Centamore, LD***
*Fenway Community Health Center, Boston, MA; **Brown University AIDS Program, Providence, RI;***Massachusetts State Laboratory Institute, Jamaica Plain, MA, USA.

Objective: To assess the seroprevalence, seroconversion and the natural history of Hepatitis B (Hep B) among HIV positive(+) and negative(-) gay men with (Vac+) and without (Vac-) a history of Hep B Vaccination.

Methods: Hep B markers (HB_sAg, anti-HB_c, anti-HB_s) and relevant history were obtained from 274 initially asymptomatic gay men seen every six months since 1985, as part of an ongoing behavioral epidemiological study of the natural history of HIV.

Results: Eighty percent of HIV+ and 49% of HIV- men had $\geq$ 1 + Hep B marker at the outset (O.R.=4, p<.0001). Among those Vac-, 71% of HIV+ and 39% of HIV- men who denied Hep B exposure had $\geq$ 1 + marker. 19% of the HIV+ and 50% of the HIV-, Vac- were without Hep B markers; only 14% of the cohort were Vac+. 2 of 6 HIV+ and 5/44 HIV-, Vac+ men did not develop or maintain anti-HB_s compared to 3% of HIV+ and 9% HIV-, Vac- men who lost anti-HB_s during the study. 14% of the cohort had unprotected anal sex within the 1st half of 1989. 3% of HIV-, Hep B- men seroconverted for each virus, though no one developed new markers for both viruses. Men with prior Hep B infection had a similar rate of progression to CDC IV symptoms by 1988 compared to unexposed men or Vac+ men (p=.78).

Conclus: HIV infection did not lead to nor increase Hep B seroreversion nor vaccine failure. Hep B did not clearly alter the natural history of HIV. Although low levels of Hep B and HIV seroconversion were observed, the risk for transmission of both is underscored by persistent unsafe sex and underutilization of the vaccine. Gay men continue to be a high priority group for Hep B screening and vaccination.

3131

ANTIBODY RESPONSE TO HIV-1 p24 DURING NATURAL HISTORY OF HIV-INFECTION.

J.J. Schalken, J. Dekker*, J. Goudsmit*, W.M. Keur, J.A. Hellings.
Organon Teknika, Boxtel, The Netherlands,
*Academic Medical Center, Amsterdam, The Netherlands.

Objective: Determination of anti-p24 antibody levels in order to monitor the natural history of HIV-infection.
Methods: Antibodies to HIV-1 p24 were determined by Vironostika HIV Core, a one-step inhibition assay based on monoclonal antibodies and viral p24. Titers were measured by testing 6 dilutions of the respective sera. Sera were obtained 1 year after seroconversion (83 individuals) and at 6 month intervals over a 5-year period after seroconversion (20 individuals).
Results: A large variation in titers was observed, ranging from 0-63.000. All of the retrospectively followed individuals who developed AIDS, showed a decline in titer prior to development of disease. In 3 healthy individuals a substantial rise in titer was observed 30-50 months after seroconversion.
Conclusions: In different seropositive individuals a large variation in anti-p24 titers is detectable. No correlation between the magnitude of the titer and the stage of infection was observed. However, follow-up of anti-p24 titers appears to be of prognostic value. Decline in anti-p24 titer was detectable earlier than (re)appearance of antigen.

3132 IMPACT OF ZIDOVUDINE AND OTHER FACTORS ON THE NATURAL HISTORY OF AIDS

Sugland, Barbara*; Hidalgo, J.**; Chaisson, R.*; Moore, R.*
*Johns Hopkins University School of Medicine, Baltimore, MD. **Department of Health and Mental Hygiene, AIDS Administration, Baltimore, Maryland

Objective: To assess (1) secular trends in survival from 1984-1988 among persons with AIDS, (2) factors influencing survival in this cohort, (3) the effect of ZVD use on the natural history of AIDS.
Methods: Individuals diagnosed with AIDS between 7/1/84 and 6/30/89 and reported to the Maryland Dept. of Health, and enrolled in Medicaid are included (n=783). Demographic, diagnosis (dx) and survival data was obtained from the AIDS Registry, death certificates, Medicaid claims, and hospital records. ZVD use was determined through Medicaid pharmacy claims.
Results: Median survival increased from 250 days in patients diagnosed in 1984 to 500 days in patients diagnosed in 1988 ($p<.01$). Survival in IVDUs (med=370 days) was shorter than sexual contact transmission (med=450d) ($p<.05$), and survival among minorities (med=370d) was shorter than non-minorities (med=500d)($p<.05$). In 588 patients diagnosed or still living when ZVD was marketed (4/15/87), median survival among ZVD users (n=219) was 480d after dx, compared to 294d in non-ZVD users (n=369)($p<.001$). Controlling for index dx, one-year survival in ZVD users with AIDS diagnosed by PCP was 86%, and in AIDS diagnosed by other conditions was 70%. In non-users, survival was 45% regardless of dx. Significant prognostic factors after proportional hazards adjustment were index dx, HIV transmission, and ZVD use, but not race.
Conclusion: Our data show secular improvement in survival and also indicate that ZVD has further contributed to an improved natural history of AIDS. The relatively low use of ZVD in a cohort in which financial barriers to ZVD are reduced suggests disparities in access to the drug.

3133 SURVIVAL TIME IN MEN WITH AIDS: RELATIONSHIPS WITH PSYCHOLOGICAL COPING AND AUTONOMIC AROUSAL

Temoshok, Lydia*; O'Leary, A.**; Jenkins, S.R.***
*Henry M. Jackson Foundation/Walter Reed Army Medical Center, Washington, D.C. **Rutgers University, New Brunswick, N.J.; ***Institute of Human Development, University of California, Berkeley, CA.

Objective: While previous reports by our and other groups have found correlations of psychosocial and immunologic variables in HIV+ persons at various disease stages, the clinical significance of these associations remains unclear. This study reports relationships with actual length of survival as the dependent variable, controlling for relevant medical variables.
Methods: 15 homosexual men diagnosed with AIDS were assessed immunologically (leukocyte subset numbers, NK cell cytotoxicity), psychophysiologically (heart rate, finger temperature, and skin conductance), and psychologically (coping, mood, emotion) at weekly intervals for 5 weeks. Thus, while the number of subjects is low, the stability of measurement across all 3 domains is high. Subjects were followed medically to determine length of post-study survival.
Results: Using partial correlations to control for months since diagnosis at study entry and for AIDS-related disorder (PCP or KS), the following measures were significantly associated with length of post-study survival: heart rate reactivity--change from baseline to maximum ($r = .75$, $p = .005$); Bradburn's affect balance scale--more positive ($r = .74$, $p = .006$); and "hardiness"--a measure of coping ($r = .60$, $p = .05$). The same variables were significantly (positive affect) or near significantly (HR reactivity, hardiness) associated with survival time when CD4 cell count was the biological control variable.
Conclusion: These findings suggest that a general temperament/coping factor with psychological and autonomic manifestations--hypothetically representing "adaptive homeostasis"--may affect survival time in men with AIDS.

3134 ASYMPTOMATIC HIV-1 SEROPOSITIVE HEMOPHILIAC CHILDREN HAVE NO EVIDENCE OF CNS DYSFUNCTION DETECTED BY NEUROLOGIC, MRI OR CLINICAL NEUROPHYSIOLOGIC ASSESSMENT

Tennison, Michael; Messenheimer, J;Ehle, A; Hall, C; Whitt, J.
University of North Carolina at Chapel Hill, Chapel Hill, N.C.

Objective: To define by extensive neurologic, radiographic and clinical neurophysiologic assessment the incidence and features of any CNS deficits which may be present in asymptomatic HIV-1 seropositive hemophiliac children including evidence of subclinical CNS dysfunction before overt symptoms are present.
Methods: All patients (106) seen in a comprehensive hemophilia center were recruited for the study. 22 seronegative and 8 seropositive patients refused entry. 5 patients died before the study started. To date, 23 Seropositive (all asymptomatic) and 37 seronegative patients have been studied., Detailed neurologic exam, EEG, quantitative EEG, evoked potential battery (Visual, somatosensory and auditory) and MRI scans were performed. All studies were scored by blinded observers. Group differences were evaluated with the Yates corrected chi square and/or paired t-test comparing seropositive subjects with one or more age-matched control seronegative subjects..
Results: There were no significant differences between patients seropositive and seronegative at the $p<.05$ level on any of the study parameters.
Conclusion: Despite the observation in adults of laboratory evidence of CNS infection with HIV-1 from the time of seroconversion, we found that intensive neurologic investigation in asymptomatic hemophiliac children fails to detect signs of CNS dysfunction. This finding is encouraging regarding prospects for continued neurologic well-being and may be an important factor in planning future treatment strategies for these children.

3135 PROGNOSIS FACTORS IN A COHORT OF 250 HIV SEROPOSITIVE PATIENTS.

Tourani, Jean Marc; Stern, M. Lowenstein,W.
Israel-Biet, D. Andrieu, J.M.
Lariboisiere HIV study group.Lariboisiere Hospital, Paris, France.

From 10/85 to 10/89 250 HIV seropositive patients (pts) were included in this study.Initial characteristics were sexe: M 207, F 43; mean age 3[illegible] (15-79); risk factors: homo 138, IVDA 79, both 8, hetero 20, other 5. Pts were classified according to CD4 cell count (I≥600, II≤300 ≥600,III<300/µL), clinical class (A=asympt, B=PGL, C=ARC), serum P24 Ag (pg/ml) anti P24 titer, IgG, IgA, IgM, IgE measured. All pts were followed-up until their first AIDS episode or last visit. The table lists the 3 year probability of AIDS onset according to these criteria.(* = P<0.05)

	Pts																			
	Nb	A+B	C	I+II	III	IgG		IgE		P24		Ap24		CD8	
						<18	>18	<150	>150	<60	>60	<10	>10	<800	>800
All	250	10*	30*	6*	69*	5*	18*	15*	44*	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	12*
I+II	220	5*	19*			4	[illegible]	[illegible]	6	[illegible]	[illegible]	28*	[illegible]	[illegible]	[illegible]
III	30	52	71			23	40	44*	83*	[illegible]	[illegible]	[illegible]	67	53	[illegible]
A+B	209					5	14	9	9	14*	53*	15*	[illegible]	14*	12*
C	41					-	-	3*	100*	52	52	55	22	36	52

The prognosis values of clinical class (A+B vs C), CD4 cell count (I+II vs III), IgG (<18, >18g/l), P24 Ag (<60, >60pg/l) and CD8 cell count (<800, >800/µl) are fully confirmed. Interestingly enough IgM and IGA (data not shown) have no prognosis value. In pts with early disease (I+II or A+B), P24 Ag, anti P24 and CD8 cell count have a prognosis value. In pts with advanced disease (III or C), IgE (<150, >150 KIU/l)is the only prognosis marker. The cox analysis will be presented.

3136

SEROEPIDEMIOLOGY OF THE INFECTION HIV IN BOLIVIA.

Andrade Arzabe R.;Melgar m.l.;Vargas R.;Navarro f.;Lazcano R; Lafuente C.;Epidemiology Division,STD and AIDS Program,S.U. Cochabamba,La paz,Cenetrop Santa cruz Bolivia.

OBJETIVE.-Evaluation of the seroprevalence of HIV in BOLIVIA.
METHODS.-The epidemiological vigilance begins since october 1985,and these work demostrates the obtained results to december 1989,in the begining i. has being recibed the cooperation of the following countries,Venezuela(CECOIC), Peru(NAMDIA),Brazil(FIOCRUZ),Chile(UNIVERSITY OF CHILE),and Italy,since fe - bruary 1988 we made ELISA in BOLIVIA(INLASA,IBBA,CENETROP,for ELISA we use Wellcozyme HTLV-III,VIRGO ELECTRONUCLEONICS USA,PHARMACIA HIV1+2 COMBI,Hemaglutination Test(RETROCELL ABOTT),Latex aglutination RECOMBIGEN and fast test HIVCHECK 1+2 DUPONT,had to confirm WESTERN BLOTT DUPONT.
MATERIAL.- 8500 Recluses,6830 prostitutes,4100 blood bank.1300 spontaneus demand,360 prenatal control,690 homo/bisexuals,460 drug users,830 army reclutes 120 police man,300university students,132 travelèrs,23602 Total.
RESULTS.-Positive Tests confirmed by WESTERN BLOTT were 23 persons,11 from these persons have being developed AIDS,all male homo/bisexuals,7 dead,3 returned to their country and one is under control,from de 12 infected one is female,the infection was 10 by sexual relationship and 2 by blood transfusion ore of these,dead by surgical complication,6were foreigners and returned to their native countries and 5 are under medical control.
CONCLUSION.-The epidemiological vigilance of HIV must continued to obtain more dates and trully situation.

3137

MORTALITY IN RELATION TO HIV-INFECTION AND THE TYPE OF DRUG ABUSE AMONG DRUG ADDICTS IN STOCKHOLM 1981-1988.

Annell, Anders*; Fugelstad, A.*; Ågren G.**.
*Sabbatsberg Hospital, Stockholm. ** Social Welfare Administration, Stockholm.

Objective: To study the mortality and spread of HIV-infection in a cohort of hospitalized drug addicts in Stockholm.
Methods: The study comprises all (1671 Pts) drug addicts treated at Sabbatsberg Hospital. The total period during which observations were carried out was from Jan. 1981 until Feb. 1989. During this period 1266 persons were HIV-tested.
Results: Heroin was found to be the predominant drug of abuse in 42 per cent of the subjects tested, wheras amphetamine predominated in 35 per cent. Other drugs accounted for the remaining 23 per cent. A total of 222 persons were found to be HIV positive. Thirtytwo per cent of all heroin addicts tested were HIV seropositive. The corresponding figure among amphetamin users was 5 per cent. The reported mortality during the total observation period was 149 deaths. The annual mortality among heroin addicts was 3.3 per cent as compared to 1.2 % among amphetamine abusers. The annual mortality among HIV positive heroin addicts was 3.6 per cent.
Conclusions: The prevalence of HIV-infection in the present investigation is much lower than that reported previously in selected groups of drug addicts in the Stockholm area. Data indicates that the greatest number of HIV infection were reported during the years 1984-1986, and thereafter only occasional cases were reported. The mortality rate among heroin addicts is remarkably high.

3138

PREVALENCE OF HTLV-I AND ITS POSSIBLE ROLE IN INDETERMINATE HIV-I WESTERN BLOTS IN ETHIOPIA.

Seyoum Ayehunie*, Zewdie D.**, Messele T.**, Ketema F.**, Tadesse M.**
* Department of Biology, A.A.U.; **National Research Institute of Health, Addis Ababa, Ethiopia.

Objective: To determine the prevalence of HTLV-I infection and to estimate the proportion of HIV-I Western blot indeterminate sera due to HTLV-I infection.
Materials: Sera from 399 blood donors and prostitutes were tested for HIV-I antibodies by ELISA (Wellcozyme) and Western blot (Biorad). The 399 samples plus 50 Western blot indeterminate sera on HIV-1 were again tested for HTLV-I antibodies by Vironostika Microelisa system.
Result:

Sample source	No. tested	HIV-I +	HTLV-I +	HTLV-I & HIV-I
Blood donor	257	21	2	3
Prostitutes				
Gondar	40	5	2	0
Bahir Dar	102	39	1	1
WBI*	50	1	3	0

* Western blot indeterminate; I = indeterminate

Conclusion: HTLV-I infection is present in the Northwestern part of Ethiopia and 6-15% of sera showing indeterminate Western blot reactions on HIV-I test might be due to HTLV-I infection.

3139

SEROPREVALENCE OF HIV-1 AMONG SELECTED PATIENTS FROM A SENTINEL HOSPITAL NETWORK IN THE PROVINCE OF QUEBEC: A PILOT STUDY

Barnard, Louise*, Alary, M.*, Joly, J.R.**, Fauvel, M.***
*Département de Santé Communautaire, Hôpital du St-Sacrement, Québec, Canada.
**Département de Microbiologie, Université Laval, Ste-Foy, Québec, Canada.
***Laboratoire de Santé Publique du Québec, Montréal, Québec, Canada.

Objective: To estimate baseline seroprevalence of HIV-1 infection in selected patients from a sentinel hospital network (anonymous, unlinked seroprevalence study), used as proxy of the general population.
Methods: From April to December 1989, sera from subjects attending the outpatient surgery service and from trauma patients (excluding hemophiliacs, IV drug users, homicides and suicides) admitted to 9 hospitals were tested for HIV-1 antibodies when blood was collected for other purposes. Data on test results and demographic variables (year of birth, sex and region of residence) were anonymously collected. All repeatedly positive ELISA were confirmed by RIPA.
Results: During the study period, 5,441 sera were collected. Of these, 30% were from patients living in the Montreal area. Median age was 35 years. Males accounted for 45% of tested individuals. Crude seroprevalence was 7.4 per 10,000 (4/5,441). Three adults (2 men and 1 woman) and one child under 15 were seropositive. All positive adults were living in Montreal whereas the child came from another area. After adjustment for age, sex and area of residence (using Quebec distribution according to 1986 census), global seroprevalence was 5.7 per 10,000. For Montreal, seroprevalence was 15.7 per 10,000 and it was 1.2 per 10,000 for the rest of the province.
Conclusion: HIV-1 infection seems much more frequent in Montreal than outside this city. Study subjects might be at lower risk than the general population. The study will be enlarged to 25,000 sera tested per year for the next 3 years.

3140 REPORTED AIDS PATIENTS WITH EXTRAPULMONARY TUBERCULOSIS IN THE UNITED STATES

Bloch, Alan B.*; Snider, D.E.*
*Centers for Disease Control, Atlanta, Georgia, USA.

Objective: Determine the number and characteristics of reported AIDS patients with extrapulmonary tuberculosis (XTB) in the United States.
Methods: In September 1987 the CDC AIDS case definition was broadened to include HIV-seropositive XTB patients. The number and characteristics of reported AIDS patients with XTB from 10/87 through 12/89 were analyzed.
Results: Of 74,880 reported AIDS patients from 10/87 to 12/89, 2,043 (2.7%) had XTB. Race/ethnic distribution was: black 53.0%, white 29.0%, Hispanic 16.8%, Asian/Pacific Islander 1.0%, and American Indian/Alaskan Native 0.1%. While 1.5% of white AIDS patients had XTB, 5.0% of black patients (RR=3.4), 2.8% of Hispanic patients (RR=1.9), 4.3% of Asian patients (RR=3.0), and 2.9% of American Indian patients (RR=2.0) had XTB. Distribution by exposure category was heterosexual intravenous drug use (IVDU) 37.9%, male homosexual/bisexual contact 35.8%, both categories 9.1%, born in Pattern II country 5.9%, and other 11.2%. While 1.7% of AIDS patients with homosexual/bisexual contact had XTB, 4.5% of IVDUs (RR=2.6) and 14.0% of persons born in a Pattern II country (RR=8.0) had XTB.
Conclusion: AIDS patients who are minorities, IVDUs, or born in Pattern II countries are at increased risk of XTB. Patients with IVDU, male homosexual/bisexual contact, or both comprise over 80% of AIDS patients with XTB. It is important to screen for tuberculous infection in persons who are in HIV-exposure categories and to offer preventive therapy to those with tuberculous infection.

3141 HIV-1 PREVALENCE AND THE ROLE OF OTHER INFECTIOUS DISEASES IN A GROUP OF DRUG USERS IN ARGENTINA

Boxaca, Martha*; Libonatti, O.*; Muzzio, E.**; Segura, E.***; Hosokawa, R.****; Weissenbacher, M.*
*University of Buenos Aires; ** National Center of Social Reeducation; ***Fatala Chaben Institute; ****National Institute of Microbiology, Buenos Aires, Argentina.

Objective: To evaluate HIV-1 prevalence and its relationship with HTLV-I, HBV Syphilis, Chagas' and Toxoplasmosis infections in a group of drug users attending a Drug Addiction Rehabilitation Center in the city of Buenos Aires.
Methods: A group of 212 asymptomatic drug users, 182 males and 30 females, 77.4% of them intravenous drug users (IVDU). Cocaine was the main drug used. Age ranged from 14-42 years with a median of 22.9. HIV-1 and HTLV-I antibodies were screened by EIA and confirmed by Western blot and/or RIPA. HBV markers (HBsAg and antiHBc) were studied by EIA methods. Chagas', Syphilis and Toxoplasmosis antibodies were detected by indirect immunofluorescence and/or hemagglutination.
Results: HIV-1 prevalence reached 37.8 for IVDU and 2.1 for non-IVDU being total prevalence 29.7. Toxoplasmosis, Syphilis and Chagas' prevalence were 36.3; 6.1 and 1.4 respectively. No significant differences appeared related to either HIV infection or drug addition. Overall HBV prevalence was 43.4%. Among HBV positive cases 50.6% were IVDU whereas among HIV positive, 73% proved HBV infected. HTLV-I antibodies were found in 11 IVDU of the 45 individuals tested, being 10 of them HIV-1 positive.
Conclusions: Results highlight HIV-1, HBV and HTLV-I infections among IVDU in the city of Buenos Aires and its environs together with HBV and HTLV-I prevalence in HIV-1 seropositive addicts.

3142 HIV SEROPREVALENCE IN TWO SUBGROUPS OF A LOS ANGELES COUNTY HOSPITAL POPULATION

Brown, Perry*, Nagachinta, T.**; Cheng, F.**; Temple, W.*; Olivo, N***; St. Louis, M.***; Kerndt, P.R.**
* King/Drew Medical Center, Los Angeles, CA, USA ** Los Angeles County Department of Health Services, AIDS Epidemiology Program, LA, CA, USA *** CDC, Atlanta, GA, USA

Objective: To evaluate HIV seroprevalence (SP) in two subgroups of the patient population at an inner city public hospital in Los Angeles County (LAC).
Methods: A stratified sampling method based on age and gender was used to collect 3,713 blood specimens between 1/89 - 6/89 at an inner city public hospital. Specimens were classified by discharge diagnoses into those considered unassociated with HIV infection vs others, according to eligibility criteria developed by the CDC for the Sentinel Hospital Surveillance System (SHSS). Specimens were tested in a blinded fashion by ELISA and confirmed with Western blot.
Results: Overall, SP was almost three times higher in the SHSS-ineligible groups as the SHSS-eligible group. Black males had higher SP rates than Hispanic males in both groups.

	SHSS-Eligible		SHSS-Ineligible		Total	
Group	Pos/Number	%	Pos/Number	%	Pos/Number	%
Black Male	16/811	1.97	12/320	3.75	28/1131	2.48
Black Female	2/735	0.27	0/158	0.00	2/893	0.22
Hispanic Male	2/457	0.44	3/151	1.99	5/608	0.82
Hispanic Female	1/843	0.12	0/88	0.00	1/931	0.11
Total†	22/2962	0.74	16/751	2.13	38/3713	1.02

Conclusion: The CDC eligibility criteria selected a subpopulation of patients with a lower SP rate. SHSS-eligible patients may better approximate HIV SP in the general population in the area served by the hospital than would a sample of all patients. Monitoring SP in the SHSS-eligible group will provide a useful method to track the future course of the epidemic.
†Total includes White/Other/Unknown

3143 SURVEILLANCE OF HIV-EPIDEMIC FROM MEDICOLEGAL SAMPLES IN FINLAND.

Brummer-Korvenkontio, Henrikki*; Leinikki, P*; Kantanen, M-L*; Karhunen, P; Penttilä, A. *National Public Health Institute, Helsinki, Finland and the Department of Forensic Medicine, University of Helsinki, Finland.

The spread of HIV in Finland is followed by various screening programmes aimed at the general population, people with risk behaviour, pregnant women and blood donors. All positive cases are reported to a register held by the Medical Board with identifications sufficient to prevent multiple reporting. These registers indicate that annual incidence has decreased since 1986 (66 in 1986, 56 in 1987, 52 in 1988 and 43 in 1989) and that seropositivity has remained at a very low level (0.05%).
Since it is well known that voluntary screening programmes have an uncertainty factor which may be quite significant, repeated unlinked anonymous testing has been advocated to give a more reliable picture about the true prevalence of HIV-infections. We have, since November 1987, tested every case submitted to medigolegal necropsy within the greater metropolitan area of Helsinki. More than 5000 individuals have been tested representing approximately one fifth of all cases of death in the area. Only two positive cases have been found so far, none in 1989. This result indicates that voluntary testing has given an accurate information about the true prevalence of HIV infections. Our experience suggest that testing of medicolegal autopsies for HIV-infections is a convenient and effective "back-up" for epidemiological studies and could be used instead of unlinked anonymous tests from hospital and other similar patient materials.

3144 SPREAD OF INFECTION AMONG PROSTITUTES OF MADRID

Colomo C.*, Estebanez P.**, Alberdi J.***, Bru F.*, Contreras G.**, Zunzunegui V.***, Perez Alvarez T.*
* Ayuntamiento de Madrid, ** Inst. Salud Carlos III, *** C.U. Salud Publica, Madrid SPAIN

objective: To asses the extent of HIV infection among prostitutes and to study the associations between intravenous drug use, sexually transmitted disease, prostitution and HIV infection in downtown of Madrid.
Methods: Information on sociodemographic characteristics, sexual, contraceptive and drug using behaviour and history of sexually transmitted disease was collected by personal interview of 323 prostitutes during 1985-1989. These women has requested care at the HIV prevention program of the city of Madrid, 274 at Primary Care Center and 49 at the women's prison. Serologic status for hepatitis B, syphillis, HIV was determined and culture isolation of Chlamidia, gonorrhea, mycoplasma, trichomonas and candida was carried out.
Results: Sixty percent of the women were between 20 and 30 years old. Eighty percent were single, separated or widowed. Forty percent lived in neighborhood hotels and 74% had dependent children. Most of them were streetwalkers. Forty five percent were IVDUs. About contraception 29% did not use any method. There was information on condom use on 152 women. Out of them, 11% always used it, 29% frequently, 29% sometimes and 31% never. Seventy eight percent reported history of STD and 34% were positive for syphillis by RPR and FTA testing. Overall, there were 34.5% seropositivity to HIV. Among IVDUs, 105 of 148 (71%) were HIV positive, among non IVDUs three out of 165 (1.8%). One of the three HIV positive non IDVU women had IVDU regular sexual partner and does not use condoms with him, even when she uses condoms with clients. The remaining two HIV+ women had no known risk factors.
Conclusion: There is a high rate of infection (34.5%) of HIV among the prostitutes studied at our clinic and a concurrent high rate of syphillis (34%) together with rare and sporadic use of condoms.
Updated data will be presented at the meeting including analysis data on sexually transmitted disease.

3145 HIV-1 ANTIBODY PREVALENCE IN AN ANTENATAL POPULATION AND ITS RELATIONSHIP TO SELF-REPORTED BEHAVIOURAL RISK : THE FIRST STUDY YEAR.

Scrimgeour J*, Patel N**, Reid D***, MacKinnon H*, Covell Robert***, Smith R**, Goldberg D***
Emslie J***, Peutherer J+, Inglis H++, Urquhart G**. Western General Hosp*, Royal Inf+, City Hosp++, Edinburgh UK; Ninewells Hosp Dundee UK**; CD(S)Unit, Glasgow UK***.

Objectives To determine the prevalence of HIV infection among antenatal populations in 2 Scottish cities (Edinburgh & Dundee) known to have a high prevalence of HIV infection among their intravenous drug user populations.
Methods First time attenders in any one ongoing pregnancy were screened by questionnaire in antenatal clinics to assess their risk for HIV infection and were offered HIV testing on a named basis or failing acceptance, anonymously.
Results Compliance has increased as experience has been gained and currently stands at 92%-93%. In Dundee the majority of non-participants belonged to an upper social class group (1-4) whereas most known seropositives belonged to a lower social class group (5-9).

Period Prevalence of HIV Infection among Edinburgh & Dundee Antenatal Clinic Attenders (ongoing pregnancies only) December 1988 - November 1989

	'Low Risk'			'High' & 'Low Risk'		
	No. tested	No.+ve	%+ve	No. tested	No.+ve	%+ve
Dundee	2771	3	0.1	2870	5	0.17
Edinburgh	5994-5997	1-4	0.02-0.7	6110	14	0.23

Conclusion Voluntary HIV testing of antenatal patients in areas of high seroprevalence is of epidemiological value in that variations of seroprevalence in the study population can be identified as occurring within or outwith groups at particular risk of infection.

3146 EPIDEMIOLOGY OF HIV-1 INFECTION IN CHILDREN: ZAIRE EXPERIENCE.

*Davachi, Farzin, *Ndoko, K., *Ngoie, K., *Bongo, L. and **Liambi, N.
*Department of Pediatrics Mama Yemo Hospital, and **Ministry of Health, Kinshasa, Zaire

Objective To determine the trend in the epidemiology of HIV-1 infection in children in Kinshasa, Zaire over the past 6 years
Methods HIV-1 seroprevalence studies were carried out on inpatient and outpatient infants and children at the Department of Pediatrics at the 2000 bed Mama Yemo Hospital, the major health facility in Kinshasa
Results Although we diagnosed the first case of pediatric AIDS in Zaire in Dec 1983, we had observed a case of cryptococcal meningitis in a child in 1977 followed by a number of adults with the same infection. A longitudinal series of HIV seroprevalence investigations began in Nov 1984. The results are as follows

Date	Inpatient No cases	Outpatient No cases	Age	HIV Seroprevalence
1984	368		2-14 yrs	11%
1985	258		1-24 mo	12%
1985		191	1-24 mo	7%
1986		1046	9 mo-13 yrs	3.8%
1987	167		1 mo-12 yrs	13%
1988		1108	newborn-14yrs	4.9%
1989	150		2-12 yrs	11%

Conclusion Our data suggests that during the last 6 years there has not been a statistically significant increase in pediatric HIV infection in Kinshasa, Zaire. It appears that the actual epidemic took place in the 1970s, somewhat stabilizing in the 1980s. A similar trend was also observed in adults. This is in contrast to current epidemiological trends in the West

3147 MIGRATION TO RURAL AREAS BY HIV PATIENTS: IMPACT ON HIV RELATED HEALTH CARE DELIVERY.

Stapleton, JT; Davis, Kristine A.
University of Iowa Hospitals and Clinics, Iowa City, Iowa, USA.

Objective: To determine the impact of patient migration to a rural state (Iowa), we evaluated the extent of health care utilization at the University of Iowa AIDS clinic by individuals diagnosed with AIDS outside of Iowa/Western Illinois, and by all HIV infected persons who reported moving to this area from another geographic location.
Methods: Our clinic opened 6/15/88 and a database was established which included stage of illness, location of residence and prior residence (migrated = Mig), location of AIDS diagnosis, and clinic utilization. AIDS data was confirmed by the State Department of Health.
Results: 158 patients between 6/15/88 and 12/31/89 were seen for 1615 clinic visits and 1356 inpatient days. 242 visits for pentamidine or laboratory tests only were not included in the analysis. 63 of our 158 patients have AIDS (39%), and residence data on 144 patients (91%) were available.

	Total	AIDS CASES Iowa/Out of State	RESIDENCE STATUS Iowa/Mig/Unknown
Physician Visits:	1373	699/196 (22%)	611/730/32 (55%)
Inpatient Days:	1356	961/315 (25%)	435/878/43 (65%)

Conclusions: In our rural area, 22 to 25% of AIDS care is for persons diagnosed out of state. 55 to 65% of our HIV related care is for persons who have migrated to our area. Further understanding of the reasons for and the extent of patient migration to rural areas are needed. This phenomena needs to be considered in evaluation of the impact of HIV on rural areas.

3148

EVALUATION OF CLINICAL FEATURES AND AIDS CASE DEFINITION IN TUBERCULOSIS PATIENTS IN ABIDJAN

Ekpini Ehounou*, Gnaore E*, Adjorlolo G*, Yesso G*, Bretton R**, Bretton G**, Kone K**, Porter A*, Lafontaine M-F*, De Cock KM* ***, Heyward WL***.
* Projet RETRO-CI, Abidjan; ** Centres Antituberculeux, Abidjan; *** Centers for Disease Control, Atlanta, USA.

Objectives: (1) To compare clinical features in HIV-positive and HIV-negative patients with tuberculosis (TB); (2) to examine the WHO clinical case definition for AIDS in TB patients.
Methods: In 1989, 1504 consecutive, ambulatory TB patients (1404 aged 15 years and older) were tested for HIV-1 and HIV-2 by ELISA, Western blot and synthetic peptide ELISA as indicated. Symptoms and signs were recorded, and tuberculin skin tests performed. The WHO clinical case definition for AIDS, a modified version excluding cough as a criterion, and individual features were evaluated by serostatus among adults (15 years +).
Results: Among adults, 27.2% patients were reactive to HIV-1, 5.9% to HIV-2, and 8.7% to both viruses. All features of the definition were significantly associated with HIV reactivity except fever and cough. For predicting HIV positivity, the case defenitions performed as shown:

Definition	Sensitivity	Specificity	Predictive Value Pos	Neg
WHO Definition	83%	28%	45%	70%
Modified Version	67%	79%	61%	73%

Tuberculin skin reactivity was significantly more frequent in HIV-negatives (594/714; 83%) than in HIV-1 (214/304; p<0.001), HIV-2 (50/69; p<0.05), or dual (69/96; p<0.01) reactivity.
Conclusions: (1) HIV-2 infection is associated with tuberculin anergy like HIV-1; (2) serology is essential for diagnosing HIV infection in patients with TB; (3) a more sensitive and specific definition of AIDS in TB patients is needed.

3149

PREVAILING OF INFECTION DUE TO HUMAN INMUNODEFICIENCY VIRUS (H.I.V.) IN A POPULATION WITHOUT KNOWN RISK FACTORS.

Espinosa, Rogelio; Santillán, M.A.; Díaz, J.
Hospital de Concentración Nacional Central Norte, PEMEX, México D.F., México.

Objective: To determine percentage of seropositive patientes for antibodies against H.I.V. in population without known risk factors.
Methods: Patients of both sexes were included, 15 years old or older, who came looking for medical care for several reasons, from January 1987 to August 1989. The ELISA test was made to find H.I.V. they were considered infected with 2 determinations of ELISA and one of Western Blot positives.
Results: 48,609 test were made with positive results in 86 (0.17%). Only in 48 patients the H.I.V. infection could be confirmed. Average age was 35.8, 79.18% were male. A 58.33% were single. The mechanism of sexual transmission was the most frequent with 75% of all the cases and the stadium II according to 1986 C.D.C. prevailed with 75%. In sexual transmission to promiscuous heterosexuals, the percentage was 29.18%.
Conclusions: The prevailing seropositivity to H.I.V in population without known risk factors is 0.17%; the frecuency of infection has been increased in promiscuous heterosexuals and the stadium II prevails.

3150

HVD AND HIV-1 INFECTION IN NORTHEAST OFARGENTINA.

Fay, Oscar; Rodenas, Liliana; Tanno, Hugo; Taborda, Miguel; Fernández, Eduardo; Rubio, Lilliana.
Centro de Tecnología en Salud Pública - Fac. de Cs. Bioquímicas y Farmacéuticas Universidad Nacional de Rosario - Rosario - Argentina

Objetive: To study the evolution of the penetrance of HVD together with HIV-1 in risk communities from North-East of Argentina.
Methods: HIV-1 (ELISA-Abbott) IFA and WB(Dupont, Sorin); HVD and HBsAg(Abbott) were used as a serological makers. Sera samples were collected during 1987 up to Dec. 1989, from I.V.D.U.; homo/bisexual (HS/BS) and prostitutes (P) The results were compared with those published in 1984 from V.B.D. and chronic HBsAg infected people from Argentina.
Results:

Community	VIH(nº)	Anti HVD Nº	%	% Anti HVD - HBsAg (+)
I.V.D.U.	Positive 382	6	1,5	17,6
	Negative 514	3	0,6	7,3
HS/BS	Positive 85	2	2,3	13,5
	Negative 526	3	0,6	6,8
P.	Positive 25	-	-	-
	Negative 366	-	-	-

Conclusions: 1)The prevelence of HVD infection is 10 time higher compared with V.B.D. 2) The positivity for HVD had in increased steadily since 1987 in the risk community consedered. 3) The studied groups represent a reservorie for HVD which is in spread. 4) Vaccination and control for HBV is mandatory in these gropus to present the exposed to the population to HVD.

3151

NON-AIDS MORTALITY IN NEW JERSEY RELATED TO HIV-1 INFECTION

Hayes, Thomas*; Altman, R.*; Buehler, J.**; Beil, J.*; Akili-Obika, A.*; Costa, S.*; Massey, J.*; Williams, N.*
*New Jersey State Department of Health, Trenton, NJ, USA
**Centers for Disease Control, Atlanta, GA, USA

Objective: Over half of the AIDS cases in N.J. are directly related to IV drug abuse. In neighboring New York City, increased mortality has been reported among IVDAs not meeting the case definition of AIDS, but suspicious of being HIV-1 related. We looked for similar findings in N.J.
Methods: In this preliminary study, the multiple cause of death file for 1986 was searched for persons in Passaic and Hudson Counties, N.J., between the ages of 25 and 44 years, who died of: pneumonia and influenza; brain infections; heart infections; sepsis; other infections; drug related causes; and unknown causes. The list generated was matched against the State AIDS/ARC Registry, and hospital and Medical Examiner records were reviewed for clinical and laboratory evidence of HIV infection.
Results: Of the 192 identified deaths, 71 (37%) matched with the Registry, of which 43 (61%) were drug users. Of the 121 unmatched deaths, 75 (62%) were drug users. Forty-seven of these deaths in drug users, initially classified as having unknown causes, were reclassified as due to suicide or overdose. Among the 28 other drug users, 6 (21%) were found to be HIV-1 seropositive and an additional 16 (57%) had conditions suggestive of HIV-1 infection (oral thrush, lymphadenopathy, prolonged diarrhea, etc.). This suggestion of HIV-1 infection was not found among the 46 non-drug users.
Conclusion: There is a suggestion of increased mortality related to HIV-1 infection in drug users in N.J. who were not classified as AIDS. Additional research is planned in years after 1986 when more HIV-1 testing was done in N.J., especially in Medical Examiner cases.

3152 SEROPREVALENCE OF HIV1, HIV2 AND HTLV1 IN A SEXUALLY TRANSMITTED DISEASE CLINIC IN PARIS (FRANCE) IN 1988 AND 1989.

Janier Michel, Agbalika F., Lassau F., Pezin P., Ferchal F., Perol Y., Morel P. - STD Clinic - Hôpital Saint-Louis - Paris - France

OBJECTIVE : To assess the prevalence of HIV1, HIV2 and HTLV1 antibodies in patients (mainly heterosexual) attending a STD clinic in Paris.
METHODS : 240 consecutive women from january 1988 to march 1988 and 546 consecutive men from march 1989 to april 1989 were offered the test. 5 women (2,1 %) and 44 men (8 %) declined the test. Repeat ELISA positive for HIV1, HIV2 or HTLV1 were confirmed by Western Blot.
RESULTS :

	WOMEN (1988)	MEN (1989)
n	235	504
Mean age ± S.E.	27,8 ± 8,9	35,5 ± 11,4
Patients from French West Indies	31 (13,2 %)	24 (4,8 %)
Patients from Central and West Africa	28 (11,9 %)	111 (22 %)
Homosexual/Bisexual	N.T.	32 (6,4 %)
I.V. drug abusers (IVDA)	21 (8,9 %)	12 (2,4 %)
HIV1 positive	5 (2,1 %)	19 (3,8 %)
HIV2 positive	0	0
HTLV1 positive	N.T.	1 (0,19 %)

5/5 women and 18/19 men positive for HIV1 had classical risk factors : male homosexuals (8), IVDA (6), Africans (6) or Caribbeans (1), sexual contacts with a male IVDA (2). 15/24 ignored their seropositivity. No HIV2 infection was detected and only 1 HTLV1 (patient from Zaïre).
CONCLUSION : HIV1 infection in our clinic remains limited to people with a history of homosexual behavior, IVDA, or from Africa. The prevalence is very high and warrants routine testing and counseling.

3153 RACIAL/ETHNIC DIFFERENCES IN REPORTED AIDS CASES IN LOS ANGELES COUNTY

Kane, Cindy; Lieb, L.; Garza,A.
Los Angeles County (LAC) Department of Health Services, Los Angeles, California, USA

OBJECTIVE: To describe racial/ethnic differences in reported AIDS cases in LAC.
METHODS: Data for all AIDS cases reported to the LAC surveillance registry by November 1989 were analyzed. Race-specific cumulative incidence (CI) was calculated using 1985 population estimates based on the 1980 census. Relative risk (RR), the ratio of the CI in each racial/ethnic group relative to that of whites, was calculated . The 95% confidence limits (CL) were calculated using the Taylor series method. The analysis was stratified by sex, age group and risk category.
RESULTS: Of 8,409 AIDS cases reported, 64% are white, 16% black, 18% Hispanic, and 1% are Asian or American Indian. Overall, the CI per 100,000 population is 143 for whites, 141 for blacks, 61 for Hispanics, and 18 for other racial groups. The RRs for blacks and Hispanics are:

Transmission category	black RR (95% CL)	Hispanic RR (95%CL)
Homosexual/bisexual male	0.97 (0.9, 1.0)	0.45* (0.4, 0.5)
Heterosexual male w/IVDU§	6.1* (4.1, 9.1)	2.6* (1.8, 3.9)
Bisexual male w/IVDU	2.8* (1.9, 4.0)	0.5* (0.3, 0.8)
Heterosexual male w/o identified risk	5.6* (3.9, 8.0)	3.6* (2.6, 5.0)
Female w/IVDU	5.9* (3.5, 9.9)	0.7 (0.3, 1.5)
Female w/ IVDU sex partner	8.4* (3.9, 18.2)	2.7* (1.2, 6.1)
Female w/bisexual sex partner	4.1* (2.0, 8.6)	0.6 (0.2, 1.8)
Children w/ IVDU parent	5.3* (1.9, 15)	0.9 (0.3, 2.9)

§ intravenous drug use
* significant at p<.05

CONCLUSION: In LAC, the risk of AIDS is higher among blacks than whites or Hispanics for all risk categories except homosexual/bisexual male. In addition, there is an increased risk strongly associated with IVDU among Hispanics. Furthermore, minorities are more likely to be classified without a risk than their white counterpart.

3154 PREVALENCE OF HIV-I ANTIBODIES IN PREGNANT WOMEN IN ADDIS ABABA, ETHIOPIA.

Hailu Kefenie*, Desta B.*, Zewdie D.**
* Armed Forces General Hospital, Addis Ababa; ** National Research Institute of Health, Addis Ababa, Ethiopia.

Objective: To determine the seroprevalence of HIV-I antibodies in pregnant women attending the antenatal clinic of the Armed Forces General Hospital, in Addis Ababa.
Method: Between August and December 1989, 440 consecutive pregnant married women were screened for the presence of HIV-I antibodies using the ELISA (Welcozyme) and confirmed by Western blot (Biorad). Demographic data such as age, number of pregnancies and income were also collected.
Results: Of the 440 tested 9 (2.05%) were positive for HIV-I antibody. Seventy nine percent of the study group and 89% of the positive women belonged to the age bracket of 20-30 years. The number of pregnancies and the difference in income did not seem to influence the seropositivity rate.
Conclusion: HIV-I seroprevalence among childbearing women in Addis Ababa, is similar to that of the blood donors. Intensive health education should be carried out in order to curb further dissemination of the infection in this vulnerable group.

3155 A STUDY OF THE ASSOCIATION BETWEEN PULMONARY TB(PT), EXTRAPULMONARY TB(EPTB) AND HIV INFECTION, AS SEEN IN 13 PUBLIC HEALTH CENTER (PHC), IN RIO DE JANEIRO, 1987-1988.

Kritski,Afrânio L.[1];Werneck,E.[1]; Menezes da Silva,M.[1];Meirelles da Silva,V.[1] Melo,LII.[1]; Teixeira,SM.[1];Gonçalves,VP.[1];Bravo-de-Souza,R.[1]; Melo,DLAC.[2]; Galvão-Castro,B.[2]; Aires de Castilho,E.[2].
Instituto de Tisiologia e Pneumologia-UFRJ[1]; WHO Collaborating Center,FioCruz[2]

Objective: evaluate the seroprevalence for HIV in TB patients seen in the out skirts and compare it to a control group.
Method: TB patients randomly selected from 13 PHC in Rio de Janeiro, from Feb. 1987 to Dec. 1988, were tested for HIV antibodies by ELISA, IIF and WB methods. The serology was considered positive if at least 2 of 3 tests were positive. New blood donnors(NBD) from Inst. Est. Hemat."Arthur Siqueira Cavalcanti-RJ" were used as a control group.
Results:

	1987		1988	
	n/total	%	n/total	%
PT	1/228	0.44	1/161	0.62
EPTB	5/215	2.3	4/104	3.8
NBD	6/10500	0.057	11/11250	0.097

From PT and EPTB groups, in 1987, 73(16.5%)patients and in 1988, 38(13.8%) patients could be included in HIV risk group. In the statistical analysis the differences among HIV+ proportions according to the time and groups, we found the following statistically differences: PT-1987xNBD-1987($p<0.02$) ; EPTB-1987xNBD-1987($p<0.0001$); PT-1988xNBD-1988($p=0.04$); EPTB-1988xNBD-1988 ($p<0.0001$).
Conclusion: Epidemiological studies must be initiated to evaluate the impact of HIV infection on TB morbidity in Rio de Janeiro, Brazil.

3156 EPIDEMIOLOGY OF AIDS IN BRAZIL:A FOUR-YEARS EXPERIENCE AT HOSPITAL DE CLINICAS DE PORTO ALEGRE

Kuwer, Marilene ; Kronfeld, M.; Motta, M.; Sirianni, M.; Sprinz, E.
Universidade Federal do Rio Grande do Sul
Hospital de Clínicas de Porto Alegre, Brazil

Objective:Describe the population affected by HIV in Grande do Sul, the southest state of Brazil
Methods:Our sample included all patients with AIDS(according to CDC criteria-1987)admitted at Hospital de Clínicas. This hospital is the national reference center of AIDS in south region and approximately 70% of all patients with AIDS had already been hospitalized in this hospital.The persons included were hospitalized between january, 1986 and december, 1989. Children with less than 12 years were not included.
Results:297(91,1%) were men; and 29(8,9%), women:256(78%)homo/bissexuals men; 25(7,6%),intravenous drug users; 17(5,2),blood product recipients; 13(4%) with blood coagulation disorders; 9, heterossexuals women(2,7%);6(1,8%)homo/bi+intravenous drug users; and 2(0,6%)heterossexual men.
Conclusion:In Rio Grande do Sul state it is still clear the most common population affected(homo/bissexuals men). Unfortunately, 10% acquired HIV infection with blood products.We think that heterossexual transmission(woman to man) is unlikely.

3157 THE EUROPEAN HIV DATABASE

Lavoie, G.*; Lumey, Lambert Hugh**; Couturier E.*; von der Fuhr, S.**; Ancelle, R.A.*; Brunet, J.B.*
*WHO Collaborating Centre on AIDS, Paris, France, **Nat Inst of Publ Hlth and Env Protection RIVM, Bilthoven, the Netherlands.

Objective: To collect, analyze, and disseminate information from HIV serosurveys and studies undertaken in European countries.
Methods: The 32 countries that report their AIDS surveillance data to the Centre were requested also to report all ongoing and completed HIV-studies (1985-88) in a standardized fashion. Information coded for each study includes country, begin and end of study, population group tested, test site, sampling method, age and sex of subjects, number tested, number positive for HIV1 and/or HIV2, and whether or not the results were published.
Results: So far 642 studies have been reported. The number of HIV-tests is over 50 m and the number of HIV-positives is 55,000. Blood donors/donations account for 10% of all studies, over 85% of all tests, and 7% of HIV-positives. I.V. drug users (idu) account for 36% of all studies, .16 % of all tests, and 43% of HIV-positives. The medians for HIV infection levels range from .001 % among blood donations to 32% among idu. National studies have mainly been done in low prevalence areas and local studies in high prevalence areas. In all except four studies participation of study subjects was voluntary.
Conclusion: The current knowledge on HIV infection in Europe is reviewed and data needs are identified. Further research should be directed toward methods for unbiased screening of well-defined populations. These may include unlinked anonymous screening.

3158 IMMUNOLOGICAL PROFILES OF PATIENTS TESTING HIV+ AT AN ANONYMOUS TESTING SITE IN NEW YORK CITY

Masci, Joseph; Hoffman, H, Pierone, G, Nicholas,P.
Mount Sinai Services, Elmhurst Hospital, Elmhurst, N.Y.,U.S.A.

Objective: To evaluate immune profiles and need for medical intervention in HIV+ patients (pts) referred from a city-run anonymous counseling and testing site (ACTS) in New York City (NYC).
Methods: All (pts) referred to Elmhurst Hospital from the ACTS in Corona, Queens were identified. Records were reviewed for demographic features and initial lymphocyte subset data.
Results: 72 patients (pts) were identified: 59 males (M) and 13 females (F). Mean age was 36.3 years (range 17-65). Risk groups were: homosexual men (HS) men 39; intravenous drug user (IVDU) 12 (10M 2F); heterosexual contact (HC) 21 (10M 11F).
CD4 lymphocyte counts (CD4LC) were:

Group(n)	Mean(+/-1SD)	>500/mm3	200-500/mm3	<200/mm3
HS (39)	312.6 (+/-273)	11 (28%)	10 (26%)	18 (46%)
IVDU (12)	166.3 (+/-115)	0	6 (50%)	6 (50%)
HC (21)	507.7 (+/-392)	13 (62%)	1 (5%)	7 (33%)
Total(72)	349.6 (+/-325)	24 (33%)	17 (24%)	31 (43%)

All pts with CD4LC<500 were offered zidovudine (Zd); those with CD4LC<200 were offered both Zd and PCP prophylaxis.
Conclusion: Two-thirds of HIV+ pts referred from an ACTS in NYC were significantly immunodeficient and candidates for immediate therapy. IVDU as a group presented with the most advanced degree of immunodeficiency.

3159 HIV SEROPREVALENCE IN ONE EIGHTEEN-YEAR-OLD COHORT IN FLORENCE

Mazzotta Francesco, Di Pietro M., Balocchini E., Mecocci L.,De Cesaris A., Telesa C., De Majo E., Colao G., Galanti C., Paci P. . Infectious Diseases Unit and Microbiology Laboratory USL 10/D; Microbiology Laboratory Poggiosecco; FIRENZE, ITALY

Objective:To determine the HIV seroprevalence among the eighteen-year-old males in the city of Florence and its neighbourhood by anonymous test.
Methods: In Florence and its neighbourhood all eighteen males are screened for VDRL before to have a medical examination for conscription. Their anonymous sera were stored at - 20 C . This cohort (about 3.000 males) was divided in 7 areas. After 1 year, if the cohort was entirely enrolled in each area, the sera are tested for HIV antibodies (ENZYGNOST ANTI HIV MICRO, BEHRING).
Results: At this moment we have tested the first 500 sera from two areas, none is resulted positive.
Conclusion: This floretine cohort is important to know the actual real diffusion of HIV and, in the future, to monitor the development of this infection in young men, those are at higher risk for sexsual transmission and e.v. drug use.

3160 PROGRESSION OF HIV-I INFECTION IN THE POPULATIONS WITH DIFFERENT HIV PREVALENCE RATES.

Mengistu Mehret*, Khodakevich L.**, D. Zewdie***, Ayehunie S.****, Bekele S.*, Getachew G.*, Asefa G.*, Belaineh G.***, Mengesha Y.*, Mulugeta T.***, Tadesse F.*, Hailemichael M.*, Demissew B.*, Semunegus L.*, Ermias H.***
* Ministry of Health, Ethiopia, ** WHO Team Leader, AIDS Control Programme, Ethiopia, *** National Research Institute of Health, **** Addis Ababa University.

Objective: To assess the progression of the HIV-I epidemic in Ethiopia and the relation between the progression rates and initial HIV prevalence rates.
Methods: Two rounds of HIV seroprevalence surveys have been conducted among randomly selected females practicing multipartner sexual contacts (MPSC) in 7 major towns of Ethiopia: the first from July to December 1988 and the second in twelve months period. Sera were tested by double ELISA (Welcozyme), confirmed by Western blot (Biorad).
Results: A total of 2056 subjects were tested in 1988 and 2091 in 1989. The initial HIV prevalence rate was 18.5%. During the year the prevalence rates increased in all seven towns, the average reaching 29.2%. The rate of progression correlated negatively with the initial prevalence rates (r=-0.93).
Conclusions: HIV-I infection is steadily progressing among high risk females in Ethiopia. The average HIV-I prevalence rate in the seven cities increased in one year period by nearly sixty percent. The rate of progression of HIV-I infections was higher in the low prevalence areas.

3161 HIV-2 INFECTION AND AIDS AMONG HOSPITALIZED PATIENTS IN BISSAU, GUINEA-BISSAU

Nauclér, Anders*; Albino, P.**; Da Silva, A.P.*; Andreasson, P.Å.*; Biberfeld, G.***
*National Public Health Laboratory. **National Hospital Simao Mendes, Bissau, Guinea-Bissau. ***National Bacteriological Laboratory, Stockholm, Sweden

Objective: To determine the prevalence of HIV-2 infection among hospitalized patients in Bissau and the clinical manifestations of the infection.
Methods: 835 consecutive hospitalized patients admitted to the medical department of the national hospital in Bissau during 7 months in 1989 were examined clinically and tested for antibodies to HIV-2 by SBL-6669 ELISA. Positive sera were confirmed by Western blot. Attempts to isolate virus and determination of T cell subsets were done in 13 seropositive patients.
Results: 157 patients (18.8%) were confirmed HIV-2 seropositive. 39 seropositive patients fulfilled the criteria for AIDS. 8 of 16 AIDS cases followed up died within a few months (one case in the hospital and seven cases at home). 5 seronegative cases with tb fulfilled the clinical criteria for AIDS. HIV-2 was isolated from blood mononuclear cells of 6/13 HIV-2 seropositive patients. Decreased numbers of $CD4^+$ T cells were demonstrated in 6/13 seropositive patients including 3 patients with AIDS.
Conclusion: AIDS appears to be an important manifestation of HIV-2 infection among hospitalized patients in Bissau. HIV-2 infection is associated with CD4 cell decrease in a proportion of cases.

3162 HIV PREVALENCE IN INTRAVENOUS DRUG ADDICTS FROM CENTRAL ITALY

Perroni, Luigix,Albertoni, Fx,Coluzzi, T.x,Corsi T.x,Perucci C.A*,Soscia, Fx and the Latina xLatina Hospital,Latina,Italy,*Regional Epidemiologic Unit,Rome,Italy

Objectives :To assess the prevalence of HIV ,hepatitis B virus (HBV) and syphilis infection in intravenous drug addicts (ivdu) according to several risk factors
Methods :All the ivdu attending drug addiction treatment centres in south Latium,central Italy, were tested for HIV , HBV and routine serology for syphilis (VDRL) in autumn 1989;information on age of initial drug abuse and socioeconomic data were collected in each subject.
Results : Of 424 sujects for which information are available prevalence of HIV was 45.5 %, males 44.6%.females 50.8% (p NS).No statistically significant difference in educational level was found between HIV+ and HIV- ivdu, while the proportion of unoccupied persons was higher in HIV+ subjects (p <0.05).Prevalence of HIV infection was significantly higher in those who had initiated drug abuse under 18 years of age (p<0.01).Quite unexpectedly those who initiated late,i.e at age 30 years or over had significantly higher prevalence rate.(p<0.05). Any HBV marker prevalence was 95.6% in HIV+ and 63.6% in HIV-(p<0.01).Prevalence of syphilis serology was 17.6% in HIV+ against 5.5% in HIV- (p<0.01) .
Conclusions :Our data confirm the high prevalence of HIV infection in ivdu in south Latium ;very early or very late beginning of drug addiction appears associated with HIV infection as is serological evidence of promiscuous sexual habits.

3163 AIDS CASES VERSUS HIV SEROPREVALENCE: COMPARISONS AND PROJECTIONS IN HOUSTON, TEXAS, U.S.A.

Phelps, Ann F.; Enochs, M.; Meade, D.; Geoffroy, A.; Cole, N.; Harms, J.; Hannah, H.; Honeycutt, H.; Davis, M.
Bureau of HIV Prevention, Houston DHHS, Houston, Texas, U.S.A.

Objectives: To describe and project AIDS case and HIV seroprevalence data collected in Houston, Texas, U.S.A.
Methods: A Houston AIDS case registry is maintained through active surveillance, hospital reporting, death certificate review, and other appropriate means. Blinded seroprevalence surveys were conducted within high risk clinic populations (women of child bearing age, IV drug users, STD patients) in Houston.
Results: The cumulative total of confirmed AIDS cases was 3558 on January 2, 1990. Of a total 9049 blood samples tested for HIV infection in seroprevalence surveys, 116 were positive. The following table details demographic distribution of AIDS cases and HIV positives.

	AIDS	HIV+		AIDS	HIV+
white	72%	23%	Age 0-19	1%	8%
black	16%	63%	Age 20-29	25%	46%
Hispanic	12%	12%	Age 30-39	49%	39%
other	0%	2%	Age 40+	25%	7%
heterosexual males	9%	46%	I.V. drug use	4%	5%
heterosexual females	3%	30%			
gay/bisexual males	88%	24%			

Conclusion: Assuming that a percentage of all HIV infected individuals will eventually develop symptoms of AIDS, a shift in the AIDS case distribution from predominantly among whites and homosexuals to the black and heterosexual communities may occur based on current HIV seroprevalence data.

3164 THE PREVALENCE OF HIV SEROPOSITIVITY AND IMPACT OF HIV INFECTION IN ZAMBIAN SURGICAL PATIENTS

Kalima Pota; Luo N.P; Bem C; Watters D.A.K.
University Teaching Hospital, Lusaka, Zambia.

Objectives: To determine the prevalence of HIV Seropositivity amongst surgical patients and the outcome of surgery amongst HIV positive patients compared to the HIV negative.
Methods: Between September and November, 1989, 171 surgical patients in one surgical firm were clinically assessed for features of HIV infection. HIV seropositivity was done using the Elisa technique (Wellcozyme recombinant competitive test, VK56). Confirmation was done using western blot method (Dupant or ELAVIA 1).
Results: Of the 171 patients assessed 3 had features of HIV disease. The study included 128 males and 43 females. The prevalence of HIV infection was 13.6%(23). 26.0%(6) of the HIV positive patients developed complications compared to 12.1%(22) of the HIV negative in this study. This difference was not statistically significant ($p > 0.05$). In the remainder of both the HIV positive and HIV negative recovery was uneventful.
Conclusion: HIV infection has not influenced the outcome of General Surgery and Trauma. Every effort should be made to treat such patients according to the normal surgical practice.

3165 SCREENING FOR HIV-1 AND SYPHILIS IN MADAGASCAR

[illegible]

Objectives: [illegible] screening for HIV and syphilis [illegible] was conducted in [illegible]. It was the aim of the study to get baseline data for further intervention strategies.
Methods: [illegible] and October 1989 [illegible] were tested for HIV-1 infection and syphilis in the [illegible] capitals and the three tourist centers of the country. [illegible] screening was performed by ELISA [illegible] test, and the positive results were confirmed by western blot HIV-1. Despite the known limitations the syphilis [illegible] was performed by [illegible].
Results: [illegible] found only 3 HIV-1 seropositive cases [illegible] but [illegible] sera had a positive [illegible]-reaction. The most [illegible] mode of transmission in HIV was sexual contact. All HIV positive cases had sexual contacts with Europeans or [illegible]. [illegible] or needle-sharing of drug addicts [illegible] in the transmission of HIV. Two HIV positive cases [illegible] with symptoms of AIDS.
Conclusions: At present HIV-1 infection is not [illegible] in Madagascar. The [illegible] syphilis results, even with the known limitations of the [illegible] test, indicate a high prevalence and [illegible] a high risk for future HIV spread.

3166 HIV-I SEROPOSITIVITY IN BRAZILIAN PATIENTS WITH TROPICAL DISEASES

Ribeiro, Terezinha T.*; Alves, C. B.*; Bianco, C.**; Carvalho, E. M.*; Ho, J.***; Badaró, R.*
*Federal University of Bahia, Salvador, Brazil; **New York Blood Center, NY; ***Cornell University Medical College, NY.

Objective: To evaluate the cross-reactivity of the HIV-EIA in sera from patients with tropical diseases.
Method: Sera from 507 patients in Salvador, Bahia, Brazil were tested for HIV. The patients' diagnoses included: kala-azar (100); tegumentary leishmaniasis (50); Chagas' disease (50); schistosomiasis (30); helminthiasis (107); tuberculosis (134); typhoid fever (5); and AIDS (31). HIV testing utilized EIA with confirmation by Western blot (Du Pont).
Results: The overall HIV-EIA positivity rate was 8% (41/507). The rate of EIA seropositivity for non-AIDS patients was 2.3% (11/476). The Western blot confirmed 32/41 (78%) EIA seropositives including 30 AIDS sera and two sera from tuberculosis patients. The nine EIA seropositives which were not confirmed by Western blot were from children with kala-azar.
Conclusion: HIV-I EIA tests are specific, with probable false-positives only in kala-azar patients (9%).

3167 PREVALENCE OF HIV INFECTION INPUERTO RICAN YOUTH ATTENDING COUNSELING AND TESTING SITES IN PUERTO RICO

Rivera-Castaño, Rafael*; Nieves, E.*; Figueroa, S*;
*Latin American Center for STD, Puerto Rico Department of Health, San Juan, Puerto Rico.

Objective: To determine the prevalence of HIV Infection and most important risk factors in Puerto Rican Youth (ages 13-29) attending the Counseling and Testing Sites in Puerto Rico.

Methods: A total of 9,089 records of patients attending the counseling and tesing sites in Puerto Rico from April 1, 1989 to January15, 1990 were reviewed. Information on age, sex, risk factors and reason for visit was analyzed.

Results: During the study period, a total of 4,628 (50.9%) persons ages 13-29 visited the clinics. Of these, 14.4% were HIV positive. The highest risk groups were: sex partner of HIV positive person (28.1%), IVDU (24.8%) Gay/Bisexuals (18.96%) and sex, partners of IVDU (16.3%).

Conclusions: The high prevalence rate of HIV infection among Puerto Rican Youth attending the counseling and testing sites in Puerto Rico indicates the need for a more strong and aggressive prevention campaign among these groups.

3168 HIV INFECTIONS IN MOROCCO

Riyad,Myriam*; Serrhini, O*; Sekkat, S*; Benslimane, A*.
* Institut Pasteur du Maroc, Casablanca, MAROC.

Objective: to determine the prevalence of HIV infections in Morocco.
Methods : several samples of Moroccan population have been included: 3462 blood donors (B.D) from different centres; 4807 subjects at risk (S.R); 2153 subjects with diseases associated with an immune deficiency (I.D). HIV1 antibodies have been screened by an immunoenzymatic method (Diagnostics Pasteur). HIV2 antibodies have been screened in 2062 sera from: 115 blood donors, 472 subjects at risk, and 1475 cases with several diseases (D).
Results :

SUBJECTS	NUMBER	SEROPOSITIVE HIV1	SUBJECTS	NUMBER	SEROPOSITIVE HIV2
B.D	3462	01(0,03%)	B.D	115	0
S.R	4807	40(0,83%)	S.R	472	0
I.D	2153	19(0,88%)	D.	1475	0

Conclusion: despite these very low rates, there is an undeniable link between groups at risk and HIV1 infection. We must extend these epidemiological studies to the whole country in view of a contribution to the fight against AIDS.

Key words: prevalence, general population.

3169 CHANGES IN MODE OF HIV TRANSMISSION AMONG WOMEN REPORTED WITH AIDS: NEW JERSEY 1984-1989

Ryan, John; Costa, S.; Beil, J.; Robeson, L.;
New Jersey State Department of Health, Trenton, New Jersey USA

Objective: To examine the mode of HIV transmission among women reported with AIDS in New Jersey forn 1984 through 1989. Methods: The AIDS Reporting System (ARS) in New Jersey maintains information gathered from surveillance reports on New Jersey residents meeting the CDC definition of AIDS. Analyses of the precentage of women reported and their mode of HIV infection from 1984 to 1988 were performed. Preliminary number for 1989 are also shown. Results: The percentage of women among adult AIDS cases increased from 14.2% in 1984 to 21.7% in 1988 ($p < .001$); preliminary data for 1989 indicated a percentage of 22.1%. Among the women, the major changes in mode of HIV transmission observed were: 1) The proportion of women reported as intravenous drug users (IVDA) decreased from 62.5% in 1984 to 59.9% in 1988 (n.s); preliminary data for 1989 = 59.6%. 2) The proportion of women with heterosexual contact as their mode of transmission increased significantly from 16.7% in 1984 to 33.6% in 1988 ($p < .01$); preliminiary data for 1989 indicated a proportion of 32.0%. Also, among the heterosexual contact female cases, 77% were noted as having had heterosexual contact with male intravenous drug users (IVDAs).
Conclusion: Women represented a substantial and increasing percentage of adult AIDS cases in New Jersey in 1984-1988, with the trend seemingly continuing into 1989. Heterosexual contact, especially with IVDUs, increased dramatically as a mode of HIV transmission among adult female AIDS cases. Indeed, women who have contracted AIDS through heterosexual contact may be the fastest growing segment of the epidemic.

3170 HIV SCREENING IN FERTILE AND INFERTILE POPULATION

* Dr.S.SAMUNDI SANKARI, S.SUNITHI, L.NALINI, S.AGALYA,
MADRAS MEDICAL COLLEGE, MADRAS.

OBJECTIVE: A pilot study of HIV screening and VDRL testing was conducted in the Infertile and the fertile population of Tamilnadu attending the Govt. KG Hospital to know the incidence, endemicity & transmission of HIV Infection. Confidential History of extramarital contact regarding their husbands, History of IV drug abuse & History of receiving Blood/Blood products, was elicited.

METHODS: Since STD is one of the major causes for Infertility, 100 women attending Infertility clinic, 50 with blocked tubes and 50 with normal tubes and 100 women attending antenatal clinic, 45 primigravidas, 40 multipara and 15 cases having bad Obstetric history were screened. HIV Screening was done by Elisa & VDRL testing was also done.

RESULTS: 100 women of Infertile group showed sero negativity for HIV and 4% were VDRL positive. 100 women of Fertile group also showed sero negativity for HIV and 2% of them were VDRL positive.

CONCLUSION: This pilot study shows that there is non prevalence of HIV in the Fertile and Infertile groups, inspite of presence of other STD. Heterosexual transmission which is the expected mode of transmission in the developing countries seems to be absent in this population, probably due to low incidence of sexual promiscuity and absence of IV drug abuse. Since this segment of population under study, indicated nil prevalance of HIV infection, sustained efforts towards Health Education regarding HIV & AIDS would go a long way in affording them with the necessary protection.

3171 HIV SCREENING IN FERTILE AND INFERTILE POPULATION

* Dr.S.SAMUNDI SANKARI, S.SUNITHI, L.NALINI, S.AGALYA,
MADRAS MEDICAL COLLEGE, MADRAS.

OBJECTIVE: A pilot study of HIV screening and VDRL testing was conducted in the Infertile and the fertile population of Tamilnadu attending the Govt. KG Hospital to know the incidence, endemicity & transmission of HIV Infection. Confidential History of extramarital contact regarding their husbands, History of IV drug abuse & History of receiving Blood/Blood products, was elicited.

METHODS: Since STD is one of the major causes for Infertility, 100 women attending Infertility clinic, 50 with blocked tubes and 50 with normal tubes and 100 women attending antenatal clinic, 45 primigravidas, 40 multipara and 15 cases having bad Obstetric history were screened. HIV Screening was done by Elisa & VDRL testing was also done.

RESULTS: 100 women of Infertile group showed sero negativity for HIV and 4% were VDRL positive. 100 women of Fertile group also showed sero negativity for HIV and 2% of them were VDRL positive.

CONCLUSION: This pilot study shows that there is non prevalence of HIV in the Fertile and Infertile groups, inspite of presence of other STD. Heterosexual transmission which is the expected mode of transmission in the developing countries seems to be absent in this population, probably due to low incidence of sexual promiscuity and absence of IV drug abuse. Since this segment of population under study, indicated nil prevalance of HIV infection, sustained efforts towards Health Education regarding HIV & AIDS would go a long way in affording them with the necessary protection.

3172

HIV SURVEILLANCE SYSTEM (LHSS) IN LATIUM, ITALY: UPDATE.

Spadea, Teresa* and the LATIUM AIDS Collaborative Group.
*Regional Epidemiology Unit, Rome, Italy.

OBJECTIVE: To monitor the occurrence of the HIV infection in Latium Region.
METHODS: Laboratory-based LHSS active since October 1985. Every confirmed anti-HIV seropositivity anonymously notified to the REU by blood banks, screening every donated blood unit, and by laboratories, testing for HIV antibodies subjects referring to the NHS. A file of new infected generated controlling for multiple notifications, with individual data as keys for the record linkage. Missing information on risk factor re-attributed using data from AIDS surveillance. Minimum prevalence estimates by year and risk factor obtained by AIDS incidence data and age-sex specific mortality rates.
RESULTS: By 9/30/1989 (* incomplete data) 5551 HIV positive subjects (out of about 5,000,000 inhab.) were reported to REU. Estimated prevalence trends of HIV infection (including AIDS cases) by sex and risk indicator are reported.

YEAR	MALES					FEMALES			
	IVDU	HOMO	HETERO	BLOOD	TOT	IVDU	HETERO	BLOOD	TOT
1985	301	74	12	4	391	114	2	0	116
1986	1043	199	35	21	1298	445	25	3	473
1987	1990	392	69	33	2484	762	123	27	912
1988	2630	546	102	42	3320	976	217	30	1223
1989*	2970	659	174	50	3853	1084	290	36	1410

CONCLUSION: Data stress the overwhelming primacy of IVDUs and the increasing importance of the heterosexually transmitted epidemics. LHSS completeness and validity improved after the reorganization of the system at the beginning of 1989. Comparisons of these estimates with the results of different ongoing prevalence studies on "sentinel populations" are needed.

3173

HIV INFECTION IN INTRAVENOUS DRUG USERS IN BERLIN (WEST): RISK FACTORS AND TIME TRENDS

Stark, Klaus*; Müller, R.**; Guggenmoos-Holzmann, I.**; Deininger, S.*; Bienzle, U.*
* Landesinstitut für Tropenmedizin Berlin, FRG; ** Institut für medizinische Statistik und Informationsverarbeitung, FU Berlin, FRG

Objective: To determine risk factors for HIV infection and to study time trends of HIV seroprevalence in intravenous drug users (IVDU) in Berlin (West).
Methods: From 1984 to 1989 784 heterosexual IVDU were recruited anonymously from facilities for drug treatment and counselling. Serological tests were carried out for HIV, hepatitis A and B, lues and toxoplasmosis. Data on social and behavioural features were collected.
Results: 23.2% were seropositive for HIV. Seroprevalence rates of hepatitis B, hepatitis A and lues were 67.1%, 39.5%, and 3.9%, respectively. HIV seropositivity was significantly associated with sharing of injection equipment, imprisonment and intravenous drug use in prison. The crude time trend of HIV seroprevalence (concerning the year of the last iv drug use) shows an increase from 17.9% in 1983 to 29.1% in 1985, and decreases to 17.2% in 1988. The estimated HIV seroprevalence odds, adjusted for temporal changes in the study group, show an increasing trend over the last years.
Conclusions: The increase in the adjusted HIV seroprevalence odds suggests that continued efforts are necessary to reduce the spread of HIV among IVDA in Berlin (West). As more detailed data indicate, IVDU of young age and in prison should be main target groups for AIDS prevention.

3175

ITALIAN SEROSURVEY OF HIV INFECTION IN PARTURIENTS

Stegagno,Michele;Ippolito,G.*;Costa,F.;Angeloni,P.;
Aebisher,M.L.;Angeloni,U.;Guzzanti,E.
Italian Collaborative Study Group for HIV prevalence in newborns.
Coordinating Center: L.Spallanzani Hospital-Rome-Italy

Objective: The increased incidence of HIV infection in females in reproductive age in Italy is responsible for the high number of pediatric AIDS cases. Therefore it is of primary importance to assess the prevalence of HIV infection among parturients in order to estimate the future incidence of pediatric AIDS cases.
Methods: Between June 1988 and November 1989, 67,337 blood samples collected from consecutive newborns for routine screenings in 98 hospital nurseries in different Italian regions were examined for anti-HIV antibodies (HIV-Ab). Blood saturated disks were punched out from the collection papers, without identification, at the National Blood Transfusion Center of the Italian Red Cross, eluted in citrate buffer and screened for HIV-Ab in ELISA (Pasteur Labs); the positive results were confirmed in a Western Blot (Pasteur Labs).
Results: Among the 67,337 blood samples examined 82 (0.0122 Confidence intervals 95%(CI),Poissons Distribution:.00097-.00151) were found positive for HIV-Ab. In detail, among the 20,683 samples collected in 1988 18 (0.0087, C.I.: .00052--.0014) turned to be positive while among the 46,655 examined during 1989, 64 (0.0137 C.I.:.00105-- -.00175) were positive.
Conclusion: The serosurvey for HIV-Ab on newborns provides useful data in the evaluation of HIV prevalence and can represent an useful tool to monitor the trend of HIV infection in females in reproductive age.

Work supported by Italian Ministry of Health-AIDS research Project

3176 THE SIMULTANEOUS OCCURRENCE OF PERINATAL HIV-I AND SYPHILIS IN CENTRAL ETHIOPIA: IMPLICATIONS FOR CONTROL MEASURES.

Tafari Nebiat*, Zewdie D.**, Gebrehiwot B.** & Kebede T.**
* Department of Pediatrics and Child Health, Addis Ababa University
** National Research Institute of Health.

Objective: To estimate the co-prevalence of HIV and T.pallidum infection in order to assess the impact of HIV on the prevention of congenital syphilis.
Methods: As part of an operational study on the effectiveness and efficiency of the current methods of prevention of congenital syphilis, we undertook an anonymous seroprevalence study of HIV in different clinic population including women attending prenatal clinics. The FTA and WB tests were used to ascertain disease.
Results: With 30% (1719) of the results decoded and analyzed, simultaneous syphilis and HIV infections were found in 17 (0.99%, 95% CI = 0.6-1.6%). Single infection with syphilis occurred in 117 (6.8%, 95% CI = 5.7-8.1%), and with HIV in 7 (0.4%, 95% CI = 0.2-0.8%).
Conclusion: The observed high prevalence of HIV infection among pregnant women can be expected to significantly reduce the efficacy and effectiveness of current preventive measures in the control of congenital syphilis.

3177 HIV-I-AND HEPATITIS B VIRUS INFECTION RISK FOR THE HEALTHCARE WORKERS OF ANAESTHESIOLOGY AND REANIMATION IN TURKEY

Bilgiç, A.[x]; Ulur, Gülden[xx]; Erensoy, S.[x]; Kayaalti, B.[xx]; Erhan, Ö[xxx]
Ege Uni, Med. Fac., [x]Dept. of Microbiology, [xx]Dept. of Anaesthesiology and Reanimation, [xxx]Dept. of Urology, Bornova, İzmir, Turkey

Objective: In order to find out HIV-I and hepatitis B virus (HBV) infection risk, sera of healthcare workers in Anaesthesiology and Reanimation Unit, patients underwent surgical operation, and blood donors were studied for HIV-I and HBV serological markers.
Methods: 841 serum samples obtained from 79 healthcare workers, 262 operated cases, and 500 blood donors were tested for the presence of anti-HIV-I, HBsAg, anti-HBs, and anti-HBcIgG by micro-enzyme immunoassay (EIA). 364 people from risk group applied for HIV-I screening, represented the control group of the study. Anti-HIV-I positive serum samples were confirmed by immune fluorescent microscopy (IFM) and Western blot.
Results: Except the control group, all of the sera were negative for anti-HIV-I. 6 of 364 serum samples of the control group were positive for anti-HIV-I. It was found that 313/841 (41.50%) had been exposed to HBV.
Conclusion: These findings suggest that for today, there is no HIV-I infection risk for those working on the field of anaesthesiology and reanimation in Turkey. On the other hand, HBV infection risk is an important problem.

3178 SENTINEL SURVEILLANCE OF STD ITS IMPLICATIONS FOR AIDS CONTROL IN SENEGAL

NDOYE I.*, VAN DER VEEN Fred*; SAMB ND**; MBOUP S**, SAKHO M.L.*.
*Bureau National des MST, Dakar, Senegal; **Laboratoire de Microbiologie Université de Dakar, Dakar, Senegal

Objectives: In order to follow changes in prevalence and incidence of STD in several population groups in Senegal, a sentinel surveillance system for STD has been developped.
Methods: In sentinel areas, consultation rates for STD related syndromes are closely monitored and STD prevalence is evaluated regularly in pregnant women, registered prostitutes, gynaecology patients and male STD patients.
Results: In the five areas where the sentinel surveillance is operational, the following distribution of pathologic agents has been observed:

	Pregnant women	Prostitutes	Gynaecology patients	Male STD patients
N. Gonorrhoeae	1.6%	5.3%	3.8%	78.0%
C. trachomatis	12.0%	23.4%	8.0%	14.0%
Active Syphilis	6.9%	4.2%	7.8%	11.5%
HIV infection	0.3%	10.8%	0.2%	2.5%

Conclusion: Monitoring of incidence and prevalence of STD is an acceptable and sensitive method to identify populations at risk for HIV transmission and to monitor the impact of educational programmes for AIDS prevention.

3179 GEOGRAPHIC PATTERNS OF HIV INFECTION IN CHILDBEARING WOMEN IN THE UNITED STATES

Wasser, Shari*; Gwinn, M*; Munn, V*; Edeline, M*; Petersen, L*; Novello, A.** *Centers for Disease Control, Atlanta, Georgia, USA. **National Institute of Child Health and Human Development, Bethesda, Maryland, USA.

Objective: To examine the geographic dispersion of HIV-1 infection among childbearing women in the United States.
Methods: Since 1988, over 1.5 million specimens from newborns in 24 statewide surveys have been tested for the presence of maternal HIV-1 antibody. Data on the mother's residence and/or location of the hospital of birth were analyzed; urban counties were defined as those with ≥75% of the population residing in places defined as urban by the U.S. Census Bureau.
Results: Preliminary statewide seroprevalence rates from 12 states ranged from 0.2 to 6.6 per 1000 women. County or county-group specific rates ranged from 0.0 to 20.0 per 1000 women. Overall, 90% of the HIV-positive women resided in urban counties, although 11 of the 12 states had some infected women in nonurban counties. In the Northeast, 97% of the infected women resided in urban counties, as did 95% in the West, 95% in the Midwest, and 81% in the South.
Conclusions: Seroprevalence rates remain the highest in the urban areas of the Northeast region of the United States. In the other regions, HIV infection is more geographically dispersed and is present in many nonurban areas. These patterns of infection may reflect different transmission modes or different stages of the epidemic. Understanding the geographic distribution of HIV infection in women can help guide prevention efforts and plans for their care and that of their potentially infected children.

3180 AIDS IN WOMEN LINKED TO DRUG USE THROUGHOUT GEORGIA, USA.

Whyte, Bruce M.*; Carr, J.C.**
*Georgia Department of Human Resources, Atlanta, Georgia, USA.
**Centers for Disease Control, Atlanta, Georgia, USA.

Objective: To compare AIDS cases in women living in the major metropolitan center of Georgia with those women living in other less urban areas of the state.
Methods: Data from all adult and adolescent females with AIDS reported in Georgia through 1989 were analyzed for differences in age, race, mode of HIV exposure and presenting disease according to residence in metropolitan Atlanta (ATL) or elsewhere in the state (GA).
Results: Through 1989, 193 adult/adolescent cases of AIDS were reported in women; 46 (24%) were white and 147 (76%) black (in contrast to 63% and 37%, respectively, in men). The mean age of white women (45.5yrs) was greater than that of blacks (33.6yrs, p<0.001). There were 99 (51%) ATL cases and 94 GA. The proportion of ATL white females (26%) was similar to those in GA (21%) as were the mean ages of both groups (36.1 and 36.8 yrs, respectively). Most cases, 110 (57%), were related to intravenous (IV) drug use, (56 ATL, 54 GA); 69 (63%) were IV drug users and 41 were sex partners of IV drug users, with similar proportions of IV drug use-related cases in the two regions. Black women represented 56 (86%) cases in ATL and 54 (91%) GA cases among IV drug use-related cases. The cumulative rate of AIDS in ATL women (4.86/100,000) was double that of GA women (2.54/100,000). That in IV drug use-related AIDS in black women was 10.7 cases/100,000 population, 20 times the rate in white women, 0.55 cases/100,000; this disparity was seen in each region. No differences occurred in presenting diseases by region, risk or year of report. In both regions IV drug use-related cases were first reported in 1983-84 and nearly identical numbers have been reported yearly in each region since.
Conclusion: AIDS in women in the major metropolitan center and the less urban centers of Georgia appeared concurrently and in similar numbers. Black women have a far greater risk than white women for IV drug-related AIDS, comparable to patterns in major urban centers of the northeastern United States.

3181 DISSEMINATED NON-TUBERCULOUS MYCOBACTERIAL INFECTIONS (DNTM) IN AIDS PATIENTS IN SEATTLE-KING COUNTY, WASHINGTON

Worcley, Pascale*; Hopkins SG**; Nolan CM**; *University of Washington, Seattle, WA; **Seattle-King County Department of Public Health, Seattle, WA, USA.

Objectives: 1) To compare demographic characteristics of AIDS patients with DNTM (CDC-defined) to all reported AIDS patients in Seattle-King County (S-KC). 2) To investigate the role of DNTM in AIDS mortality.
Methods: Surveillance of DNTM was possible because all positive mycobacterial cultures must be confirmed by the Public Health laboratory. Cases of DNTM between 11/82 and 10/89 were matched to the S-KC AIDS registry. Kaplan Meier estimates were determined to compare survival between three groups based on initial diagnosis: P. carinii pneumonia (PCP) without DNTM (n=535); PCP with subsequent DNTM (n=65), and DNTM with no PCP ever (n=48). Not included in the analysis were 4 cases with initial DNTM/subsequent PCP and 17 with PCP/concurrent DNTM.
Results: Among 1,129 AIDS cases, 134 (12%) had DNTM (94% Mycobacterium avium complex). DNTM cases were similar to all AIDS cases with respect to age, race, sex, HIV exposure category, and source of residential water. Median survival of cases with PCP without DNTM was 69 weeks (95% CI: 63-79); slightly longer for PCP with subsequent DNTM: 84 weeks (71-92); and shortest for DNTM without PCP: 41 weeks (33-54).
Conclusions: This population-based study found that DNTM was a prevalent opportunistic infection. DNTM did not significantly alter the survival time of patients with DNTM reported after PCP but DNTM cases without PCP had a markedly shortened survival time. This observation tended to confirm findings in other areas but must be interpreted with caution as biases may be operating including possible delays in making definitive diagnoses of DNTM.

3182 PREVALENCE OF HTLV-I IN BENIN

Zohoun Theophile*, Dumas M.**, Houinato D.*, Josse R.*, Denis F.** ***, Verdier M.** ***, Massougbodji A.*, Zohoun I.*, Leonard G.** ***
* Faculté des Sciences de la Santé, Ministère Santé Publique, Centre de Transfusion Sanguine, Cotonou, Bénin, ** Institut de Neurologie Tropicale, CHU Limoges, France, *** Laboratoire de Virologie, Limoges, France.

Objective : Evaluation of HTLV-I seroprevalence in Benin (West Africa).
Methods : A representative population of 2625 subjects aged over 6 were screened with IFI and ELISA tests from May 1988 to May 1989. Western Blot tests were used to confirm results.
Results : 39 positive cases (1.5 % ± 0.5 %) with 2 HTLV-I + HIV-I sera and 1 HTLV-I + HIV-II. Significant differences :
- age related : below 30 : 1 % ; above 30 : 2 % ($X^2 = 4.28$),
- birth region related : North West region (Atacora) : 5 % ; elsewhere : 1 % ($X^2 = 46.2$),
- sex related : (M 1 % ; F 2 % ; $X^2 = 4,1$) ; the difference becomes more important for rural populations (M 0.62 % ; F 2.6 % ; $X^2 = 8.4$) and if native of Atacora province (M 2.7 % ; F 7.7 % ; $X^2 = 4.64$)
Conclusion : This first epidemiologic study of Benin revealed a similar HTLV-I seroprevalence to that found in other West African countries (1.5 ± 0.5 %) albeit with a cluster grouping in the North Western Province.

AIDS RISK IN PLASMA EXCHANGE AND DIALYSIS

3184

DR.B.BOBJI ; Chief Department of Immuno Haematology, Apollo Hospitals, Madras, INDIA.

Objective: To analyse the risk of transmission of HIV during plasma exchange programme and dialysis sessions. Analysis of the risk of professional involved in these procedures.
Methods: Our study was on 100 patients who underwent therapeutic plasma-pheresis for a number of diseases not related to AIDS (Gulliar Bare Syndrome, Myasthena Gravice, Renal Rejection) using Haemonetic 30, Haemonetic V50, for the presence of HIV antibody. Replacement fluids used were plasma protiens and Fresh Frozen Plasma. Some received IV-gammaglobulin. Tests were carried out before procedure and later followed them up over the year. The health professional engaged in the working of the units were also followed up for the same period. 100 patients on dialysis for renal problems were screened - 3 patients were sero-positive before and remained so throughout.
Result: The 100 patients on plasma exchange programme, 100 patient on dialysis (including 3 who were sero-positive for HIV) and the Health professional engaged in these procedure numbering 15 were all found negative expect the 3 sero-positive who remained positive.
Conclusion: It was concluded in our study that Apheris procedure or dialysis did not pose a threat to the spread of the HIV infection.
With adequate precaution that are usually taken during the procedure, there is no serious risk of HIV transmission through Plasma Exchange and Dialysis procedures.

3185

MATERNAL P24 ANTIGENEMIA DOES NOT PREDICT HIV TRANSMISSION TO OFFSPRING.

Borkowsky W., Papaevangelou V, Moore T, Nagaraj V, Krasinski K.
NYU Medical Center, 550 First Avenue, New York, NY. USA

Objective: To determine if plasma p24 concentrations in pregnant women at term are predictive of HIV transmission to offspring.
Methods: An antigen-capture ELISA was used to measure p24 in untreated (U), Tris/HCl treated (TH) and NaOH treated (N) maternal plasma. Results were correlated with the pediatric virologic outcome.
Results: The mean plasma p24 concentration of all the women, expressed as pg/ml +/- 1 S.D., was as follows: U-6.3 +/- 14.6; TH-17.2 +/-20.8; N-10.6 +/-15.3. 14/19 offspring proved to be HIV uninfected. Only 3 of the U (range 0-11; mean 2.0 +/-4.1); 11 of the TH (range 0-110; mean 22.9 +/-28.4); & 4 of the N (range 0-71; mean 16.3 +/-21.8) plasmas contained p24 antigen. 0/5 U plasmas from HIV transmitting mothers contained p24. 4/5 TH (range 0-28; mean 15.6 +/-11.1) and 1/5 N (range 0-8; mean 1.6 +/-3.6) plasmas contained p24.
Conclusion:1) Tris/HCl & NaOH treatment of plasma significantly ($p<0.05$) increased the detection of p24, presumably by dissociating antibody-complexed p24; & 2) Mothers who transmit HIV to their offspring were not distinguishable by their plasma p24 levels, even after attempts to dissociate immune complexes.

3187

INCIDENCE OF HIV TRANSMISSION WITHIN HIV-1 DISCORDANT HETEROSEXUAL PARTNERSHIPS IN NAIROBI, KENYA

Clemetson, David*,**, Moss, G.**, D'Costa, L.***, Kreiss, J.*,**, Ndinya-Achola, J.*,**, Plummer, F.A.*,*****.
*University of Nairobi, Nairobi, Kenya; **University of Washington, Seattle, Washington, USA; ***Nairobi City Commission, Nairobi, Kenya; *****University of Manitoba, Winnipeg, Canada.

OBJECTIVES: To determine the rate of HIV transmission in stable sexual partnerships and the factors which influence infectivity and susceptibility.
METHODS: HIV discordant couples recruited from the Nairobi City Commission Special Treatment Clinic were evaluated monthly with questionnaire, physical examination, STD diagnostic studies and serology for HIV. Couples were counselled regarding their HIV status both independently and together, and were encouraged to use condoms if unable to refrain from sexual intercourse.
RESULTS: Among 42 HIV discordant couples followed for more than one month, there were 5 Western blot confirmed seroconversions in 297 months of follow up. The couples were followed for a mean of 7 months. Preliminary analysis yielded an annual seroconversion rate (ASR) of 20.4 per 100 person-years (p-y). There were 26 index male (IM) and 16 index female (IF) couples. The ASR for IM couples was 26.4 per 100 p-y. The ASR for IF couples was 10.7 per 100 p-y. The rate of transmission from male to female was 2.5 times that from female to male. No study subject admitted to any sexual practice other than vaginal intercourse and none admitted to intravenous drug use.
CONCLUSION: The overall rate of heterosexual HIV transmission in this African population appears to be higher than the rate observed in Europe and the USA. Preliminary analysis suggests that male to female transmission is more efficient than female to male transmission. The only evident risk factor in this cohort is vaginal sexual intercourse.

3188 RISK FACTORS FOR HIV INFECTION IN AN URBAN HOSPITAL BASED STD CLINIC.

Bastien, A.*; DeHovitz, Jack.*; Covino, J-M.*; Smith B.*; Landesman, S.*; Stevens, R.**; McCormack, W.*
SUNY-HSC, Brooklyn USA,** NYS Dept. of Health, Albany,NY,USA.

Objective: To determine the risk factors for HIV infection in patients presenting with sexually transmitted diseases (STD) in a municipal hospital STD clinic.
Methods: For a two month period, consecutive unselected STD clinic patients were tested for HIV infection (ELISA, WB confirmed). Serum and demographic/risk data were unlinked from identifiers prior to HIV testing.
Results: 22 (9.8%) of 226 samples were confirmed positive. Male and female seroprevalence rates were similar.

Risk Activity	No. HIV+/No. tested (%) Males	Females
Male homosexual	5/7 (71)	-
IV Drug Use	2/6 (33)	0/3 (0)
Heterosexual	4/105 (4)	11/105 (10)
TOTAL	11/118 (9)	11/108 (10)

Eight of 29 women who admitted using "crack" cocaine were seropositive (27.5%) as opposed to 3/77 (3.8%) women who deny crack use(RR=7.08; 95% CI 2.02-24.87). A similar association was not noted in men. There was no association noted between genital ulcer disease and HIV infection in either sex.
Conclusion: Heterosexual activity accounts for most HIV infection in our female population. The results also suggest a link between crack use and HIV infection in women.

3189 HIV GENOMIC SEQUENCES IN SERONEGATIVE HIGH RISK DRUG ABUSERS

Ensoli Fabrizio; Fiorelli, V; Mezzaroma, I; D'Offizi, G.P.; Pinter, E; Amicucci, P.*; Capobianchi, M.*; Dianzani, F.*; Aiuti, F.
Department of Allergy and Clinical Immunology and *Department of Virology, University of Rome "La Sapienza", Rome, Italy

Objective: To determine the prevalence of HIV genomic sequences and virus isolation in seronegative high risk drug abusers in comparison with seropositive individuals.
Methods: Polymerase Chain Reaction (PCR) was carried out to amplify two highly conserved ENV regions on samples from 22 normals, 20 patients with HIV disease and 30 drug abusers at high risk for HIV infection but who were repeatedly seronegative.
Results: Eighteen out of 20 seropositive subjects resulted positive by PCR while among HIV seronegatives DNA was detected in 5 out of 30 seronegative drug abusers. Virus isolation was positive only in 1 out of these 5. One of these 5 cases seroconverted after a few weeks. The others remained seronegative for 1 year.
Conclusion: PCR assay represents a useful technique for identifying proviral sequences in seronegative high risk individuals and to confirm the infection during its early phases or during the follow-up of patients with HIV disease.

3190 SERAL STUDIES ON THE TRANSMISSON OF HIV THROUGH COMMERCIAL GLOBULIN PREPARATION

Jin,Li*; Dehua,J.*; Lianfu,W.*;Yi,Z.**;Guoxun,L.*; Di,L.***;Yuying,L.****
*Jining Hygiene & Antiepidemic Station,Shandong,P.R.CHINA,**Chinese Academy of Preventive Medicine,Beijing,CHINA,***The TV University of Shengli Oil Field, Shandong,CHINA,****Jining No1 Hospital,Shandong,P.R.CHINA.

Objective, To study the potential risk of HIV transmission by injections commercial globulin preparations(CGP) that contoins HIV-1 antibody(HIV-Ab).

Methods, Sterile collection of sera were conducted by randomization from 343 individuals (Chinese) that with previous injection of imported CGP between 1981 and 1987, and from 233 controls with had received CGP made in CHINA, 12 batches of imported CGP and 5 batches of CGP(Controls) made in CHINA were collected from the above mentionted users. Indirect Immunofluorescent Assay(IFA) and Western Blot(WB) were conducted to detect HIV 1 Ab from the sera and CGP.
Results, IFA and WB were applied to 343 sera with previous injection of imported CGP that contains HIV-1 Ab for the detection of HIV-1 Ab, all results were negative; test of 233 controls also gave negative results. Whill all 12 batches of imported CGP, which were collected from above mentioned users, were positive for HIV-1 Ab by WB(occured positive of p24 andgp41 bands) and IFA.

Conclusion, As far as detection of HIV-1Ab is concered, our study suggests no transmission of HIV through commercial globulin preparations. In addition, although current date hold a doubtful attitude whether CGP transmit HIV, it is a good policy for people to be on the alert against some foreign blood products.

3191 CORRELATION BETWEEN HIV AND STD INFECTION IN TWO STD CLINICS IN SANTO DOMINGO, DOMINICAN REPUBLIC

Monterroso, Edgar*; Zacarias, F.*; De Moya, A.**; Puello, E.**; Rodriguez, E.***; Guerrero, E.**.
*Pan American Health Organization/World Health Organization (PAHO/WHO), Washington, DC, USA, **Programa de Control de Enfermedades de Transmision Sexual (PROCETS), Santo Domingo, Dominican Republic, ***National Institute of Allergy and Infectious Diseases (NIAID), Bethesda, Maryland, USA

Objective: To determine prevalence of HIV and sexually transmitted diseases in the population seeking services in two STD clinics. The study set out to correlate serology of HIV infection with clinical as well as laboratory manifestations of sexually transmitted diseases.
Methods: In a cross-sectional prevalence design, persons seeking services at two STD clinics were randomly selected. Those that agreed to participate, received pre- and post-test counseling; information was gathered in questionnaires which included demographic data, medical history, STD history, sexual practices and condom usage and a full clinical, serological and microbiological evaluation. Laboratory procedures were performed at a CDC collaborating reference laboratory in the Dominican Republic and confirmations were performed at a NIH intramural laboratory.
Results: There were 494 persons participating from both clinics. The breakdown of the participants was 301 from a Ministry of Health clinic and 193 from a non-profit private clinic. There was a total of 371 males and 123 females from both clinics. Out of the 123 females, 47 were female sexual worker. The serology results of the participants revealed 15 cases (3.04%) HIV-1 positive, 12 (3.98%) of the male participants and 2 (1.61%) of the female. The results for STD cases were as follows: Gonorrhea 11.4%, Chlamydia 12.6% and Syphillis 12.4%.
Conclusions: The role of high risk unprotected sexual practices as well as occurrence of STD yield a higher potential to acquire an HIV infection in certain groups in the Dominican population.

3192 BLOOD EXPOSURE TO SURGICAL STAFF AND FREQUENCY OF EXPOSURE REPORTING

Popejoy, Suzanne*; Fry, D.*
*University of New Mexico, Albuquerque, New Mexico, USA.

Objective: To describe the frequency of blood exposure in the operating room for a medical center located in an area with a low prevalence of HIV infection; to determine the frequency of reporting such exposure.
Methods: Circulating nurses were trained to observe and record all blood contact events during surgery and to record all inapparent blood contact reported during interview with all team members before leaving the operating room. Hospital number,date,service,length of operation,type of contact, and team position were recorded. Employee Health records were reviewed to determine frequency of reporting exposure.
Results: 190 (28%) of 684 consecutive surgeries resulted in at least one blood contact event (percutaneous, mucous membrane, or skin contact) to 293 individuals. Thoracic 15/26(58%), Trauma 19/39(49%),Obstetrics 12/25(48%) had significantly more contact;Opthalmology,0/22,significantly less;Urologic,ENT, Pediatric,General,Neuro,Ortho,Gynecologic,Plastics, and Burn Services had rates from 17-33%. Fifty-four procedures (8%) resulted in true blood exposure (percutaneous, mucous membrane, or non-intact skin contact) to 63 individuals. Five of 63 (8%) reported their exposure. Twenty procedures (3%) resulted in percutaneous exposure to 21 individuals.
Conclusion: Blood contact is a frequent event. Blood exposure is infrequently reported and serologic screening may be indicated to determine the true incidence of occupational HIV infection in surgical personnel.

3193 VERTICAL TRANSMISSION OF HIV INFECTION.

Signorini, Dario José Hart Pontes; Rubini NPM; Quinhões, EP; Morales, PN; Sion, FS; Morais-de-Sá, CA; Rocco, R; Cordovil, ADP; Santos, EA.
• Gaffrée & Guinle University Hospital, University of Rio de Janeiro (UNI-RIO) - BRAZIL.

Objective: To assess the risk of vertical transmission of HIV and its natural history in Rio de Janeiro, Brazil.
Methods: The study comprised 22 HIV infected pregnant women. Children were examined shortly after delivery and at 3-monthly intervals. They were serologically tested for anti-HIV antibodies (Elisa - Genetic syst., Abott and indirect IF) and HIV-1 antigen detection (EIA - Organon). Immunological evaluation consisted of serum immunoglobulins (IgG, IgA and IgM) (Radical Immunodifusion), total T lymphocyte, T helper, T supressor count (monoclonal antibodies) and B lymphocyte count (immunofluorescence).
Results: Mothers were 20 to 41 years of age/mean age = 28,57), 11 (50%) were white and 11 (50%) were non-white. Risk factors were: 10 (45,4%) IVDU, 6 (27,3%) partners of HIV infected individuals, 6 (27,3%) blood recipients. 19 (86,4%) were classified as Group II, 1 (4,5%) as Group III and 2 (9,1%) as Group IV (CDC Criteria). One mother died during gestation, 1 delivered a stillborn, and one had a twin delivery. From the 21 children born, 10 (47,6%) were male and 11 (52,4%) female. 12 (57,1%) were white and 9 (42,9%) non-white. Mean ± SD birthweight was 2.826 ± 725,8 g (1.600 - 3580 g) and mean gestation was 38.9 ± 3.4 weeks (31,4 to 43 weeks). 19 (90,5%) had a positive anti-HIV tests. All children were clinically well at delivery.We observed congenital abnormalities in fetus from the mother who died during gestation. Children were classified as infected 6 (28.6%), non-infected 4 (19,0%) and indeterminate infection 11 (52,4%). We excluded children who could not have their clinical condition well determinated. Vertical transmission rate of HIV infection was 60%. The 4 non-infected children were born by vaginal delivery and three of them were breast-fed. The mean age of the AIDS clinical symptons development among infected children were 5.8 months ± 4,5 months (one month to 15 months).
Conclusion: 1) Despite the high prevalence of anti-HIV seropositive test at birth (90.5%). The risk of vertical transmission was 60 per cent. 2)The HIV perinatal infection do not determin- significant alterations in the birthweight and gestational age. 3) The mode of delivery and breast feeding do not appear to affect vertical transmission rate.

3194 HIV SEROCONVERSION IN PATIENTS WITH GENITAL ULCER DISEASE IN NEW YORK CITY: A PROSPECTIVE STUDY

Telzak, Edward E.* **; Chiasson, M.*; Stoneburner, R.*; Rivera, J.*; Schultz, S.*; Jaffe, H.***. *New York City Department of Health, NY, NY, ** Memorial Sloan-Kettering Cancer Center, NY, NY, ***Centers for Disease Control, Atlanta, GA, USA.

Objective: To compare HIV seroconversion rates in patients who present to a sexually transmitted disease (STD) clinic with genital ulcers (GU), a putative cofactor in HIV transmission, to those who present for diagnosis and/or treatment of a non-ulcerative STD.
Methods: In a NYC STD clinic, where high rates of HIV and GU coexist, HIV seronegative patients with and without GU were followed for a minimum of 3 months. Questionnaires were administered at the time of entry, at 3 weeks, and at least 3 months after the initial negative HIV test to obtain data on demographics, sexual behavior, and IV drug use. Repeat serum for HIV testing was obtained at the 3 month interview.
Results: To date, 686 patients have completed the study; 188 with GU and 498 without GU. HIV seroconversion occurred in 6 (3.2%) of the GU patients and 8 (1.6%) of the non-GU patients (RR=2.0, p=.19). For those who acquired HIV through heterosexual contact (n=10), seroconversion occurred in 5/165 (3.0%) of the GU patients and 5/417 (1.2%) of the non-GU patients (RR = 2.5, p=.13).
Conclusions: The results of this study neither support nor refute the findings that persons with a GU are at increased risk of contracting HIV through heterosexual contact. With a seroconversion rate of 1.7% in non-IV drug using heterosexuals 3 months after presenting to this STD clinic, HIV prevention strategies directed to this population are essential.

3195 FOLLOW-UP OF INFANTS BORN TO HIV-INFECTED WOMEN IDENTIFIED IN A PRENATAL SCREENING PROGRAM.

Van Dyke, Russell; Calligaro, D; Africk, D; Redlin, C; Alchediak, T.
Tulane University School of Medicine, New Orleans, LA, USA.

Objective: To determine the rate of vertical transmission of HIV to children born to HIV-infected mothers, and the natural history of infection in these infants.
Methods: HIV infected women were identified through a voluntary screening program in the prenatal clinic of a large inner city hospital in which all women are offered HIV-testing [group 1]. In addition, women delivering without prenatal care are offered testing if they admit to risk factors [group 2]. Infants born to seropositive women are followed in the pediatric HIV clinic according to a standardized protocol.
Results: Between May, 1988 and December, 1989, 99.0% of prenatal women agreed to HIV-testing, with a seroprevalence of 0.62%. Fifty-one seropositive women [group 1] have been identified, of whom 36 have delivered live infants, one delivered a non-viable fetus, two spontaneously aborted, and 12 have not yet delivered. Three infants are followed elsewhere and the remainder, ranging in age from 1 -16 months, are followed in the clinic. Eleven remain seropositive when last tested (at a mean age of 4.8 months), 3 were seronegative when first tested (x= 4.7 mo), and 5 reverted from seropositive to negative at a mean age of 10.8 months. Fourteen infants have not yet had antibody testing. None of the seronegative infants have clinical or immunologic evidence of HIV infection. All seropositive infants are CDC class P0; 5 have negative HIV cultures. Among all infants seen in clinic, spasticity or hyperreflexia was seen in 17/19. In group 2, since October 1988, 4 seropositive women have delivered. Among their infants, one has yet to be seen in clinic, one became seronegative at 9 mo, and two have symptomatic HIV infections (CDC class P2AF & P2BD2). All 3 infants evaluated have abnormal neurological findings
Conclusion: Infants born to HIV-infected mothers are at increased risk for neurological abnormalities, due to factors in addition to HIV-infection

3196 PREVALENCE OF HIV ANTIBODIES AND HEPATITIS B SURFACE ANTIGEN (HBsAg) IN FAMILY BLOOD DONORS.

Sifuentes, Jose*; Santamaria, V.; Jauregui, A.; Ponce-de-Leon, S.; Lopez-Vidal, Y.; Ruiz-Palacios, G. Instituto Nacional de la Nutricion. Mexico City, Mexico.

OBJECTIVE: The purpose of this study was to determine the prevalence of HIV infection and HBsAg in family blood donors.
METHODS: Samples were obtained from family blood donors at our Institute from June 1987 through December 1989, tested for HIV antibodies and HBsAg by ELISA (Behring). Western blot assay (Organon Teknika) was done for confirmation in those sera repeatably reactive (twice) for HIV; a serum was considered positive when two of these bands were shown: gp120/160, gp41, and p24. Detection of HIV antigen was done by ELISA (Abbott).
RESULTS: During the term of the study (31 months) we received 12,496 blood samples from the blood bank: 54 were positive for HBsAg (0.42%), and 45 were repeatably reactive for HIV (0.35%). Detection of HIV antibodies by Western blot was positive in 9/26 (35%), indetermined in 4/26 (15%) and negative in 13/26 (50%); and HIV antigen was positive in 2/16 (13%). The yearly prevalence of HIV using ELISA was 0.23%, in 1987; 0.39%, in 1988; and 0.38% in 1989. According to the Western blot results, the prevalence of HIV infection among blood donors was 0.12%.
CONCLUSION: Our results show a high prevalence of both HBsAg and HIV antibodies among blood donors in Mexico City, which encourage us to pursue and improving the technology for their early detection.

3197 A PRE-EVALUATION OF A NEW, WHO-PROPOSED STAGING SYSTEM FOR HIV-INFECTION.

Mauro Schechter; May,S.; Perez,M.; Bretas,G; Ramos-Filho,C.F. & Lima,L.A.A. AIDS Programme, Federal University of Rio de Janeiro.

Objective: to make a preliminary evaluation of a new, WHO-proposed, 4-tiered staging system for HIV infection, with regard to its capability to predict disease progression.
Methods: A chart review of 75 consecutive patients was performed, abstracting data pertaining to their 1st visit and to the last recorded one, between 12 to 18 months later. Patients who died during the observation period had data abstracted from their last visit, or last hospital admission.
Results: Of 18 patients in Group Ia, 5 progressed and none died. Of 15 in Group Ib, 7 progressed, 1 died. Of 4 in Group II, 2 progressed and died. Of 18 in Group III, all progressed, 16 died. Of 20 in Group IV, 12 died.
Statistical analysis showed that, with regard to disease progression, the system could not discriminate between Groups III and IV (p=0.067, Fisher's two-tailed exact test). It could discriminate between Groups Ia+Ib+II and Groups III+IV(X=16.93, Yates corrected, p=0.00004).
Conclusion: our preliminary results show that the new WHO staging system (presently under evaluation) can correctly discriminate between early and late infection. However, the two higher stages were somewhat blurred, in our analysis.

3198 HIV-2 INFECTION IN MARSEILLES.

Tamalet Catherine*, Rousseau S*, Gallais H*, Pestre P**, Tamalet J.** Virology, hôpital de la Timone, Department of infectious diseases, hôpital de la Conception, Marseilles, France.

Objective : To investigate the presence of HIV-2 antibodies (Ab) in subjects in Marseilles.
Methods : Between 1987 and 1990, 88.482 sera were collected in Marseilles and tested for HIV-1 and HIV-2 using the ELISA and Western blot (W.B) tests.HIV-1-HIV-2 discrimination was performed by synthetic peptide analysis.

Results : 5.730 sera (6,62%) were confirmed as HIV positive. 18 sera (0,32%) were confirmed as HIV-2 positive. Five patients were from Guinea Bissau, 5 from Senegal, 1 from Côte d'Ivoire, 1 from the Central African Republic, 4 from Marseilles, and 2 were from unknown origin. Clinically 12 were asymptomatic, 5 had ARC, and 1 had AIDS. Transmission was sexual (10 cases), perinatal (4 cases), from blood transfusion (1 case) and undetermined (3 cases). Eleven sera cross reacted with at least 3 anti-gag, pol or env HIV-1 Ab. W.B lanes are produced. Seven sera cross reacted with only one or two HIV-1 Ab. Four of these 7 patients were Europeans living in Marseilles and 3 were from Guinea Bissau.

Conclusion : The HIV-2 situation in the Marseilles area is intermediary between that of Italy where HIV-2 has yet to be detected and Portugal where HIV2 detection is not unusual. The historical relations between southern France and the countries of western Africa are the reason for this phenomenon.

3199 PROGRESSION OF HIV DISEASE AMONG ANTIBODY-POSITIVE INFANTS AND CHILDREN, LOS ANGELES COUNTY, CALIFORNIA

MASCOLA, L.*; Frederick, T.*; Evans, M.*; Eller, A.*; Church, J.**; Bryson, Y.***; Kovacs, A.****; Gomperts, E.**; Oxtoby, M.*****
*LAC, Dept. of Health Services, Los Angeles (L.A.), California (CA); **LAC-USC/Childrens Hosp. of L.A.; ***University of CA L.A.; ****LAC-USC School of Med.;*****Centers for Disease Control, Atlanta, GA, USA

Objective: To describe the clinical status and progression of HIV-related morbidity in a of HIV-infected (HIVI) children.
Methods: We analyzed pediatric HIVI reports obtained by an active surveillance system from 3/88 through 11/89. Children whose clinical status was reported as P0, P1 and P2 non-AIDS were followed at 6-month intervals until diagnosed as AIDS.
Results: As of 11/89, 238 children <13 years have been reported with HIVI: 86 are AIDS cases and 152 are non-AIDS cases (P0, P1 and P2). Of the 238 cases, 48 (24%) died. One hundred eleven children have been followed for 6 mos (16% hemophiliac [H], 34% transfusion [T], 50% perinatal [P] and 82 for 12 months (22% H, 40% T, 38% P). During the first 6 mos, 3 of 25 P0s (median age 5.6 mos) became P2 non-AIDS and 1 P0 became a P1 (total change 16%). Of 25 P1s (median age 82 mos), 2 became AIDS and 5 became P2 non-AIDS (total change 28%). Of [illegible] P2 non-AIDS (median age 65 mos), 3 (15%) progressed to AIDS, 2 of whom died. At the time of initial report, 28 children had AIDS. After 12 mos of follow-up, 9 children (n=82) developed AIDS (11%), and children with perinatally acquired P1 and P2 infection were over 2 times more likely to develop AIDS (OR 2.11, 95% C.I. = 0.30, 115.78) than transfusion acquired P1 and P2 children, and over 3 times more likely (OR = 3.58, 95% CI = 0.30, 186.4) to develop AIDS than hemophiliac children.
Conclusion: Perinatal P1 and P2 children progress faster to AIDS than children in other transmission categories, which is probably an age-dependent finding. Almost one third of all children entering the study as P1 or P2 will change their clinical status in 6 mos. The influence of antiretroviral therapy (AZT) and other prophylactic therapies (such as TMP/SMX) will be important parameters to monitor when assessing clinical progression of HIVI.

4000 GAY RELATIONSHIPS: CONTEXTS FOR UNSAFE SEX

Dowsett, Gary Wayne*; Connell, R.W.*; Crawford, J.*; Kippax, S.*; Baxter, D.**; Watson, L.***
* Macquarie University, ** AIDS Council of New South Wales, *** University of Sydney. All in Sydney, New South Wales, Australia.

Objectives: To describe the dynamics of gay relationships in which unsafe sex has occurred since the advent of HIV infection, and to assess the relationship between context, knowledge and behaviour in these occurrences.
Methods: A small number of gay men, recruited from an existing large-scale survey,[1] participated in one-to-one, audio-recorded, semistructured interviews on such topics as personal history, history of gay relationships, and sexual practice. Each interview provides the basis for a theorised life history (TLH). These histories and their analysis form a research method which produces an excellent understanding of sexuality.
Results: 1) The interviews revealed that even well-informed men can pursue unsafe sex in certain circumstances, where the physical surroundings and/or the emotional contexts are conducive. 2) TLH method uncovers a wide range of social and emotional dynamics in unsafe sex events.
Conclusions: 1) The emotional structure of gay relationships needs to be taken into account by AIDS educators if unsafe sex within relationships is to be prevented. This emotional structure is related both to sexual experience and the experience of social oppression. 2) AIDS knowledge alone is insufficient to produce sustainable safe sex behaviour. 3) More use of non-quantitative research method would provide valuable information to assist educators to develop better-targeted intervention programs.
[1] Social Aspects of the Prevention of AIDS Project, Macquarie University.

4001 PROSTITUTES PREVENT AIDS: AIDS PREVENTION PROGRAMS FOR SEX WORKERS AND CLIENTS UTILIZE THE EXPERTISE OF PROSTITUTES, Alexander P, International Committee for Prostitutes Rights (ICPR), San Francisco, California, USA

Objective: To empower sex workers to protect themselves, and by extension their clients, non-paying sex partners, and future children from HIV infection and disease.

Methods: Recruit, train, and employ current and former sex workers as AIDS prevention educators, targeting currently working prostitutes, clients, non-paying sex partners, and sex business owners and managers.

Results: Prostitutes' rights organizations in the United States, Canada, Brazil, Italy, and Australia have developed a variety of approaches to AIDS prevention, utilizing the expertise of women and men with sex work experience. Where such projects have been in existence, condom use has become the norm for sex work transactions, and the proportion of sex work involving vaginal and anal sex has declined. More recently, these projects have begun to focus on the importance of adopting safer sex practices with lovers, as well as with clients, and the use of condoms is beginning to increase in this context. Where IV drug use is common, sex work projects have also focused on reducing the risks associated with needle-sharing, in some cases including needle distribution in their work. This presentation will discuss approaches and strategies used by prostitutes' rights organizations in the United States, Canada, Brazil, Italy, and Australia, as well as projects organized with the assistance of sex workers in Cameroon and the United Kingdom.

4002 THE USE OF LIVE THEATRE TO RAISE AWARENESS ABOUT AIDS AND RELATED ISSUES AMONG ABORIGINAL PEOPLE.

Adams*, E., Wortman**, J.A. *Native Health Promotion Society, Vancouver, B.C., Canada. **Division of STD Control, Ministry of Health, Vancouver, B.C., Canada.

Objective: to raise awareness among aboriginal people about the risk of AIDS and its relationship to other issues.
Methods: "Snapshots", a drama depicting the experiences of a native youth who discovers he has AIDS was developed. Because of his homosexuality the youth lives in the city alienated from his home on the reserve. He has two sisters, one who has lived in the city where she was involved in prostitution and substance abuse and the other who has remained at home too timid to venture away from familiar surroundings. The characters are both recognizable and sympathetic. As they confront AIDS in the course of this drama they educate the audience about homosexual transmission and the risk of AIDS. The problems associated with AIDS are explored in the context of other issues important to native youth such as substance abuse, prostitution, sexual abuse, family dysfunction and loss of innocence. The play is performed before aboriginal and mixed audiences in a variety of settings.
Results: the play has been very well received and has gained a reputation for being both educational and entertaining. There is a continuing demand for it to be performed to raise AIDS awareness among aboriginal people.
Conclusion: the use of live theatre can be effective in AIDS education. "Snapshots" has been particularly effective in introducing AIDS and other sensitive topics to aboriginal audiences where a frank discussion of these issues can be difficult to initiate.

4003 ROMANCE, TOURISM, AND AIDS: COMMUNITY ORGANIZING AND EMPOWERMENT IN SANTO DOMINGO, D.R.

Gonzalez, M. Alfredo*; Warren, N.**
*CUNY Graduate Center, NYC, USA.; **Hunter College Center for Community Action to Prevent AIDS. NYC, USA.

Objective: Identify patterns of potential and actual HIV exposure and barriers for its prevention among young people in Santo Domingo, Dominican Republic.
Methods: Research took place during the summer of 1989. We implemented focus groups, interviews, and practiced participant observation. We also contacted service providers and monitored the mass media.
Results: Many youth expressed a high degree of knowledge about, and interest in, protecting themselves from HIV infection. They also identified the following obstacles to HIV risk reduction: A bad economy which leads some youth to exchange sex for money or other material benefits; presumption of monogamy between heterosexual couples; and unprotected sexual encounters. We also observed contacts between Dominicans and foreign tourists. Newspapers articles described the decline of the national econonomy as well as high levels of unemployment, migration and prostitution.
Conclusions: Community organization and empowerment are fundamental for HIV prevention in the Dominican Republic. Those groups working effectively on a grassroots level should be helped to expand their services to HIV prevention.

4004 DESIGNING FAMILY PLANNING SERVICES FOR THE PREVENTION OF HIV INFECTION IN HIGH-RISK WOMEN: THE SAN FRANCISCO PHREDA PROJECT

Oliva, Geraldine *, Tunstall, C.**, Cooper, F.***, Stein, E.*, Kegeles, S.**, Darney, P.**
* San Francisco Department of Public Health, ** University of California, San Francisco, *** Communication Technologies, San Francisco, CA, U.S.A.

Objective. To identify the essential elements and barriers to care in the provision of HIV prevention and family planning services to substance-abusing women, partners of high-risk men, and women in the sex industry. This population has not previously been successfully reached by traditional family planning services, resulting in high rates of unplanned pregnancy, STDs, and high-risk sexual behavior.
Methods. We recruited 63 women at risk for HIV infections through drug treatment programs, pregnant addicts programs, prostitute organizations, and community outreach workers. We interviewed participants in six focus groups - 2 included partners of IVDUs and women with multiple STDs and 4 consisted of IVDUs and sex industry workers. Facilitators probed for information on attitudes concerning health care, family planning, safer sex messages and research.
Results. Participants identified potential barriers which could impact the effectiveness of clinic-based HIV prevention and family planning services. These included the relatively low value placed on health care, particularly family planning; belief in the ineffectiveness and/or harmfulness of contraceptives; access issues, such as cost and knowledge of available resources; alienation from the health care system; and lack of social networks that support behavior change.
Conclusion. Our findings support the need to minimize problems with access to clinic-based HIV prevention and family planning services through active community-based outreach using peers as outreach workers and case managers. Availability of a wide range of health and social services (either on-site or by referral) and counseling which both fosters an increased sense of self-efficacy in an accepting atmosphere as well as provides accurate information, are essential components of the model.

4005 AIDS AND THE NEXT GENERATION: TOWARDS A MORALLY ACCEPTABLE PUBLIC POLICY ON HIV TESTING OF PREGNANT WOMEN AND NEWBORNS

Faden, Ruth*, Geller, G.*; Powers, G.M.**; Acuff, K.**; Allen, A.***; Areen, J.***; Hutton, N.****; Johnson, T.R.B.****; Kass, N.E.*; King, P.***; Modlin, J.****; Repke, J.****; Saah, A.*; Walters, L.**; Wissow, L.****
*Johns Hopkins School of Public Health, Baltimore Maryland, **Georgetown University Kennedy Institute of Ethics, Washington, D.C., ***Georgetown University School of Law, Washington, D.C., ****Johns Hopkins School of Medicine, Baltimore, Maryland.

Among the many tragic dimensions of the HIV epidemic as it moves into the 1990's is the growing number of infants with AIDS. As the numbers of pediatric AIDS cases continues to increase, there is increasing interest in testing pregnant women and newborns for evidence of HIV infection. This paper, authored by an interdisciplinary group of scholars, will provide an analysis of the complex medical, public health, legal, ethical and social issues raised by HIV testing in pregnancy and among newborns. The analysis confronts not only the current situation, but forecasts how AIDS research and medical practice are likely to develop over the next ten years. Plausible medical advances are anticipated in analyses of specific issues and policies. A program of public policies is put forward, which distinguishes those policies which are morally preferable from those which are merely morally acceptable and those that are unacceptable, for both the current and future situations. Although this project focuses on HIV testing in pregnancy and among newborns, it is not only about mothers and babies. In some areas, this analysis can be expected to frame the discussion of the next generation of debate about HIV testing, of all populations.

4006 A COMPREHENSIVE CARE PROGRAM FOR MOTHERS AND CHILDREN WITH HIV INFECTION

Wade, Nancy, Manjunath, K., LePow, M., Pollara, B., Elmendorf, S., Ross, S., Jobin, L., Langford, L., Adams, M., Bont, P. Albany Medical College, Departments of Pediatrics and Internal Medicine, Albany, N.Y.

Obj: Albany Medical College has organized a comprehensive coordinated program to care for mothers and children with HIV infection.
The program is conducted weekly in one clinic site and includes personnel from the departments of pediatrics and internal medicine. Mothers are referred to the clinic during the last trimester of their pregnancies. Mothers and their children are seen by a team at each visit including a pediatrician, immunologist, adult and pediatric ID specialists a social worker, a dietician, and a nurse coordinator. A psychologist and a social worker direct two support groups: one for mothers and one for foster parents of HIV infected children. Acute care visits are triaged through the nurse coordinator to the appropriate team member thus decreasing E.R. visits. Each clinic concludes with a case management conference in which each patient and their family is reviewed. The clinic follows 46 HIV positive children, 15 of whom are indeterminate, and 12 mother/child pairs. A satellite clinic has recently opened one hour south of Albany to accomodate the population who previously had to travel a long distance for care. The clinic has decreased the burden of multiple trips to the hospital by providing a comprehensive single visit.

4007 HIV INFECTION AND DEVELOPMENTAL DISABILITIES: EXPERIENCES OF A THERAPEUTIC PARENT/CHILD GROUP

Grosz, Jenny; Lieberman, A; Hopkins, K.; Bidell, G.; Cohen, H; Rubinstein, A*. Rose F. Kennedy Center, Albert Einstein College of Medicine* Bronx, New York.

As medical treatments for AIDS including AZT, become more available, children who are HIV+ will be living longer than previously expected. These children are known to be at significant risk for developmental disabilities. Difficulties in providing for the psychosocial, educational and therapeutic needs of the children and their families mirror those of the general D.D. population with the added implications of a diagnosis of HIV infection and the unpredictable deterioration in the child's motor and cognitive abilities. Reframing the way in which families and health professionals view the children will enhance optimal growth and development.
This paper describes a group of young HIV infected, developmentally disabled children and their families. The group was facilitated by a social worker and an occupational therapist. Observations over a period of eight months during which the children began to participate in clinical trials of AZT were as follows: Children were noted to have marked improvement of visual alertness, social interaction and decrease in irritability and apathy. Work with parents focused on handling techniques and improving the understanding of the childrens' limitations. Parents were helped to set realistic expectations for their children and cope with living with AIDS. The challenge to the DD clinician is to help these families continuously reassess their psychosocial and developmental needs, in order to plan the most appropriate interventions.

4008 EFFECTS OF HIV SEROLOGICAL TESTING ON HOMOSEXUAL RISK BEHAVIORS

Jacobsberg, Lawrence; Fishman, B.; Weiler, P.; Perry, S.; Cornell University Medical College

Objective: To determine the effects of HIV antibody testing with counseling on HIV-related risk behaviors among gay and bisexual men.
Methods: A self-report risk behavior questionnaire was given to 347 physically asymptomatic gay/bisexual men (CDC II/III) when they voluntarily sought confidential HIV testing in a private office setting (T1) and when they returned for follow-up 3 (T2) and 6 (T3) months after notification.
Results: Among 122 HIV+ and 225 HIV- subjects, number of sexual partners during the past month did not significantly change after serological notification (T1: none=18%; 1=37%; 2=17%; >2=28%; T2: none=20%; 1=40%; 2=19%; >2=22%; T3: none=15%; 1=39%; 2=20%; >2=26%). Similarly, rates of any anal intercourse during past month did not significantly change (T1: 37%; T2: 31%; T3: 34%). Notification of serological status did not affect rates of high-risk behaviors (e.g. anal intercourse without condom), which remained generally low.
Conclusions: Effects of HIV testing on risk behaviors can be studied in a completely confidential setting without notification of others. Most gay/bisexual males have reduced high-risk behaviors prior to voluntary HIV testing, but remain sexually active. Knowledge of being HIV+ or HIV- does not further reduce or increase risk behaviors.

4009 FACTORS INFLUENCING TRENDS IN THE USE OF REAL NAMES AND IDENTIFIERS AT AN HIV COUNSELING AND TESTING SITE (CTS) IN MINNESOTA

Carman, Margaret†; Bilek, L†; Henry, K†*.
†St Paul Division of Public Health; *St Paul Ramsey Medical Center; St Paul MN USA

OBJECTIVES. To determine certain attitudinal and behavioral trends regarding provision of real names and or identifiers among clients of a Minnesota Department of Health (MDH) sponsored HIV CTS in St Paul, MN, and the effect of public policies on those trends in a state where HIV infection has been reportable since 1986.

METHODS. Two surveys were conducted three years apart, the first in May 1986 (n=152) and the second in August 1989 (n=302). In both, self-administered, anonymous questionnaires were given consecutively to clients during visits to an HIV CTS for HIV testing. Clients were asked whether they provided their real names or identifying information to the health department. Attitudes and concerns with public policy were also compared. In the 1989 survey, analysis by risk category of respondent was performed.

RESULTS. The proportion of CTS clients who gave their real names increased from 43% in 1986 to 58% in 1989 [95% CI on the difference (5%,25%)]. For the 1989 survey, 22% of the respondents were self-reported homosexual or bisexual males (HBMs), 13% were intravenous drug abusers (IVDAs), and 65% of the respondents were not HBMs or IVDAs. Had name been required for testing, 48% in 1986 and 38% in 1989 said they would not have been tested. In the 1989 survey, 66% of HBMs said they would not have used the CTS for testing had name been required, this compared to 28% of IVDAs and 32% of low risk individuals. Among HBMs, 72% are frightened by contact tracing compared to 44% of IVDAs. Of all respondents, 97% said they would tell partners if they tested positive. Only 61% of high risk respondents (HBMs=16%; IVDAs=10%) preferred the health department to contact partners should they test positive compared to 86% in the non-risk category. HBMs indicated less willingness to seek out a private MD following a positive test result. Only 65% said they would go to a private MD to followup an HIV+ result, while 81% of non-HBM clients said they would.

CONCLUSIONS. Behavior indicating trust--eg. use of real name--has increased over time. This change probably reflects low-risk persons seeking HIV testing. For HBMs, low levels of trust in MDH and private physicians was correlated with less willingness to provide names or identifiers. Although there was reluctance among HBMs to provide names and identifiers, most (71%) would wish for the health department to contact them if they were found as a contact to an HIV positive person. These data indicate that public policy may encourage HBMs to go underground. HIV testing policy needs to better address these concerns.

4010 INFORMED CONSENT AND ACCEPTANCE OF HIV TESTING IN AN IMPOVERISHED HAITIAN URBAN SLUM

Brutus, Jean-Robert*; Kissinger, P*; Boulos, R*; Ruff, A**; Halsey, N**; Coberly, J**; Holt, E**; Adrien, M*; Boulos, C*.
*The Centers for Development and Health, Port-au-Prince, Haiti and **Johns Hopkins University, Baltimore, MD.

Objective: To determine the acceptance rate and factors associated with acceptance of HIV-1 testing in two clinic populations.
Methods: HIV-1 testing was offered to women the day after delivery of a child and to patients with signs of HIV-1 disease attending health care clinics. Pre and post-test counseling were provided by trained counselors and physicians.
Results: Eighty-two percent (168/205) of women delivering at the hospital and 68%(481/708) of symptomatic patients in clinics accepted HIV screening (p=0.001).
Conclusion: Higher acceptance of HIV-1 screening by asymptomatic women delivering babies could be explained by decreased perception of risk of seropositivity, concern regarding their infants, or differences in the approach used by counselors. In the absence of available specific anti-HIV therapy, the motivation for knowing HIV serologic status may be decreased for clinic patients.

4011 SOCIAL CLASS AND SEX-RELATED DIFFERENCES OF INDIVIDUALS SEEKING ANONYMOUS HIV-TESTING

Hessling, Angelika; Marcus, U.; Bek, B.; Schwartländer, B.; Koch, M.A.
AIDS-Center, Federal Health Office, Berlin, FRG.

Objective: To determine the role of social class and sex differences of individuals seeking anonymous HIV-testing and counselling.
Methods: Since January 1989 we started a voluntary and anonymous questionnaire in the AIDS-Counselling-Center of the Federal Health Office. Information are collected from individuals (general population) with regard to age, sex, educational status, profession, sexual orientation, reasons for seeking a HIV-test, self-reported risk of infection and frequency of prior testing.
Results: Preliminary results: Since January 1989 759 individuals (males: 485; mean age: 32 females: 274; mean age: 29) have been tested. 59 individuals found to be HIV-positive (49 homosex./9 IVDUs/1 anonymous risk). In the interviews participated 54% of the male clients and 40% of the female clients.

	Educational status		
	low	middle	high
Men	25	61	177
Women	4	49	58

Most of the participants are employed. Over 46% of these are currently working towards an academic degree or are already holding a professional position. Housewives and individuals who either do not have a specific professional education or are unemployed are highly underrepresented. More than 25% of the participants are working in the medical and social health fields. Over 30% have contact to HIV-infected persons via their profession. 10% mentioned these contacts as the reason for the HIV-test.
Conclusion: Data analysis points to a bias in the acceptance of HIV-testing by social class. More detailed results with regard to sex-related differences of motivation and self-reported risk of infection will be presented.

4012

THE IMPACT OF COUNSELLING ON KNOWLEDGE OF AIDS/HIV AMONG SERO-POSITIVE WOMEN IN A DUBLIN CENTRE

Foran Deirdre*, Ross, D.**, Foreman, M.***, Flynn, D.****, Pomeroy, L.*****
Mulcahy, F.M.******

OBJECTIVE: To compare the level of knowledge of HIV/AIDS among two groups, those receiving counselling and those who are not.

METHOD: A questionaire was administered to HIV positive women attending the GUM clinic at St. James's Hospital. They were asked whether they had received pre and post test counselling in the past and whether they were currently receiving counselling. They were also asked their perceptions of treatment, transmission and prognosis.

RESULTS: Those who had received pre and post test counselling and, had access to regular counselling either currently or in the past had a higher level of knowledge than those who did not.

CONCLUSIONS: Counselling has made a clear impact in terms of knowledge in this group. For those who did not receive counselling, new and innovative ways need to be developed to target this group.

It is intended in the future to look at the effects of peer group support and education within a therapeutic group and the effects of knowledge on behaviour.

4013

Effectiveness of an AIDS Educational Program

Jarvis, Robert;* Isaacman, S.;** Closen, M.**
*Nova University, Ft. Lauderdale, Florida, USA
**John Marshall Law School, Chicago, Illinois, USA

Objective: To assess the utility of offering a course on AIDS and Law to students.

Method: Pre- and post-semester surveys were administered to students enrolled in an AIDS and Law class at three USA institutions.

Results:

	Pre (n = 72)			Post (n = 62)		
	Y	?	N	Y	?	N
I would be willing to sit next to someone with HIV/AIDS.	65	7	1	61	0	1
I would be willing to shake hands with someone who has HIV/AIDS.	62	8	3	58	3	1
I would be willing to have a study partner who has HIV/AIDS.	55	15	3	59	2	1
I would represent a client who has HIV/AIDS.	61	4	5	58	2	2
Mosquitos and other insects cannot transmit HIV/AIDS.	42	24	4	50	9	3
Persons who donate blood are not thereby put at risk for contracting HIV/AIDS.	61	6	3	54	4	3

Conclusion: The survey suggests the course influenced students who were unsure of their knowledge and uncertain in their attitudes. The course also influenced some students with definite misconceptiosn and prejudices. The results suggest a beneficial value to offering an AIDS Law course.

4014

AIDS KNOWLEDGE AND ATTITUDES AMONG LAW STUDENTS

ISAACMAN, SCOTT H., CLOSEN, MICHAEL L.
The John Marshall Law School, Chicago, IL U.S.A.

Objective: To assess law sudents' knowledge and attitudes about HIV/AIDS.

Method: A 23 item questionnaire assessing the knowledge and attitudes of law students toward persons with HIV/AIDS was administered to law students at three USA institutions in the fall of 1989. Students were gouped by enrollment (I) or nonenrollment (II) in a new AIDS and the Law course. Surveys were given to students at the start(pre-test) and end(post-test) of the semester.

Results: Six of the 23 questions are highlighted.

	I pre(n=73)	post(n=62)	II pre(n=155)	post(n=127)
Willing to have study partner with HIV/AIDS	75%	95%	52%	58%
Willing to represent a client with HIV/AIDS	84%	94%	74%	73%
Drs. have the right to to treat patients with HIV/AIDS	12%	31%	32%	28%
I would continue to use my Dr. if he/she had HIV/AIDS	33%	44%	10%	10%
HCWs should be tested for HIV/AIDS	37%	31%	61%	48%
HCWs should be able to test patients for HIV/AIDS	34%	42%	59%	56%

Conclusion: A surprisingly large percent of law students would represent persons with HIV/AIDS, yet our surveys suggest law students share the same misconceptions regarding HIV transmission and prejudices toward persons with HIV/AIDS. No significant statistical change in attitudes were noted in students completing the AIDS and the Law course. This result may reflect small sample size, entrenched attitudes among the surveyed population, or artifact.

4015

AIDS/HIV CLINICAL TRIAL AND EXPERIMENTAL TREATMENT INFORMATION DISTRIBUTED BY COMPUTER DISK.

Huff, Robert*; Fretz, E.*; Clore, A*; Beirn, T.*
*American Foundation for AIDS Research (AmFAR), AIDS/HIV Experimental Treatment Directory, New York, NY, USA.

Objective: To develop a system for distributing up to date, detailed information about clinical trials and experimental therapies for AIDS and HIV on a timely basis to a network of regional information providers.

Methods: Computer disks containing data files in an IBM format are mailed to users on a monthly basis. A display program allows the user to find information about clinical trials through inquiries based on location, type of drug, type of infection or selected inclusion criteria. Detail for each trial in the directory includes indication, drug dosage, government reference numbers and full inclusion/exclusion criteria. Trial locations are listed with phone numbers and addresses for each investigator and trial site. Background information from the research files of AmFAR are available for each experimental treatment in a pop-up text window. This text based information includes a chemical description, an explanation of drug mechanism, a review of clinical trial results, literature references and the manufacturer.
The program displays cross-referenced information in pop up windows for quick access and is designed to facilitate handling telephone inquiries. Printed output is also available.
The system will be beta-tested by a 40 member network of Community Based Clinical Trial centers and selected AIDS service organizations. Targeted users are physicians, clinics, hotlines and other service agencies.
An expanded version of the program that allows user additions and modifications to the local data base is being made available to organizations that wish to track clinical trials in their locality. This version outputs information in a desk top publishing format for high quality printed distribution.
Results: Beta-test results will be presented at the conference.

4016 ACCESSIBILITY OF PRESCRIPTION DRUGS: EVALUATING A MODEL OF CARE DELIVERY

Benge, Mark*; Chambers, R.**; Watson, T.*
*St. Clare's Hospital and Health Center, New York, NY, USA
**Leroy Pharmacies, Inc., New York, NY, USA

OBJECTIVE: To analyze a program making medication available to HIV-infected patients awaiting government assistance

METHODS: Prescriptions were guaranteed at a retail pharmacy against grant money for out-patients who were qualified for assistance but had not yet received official notification of eligibility. Distribution was analyzed over a period of one year to determine how medication was ultimately funded.

RESULTS: One-hundred eight (108) patients received a total of 498 prescriptions with a total retail value $30,899.98. Cost was distributed as follows: Patient eligible, prescriptions paid retroactively by Medicaid: $28,625.28; Patient eligible, prescriptions not covered by Medicaid: $75.30; Patient not Medicaid eligible: $2,199.40

CONCLUSIONS: Over the one year study period, only 7.36% of the total dollar value approved was actually paid for out of grant money. This program has proved to be an extremely efficient and cost effective method of providing medication to HIV-infected patients who would be otherwise unable to access treatment.

4017 *HOSPITAL AND COMMUNITY SERVICES FOR PERSONS WITH AIDS: A NATIONAL STUDY*

Fuszard, Barbara; Sowell, R.**; Waters, M.***; Dushku, J.****
*Medical College of Georgia, Augusta, Georgia, USA; **University of South Carolina, Columbia, South Carolina, USA; *** and ****Medical College of Georgia, Augusta, Georgia, USA.*

Objective: This study sought to answer the two questions: How do hospitals and their communities compare by size and geographic region in readiness to receive increasing numbers of AIDS patients? What are the obstacles to comprehensive community planning for AIDS patients?
Methods: Nurse executives from 900 non-federal hospitals from the nine regions of the USA were randomly selected to respond to a mailed questionnaire. Based upon the Comprehensive Planning Model for AIDS-related Services developed by Lowenstein and Sowell, the questionnaire identified provision of patient care, human resource management, and community development. Open-ended questions asked for enablers and inhibitors to obtaining services for Persons with AIDS. Chi square was used to determine statistical differences between groups.
Results: Four hundred one (44.6%) of the nurse executives responded, with highest response rate from the Midwest (55%) and lowest from the Mississippi delta region (29%). Statistically significant differences were found between rural and urban communities, geographic regions, cities by size, institutions by size, and institutions by ownership. The greatest lack in services in all groups was in community services, especially hospital-community endeavors.
Conclusions: No geographic regions, hospitals or communities by size groupings are prepared with comprehensive services for Persons with AIDS.

4018 COORDINATED RESPONSE TO HIV INFECTION

Gagnon, Joseph; Ryan, L.; Mcalli, G.
Lawrence and Memorial Hospital, New London, Connecticut, USA

Objective: Provide a coordinated community response for prevention and treatment of HIV infection.
Methods: Interrelated services provided by a hospital based infectious disease clinic providing medical and psychosocial management of HIV infected patients with counseling services: AIDS risk reduction outreach workers (APPCW) to provide street education, counseling and referral: a public health education, counseling and anonymous testing site and a volunteer, support service organization.
Results: New London County has a population of 240,000 with a rate of new AIDS patients per 100,000 at 7.8. As a response, the above strategy has been in place over the past year. The hospital clinic has treated 80 patients since April 89 in various stages of HIV infection comprised of 57% IVDU's and 52% minorities. A social worker in the clinic acts as case manager to help deal with the myriad of psychosocial needs. Since April, a marked reduction in hospitalizations has been observed. The APPCW program has resulted in a doubling of the percentage of IVDU's seen in the anonymous test site with an increase in positive tests from 3.1% to 8.5%.
Conclusion: Through a coordinated program of identification of people at risk of HIV and providing testing and treatment for them, a community can begin to deal with the HIV problem, providing services that often go beyond medical ones. The additional education gained within the community is hoped to have the same impact on prevention of infection as early medical intervention has had on the reduced need for hospitalization.

4019 THE FUTURE OF AIDS SERVICES AT COOK COUNTY HOSPITAL, CHICAGO, 1990 - 1994.

Sherer, Renslow. AIDS Prevention Service, Cook County Hospital, Chicago, Illinois, USA.

Objective: To analyze trends in AIDS/HIV prevalence in Cook County and to predict future AIDS service needs and utilization at Cook County Hospital (CCH) from 1990-1994.
Methods: We analyzed current and projected data from the Chicago Department of Health on AIDS/HIV prevalence from 1990-1994 and data from CCH on AIDS/HIV prevalence and service use to project 4 year AIDS/HIV CCH service needs & utilization.
Results: Of a projected 6,000 living persons with AIDS in Chicago in 1994, 1,200 may seek services at CCH. Of these, 120 will need hospital care daily; 240 will require housing assistance; 240 will require intensive and 600 limited case management; 240 will require long term care and/or hospice. 200 women and infants will require specialized services for families. 400 injectable drug users (IDUs) with AIDS and 8,000 IDUs with HIV will need linked medical and substance use treatment. Of 100,000 HIV+ persons, 20,000 may seek medical care and support services, of whom 15,000 may need early interventions requiring 180,000 annual clinic visits. Quadratic trend-regression equations & projections to be discussed.
Conclusions: As the only public hospital in Chicago, Cook County Hospital will continue to serve a disproportionately large number of persons with AIDS/HIV. All service areas will be affected. Additional sources of support will be required.

4020 AIDS SERVICE PROBLEMS IN US RURAL STATES AND SMALLER CITIES

Batchelor, Walter F.;* Anderson, J;** Ferels, J.**
*John Snow, Inc., Boston, MA, USA; **AIDS Community Training Project, American Psychological Association, Washington, DC, USA.

OBJECTIVE: Examine AIDS service delivery system in sample of 10 rural states and small/medium sized US cities with a fairly low incidence of AIDS. METHODS: Telephone interviews and 4-day site visits; meetings with AIDS service organization, state/local government, hospitals/clinics, community leaders, People with AIDS, etc. Services examined: hospital, outpatient, medical and dental, home health, psychological, IV drug use, prevention, public education, ethnic minority, women's, children's, religious, training, government, university. Areas examined: Alabama; Maine; New Mexico; Oregon; Utah; Austin, TX; Baton Rouge, LA; Buffalo, NY; Hartford, CT; Richmond, VA. RESULTS: Severe problems in service delivery, coordination of care, discrimination and refusals to treat, gaps in services. Caseload: Actual caseload is 200% of official incidence. People come "home" from major cities following AIDS diagnosis. Professionals: Physicians overwhelmed, only 2-3 giving AIDS care in most areas; Dental care limited or non-existent; Shortages of mental health professionals. Refusals to Treat: Frequent from hospitals, hospice, nursing homes, physicians, dentists. Lack of Knowledge: Inappropriate infection control procedures due to ignorance of, or lack of belief in, official guidelines. Discrimination: Severe stigma, fear of AIDS, in employment, housing, human services, social settings. Research: Protocols generally not available. Coordination of Care: Generally lacking. CONCLUSION: Service delivery system is inadequate in many cities/states. But, coordinating coalitions of caregivers, institutions, People with HIV/AIDS, government, have made great progress in identifying problems and finding solutions in a few less-populated areas -- and should be encouraged.

4021 THE ROLE OF A VISITING PHYSICIAN IN AN AIDS CARE PROGRAM

Feleke G.Holder F.Glatt A.Forlenza S
Nassau County Medical Center,East Meadow, NY,US

Introduction: Many persons with AIDS(PWA) have significant others(SO's) willing to assist in patient care thereby allowing home care if proper medical monitoring can be assured. To optimize home medical care, a visiting physician (VP) service provided medical care for PWA at home.
Objective: To describe 16 months of the VP service, including population served, kinds of service, and the results of care.
Methods: Retrospective analysis of patient records.
Results: A total of 265 home visits were made for 52 PWA in 29 communities in suburban Long Island. Visits per person ranged from 1 to 17; duration of follow up was several days to 15 months. Of the 52 PWA, 49 were dependent upon others for care; including 28 parents, 9 spouses, 6 siblings, and 6 others. Thirty-one PWA had encephalopathy, significant neuromuscular disease or blindness. Twenty-nine were terminal. Forty-six patients received therapy requiring monitoring of whom 9 received intravenous therapy. There were 49 hospital admissions; 21(43%) were for blood transfusions; 23(47%) admissions were for a terminal event. Eleven patients died at home. Improvement in 6 PWA allowed termination of VP service. Thirty-eight emergency visits were made resulting in the prevention of 16 hospital admissions.
Conclusions: Many PWA with caring SO's prefer to get their medical care at home. Others have difficulty coming to clinic. Most PWA have active medical problems and therapy requiring monitoring. The VP optimized the home care of PWA by decreasing duration of hospital stay, frequency of clinic visits, and unnecessary hospitalizations by monitoring medical problems and therapy in the home setting. Home transfusions could further decrease hospital admissions.

4022 HELPING HANDS PROGRAM

Peyser, Nina Peskoe*
*Beth Israel Medical Center, New York, NY, USA

Objective: To enhance the quality of life for patients in the Methadone Maintenance Treatment Program (MMTP) who are homebound due to AIDS/ARC, and who are socially isolated.
Methods: MMTP patients served as "buddies" for other MMTP patients who were homebound or institutionalized due to AIDS (PWA's). Training was conducted by existing MMTP staff with assistance from community agencies. The buddies were selected based on stability in the methadone program. They were paid a small stipend for 15 hours per week direct service and attendance at support groups and supervision. PWA's were identified based on inadequate family or other care partners.
Results: 38 buddies were trained in the 1st year of operation and provided services to 80 homebound PWA's. Several buddies progressed to job training programs and employment. Many PWA's were able to leave their home with the assistance of the buddy, for recreational, medical and other purposes, and many direct needs of the PWA's (blankets, food, medical attention) were met through the buddy. Buddies did not relapse to drug abuse, despite the bereavement they experienced when a PWA died, and reported improved feelings of self-esteem and satisfaction.
Conclusion: MMTP patients can be trained to deliver support services to PWA's, benefitting both PWA and buddy. This can be replicated elsewhere based on the Helping Hands training program, supervisory process, and support mechanisms.

4023 RELIABILITY OF THE KARNOFSKY PERFORMANCE STATUS IN THE HIV POPULATION

Riggs, Richard, O'Dell M., Turner J., Crawford A., Abrams C.
The Graduate Hospital, Philadelphia, PA, USA

Objective: This study examined the interrater reliability of the Karnofsky Performance Status (KPS) in the HIV population.

Methods: Persons with documented CDC Groups II-IV HIV disease were identified in a medical setting. Each was evaluated by either 2 physicians (P-P) or a physician and physician's assistant (P-PA). KPS scores were independently determined and demographic data obtained. The sample consisted of 77 men: primarily homosexual/bisexual and white. The average age was 35.6 years and each CDC HIV Group made up approximately one-third of the sample. Statistical analysis was performed using the Spearman rank order correlation coefficient (SROCC) and by observing trends between raters.

Results: The average KPS score for the sample was 88.6. The overall SROCC was 0.90. Perfect agreement was seen in 52.4% of paired scores with 44.3% and 2.4% differing by 1 and 2 levels, respectively. The reliability of the KPS was not significantly affected by the age, degree or disability, or CDC Group of the person assessed. Trends were observed in the direction of disagreement between P-P and P-PA, with the former tending to be higher.

Conclusion: We conclude the KPS has adequate interrater reliability in the HIV population. It should then be a reliable indicator of gross function for clinical drug trials, general outcome research, and as a gross measure of quality of life. Reliability testing in larger, more diverse samples would be beneficial. Further research needs to be conducted examining the validity of the KPS in the HIV population.

4024

PALLIATIVE CARE UTILIZATION IN A TEACHING HOSPITAL

Goldstone, Irene, Sigurnjak, R., Shaw, C., Ruedy, J., Montaner, J., Sestak, P.
St. Paul's Hospital, University of British Columbia, Vancouver, Canada

Objective: To study the location of death as an indication of the impact of a newly opened (5/89) integrated Palliative Care Program. The Program consists of an inpatient unit (PCU), respite care, GP home visits and liaison with home care and AIDS support groups.
Method: All AIDS deaths, 129,(1989) of the AIDS Care Program were reviewed.
Results: The average age at death was 37 years. 26.5% (34) deaths occurred at home and 11% (14) patients died in other hospitals. 81 (63% of the total) deaths occurred at St. Paul's. Of S.P.H. deaths 5 (6%) occurred during acute treatment in which resuscitation was initiated and 76 (94%) died following a decision to provide palliative care.
With respect to the utilization of inpatient hospital resources, of 5,152 days used for AIDS care 1,170 or 22.7% were used for palliative care. The distribution of palliative inpatients is summarized:

UNIT	DAYS	% PALL.D	PATIENTS	ALOS
Medical Wards	730	62.4	48	15.5 D
PCU	421	36	13	32.3 D
ICU	17	1.4	13	1.3 D
ER	2	< .2	2	<1 D
TOTAL	1,170	100	76	16.4 D

Conclusion: Expanded palliative care services are required to support utilization of acute care beds. This includes expansion of home care, respite services and the establishment of an emergency admission bed in PCU and/or a quick response team for crisis at home.

4025

MEETING THE HOMECARE NEEDS OF PEOPLE WITH AIDS (PWA's)

Walsh, Joan, New York Hospital-Cornell Medical Center, New York, N.Y., U.S.A.

Objective. To determine levels of homecare required to meet needs of AIDS patients referred to homecare coordinator(HCC) of in-patient/out-patient AIDS unit at major New York medical center; to identify trends in care levels.
Method. Retrospective review of cases referred to HCC from Jun-Dec 1989(N=120 referrals). Referrals divided on month by month basis into 6 care levels(1=No home care needs, 2=custodial only, 3=skilled only, 4=skilled and custodial, 5=high tech skilled(IV therapy), 6=expired in-hosp. while awaiting services). Referrals assessed by same RN using standard home care assessment tool.
Results. 1. Large number of patients required both skilled and custodial services. N=45(37%). 2. Patients' needs can be met in home setting if appropriate services provided. N=77 patients provided with homecare of varying levels(64%). 3. A significant number of patients expired in hospital while awaiting home care services. N=19(16%). 4. A trend was seen towards increasing demand for high tech skilled services. 5. On individual case review, frequency and duration of required services increases over time.
Conclusion. There is a growing need for expanded homecare services to meet the needs of PWA's in order to maintain them in the community. Needed services range from simple housekeeping to total care. With robust home services, repeated in-patient admissions and/or placement can be avoided. Currently, in NYC, available services do not meet the demand. Home health agencies should be developing comprehensive AIDS care programs to meet the growing needs of this population.

4026

AIDS HEALTH ATTITUDE SURVEY

Strawn, Jill M.
APT Foundation / Yale University School of Nursing
New Haven, Connecticut, USA

Objective: The AIDS Health Attitude Survey (AHAS) assesses health-related beliefs and practices in the context of imagined HIV infection among intravenous drug users (IVDU) and their sexual partners. Complementary therapies have been successful in improving quality of life among HIV infected white gay men. It is not known if other cultural or racial groups are motivated to try this approach.
Methods: Ninety-six IVDU's and sex partners who volunteered for a NIDA funded AIDS education demonstration project were administered the AHAS. Differences in attitudes between groups, ie., gender, race & risk practices, were assessed by T-tests.
Results: Forty-two % take part in faith-related healing practices; 92% believe people who test positive can do things to increase their chances of staying healthy; 84% would try to stop unhealthy habits if they tested HIV+; 75% would try health-enhancing activities if they tested positive; 82% believe they would have friends'/family support in making such changes. Differences by risk category and gender were not significant. When ill, blacks are more likely than whites to take part in faith-related healing practices and less likely to believe that changing one's health habits will lengthen their life-span if HIV+.
Conclusion: Given the high % of IVDU's expressing positive attitudes toward influencing one's own health if HIV+ and their intention to do so, it would be important to link beliefs with actual behaviors. For those testing HIV+, (1) Have they stopped detrimental health practices? (2) Have they initiated health enhancing behaviors? (3) What are the barriers to making changes?

4027

ETHNOGRAPHY OF THE SAN FRANCISCO NEEDLE EXCHANGE

Wenger,Lynn*, Moore,L.*, Hasbrouck,L.*; Case,P.*, Clark,G.**, Garcia,D.**
*University of California, Berkeley, California, USA.**Prevention Point Research Group, San Francisco, USA.

Objective: To evaluate the impact of an unsanctioned, street-based, needle exchange (NE) program, Prevention Point, on the injection drug using (IDU) community in San Francisco.
Methods: The analysis is based on six months of participant observation of a NE team in a multi-ethnic neighborhood of San Francisco. Techniques used included ethnographic mapping of the exchange community, participant observation, and in-depth interviews were with both clients (N=20) and providers (N=10) of the NE. In a study of an illegal HIV intervention with a stigmatized population, qualitative methodology is required to assure a thorough understanding of the influence of the NE.
Results: For the NE client, there is risk, motivation, and empowerment in participating in the NE program. (1) The clients are fearful of arrest but have developed a number of strategies to manage their fear, i.e. breaking the points off the syringes, getting someone else to exchange for them, or disguising their appearance. (2) The non-judgmental approach of the providers has encouraged IDUs to be more conscious of both their HIV risk and other health issues. Clients report decreased numbers of abscesses due to the availability of alcohol swabs, some have stopped sharing syringes, and there have been requests for drug treatment. (3) Clients recognize the risk the providers have taken and view them as concerned friends. Clients, many whom have minimal contact with the traditional health care system, feel empowered to "join" the NE staff in HIV prevention, rather than be the passive recipients of educational efforts. For the providers, there are both personal and professional risks and motivations (1) Providers fear the arrest of clients, and this threat interferes with HIV risk reduction education at the NE site. (2) The providers have become a stigmatized population at risk of arrest by engaging in an illegal activity and are isolated from the legitimate HIV health care network and its support functions. (3) Some providers are ex-substance abusers and are commited to NE as a means of stemming the HIV epidemic in a community they feel personally connected to.
Conclusion: Through participating in NE, IDUs have shown a deep concern for their health and the health of their peers, contradicting the prevailing idea that IDUs are an inaccessible group. The Prevention Point model of NE as HIV intervention is a powerful and interactive health care model for both clients and providers.

4028 **UNIFYING HEALTH SERVICES FOR CHILDREN WITH HIV: A NURSING CARE MODEL**

Czarniecki, Lynn, Burr, C., Barros, J., Hernandez, M., Schwolsky, E. & Boland, M. Children's Hospital of New Jersey, Newark, N.J., U.S.A.

Objectives: Development of an organized structure to provide continuous and coordinated care to children with HIV within an acute care setting.
Methods: Working with a clinical nurse specialist (CNS), nurse case managers (NCMs), teamed with social workers, provide the link between HIV infected families, the acute care setting and community services. Through home visits, telephone contact, and clinic visits, NCMs assess the family's home environment, knowledge base and need for services. A plan for health care including medical follow-up, teaching, home nursing and equipment is implemented by on-going family contact, case management/team meetings and discharge planning with the CNS. The CNS retains responsibility for in-patient teaching, discharge planning, supervision of NCMs and liason with the CHAP team.
Results: In 1989 the NCMs managed caseload of 45 families each and made 156 home visits. The CNS managed 200 in-patient discharges. Families view the NCM as a consistent provider in all settings whom they can trust. Continuity of patient care planning and coordination with medical and social services was strengthened.
Conclusion: A care model which links nursing service in various settings through a designated NCM for a family, working closely with the CNS, can unify health care services, improve intra-team communication, increase family compliance and enhance utilization of community health services.

4029 AN EFFECTIVE APPROACH TO PROVIDING COMPREHENSIVE TREATMENT FOR THE HIV INFECTED CHILD: "ONE STOP SHOPPING"

Caffrey, Brigid; Nozyce, M.; Wiznia, A.; Harris, A.; Caspe, W. Bronx-Lebanon Hospital Center, Albert Einstein College of Medicine, Bronx, New York, USA.

Objective: Develop a model to efficiently meet the needs of HIV infected children in a coordinated, multidisciplinary approach.
Method: A three tier model was developed to meet the needs of an impoverished community at high risk for HIV infection. 1) Pre and post-test counseling is provided to high risk mothers on the maternity unit with referrals made to our program. 2) Children are evaluated medically, neurodevelopmentally, and psychosocially on the first visit. A needs assessment based on these evaluations is made and appropriate services are provided during the childs' regular clinic visit. Pediatric subspecialists routinely rotate through the clinic providing services. 3) Required referrals integrating care with other community and therapeutic services are made.
Results: This model provides continuity of care and a reduction in the need for multiple medical appointmens for a population in which both mothers and children are HIV infected and overwhelmed by this devastating illness. The compliance rate for scheduled visits is 94% in our current population of 90 children.
Conclusion: We believe that our model provides an efficient manner in which to meet the needs of the HIV infected child and their families through the concept of "one stop shopping."

4030 AIDS HOME HEALTH, ATTENDANT AND HOSPICE CARE: UTILIZATION OF DIRECT SERVICES THROUGH CALIFORNIA'S CASE MANAGEMENT PILOT PROJECTS

Devine, Marsha; Falknor, P.; Reyes, C.; Fraziear, T.
California Department of Health Services (CDHS), Sacramento, California, USA.

Objective: To meet the need to provide quality, humane and cost-effective home and community-based care services to persons with AIDS, CDHS, Office of AIDS (OA) established comprehensive case management projects (CHC) throughout the State. CHC case management must effectively link clients with necessary services and maximize reimbursement from sources other than CHC, which is intended to be the payor of last resort. To evaluate the projects, case management hours, client utilization of direct care services, and payment sources were tracked.
Method: Each month, projects reported to CDHS/OA hours of attendant, home nurse, occupational and physical therapy, mental health counseling, practical and emotional support, social worker, homemaker, home health aide, and volunteer services utilized by each client enrolled in CHC during fiscal year (FY) 1988-89. Days of housing assistance, hospice and skilled nursing facility care, and the cost of food assistance were also reported.
Results: For FY 1988-89, 27 CHC projects reported data on 2,068 clients and 10,305 client months of service. A total of 516,974 direct service hours were reported (mean=50.16 hrs./client mo.). Overall, CHC paid for 40% of these hours, and other sources paid for 57%. The most utilized service was attendant care at 255,580 hrs.(mean=24.8/client mo.), followed by homemaker at 154,053 hrs. (mean=14.95/client mo.), volunteer at 40,082 hrs. (mean=3.89/client mo.), and home nurse at 38,933 hrs. (mean=3.78/client mo.). Over 90% of clients received direct care services. 45,822 case management hours (mean=4.45/client mo.) were reported.
Conclusion: CHC case management effectively links clients with a variety of direct care services, most of which are either paid for by sources other than CHC or are volunteer.

4031 COMPREHENSIVE AIDS INTERVENTION TRAINING FOR COMMUNITY HEALTH OUTREACH WORKERS, 1988-1990

Norman, Pat; Aldrich, M.R. Youth Environment Study (YES) Training Center, San Francisco, California, USA.

Objective: To describe and evaluate a comprehensive training curriculum for Community Health Outreach Workers (CHOWs), Field Supervisors, and Administrators doing street-based outreach to intravenous drug users, sexual partners, and high-risk youth.
Methods: Curricula for CHOWs (10 days) and Supervisors (5 days) were designed and implemented in 1988-89, with trainings for Advanced CHOWs (5 days) and Administrators (7 days) added in 1989-90. Update/inservice trainings were held for graduates. Each curriculum emphasized knowledge of AIDS and drug users, legal, women's, and gay/lesbian issues, cultural sensitivity and practical ethnography. Lectures, panels and workshops were augmented by supervised on-street outreach work. Pre-post tests and written evaluations were used to evaluate performance.
Results: 126 trainees from 45 AIDS agencies, drug programs and community-based organizations in California, 5 other states and 3 other nations were certified from 7/88 to 12/89. More than 90% achieved at least a 30% increase in knowledge of AIDS, legal issues, program design and outreach skills on pre-post tests.
Conclusions: Not merely AIDS training, but a full comprehensive program of classwork and hands-on field training is necessary for effective AIDS outreach work. AIDS experts, political leaders and health educators recognize that as more outreach programs are begun, extensive CHOW training will be required.

4032 DESIGNATED PEDIATRIC AND MATERNAL HIV SERVICES

Feldman,I.*; Rango, N.,M.D.*; Warren,B.*. *AIDS Institute, New York State Department of Health, Albany, New York

Objective. To develop a service system for HIV positive children birth to 21 years of age and pregnant women which provides family-centered, comprehensive, coordinated, case managed services.

Methods. In 1986, the New York State Department of Health's AIDS Institute implemented the designated AIDS center system to provide services across a comprehensive continuum of care model for those with symptomatic HIV disease. Enhanced medicaid reimbursement funds the centers. As of January 1, 1990, 17 hospitals have received designation.

With the increasing number of women and children with HIV infection in New York State, the existing AIDS center regulations, standards of care and quality assurance activities were reviewed for their appropriateness to the pediatric and maternal populations. Expert providers and interagency committees assisted in the process.

Results. Regulations developed for specialized pediatric and maternal HIV services (PMHS) became effective September 13, 1989. As of January 1, 1990, 15 PMHSs are in a developmental phase. Enhanced reimbursement for services will be available for children birth to 21 years of age and pregnant women, with or without symptoms related to HIV disease. Standards of care have been developed for medical care provided to women, children and adolescents with HIV infection and for intensified family-centered case management. Standards for nursing care are under development.

Conclusion. A structure has been developed to provide comprehensive services for women and children with HIV infection. The effectiveness of this structure in increasing availability of and access to services will be evaluated as the program progresses.

4033 Combined AIDS and Addiction Service Delivery In An Anonymous Drop-In HIV Test Site- Project TRUST.

Felch Fred, Fitzgerald B, LaChapelle R, Santiago V. Boston City Hospital Boston University School of Public Health.

Objective: To compare service requests and follow-up utilization in a group of persons seeking a variety of AIDS and addiction related services at an anonymous drop-in HIV test site for injection drug users and their contacts.

Methods: Demographics and risk behavior data was collected on all persons requesting services at Project TRUST via personal interview and questionnaire.

Results: In addition to HIV antibody testing, drug treatment and HIV medical access, PPD skin testing with controls, flu vaccine, pregnancy testing and bleach and condom distribution were made available. Utilization of several of these programs was high, and follow-up in PPD skin reading was 84% (107/127), HIV medical adherence was 49% (27/55).

Conclusions: Injection drug users need, want and can utilize services. The idea of "one stop shopping" where the program can provide individualized and sensitive counseling, and where there is the support of a consistent, accessable case manager can facilitate access and follow through in an otherwise hard to reach population.

4034 A MODEL COMPREHENSIVE COUNSELING AND CLINICAL CARE PROGRAM FOR HIV POSITIVE PERSONS.

VanDevanter, Nancy*; Shipton-Levy R.*; Steilen M.*; Stuart A.*; Brodegaard N.*; Cleary P.**
*Columbia University School of Public Health
**Harvard Medical School

Objective: To provide HIV infected persons with a comprehensive counseling and care program that maximizes their potential for healthy and productive lives while limiting the spread of HIV to non-infected persons.

Methods: A comprehensive program has been developed and implemented for a group of 496 HIV seropositive persons, their sexual partners and appropriate family members. Each individual is assessed and counseled at the time of HIV seropositivity notification and at regular interval (3-6 mo.) Assessment by a psychiatric nurse clinician includes the following dimensions: 1) physical 2) psychological 3) social 4) economic 5) spiritual 6) work 7) cultural 8) nutrition A comprehensive plan is developed with the patient. Emphasis in the plan is in teaching the patient skills to minimize need for professional intervention. Interventions include individual, couple, family counseling, a 6-session structured educational support group and peer support group; teaching preventive health behavior including safer sex practices and stress reduction techniques. Medical facts about efficacy of early care reviewed. All patients are referred to physicians skilled in HIV care. Nurses communicate regularly with each patients' physician to coordinate care and avoid duplication of services.

Results: The vast majority of these 496 HIV infected persons have made appropriate behavior changes. are under physician care and are coping well with their HIV infection. An analysis of the efficacy of the 6-session structured intervention is in the process.

Conclusion: Comprehensive HIV counseling programs will be most successful if they address the whole individual and involve the patient in establishing his/her own goals.

A comprehensive approach by psychiatrically trained nurses is a cost effective model when integrated with medical care by a physician.

4035 THE ROLE OF COMMUNITY HEALTH CENTERS IN HIV PREVENTION AND TREATMENT SERVICES

Fairchild, Patricia, Coolidge, J., Keehn, A., Kunches, L.,Liebling,L., Mazzullo, J., Stewart, J., Wrohlewski, S., Salomon, P.; DHHS, Health Resources and Services Administration, Rockville, MD and John Snow, Inc., Boston, MA.

OBJECTIVES: There are over 500 Community Health Centers (CHCs) funded by the federal government providing primary care health services nationwide. CHCs serve approximately 5,300,000 people annually, including many ethnic and racial minorities and low income populations. Research has been conducted to determine how CHCs can be effective providers of HIV related services in the context of their communities' service network. In addition, techniques for assessing needs for services, approaches to evaluating services, and costs of services were addressed.

METHODS: Between 10/89 and 2/90, site visits were conducted at CHCs nationwide. CHCs visited represented a range of geographic location, size and type of patient population and model of HIV service delivery. At each site, we conducted in-depth interviews with program staff and representatives of the AIDS service community, reviewed medical records, reviewed program and financial data and analyzed service area epidemiologic data.

RESULTS: Wide variability in service delivery models was encountered. However, case management was a key element in all programs. All programs also experienced difficulty financially supporting services, especially laboratory, pharmacy, and social services. Planning for HIV services is usually based on community demand rather than agency planning using epidemiologic data.

CONCLUSIONS: Health centers are appropriately structured and positioned to be providers of HIV/AIDS prevention and treatment services, particularly to provide a case managed model of care.

4036 A RESIDENTIAL DESIGN FOR THE CHANGING FACE OF AIDS

Hennessey, P.J.*, Declercq, E.R.*, Hernandez, R. A.*
* The Merrimack College Urban Institute, Lawrence, MA, USA

Objective: To design a residential facility which responds to the projected needs of PWAs and HIV+ persons in the 1990s.
Methods: Investigation involved: the examination of several existing residential sites; interviews with house managers, social workers and administrators; analysis of demographic data on HIV infection trends; comparative research into housing design and support.
Results: The data reflects a demographic shift to IV drug users of both sexes, who are ethnically diverse and poorer. In a supportive environment, including drug counseling and advocacy, PWAs may be expected to live longer, active lives given improvements in treatment. More cases of AIDS will be found in smaller urban communities with few resources to develop large scale housing programs. Lawrence, MA reflects these changes.
Conclusions The changes require the development of different missions and designs in housing. Not only will many more facilities be needed, but they will have to provide different services. Housing should be planned to reflect potential for longer life. Opportunities should be provided to enable people to continue working and engaging in rewarding activities as long as they are able to. The authors will discuss the design and social and political issues associated with an ongoing effort to develop a home in Lawrence responding to the evolving needs outlined above.

4038 SELF-DEFERRAL TO DONATING BLOOD FROM SUBJECTS WITH BEHAVIOUR AT RISK FOR AIDS:TWO PROGRAMS EVALUATION.

Angeloni, Pasquale; Maggiori, M.; Miceli, M.; Aebischer, M.L.; Mercurio , G.; Guidotti, F.
National Blood Transfusion Centre of Italian Red Cross, Rome, Italy.

Objective: to reduce the risk of HIV 1 infection associated to blood transfusion from donors infected only recently and negative, according to antibody tests, at the time of donation.
Method: the program of donors self-exclusion, before medical screening, based on the self compilation of confidential questionnaire included questions related to the presence or exposure to HIV infection in the last year.
Since the questionnaire was not effective, in 4 out of 8 blood collection sites of Italian Red Cross, it was replaced by a confidential interview: before medical screening all donors were asked of their behaviour and advised about AIDS risk and blood transmission of infectious diseases. Donors who met medical and self-exclusion criteria were accepted for donation.
Results:

Self-exclusion by:	N. Donors	Self-excluded Donors N.	HIV+ Donors	Prevalence (%)
Questionnaire	29985	1560	11	0.036
Interview	14004	821	0	0

The self-exclusion percentage from donation obtained by both programs was 5.20 (Questionnaire) and 5.86 (Interview).
Conclusion: although screening programs should be continuously improved, our preliminary data show the efficacy of self-exclusion program by sociopsycological interview in preventing post transfusional AIDS.

4039 AIDS CLINICAL TRIALS GROUP: AN ACTIVIST EVALUATION

Eigo, Jim*; Treatment & Data Committee**
*AIDS Research Advisory Committee, NIAID; **ACT UP

Objective: People with HIV urgently need treatments; their number grows. Clinical trials programs must deliver new therapeutic agents & new clinical understanding of approved agents. ACT UP NY, an AIDS activist organization, has sought to evaluate the government network of AIDS clinical trials.
Methods: Through continual communication with New York's HIV+ community & its doctors, we determined its therapeutic needs. For 2 years we monitored the progress of the government's AIDS Clinical Trials Group (ACTG): obtaining trial accrual information, copies of all clinical trials protocols, copies of the minutes of ACTG planning committees; interviewing local investigators & top ACTG officials; attending all relevant public meetings (& some that weren't). In fall 1989 we analyzed our data.
Results: HIV+ people need drugs to: treat & prevent new & recurring infections & malignancies; fight HIV; boost depleted immune systems; counter chronic blood deficiencies. ACTG has delivered none. No ACTG data has resulted in a label change for an approved drug. Because of slow accrual in open ACTG antiviral trials, & because there are no large ongoing trials for other agents, nor prospective efficacy trials due to a change in data management: ACTG will deliver nothing soon.
Conclusion: ACTG has thus far failed. Without fundamental change, its future record will not improve upon its past.

4040 THE ROLE OF THE PATIENT ADVOCATE IN THE DEVELOPMENT OF TREATMENT PROTOCOLS FOR DIDEOXYINOSINE (ddI).

Barr, David*; Lipner, J.*
*Lambda Legal Defense and Education Fund, New York, USA.

Objective: An analysis of the creation of a program to provide ddI to patients through treatment protocols which parallel the clinical trials for the drug.
Methods: The process by which patient advocates and community-based physicians helped to create the ddI treatment program will be discussed. Patient advocates worked closely with pharmaceutical representatives, FDA officials and Principal Investigators in writing protocols that would best serve the needs of patients who need immediate access to antiviral therapy but who cannot tolerate AZT. It was equally important to write protocols that would not interfere with enrollment in Phase II clinical trials. Meetings were held with groups of physicians to gather information to determine how protocol inclusion and exclusion criteria would best meet the needs of patients. Follow-up meetings were held to alter protocols to more adequately meet patient and physician needs. Similar discussions were held with researchers to determine how the treatment protocols were affecting the clinical trial process.
Results: Over 4000 patients are currently participating in two treatment protocols which have been approved for patients who cannot tolerate or who are failing on AZT. Enrollment in the clinical trials is at expected levels.
Conclusion: (1) Patient advocates can play a crucial role in developing protocols that meet both the needs of researchers and patients; (2) the ddI model should be used as the prototype for the creation of a "parallel track" program for all HIV-related treatments.

4041 FEAR OF CONTAGION TO AIDS IN REGISTERED NURSES: A STATE-WIDE SURVEY

Meisenhelder, Janice Bell, New England Deaconess Hospital, Boston, USA.

Objective: The purpose of this correlational study is to measure the extent of RN's fear of contagion to AIDS and identify contributing factors.
Methods: An anonymous questionnaire was mailed to 200 RN's randomly selected from the state registration list. Instruments included Bouton's Fear of AIDS and Homophobia scales, 6 items on knowledge of transmission, and individual questions for fear of death, punishment, unknown, and the extent of social contact. Data analysis included correlations and multiple regression.
Results: Preliminary analysis of the first 70 returns showed fear of contagion significantly increases with an increase in: fear of the unknown($r=.64, p<.000$), homophobia($r=.65, p<.000$), lack of knowledge($r=-.50, p<.000$), lack of social contact with homosexuals($r=-.42, p<.000$) or persons with AIDS (PWA's)($r=-.32, p<.004$), and fear of punishment ($r=.22, p<.032$).
Conclusions: In this overall knowledgeable sample, emotional issues were highly related to fear of contagion. Educational programs aimed at increasing nurses' comfort and willingness to care for PWA's need to go beyond cognitive information on disease transmission, and address the affective needs such as feeling out of control (unknown) and fear of different lifestyles (homophobia), in order to be of maximum benefit.

4043 DEMAND FOR AIDS RELATED INFORMATION BY HEALTH PROFESSIONALS IN TEXAS AND OKLAHOMA.

Grimes, Richard M.; Baade, H.D.; Englander, M.S.
AIDS Regional Education and Training Centers for Texas and Oklahoma, The University of Texas Health Science Center, Houston, Texas, USA.

OBJECTIVE: Determine the nature of requests for information handled by a toll free AIDS HELPLINE for Health Professionals established to provide current literature, educational information, and clinical consultations.
METHODS: Maintain a database which records the nature of information requested, the profession and geographic location of the caller, the marketing effort that made the caller aware of the service, and the nature of the response provided.
RESULTS: Of the 395 calls handled during 1989, 16.0% related to Professional Education, 16.0% Diseases and Treatments, 11.1% Public Education Materials, 10.9% Surveillance and Statistics, 8.8% Community/Social Support Issues, 8.5% Workplace Issues, 7.2% Transmission, 5.7% Information Resources, 5% Legislative/ Legal Issues, 4.9% Testing and Counselling, 3.4% Financial/ Insurance Issues, and 1.6% were Other.
CONCLUSIONS: 1) Health Care practitioners recognize the need for professional education materials and programs. 2) Practitioners seek out consultants on AIDS diseases and treatments when their availability is marketed. 3) There is evidence to suggest that practitioners are directly involved in public education programs due to requests for educational materials, surveillance and statistical data, as well as, information on transmission. 4) Practitioners seem to be assisting their patients by attempting to resolve financial/ insurance issues and involvement with community and social support issues.

4044

EVALUATION OF BE HAVIORAL CHANGES IN HEALTH CARE PERSONNEL OF AN AIDS INFORMATION AND DETECTION CENTER.

ROSSI, LUISA*; SALAME, E**, GARCIA, ML*** ORNELAS, G**** CHAVEZ P, F***** SEPULVEDA, J*****. ***** CONASIDA, MEXICO CITY.

OBJETIVE: To determine the behavirol changes of a health care personnel group, working in direct contact with HIV/AIDS patients, giving information, medical, psychological, social support education and research, after 12 months of work.

METHODS: Ten health workers (8 women - 2 men) answered a pre-post questionnaire. The investigated variables were: AIDS Knowledge, AIDS attitudes, family support, sexual behavior, work motivation and emotions.

RESULTS: The results are presented in the following tables

	AIDS KNOWLEDGE	AIDS ATTITUDE	AIDS SUPPORT	AIDS BEHAVIOR	AIDS MOTIVATION
PRE	30%	60%	70%	30%	100%
POST	80% (+)	80% (+)	60% (-)	40% (+)	70% (-)

(+) POSITIVE REACTION (-) NEGATIVE REACTION

EMOTION	FEAR	ANXIETY	DEPRESSION	CONTENTMENT	SATISFATION
PRE	60%	40%	20%	20%	30%
POST	100% (+)	30% (+)	20%	10% (-)	80% (+)

(+) POSITIVE REACTION (-) NEGATIVE REACTION

THE AGE $\bar{X}$ IS 30.4

CONCLUSION: Health care personnel directly involved in counseling of HIV patients improved knowledge and attitudes towards HIV/AIDS there were changes in their sexual behavior in relation to AIDS prevation; however a level of anxiety and depression were detected. We presumed that in Latin American countries family education on AIDS is important since family-support is essential for health workers.

4045

INFORMATION GAPS AMONG HIV SERVICE PROVIDERS

Ouren, Jan*; Pittman-Lindeman, M.*
*Department of Public Health, San Francisco, California, U.S.A.

Objective: To identify information gaps among HIV service providers in education/prevention, treatment, services, policy and administration.
Methods: Physicians, nurses, social workers, community-based organization (CBO) staff, other front line workers and policy makers attending the 1989 National AIDS Update Conference appraised their unmet information needs at the end of the three-day conference. They responded to an open-ended question on information needs--part of the evaluation questionnaire handed out with registrants' conference packets.
Results: Four hundred forty-seven conferees (15%) completed the evaluation questionnaire. Of these, 197 (44%) identified HIV issues and concerns for which they wanted greater, in-depth knowledge. Examples of major information breaches included: asymptomatic seropositives' psychological and clinical management; updates on clinical trials; perinatal and pediatric issues; general gynecological care of the HIV-positive female; HIV-related nursing care and research; methodologies for working with Hispanic and other minority clients; undocumented women from Mexico and Central America; reaching individuals at high risk in low incidence areas; correctional facilities and HIV/AIDS--particularly adolescent-oriented facilities; the use of epidemiology to devise and direct programs; intervening in the family; ethical concerns; death, dying, and grief; involvement of the clergy; and ways to improve cooperation among CBOs.
Conclusion: HIV service providers identify a number of information gaps especially in emerging clinical and psychological issues and prevention in specific target populations. Recommendations are made for health services research priorities and the training of health care personnel.

4046

PROMOTING HIV/AIDS EDUCATION PROGRAMS ON COLLEGE CAMPUSES

Diana Woods*, Niki Hutton
Centers For Disease Control/National AIDS Information and Education Program

Objective: College campuses are important locations for disseminating AIDS prevention information to a potentially high risk audience, yet the vehicle used must be extremely visible and sustained for the campus-based education programs to be successful.
Methods: The National AIDS Information and Education Program has adapted the marketing strategy used for promoting the national media campaign for use on the college level. This prototype was presented in workshops held in conjunction with four regional conferences sponsored by the American College Health Association. A total of 600 participants included faculty, administrators, and students in colleges or departments of education, campus ministry, health educators, health care providers, residence life staff, counseling service personnel and students. The presentation is designed to teach marketing skills in a college campus environment as well as to encourage the use of national media materials in college programs.
Results: The results are not immediately measurable but the expectation is that the students and teachers will be equipped with the knowledge of how to create and sustain AIDS education programs on their particular campus. One result is an increased number of requests to the National AIDS Hotline for our materials immediately following each presentation.
Conclusion: The strategy for marketing an AIDS prevention program can be applied to other self-contained entities or communities as an effective way to provide AIDS education.

4047

ACTION ORIENTED AND PARTICIPANT OBSERVATION STRATEGIES USED TO ENHANCE PARTICIPATION OF STUDENTS IN THE PREVENTION OF AIDS

Bastien, R., Longpré, D., Thomas, R., Otis, J., Provencher, S., Lonergan, G.,
Département de Santé Communautaire de l'Hôpital Charles LeMoyne,
Greenfield Park, Québec, Canada.

OBJECTIVES: IN THE WEEKS PRECEDING THE '89 WORLD AIDS DAY, STUDENTS WERE INVOLVED IN THE DEVELOPMENT AND IMPLEMENTATION OF INFORMATION/EDUCATION AND COMMUNICATION ACTIVITIES REGARDING THE PREVENTION OF AIDS. THE PRESENTATION WILL FOCUS ON THE PROCESS INVOLVED IN THE STRATEGIES USED ("ACTION RESEARCH AND PARTICIPANT OBSERVATION").
METHODS: PARTICIPANT OBSERVATION, BASED ON AN ANTHROPOLOGICAL APPROACH, LINKED TO AN ACTION ORIENTED STRATEGY, PROVIDES TOOLS AND TECHNOLOGY TO ENHANCE THE PARTICIPATION OF STUDENTS IN THE PROCESS OF DEVELOPING AND ACHIEVING THEIR OWN CONCEPTUAL FRAMEWORK AND ACTIVITIES. WE USED THESE STRATEGIES TO FAVOUR TRANSFER OF SCIENTIFIC KNOWLEDGE CONCERNING AIDS TO STUDENTS AGE 14-17. WE ALSO USED THE SAME STRATEGIES TO SUPPORT THE DEVELOPMENT OF ACTIVITIES AND PROJECTS DESIGNED TO SENSITIZE THEMSELVES AND OTHER STUDENTS TO THE PREVENTION OF AIDS.
RESULTS: OVER A PERIOD OF 7 WEEKS PRECEDING THE '89 WORLD AIDS DAY, 256 STUDENTS FROM 18 SCHOOLS SAMPLED ON 22 POSSIBLE, PLAYED AN ACTIVE ROLE IN ELABORATING 37 DIFFERENT ACTIVITIES AND SENSITIZED DIRECTLY MORE THAN 4 000 STUDENTS. THESE ACTIVITIES WERE MADE POSSIBLE WITH THE SUPPORT OF 14 SCHOOL NURSES, 3 DOCTORS AND 1 INFORMATION/EDUCATION/COMMUNICATION (IEC) SPECIALIST. THEIR ACTIVITIES FOCUSED ON THE FOLLOWING DIMENSIONS OF AIDS: DEMYSTIFICATION OF THE TRANSMISSION MODES, ROUTES OF PROTECTION AGAINST AIDS AND HIGH RISK BEHAVIORS.
CONCLUSION: WE BELIEVE THE SUCCESS OF THIS PROJECT IS RELATED TO THE METHODS AND STRATEGIES USED, WHICH PROMOTE THE IMPLICATION OF STUDENTS RELATIVE TO THEIR CONTEXT AND CULTURE, THEIR SPECIFICITY AS WELL AS CONSTRAINTS AND FORCES OF THEIR ENVIRONMENT. EACH STEPS OF THE PROJET SHOWS HOW TO STIMULATE AND ACHIEVE THE ACTIVE IMPLICATION OF THE STUDENTS. WEAKNESSES AND STRENTGHS OF ACTION-RESEARCH AND OBSERVATION PARTICIPANT STRATEGIES IN THEIR FINANCIAL, HUMAN AND ORGANIZATIONAL PERSPECTIVES ARE ALSO DISCUSSED.

4048

ABILLA, WALTER DAN - UNIVERSITY OF NAIROBI
BOX 30197, NAIROBI, KENYA.

Objectives: The study was designed to elicit as much information on youth awareness, knowledge, attitudes and the participation in existing Local and National Aids Control Programmes in Kenya. The study further investigate social, cultural, and psychological factors known to militate against the fight against Aids. The range of youth awareness, attitudes towards scientifically designed control methods.

Methods: Survey data was the major source of data collection. Only youth between 15-20 years were included for the interview. Random sampling was used in the final stage in the selection. 4 secondary schools were selected, that is, 2 schools in Busia and 2 schools in Migori town. 400 youth were interviewed; 200 in Busia and 200 in Migori.

Results: The first characteristic that became apparent was that 90% youth in Migori and 72% in Busia are not aware of any existing programme for Aids Control in Kenya. Their knowledge on Aids with regards to origins, symptoms, causation, transmission were also limited. 95% in Migori and 85% in Busia acknowledged their willingness to participate in Aids Control Programme only if given enough education, information and material on Aids.

Conclusion: More educational programmes on Aids must be introduced in all primary schools to University level, in all youth clubs, village to village programmes on Aids, lectures, movies on Aids, posters must be intensified from grass root to National level.

4049

AN EVALUATION OF AN AIDS EDUCATION PROGRAMME FOR "COLOURED" SCHOOL TEACHERS

Engelbrecht, Heather; Wilson, A.
AIDS Centre, South African Institute for Medical Research (SAIMR), Johannesburg, South Africa (SA).

Objective: To meet the information and training needs of "Coloured" school teachers to enable them to educate and counsel pupils in Johannesburg, SA.
Method: An initial assessment of needs was done by means of interviews, and training was designed to meet specific requirements. Five groups of 20 teachers attended a train-the-trainer course for 2 days under the supervision of 2 experienced AIDS educators. An AIDS education manual was made available. Data were collected by a pre and post-test questionnaire and action research to evaluate training and monitor the programme.
Results: Findings suggest that teachers' needs were appropriately met, and that the resultant education was successful in educating and counselling coloured school pupils about AIDS. The training programme is unique to the coloured community and its success is evident in the fact that it has been instituted as an ongoing educational programme for coloured schools. However, results cannot be generalisable to other school communities because the coloured community has specific cultural norms and values which may not be relevant across cultures.
Conclusion: For an AIDS education programme to be highly effective, it has to be specially designed and executed to meet specific needs which exist in certain groups. Target groups for education have to be considered on their own merit and the prevailing cultural, religious, political and socio-economic norms or values will invariably dictate the best methods and materials for AIDS education.

4050

INNOVATIVE SCHOOL AIDS EDUCATION PILOT PROJECTS IN DEVELOPING COUNTRIES

Bennett, Diane*; Deniaud, F.**; Erben, R.*; Flanagan, D.; Katerega, C.*; Kyazze, J.**
*World Health Organization, Global Programme on AIDS, Health Promotion Unit, **UNESCO

Objectives: (1) to create school AIDS education programmes based on young people's actual behaviours and concerns rather than theories of developmental stages; and (2) to develop methods to evaluate school programmes not ony on enthusiasm and knowledge gained but on behavioural and health indicators.
Methods: (1) Initial assessments of students' knowledge, attitudes, behaviours and practices (KABP) - including sexual behaviours - and concerns related to HIV through focus groups and interviews. (2) Educators, young people, and community activists develop school-based strategies to address needs, usually including written material, discussion, drama, music, role-playing. Programme materials are integrated into health, home economics, biology, and other subjects, and into school clubs' activities. (3) In some countries, students use "little media" to design health messages for out of school youth. (4) Pilot project schools and communities are comparepd with control groups before and after the programme, on knowledge tests, KABP interviews, and indicators such as adolescent sexually transmitted disease and pregnancy rates. Univariate and multivariate analysis is used.
Preliminary results and conclusions: (1) Young people in many countries are sexually active at ages at which educational authorities may feel sexual classroom discussions are inappropriate. Focus group assessment experiences may help educators to reconsider the appropriateness of such topics as condoms. (2) Significant positive changes in knowledge, attitudes, and behaviour are associated with extra-curricular reinforcement of curriculum messages. (3) Active development of health messages for out of school youth by students is associated with an increase in safer sexual behaviour in sexually active students. (4) Frank discussions of sexuality are not associated with new sexual behaviour in students not already sexually active.

4051

WHAT WORKSITE AIDS-HIV CONCERNS DO EMPLOYEES HAVE & DOES EDUCATION DECREASE THE CONCERNS?

Verolini, Denise*; Bartnof, HS** #; Bostrom, A.
*Calif. School of Professional Psychology, Alameda, Calif, USA; **Univ. Calif. San Francisco School of Medicine, San Fran., Calif, USA; # AVERI, AIDS Virus Education and Research Institute, San Francisco, Calif, USA

Objective: To describe the types of worksite AIDS-HIV (A-H) concerns which white-collar employees have and the effects an AIDS-HIV educational seminar (AHES) will have on those concerns.
Methods: N= 1,652 white collar employees from 8 AIDS-endemic U.S. & Canadian cities were surveyed before & after an onsite 2-hour AHES. In 1989-1990, attendees were asked whether they had concerns about using (1) shared office equipment with a co-worker who has AIDS; (2) the same bathroom: and (3) the same coffee machine or drinking fountain.
Results: Of the sample, 39.4% agreed or strongly agreed (AOSA) with (1) before the seminar, 10.3% after ($p<0.001$); 51.4% AOSA with (2) before, 16.8% after ($p<0.001$); and 48.3% AOSA with (3) before, 13.9% after ($p<0.001$). Demographic & knowledge correlates will be presented.
Conclusions: As the A-H pandemic continues to worsen, the potential for interpersonal disruption at the worksite and elsewhere is significant. Understanding the types of concerns which employees have, and knowing their accompanying demographic correlates will be important in implementing A-H curricula. While a significant number of white-collar employees have A-H-related concerns about sharing office equipment, bathrooms, coffee machines, and drinking fountains, these concerns are mitigated significantly by worksite AHES. These data have significance for U.S. and other worksites which have not implemented AHES.

4052 AIDS EDUCATION IN THE WORKPLACE: the European Experience

Raymond, M J, Scottish Health Education Group, EDINBURGH

Objective: An overview of the state of the art of AIDS education activities in European Workplaces, updating a previous study carried out for the World Health Organisation.

Methods: Drawing from interviews and written material, broad themes will be identified and illustrated by brief case studies.

Findings and conclusions: Discussion will focus on the main factors shaping the development of workplace initiatives within Europe and will draw comparisons with patterns of development in North America.

4053 EMPLOYER RESPONSES TO AIDS: ETHNIC MINORITY VERSUS MAJORITY FIRMS

Miller, Robin L.*; Humes, S.*; Barr, J.**; Warshaw, L.**; Reinfeld, M.*
* The Gay Men's Health Crisis, Inc., New York, New York.
**The New York Business Group on Health, Inc., New York, New York.

Objective: While it is sufficiently documented that ethnic minority communities are disproportionately affected by AIDS and are less well educated about AIDS than their majority counterparts, few AIDS preventive education efforts targeted at ethnic minority groups have utilized the workplace. In fact, little is known about the efforts of organizations that employ primarily ethnic minority workers to educate their staff. The goals of the present analyses, therefore, were to explore workplace AIDS education efforts in organizations employing primarily ethnic minority individuals and to compare those organizations with organizations employing primarily majority individuals.
Method: The Gay Men's Health Crisis, Inc. and The New York Business Group on Health, Inc. surveyed 2,637 employer organizations in the greater New York metropolitan area in January 1990; with incentives for participation and endorsements from three credible organizational coalitions, the expected participation rate is 30 percent (n=791). Organizations were sampled from major business coalition listings, supplemented with coalition listings for non-profit associations and arts/entertainment organizations, in order to insure a representative and diverse sample. Human resources administrators in each organization received an eight-page survey designed to provide information concerning personnel demographics, past AIDS education efforts, and attitudes about AIDS education in the workplace. The majority of analyses will employ log-linear models and crosstabulations, supplemented with descriptive statistics.
Results/conclusions: Results of the survey data have not yet been analyzed. However, a better understanding of employers' attitudes toward AIDS education in the workplace has important implications for facilitating AIDS prevention efforts among ethnic minorities through work settings. It is hoped that the results of the survey will offer health education professionals guidelines for strategies and tactics to intervene on the behalf of minority communities through the occupational sector.

4054 THE WORKPLACE: LARGE ADVANCES FOR SMALL BUSINESSES

Beverly Schwartz*, Ken R. Williams
U.S. Centers for Disease Control, Atlanta, Georgia, USA

Objective: This paper identifies and discusses leverage points, motivating factors and programs successful in stimulating small businesse to educate employees about the prevention of HIV.
Methods:: Needs assessment surveys have been used as the basis for designing education strategies responsive to small business needs and capacities. Professional membership organizations consisting of small business owners were enlisted to assist in the development of program content, structure, and initial implementation of the project's pilot phase.
Results: The programs offered unique perspective and approaches in identifying applications to a multiplicity of organizational structures. Evaluation methodologies for program usage by employers and impact on employees knowledge level and behavior will be discussed.
Conclusion: The worksite must be acknowledged as a vital target area, and utilized as a primary vehicle for communication of adult AIDS education and prevention programs. Indeed, the development of usable programs for this population appears to be a most important step in reaching a lrge segment of individuals who may effectively be reached only throughtheir place of employment.

4055 AN ENQUIRY INTO THE SOCIAL EXPERIENCE OF AIDS IN A WORK CONTEXT

Gerst, André*; Auquier, P** ; Court, E * ; Manuel, C** : Enel, P ** ; Sambuc R**.
* GIMS. ** Public Health Service, Marseilles, France.

Objective : To determine attitudes to AIDS in a work-context and to seek possible means of modifying reactions to AIDS between employer and employee and between employees.

Methods : Definition of a random sample representative of the working population of a large town which calls on the services of industrial health inspection : analysis of 800 written, anonymous questionnaires, composed of open and yes/no questions, and divided into two parts : 1) general knowledge on AIDS-infection ; 2) attitudes to typical scenario situations.

Results : We found, according to professional categories concerned, either a lack of basic information with subjective, individualistic attitudes, or a paradoxical relation between a high level of knowledge and individual, highly emotional reactions, or again a reasonable balance between level of knowledge and social relations. The semantic analysis of replies to the question on evocation of the words AIDS allowed us to distinguish distinctly these different attitudes.

Conclusion : It appears necessary to develop campaigns of informatin and prevention within a work-context, aiming to improve knowledge and to de-dramatise situations where the risk of infection is practically non-existent. Communication-strategies should take into account this kind of analysis

4056 **SOCIAL AND CULTURAL ASPECTS OF ARC/AIDS PATIENTS IN A NATIONAL AIDS CENTER IN RIO DE JANEIRO, BRAZIL**

Marins, Helena*; Santos S.*
*Social Work Service, University Hospital, Federal University of Rio de Janeiro (FURJ), Brazil.

Objective: To study social and cultural aspects of ARC/AIDS inpatients in an AIDS reference center.
Methods: Four hundred and seventy five ARC/AIDS inpatients were studied for demographics and HIV transmission at the FURJ University Hospital, between 07/87 and 12/89, through individual interviews and family meetings.
Results: Eight nine percent were males and 11% females; 55% were under age of 35, 42% between 35-60, and 3% over 60 years old. Seventy six percent were white, 10% black and 13% were mixed; 42% had less than high school education, 42% had high school education, and 16% had more than high school education. The commonest profession was university faculties (4.2%), hairdressers and cookers (3.8% each). Forty nine percent were homosexuals, 15% bisexuals, and 8% heterosexuals; 15% received blood products, 7% were IV drug users, and 9% had an indeterminate risk factor.
Conclusions: 1) Homosexuals predominated among AIDS patients, but the high number of bisexuals (15%) and blood recipient patients is worrisome; 2)The high prevalence of university faculties among AIDS patients does not reflect the reality of other hospitals, and may reflect the non random admission into this particular ward.

4058 HIV AND PRISON SERVICE POLICY: PROBLEMS AND SOLUTIONS.

Wool, Rosemary*.
Director, Home Office Prison Medical Service, London, U.K.

The Medical Directorate is responsible for the formulation of policy on HIV in the Prison Service in England and Wales. The prison service is a national organisation and is currently developing a broad strategic approach to the problems HIV presents in penal establishments. This includes the provision of guidelines on health and safety of staff; a national education package for inmates based on an award winning film shot on location in prisons; a similar package for operational staff; the development of throughcare of HIV+ inmates; the development of a drugs education package for prisoners; a national counselling service based on the WHO HIV preventive counselling model and inservice training courses for specialist staff intimately involved in the management and care of prisoners with HIV infection. The service is currently developing links with the National Health Service which will look after prisoners who are ill and its own care and resource facilities for those prisoners with AIDS who for one reason or another may not be eligible for release. This paper will outline the problems presented by HIV in the British prison system. The policy and practice in operation and also being developed will be described.

4059 **U.S. CRIMINAL JUSTICE AND CORRECTIONAL AGENCIES' RESPONSE TO AIDS: PERCEIVED ROLES AND NEW OPPORTUNITIES**

Hammett, Theodore M.; Hunt, D.; Moini, S.,
Abt Associates Inc , Cambridge MA USA.

Objectives: To examine the perceived roles of criminal justice and correctional agencies in responding to AIDS and to suggest opportunities for expanded activity, particularly in education.
Methods: Based on multiple surveys of correctional, law enforcement, and probation and parole agencies, 1985-1989.
Results: Criminal justice and corrections agencies have daily contact with large numbers of HIV-infected persons and individuals at risk for infection, particularly as the epidemic becomes more concentrated among IV drug users. Thus far, these agencies' responses to the epidemic have emphasized preventing transmission (by offenders to staff and among offenders) through precautionary and control mechanisms and taken relatively little advantage of their unique opportunities to provide education to high-risk populations. Most correctional systems provide some live AIDS education, but the quantity and quality vary significantly. Many opportunities for innovative approaches (e.g. peer education, risk reduction counseling, and pre-release education) have been insufficiently exploited. Law enforcement and probation and parole agency staff have taken little advantage of their opportunities to be AIDS educators in the community. Only a few judges have made HIV education a condition of probation for prostitutes, drug-involved offenders and others at risk.
Conclusions: Valuable expansions of the HIV-related roles of criminal justice and corrections agencies need not be fiscally burdensome. They require more a shift in consciousness than in resources. Taking advantage of these educational opportunities also makes it possible to forge a vital partnership between public health and criminal justice.

4060 HOUSING AND RESIDENTIAL HEALTH-RELATED FACILITIES FOR PEOPLE WITH AIDS

Davis, Jim L., B. Arch., contact author & contact for PWA Housing Committee of ACT UP/New York (AIDS Coalition to Unleash Power), guest lecturer on housing at School of Architecture/ Pratt Institute, Brooklyn NY, cooperative housing manager
King, Charles, lawyer specializing in homeless people w/ AIDS, at Coalition for the Homeless Inc., New York City
Sawyer, Eric, business consultant
Braverman, Gedalia, PWA housing activist
Warn, Doug, social worker, Director of Planning & Development at BRC Human Services, Lower East Side, New York City
Macdonald, Kent, architect (all above members Housing Committee)

Objective: Explain that: to protect health, housing is a need (to avoid opportunistic infections, etc.) for the 25,000 homeless people with AIDS in the U.S., and everywhere. Solutions: Metnod: Define various types of 1. housing (apartments), 2. housing with supportive services, & 3. various residential health-related types of facilities on the "continuum of care" for PWA's.

Summarize needed and the few existing governmental sources of funding for development and operation of such housing and facilities.

Summarize considerations for the planning of required services (in the building and/or visiting), and for the architectural design program for the buildings.

Graphics will be included.

4061 THE NECESSITY OF SELF-EMPOWERMENT BY THE PERSON WITH HIV.

Long, Dave*; Hodel, D.@; Meally, R.@; Uitdenbosch, P.@; Layne, G.@; HANSON, T.@
*Healing Alternatives Foundation, San Francisco, California, USA.
@National Association of Buyer's Clubs, San Francisco, California, USA.

Obj:Our theory is the more involved the individual becomes with their illness the more they know about AIDS and the O.I.'s they may come down with, the easier it is for the individual to use positive attitudes to help keep themselves healthier longer.

Meth:The way we dealt with this is a group of PWA's got together and collected as much data as possible through avenues such as Med-line, Med. Journals, Newspapers, Newsletters etc. We then formed a library where other PWA's could study information on AIDS and O.I.'s. By having to look up the data themselves we found they took a stronger interest in the information and were able to discuss and confront their Doctor's on certain decissions that they once felt helpless about. They could in turn keep their doctors on the cutting edge by in fact knowing more about certain treatments than the Dr's themselves.

Res:Nationally we estimate there are over 10,000 PWA's useing our services.

Con:The National Association of Buyer's Clubs feel it is in the best interest of the PWA and the Dr. to try to get the individual involved with their illness as much as possible. Together the PWA and the Dr. can make this a manageable chronic illness. The benefit to the Dr. is two-fold, all his patients become information researchers and when treatments do look promising the active patients will be there to help push the FDA for quicker access. The patient in turn becomes a long-term survivor and in turn also benefits.

4062 PEOPLE WITH AIDS AS ACTIVISTS: REDEFINING THE ROLE OF THE PATIENT.

Powers, Tim; Glass, J.E.
AIDS Coalition to Unleash Power, New York, NY, USA

Objective: To examine the emerging conflicts and new ethical questions which are being raised by the PWA (People with AIDS) activist movement.

Methods: We offer an analysis of AIDS activism in the United States over the past three years, interviews with PWA activists, a critical examination of the relevant demands and printed materials which this movement has put forth, and a discussion of conflicting viewpoints within the movement on the issues of patients' rights and personal autonomy.

Results: There is a widely held belief that PWA's are involved in AIDS activism because they believe the pace of scientific progress to be sluggish. While this might have been true at the onset, the demands of PWA activists are taking on the character of a civil rights struggle (i.e. the right to self-representation, a guaranteed amount of input and decision-making power in the governmental bodies which hold authority over their lives, such as, the U.S. Food and Drug Administration and the National Institutes of Health.)

Conclusion: In order to minimize conflicts between patients and researchers/doctors, it is necessary to craft a new structural framework for the ethical analysis of treatment and research issues which recognizes a sharing of decision-making power with the communities of people living with the disease.

4063

HIV FROM A TO Z - A SELF CARE MANUAL

Blomberg, Patty;* Cox,S.; Fishman,E.; Himovitz,M.; Jackson,A.; Jannson,C.; O'Riordan,L.; Pardi,S.; Vollenweider,P.;**
*Sacramento AIDS Foundation
**Northern California Community HIV Activists

OBJECTIVE: This manual was developed by and for the thousands of HIV positive individuals in the Northern California Region. The comprehensive nature of the manual covers the critical concerns of individuals from all ethnic groups, and all risk groups.

METHODS: A unique methodology was set up to design this manual. A series of 'Town-Hall Meetings' were held over a two month period to solicit input from as broad a spectrum of community activists as possible. Over 90 individuals representing IVDU/HIV groups, Gay/Bi, and Heterosexual and Ethnic Groups, HIV Women and Children's Groups, and the Medical and Social Work Community, participated in the brain-storming sessions that created the contents of the manual. 38 writers and 25 artists worked on the development of the manual. A team of 7 editors, including a physician and attorney reviewed the manual for medical and legal correctness. An Oral Presentation of this project will allow us to share this unique, workable methodology with others who share our blend o rural/urban/ethnic/risk group mix.

RESULTS: Published in May 1990, this 200 page manual contains the following nine chapters: 1) Coming Out, Social Issues; 2) Medical and Treatment Concerns: 3)The Whole Body, Nutrition and Exercise; 4)Freeing Myself from Addictive Behaviors, IVDU concerns; 5) The Power of the Mind, Mental and Spiritual; 6)Th S's and one R, Sex, Safe, Social, and Recreation; 7)Legal Advocacy; 8) Alternative Therapies; 9) The Language of HIV and IVDU. Original art work was donated for this manual and integrated through out the manual to illustrate behaviors such as cleaning works, explicit safe/unsafe sexual practices, family and volenteer concerns, grieving, etc. Funds generated from an Art Auction hav gone to home health nursing needs in the community

CONCLUSION: HIV A To Z will be made available to all individuals requesting a copy at local HIV test sites, AIDS Foundations. Out and In patient care clinics IVDU/HIV behavior change groups, and family support groups. This manual will b updated at regular intervals to stay current with changes in the HIV epidemic. Coordination with all HIV Health Care Providers in Northern California will be made possible by the original grant from The Sierra Foundation.

4064 COMMUNITY ORGANIZATION AND PERSPECTIVES ON AIDS STRUGGLE IN MEXICO.

Luna, Federico+; Galvan, F.++; Gonzalez, R.+++
+UNAM, GIS-SIDA, AC, Mexico; ++Universidad Autonoma Metropolitana, GIS-SIDA, AC, Mexico; +++UPN, GIS-SIDA, AC, Mexico.

Objectives: To shape a patron of NGO's working on AIDS; identifying and illustrating areas of influence of these groups, as well as characteristic actions; relating social groups action with public policies development. Methodology: Interviews documental and media analysis, in-vive research, etc. Results: There are at least from 30 to 40 NGO's working on AIDS in Mexico, participating in a liberal and progressive wing (a). They present deep problems on organization, financing and definition of objectives. Apparently they follow a division of tasks but only very few of them got a policie on information, prevention, and HIV infected support and organization. Although their sphere of influence is limited, growing is not denied, on the other hand there are 4 or 5 fundamentalist and neoconservative groups; which has got enough financial and organizational resources, getting a big impact on public opinion and in consequence indirectly on making of governmental strategies. Conclusions: A deeplest organizative structure of type a groups is needed, as weâl as a bigger clarification on making strategies and on timing and hierarchization of them.

4065 EDUCATION IN A SMALL, CONSERVATIVE COMMUNITY FROM THE PERSPECTIVE OF A COMMUNITY BASED ORGANIZATION

Tresidder, Judith*
*Executive Director, AIDS Committee of Guelph and Wellington County, Guelph, Ontario, Canada

Objective: To prevent the spread of HIV infection through education. How is education - prevention accomplished in a community which wishes to believe HIV/AIDS is a reality only in larger cities and to those "other people"? Methods: Two aspects of education were investigated: 1) measurement of response in groups which requested our expertise in the field of education and groups which the AIDS Committee of Guelph and Wellington County targeted for education; and 2) relevance of presentation format geared to population: utilizing 1) knowledge of the group, inclusive of their language and beliefs; 2) varied methods of conveying information for example, lecture, drama, discussion.
Results: 1) Groups which accessed our resources continue to request information workshops. Groups which were targeted - cancelled appointments, did not contact us for further information and/or workshops. 2) Presentations geared to population are dynamic - dialogue occurs, ideas are exchanged.
Conclusion: Education must be presented in a manner which addresses the individual in any group. Through ongoing education - prevention of the spread of HIV infection will/does occur.

4066 A MODEL FOR COOPERATION BETWEEN AN UNIVERSITY MEDICAL CENTERS (UMC's) AND COMMUNITY-BASED ORGANIZATIONS (CBO's) RESPONDING TO HIV DISEASE.

Bastien, Arnaud; Freedman, P.; Conde, A.; Sinclair, L.; DeHovitz, J. SUNY AIDS Prevention Center(APC),Brooklyn,NY.USA

OBJECTIVE: To describe the role of an UMC in the development of HIV educational/preventive services for CBO's.
METHOD: The HIV epidemic provides an opportunity for UMC's to assist CBO's to enhance the effectiveness of their HIV related services. Specific assistance provided by UMC's includes: 1.Facilitating evaluation of CBO programs using standard evaluation methodology 2.Provide HIV education and training for CBO staff. 3.Facilitate referral to clinical care and clinical trials. 4.Provide technical assistance with fundraising (source identification /provision of epidemiologic data) 5.Coordinate CBO's interaction to avoid duplication of services.
RESULT: The SUNY APC has provided leadership in developing a coordinated community response to the HIV epidemic in a multicultural population in Central Brooklyn. HIV specific education and services programs have been developed for women, adolescents and selected immigrant populations with consequent reduction of duplicated services.
CONCLUSION: UMC's can provide technical assistance needed to transfer the rapidly changing knowledge base of HIV disease to CBO's. This can enhance service development, increase access to medical service and prevent program duplication.

4067 WORKING TOGETHER WITH AFRO BRAZILIAN RELIGIOUS LEADERS IN AIDS PREVENTION AND CONTROL IN SÃO PAULO

Inglesi, Elisabete*;Fernandes,M.E.*;Ferreira,A.C.*Ferreira,G.**
*Reference and Training Center,**Tradition and Culture of Orixás.

In November,1988 the Department of Health started to mobilize the leaders of Candomblé (C.),an Afro Brazilian Religion,to develop Aids Prevention and to stablich together "safe rituals".The C. has believers form all social classes,black and white people. being most of them from the poor segment of the society. According to official reports,until 1982 São Paulo State had 1200 houses of C.. The believers go to the C. seeking for an appointment with the "Father or Mother made of Saint" specially to solve their Health problems.In our country, it is very known that the religious rituals of C. involves individual and sometimes massive scarification rituals done with a pocket knife.The Father and the Mother made of Saint has great prestige and good reputation in the community: whatever they say to the population is accepted as advice.During the period of November,1988 until December,1989, 40 leaders of C. worked together with the Department of Health on Aids Prevention. The strategy was periodic meetings and trainings. The decisions were taken together and the Health professionals from the Educational Unit for Aids went visiting the houses of C. to see how they were doing the safe rituals. All the 40 leaders are committed with the work and because this strategy is very succesful others leaders are asking to be trained and to participate in the meetings.The authors started to discuss with the leaders a seroprevalence study in the believers to analyse the importance of scarification on HIV transmission.

4068 FINANCIAL MONITORING OF HOSPITAL CARE FOR HIV INFECTED PATIENTS AT PATIENT-LEVEL OR HOSPITAL-LEVEL

Jong, Jan T.L.*; Dijkgraaf, M.G.W.**; Poos, M.J.J.C.*; Borleffs, J.C.C.**; Jager, J.C.*
*National Institute of Public Health and Environmental Protection, Bilthoven, The Netherlands, **University Hospital Utrecht, The Netherlands.

Objective: To implement an expert-system designed for finance administrators and economists concerning treatment of HIV infected patients in the hospital.
Methods: Interviews with financial experts within the hospital were used to define a menu-structure on top of an existing data base, in which data related to (costs of) hospital care for each HIV infected patient individually are stored. The menu-structure is linked to a number of programs in DOS-format containing statements for data base manipulation.
Results: Information retrieved by selecting choices from the menus may include resource usage and costs of care for individual patients within any time-interval. Likewise, information retrieved may include total numbers and costs of different hospital activities like consultations, diagnostic procedures, and so on, for all patients combined and again, for any time-interval. The amount of time needed for data retrieval varies from several seconds to a few minutes depending on the menu options selected.
Conclusion: The expert-system provides a powerful tool for hospital administrators and AIDS researchers in economics to monitor the development of costs of HIV infection within the hospital.

4069 THE SOCIOCULTURAL AND ECONOMIC IMPACT OF AIDS ON SOCIETY: EPIDEMIOLOGICAL DEVELOPMENTS AND PUBLIC POLICY

Van den Boom, Frans M•; Jager, JC••; Reinking, DP•; Postma, MJ••;
• Netherlands Institute of Mental Health, Utrecht, The Netherlands;
•• National Institute of Public Health and Environmental Protection, Bilthoven, The Netherlands.

Objectives: Analysis of the present and exploration of future impact of the HIV/AIDS-epidemic in the Netherlands in order to contribute to: 1) the formulation of long term policy; 2) a multinational study on the impact of AIDS (WHO-Europe).
Methods: Literaturestudy, application of mathematical models, delphi method and limited own research. Working design: 1) a description of the impact of HIV/AIDS so far; 2) exploration of the mutual influence of possible and plausible future trends (in epidemiology, in sociocultural issues and in economy) and public health policy.
Results: All available information on epidemiology, relevant to construct 'scenarios' on the present and future impact of AIDS, has been summarized systematically. A reconstruction of the AIDS/HIV epidemic so far is made and a number of simulations, accounting for epidemiological uncertainties and the consequences of a number of public health strategies have been conducted (e.g. early treatment, diminishing group size, behavioral change and relapse, vaccin, antiviral therapy). The different simulations will be connected with cost studies and sociocultural trends.
Conclusion: By combining information from a regular updated epidemiological framework, social sciences and economy, a rational, scientific based rational contribution to long term policy making is possible.

4070 TRENDS IN HOSPITAL UTILIZATION BY AIDS PATIENTS IN SAN FRANCISCO, 1984-1988

Hernandez, Sandra R.*; Strychaz, F.**; Baskett, L.H.**; Payne, S.F.*; Rutherford, G.W.*; Werdegar, D.*
*San Francisco Department of Public Health, San Francisco, California, USA;
**West Bay Hospital Conference, San Mateo, California, USA.

Objective: To examine trends in hospital utilization by AIDS patients in San Francisco from 1984 to 1988.
Methods: We reviewed hospital discharge data from all 14 non-federal acute care hospitals in San Francisco for San Francisco residents only. We calculated numbers of living AIDS patients (LPWA) and their total number of days alive during 1984-1988 and for each of the five years from AIDS surveillance data and computed average percentage of living patients hospitalized during each of these years.
Results: During the study period, 10,978 hospitalizations and 121,688 hospital days were reported for AIDS patients in San Francisco, corresponding to an average daily census of 83.3 patients and to an average length of stay of 11.08 days. Trends over time were:

	Patient Days		Hospital Days		Percent
Year	Total	Daily	Total	Daily	Hospitalized
1984	125,037	341.6	11,470	31.3	9.2
1985	247,123	677.0	19,330	53.0	7.8
1986	356,976	978.0	28,752	78.8	8.1
1987	536,907	1,471.0	29,001	79.5	5.4
1988	726,479	1,984.9	33,135	90.5	4.6
Total	1,982,522	1,085.1	121,688	66.6	6.1

Conclusions: The average percentage of LPWAs hospitalized in San Francisco continues to decrease despite increasing patient load.

4071 MORBIDITY ASSOCIATED WITH HIV INFECTION, UNITED STATES, 1983-1987

Rosenblum, Lisa; Buehler, J.; Moien M.
Centers for Disease Control (CDC), Atlanta, GA and Hyattsville, MD, USA.

Objective: To describe the morbidity and spectrum of disease associated with HIV infection among persons hospitalized in the United States.
Methods: We analyzed records with ICD-9-CM codes for HIV infection or AIDS from the National Hospital Discharge Survey (1983-87), which is based on a representative sample of discharges from nonfederal short-stay hospitals.
Results: During 1983-87, hospitalizations among patients diagnosed with HIV/AIDS increased from 1.3 to 24.3 per 100,000 persons. Of 137,200 such hospitalizations during 1983-87, most occurred among persons who were 25-44 years of age (77%), white (69%), and male (92%). Among men 25-44 years of age, the group most affected by the HIV/AIDS epidemic, HIV/AIDS admissions increased from 7.9 to 99.8 per 100,000 persons during 1983-87, and in 1987, accounted for 6.6% of all hospital days in the Middle Atlantic States, and 7.8% of hospital days in the Pacific States. Illnesses included in the CDC AIDS case definition occurred in 71% of the HIV/AIDS admissions during 1983-87; Pneumocystis carinii pneumonia and/or Kaposi's sarcoma occurred in 42%. Other frequently occurring illnesses included infections (42%) (such as pneumonia, sepsis, and urinary tract infections), blood dyscrasias (28%) (such as anemia, thrombocytopenia, and agranulocytosis), gastrointestinal (16%), metabolic (13%), and renal (7%) disorders, and drug abuse (7%).
Conclusions: These data provide a minimum estimate of HIV-related hospitalizations because HIV/AIDS may be underreported on discharge records. HIV/AIDS is an increasingly important reason for hospitalizations and is associated with a broad spectrum of severe morbidity.

4072 PATTERNS IN THE USE OF MEDICAL SERVICES THROUGH TIME BY AIDS CLINIC PATIENTS

Henke, Curtis J.*; Greenblatt, R.M.*; McMaster, J.R.*
*University of California, San Francisco, California, USA.

Objective: This paper examines the utilization of outpatient physician visits (OPVS) and probability of hospitalization (HOSP) by AIDS clinic patients as their HIV-related disease progresses after first symptom. Specific questions are a) how does utilization change through the course of the illness, b) are there tradeoffs between OPVS and HOSP, and c) what are the influences of health insurance, patient income, stage of illness, and therapies used.
Methods: Data are taken from quarterly telephone interviews of a panel of patients initially sampled from the UCSF AIDS clinic. The analyses reported here use random components and logistic models, estimated with data taken from 186 interviews with 70 patients.
Results: Each quarter (3 months), OPVS averaged 10, and HOSP averaged .14. Average time since first symptom was 12 quarters (range 1 to 40). Quarters elapsed since first symptom had no effect on OPVS per quarter ($p=.164$, 95% C.I. (-.05, .30) for incremental change). There was no effect of patient cost sharing on OPVS ($p=.449$), but after the diagnosis of AIDS there was a 2.7 increase in OPVS per quarter ($p=.036$). HOSP declined 20% each quarter ($p<.001$). HOSP was 71% lower ($p=.040$) for patients with cost sharing, and 88% higher ($p=.014$) for those with history of pneumocystis pneumonia.
Conclusion: Patient care settings without the treatment protocols which commonly dictate the utilization patterns in the university clinic might show more variation in OPVS than found in our sample. The decline in HOSP through the illness cycle suggests that innovations which prolong life of AIDS patients may increase cost less than proportionally.

4073 HIV SERVICE AND COST PROFILES IN SELECTED CITIES

Baitty, Robert*; Berk, M.**
*Health Resources and Services Administration, Public Health Service
Department of Health and Human Services, Rockville, Maryland, **HOPE Center for Health Affairs, Bethesda, Maryland.

Objective: Measure and compare the use and cost of services provided in selected Health Resources and Services Administration (HRSA) HIV Service Demonstration Projects.
Objective, Methods, Results, and Conclusion.
Methods: Data was collected on the use and cost of a wide range of health and social support services provided to more than 1000 clients in selected HRSA supported Service Demonstration Projects. Selection was based on cities having diverse clienteles and reimbursement environments. Data was abstracted from management information systems, case management records, and administrative and medical records.
Results: Two profiles were developed for each city: 1) demographic profile of people served; 2) person-level profile of services used in 1989 and their cost. Services range from hospital inpatient and outpatient to home health and counseling. Data were obtained for intravenous drug users, women and children, gay/bisexual men, and minorities.
Conclusion: Principal findings: 1) nearly 2/3 of clients in one project had no public or private insurance; 2) costs per hospitalization rose sharply during the year in one city; 3) non-hospital costs accounted for a higher proportion of total cost than in earlier studies.

4074 AMBULATORY CARE COSTS AND INDIRECT COSTS IN SYMPTOMATIC HIV-DISEASE: A TIME-ORIENTED HEALTH OUTCOME STUDY (ATHOS)

Lubeck, Deborah; Kehr, C., Fries, J.
Stanford University, Stanford, California, USA.

Objective: To employ the ATHOS data banks to track ambulatory care utilization and the indirect costs of disease management.
Methods ATHOS design is based on observational study of 1,000 symptomatic male patients seen at multiple sites. Data are collected from medical records and from periodic patient self-administered questionnaires that cover health care utilization, drug side effects, and quality of life. This paper focuses on ambulatory care utilization, treatment side effects and patient reported quality of life in the first year of this study.
Results: Patients seen in these practices averaged 12.2±0.7 health care visits per year. ARC/AIDS patients comprised 79% of the study population. Over 94% of patients reported taking one or more medications ($\bar{X}=2.9\pm0.2$). Most frequently reported medications were retrovir (66.1%), acyclovir (39.3%), aspirin (24.1%), and inhaled pentamidine (15.2%). Symptoms and side effects associated with drug use were reported by 41% of patients. These included headache (46.6%), sexual dysfunction (42.7%), excessive fatigue (36.3%), muscle weakness (33.6%), depression (33.2%), and nausea (30.2%). Patients ranked their overall global health (0-100 scale, 100=very healthy) as 72.3±1.4, 52% of patients rated their quality of life very good or excellent and functional ability was 0.15±0.02 (0-3 scale, 0=able to perform).
Conclusions: Despite frequent side effects and symptoms, numerous medications taken, and frequent physician visits, symptomatic patients treated in outpatient settings report high quality of life and functioning.

4075 HOSPITAL FINANCING AND TREATMENT OF AIDS PATIENTS: EMERGING TRENDS AND IMPLICATIONS FOR THE 1990s.

Andrulis, Dennis P., Weslowski, V., Hintz, B., Spolarich, A.
National Public Health and Hospitals Institute, Washington, D.C. USA

The National Public Health and Hospital Institute, with cooperation of several major hospital associations, has been conducting comprehensive surveys of AIDS inpatient and outpatient treatment, requesting detailed information on utilization, financing and patient characteristics related to AIDS care from several hundred institutions for 1985, 1987, and 1988. One of our primary objectives has been to monitor over time the impact of this patient population on US health care institutions.

Using information provided by members of one participating organization, the National Association of Public Hospitals, this report describes changes in PWA utilization, costs, revenues demographics, risk group and payer source for urban public hospitals during the three survey years. It discusses the increasing patient burden in the context of available resources for these facilities and compares these results with available information on other hospitals. Conclusions consider policy implications of trends related to institutional use, patient concentrations, changes in patient risk group composition and financial losses. The report also identifies health care system alternatives essential to assuring adequate response to patient service needs in the 1990s.

4076 DEVELOPING A COMPREHENSIVE VOLUNTEER EDUCATIONAL SERVICE DELIVERY PROGRAM

Holmes, James M., Gay Men's Health Crisis, New York, NY, USA

Objective. To provide HIV/AIDS educational programs utilizing volunteer resources and to make those programs responsive to the changing and increasingly diverse needs generated by the epidemic.
Methods. An initial needs assessment was conducted among program managers to define specific programmatic needs for volunteer service providers. A comprehensive training plan for volunteers was developed, implemented and evaluated. The training plan includes tracks, differentiated for the various programs and targetted to the specific needs of each group of volunteer service provider. Needs assessments for in-service training were conducted among existing volunteers and volunteer supervisors. An in-service program schedule was set and in-service programs evaluated. A volunteer utilization survey was conducted among the various established programs to determine if volunteers were efficiently utilized and satisfied with their work. Various quality control mechanisms for volunteer performance function on an ongoing basis.
Results. Effective volunteer program delivery is correlated with volunteers' emotional investment in their work and satisfaction with their roles. Clarity of volunteer roles will enhance volunteers' ability to commit to and satisfactorily perform educational services. Emotional investment and satisfaction are increased with increasing agency committment to the volunteer through comprehensive training and in-service programs which meet not only specific informational and skills-related needs, but address the various psychosocial aspects of HIV/AIDS educational work as well. Evaluating volunteers' experience throughout the volunteer process is an integral part of an effective volunteer program. Developing programs must not only respond to the urgency and diversity of the epidemic, but also to the changing face of the volunteer force available to provide HIV/AIDS educational services.
Conclusion. Volunteers can be effectively utilized to fulfill a diversity of educational functions, given limited resources available for training, tracking and providing quality assurance. The management model here presented can be replicated by other AIDS educational programs in the development and delivery of volunteer services.

4077 TREATMENT ASSESSMENT PROGRAM - FINANCIAL IMPACT PRELIMINARY RESULTS FROM FIRST SITE

Goldschmidt, Faith Knabe; Seiz, R.; Siegel, B.; Young, S.; Hummel, R.
New Jersey State Department of Health, Trenton, New Jersey, USA

Objective: To develop estimates of the financial impact of a new Treatment Assessment Program (TAP) on New Jersey's health care system. Methods: On October 4, 1989, the New Jersey Department of Health implemented a comprehensive early intervention - prophylaxis program (Treatment Assessment Program, TAP) for persons infected with HIV. Actual data, from the first hospital-based TAP clinic and the hospital were used to estimate the financial impact of TAP for four stages of HIV infection (as described in a medical protocol, developed by the New Jersey Department of Health and the New Jersey Academy of Medicine). Estimates of the financial impact at the client level, the hospital level and the statewide level were made. Comparisons were made and with costs and charges presented in other analyses of inpatient, outpatient and early intervention scenerios.
Results: These preliminary results from operation of the first TAP site indicate that one year of full TAP services for all HIV infected persons in New Jersey costs about one third as much as one year of inpatient care for the 20% of HIV infected persons with CD4 counts < 200 at risk for full-blown AIDS. Conclusions: Based on preliminary results, the TAP concept appears to be an effective method of providing comprehensive services and of generating considerable savings. As additional information is collected from the first site, and from the other four sites on an ongoing basis, a more comprehensive data base will be developed to assess the financial impact of early intervention and prophylaxis on the client, hospital, payer and State.

4078 COST-EFFECTIVENESS ANALYSIS OF EARLY TREATMENT OF HIV DISEASE WITH ZIDOVUDINE (AZT)

Cheung, Tony W; Fahs, Marianne; Sacks, Henry S.
Mount Sinai Medical Center, New York, New York, USA

Objective: To assess the cost-effectiveness of early treatment of HIV disease with AZT.
Methods: Population estimate: 1) ARC patients, based on a prospective study of HIV seropositive men at San Francisco and the Survey of the Greater New York, 2) asymptomatic HIV infected persons, from the Multicenter AIDS Cohort Study. The efficacy and toxicities with AZT therapy of early HIV disease were based on the preliminary data of the AIDS Clinical Trial Group protocols 016 and 019.
Results: Estimate of ARC patients and asymptomatic HIV infected persons is 41,000 and 410,000 respectively. From protocols 016 and 019, the cost of AZT per year is $262.60 million (mil) and $1093.22 mil respectively. AZT therapy means a saving of $53.83 mil and $476.13 mil for hospital cost ($1,000/day) for ARC and asymptomatic HIV infected persons respectively. The cost-effectiveness ratio is $17,293 per case prevented of opportunistic diseases (O.D.) for ARC patients and $75,435 per case prevented of O.D. for asymptomatic persons.
Conclusion: AZT therapy for early HIV disease is costly. It is more expensive for disease prevention in the case of asymptomatic HIV infected persons. While the range is within some of the accepted standard medical cost (<$100,000 per life year saved), the ratio can be improved with the reduction of the price of AZT.

4079

LOCAL GOVERNMENT RESPONSES TO HIV, 1990 AND BEYOND - UNITED STATES

Gambrell, Alan E.; Kelly, J.; Johnson, R. The United States Conference of Mayors/United States Conference of Local Health Officers, Washington, DC, USA

Objective: To assess the status of local government programmatic and policy responses to HIV vis-a-vis the demands of increasing numbers of cases in the next decade, specifically regarding the status of local government planning and resources allocated for HIV education, early intervention, and treatment services. Methods: Written survey of the 165 largest urban American governments, including mayors and local health departments (city, county, city-county). Key variables will assess local government expenditures; policies and programs developed addressing education, early intervention, and treatment; and planning mechanisms for determining resource needs and allocations. Results: Local government expenditures on AIDS (average, mean, median; by population size); frequency of policy and programmatic responses developed by local government; planning mechanisms in place (specific to resource needs and allocations for education, early intervention, and treatment). Conclusion: Local government is on the front lines in dealing with AIDS yet often lacks the resources and public health infrastructure to deal adequately with current and, particularly, future demands for HIV-related services. Specifically, early intervention services are not in place in most localities and are unlikely to be developed adequately without federal government resources and planning.

4080 MIGRATION OF TEXAS AIDS CASES BEFORE DYING IN 1986.

Townsend, E.*; Suarez, L.*; Reed, Christie M.*; MacLean, R.*; Smith, W.*; *Texas Department of Health, Austin, Texas, USA.

Objective: To determine urban and rural patterns of in- and out-migration of Texas AIDS cases between time of diagnosis and time of death.
Methods: For all cases in the Texas AIDS registry who died in 1986, the Texas county of residence at time of diagnosis was compared to the county in which they died. Counties were classified into Bureau of Census' Metropolitan Statistical Areas (MSA's) to compare levels of in- and out-migration of AIDS cases by areas of different population sizes.
Results: Preliminary analysis of the 756 deaths among Texas residents in 1986 revealed 710 (94%) died in Texas and 46 (6%) died elsewhere. Eighteen percent (N=124) of the 710 deaths occurring in Texas were to non-county residents (county in-migration). In contrast, 17.7% (N=134) of the 756 AIDS deaths were outside the county of residence (county out-migration). The in-migration at the county levels (N=124) is 41% greater than the number migrating out of the counties (N=88) after correcting for migration (N=46) to other states. For large MSA's (pop.>1,000,000), after correcting for out of state migration, the number of AIDS deaths to non-residents of large MSA's (in-migration, N=35) was about 17% greater than the deaths occurring outside the large MSA's (out-migration, N=30). For medium MSA's (pop.=250,000 to 1,000,000), more AIDS cases moved out (N=17) than moved in (N=9). Rural MSA's (pop.<250,000) also had more out-migration (N=45;5 out of state) than in-migration (N=20).
Conclusion: Analyzing only one year of data which excludes migration into Texas can only tentatively allow us to conclude that rural areas experience more out-migration than in-migration.

4081 THE NATIONAL AIDS INFORMATION CLEARINGHOUSE

Herring, Lynn W. National AIDS Information and Education Program, CDC, PHS, DHHS, Atlanta, Georgia, USA

Objective: To provide comprehensive information about HIV/AIDS service organizations, clinical trials and educational materials to public health managers, health professionals and AIDS service providers.
Methods: The National AIDS Information Clearinghouse (NAIC) was initiated in October 1987 by the Public Health Service, Centers for Disease Control as part of its National AIDS Information and Education Program to respond to the public health threat posed by HIV/AIDS. NAIC offers reference and referral assistance; distributes HIV/AIDS educational materials; maintains databases on AIDS service organizations and HIV/AIDS educational materials; and provides technical assistance to AIDS program managers and community-based organizations. All NAIC services are free and can be reached at 1-800-458-5231. NAIC also operates the AIDS Clinical Trials Information Service (ACTIS) (1-800-Trials-A) to provide up-to-date information on federally and privately sponsored HIV/AIDS clinical trials. ACTIS is sponsored by CDC, Food and Drug Administration, National Institute of Allergy and Infectious Diseases, and National Library of Medicine. NAIC and ACTIS have Spanish-speaking staff, TTY access (1-800-243-7012) and an international line (1-301-217-0023).
Results: NAIC has acquired information about 10,000 AIDS service organizations and 4,500 educational materials and has distributed 50 million educational HIV/AIDS materials; 17,000 requests for reference assistance have been received by NAIC staff. ACTIS has responded to 15,655 requests since May 1989 and built a database of 229 protocols and 76 investigational drugs.
Conclusions: Increasing demand for the information services provided by NAIC indicates a continuing need for up-to-date information and educational materials on AIDS, and for a centralized reference and dissemination service.

4082 INFORMATION SERVICES FOR HEALTH PROFESSIONALS IN TEXAS AND OKLAHOMA PROVIDED BY THE REGIONAL EDUCATION AND TRAINING CENTER.

Baade, Harley D.; Grimes, R.M.; Englander, M.S.
AIDS Regional Education and Training Centers for Texas and Oklahoma, The University of Texas Health Science Center, Houston, Texas, USA.

OBJECTIVE: Determine the utilization of a toll free AIDS HELPLINE for Health Professionals established to provide current literature, educational information, and clinical consultations.
METHODS: Maintain a database which records the nature of information requested, the profession and geographic location of the caller, the marketing effort that made the caller aware of the service, and the nature of the response provided.
RESULTS: Of the 395 calls handled during 1989, 24% were Health Care Administrators, 18% Physicians, 15% Nurses, 13% Health Educators, 8% Social Workers and 10% were other. Geographic dispersion was 58% from East Texas, 8% North Texas, 11% South Texas, 8% West Texas, 13% Oklahoma, and 2% other. 178 Reference Information Packets and 217 Customized Literature Packets were compiled, and 45 Clinical Consultations were made.
CONCLUSIONS: 1) High usage by Health Care Administrators and Physicians is probably reflective of intense planning required to get "in front of" the AIDS epidemic. 2) A steady increase in request levels for clinical consultations may suggest that more Health Professionals are seeing their first ever AIDS patient. 3) The large number of requests from Health Educators was not predicted when we began the project. 4) The geographic usage pattern is more reflective of the nature of marketing efforts to date than the dispersion of the epidemic.

4083 THE MEDIA AND HEALTH EDUCATION IN AIDS PREVENTION

Jimenez, Maria V.*; Bond, L.S.*

*Pan American Health Organization, Washington, D.C.

Objective: To provide a review and assessment of the mass media's treatment of the HIV/AIDS topic as seen in the American region.
Methods: Information on reporting strategies and content analysis of various AIDS media was collected and studied as was Washington Post Indices from 1984-1988 in order to identify trends in reporting the AIDS topic. A comparison of the various media outreach impact was made and data from Peru, Mexico, and the U.S. was studied.
Results: Results of the analysis conducted indicated that when discussing health isues, the media has tended to limit its functions to reporting and discussing diseases symptoms, defining the condition in terms of human suffering and societal implications, yet falling short of providing support in prevention by printing guidelines such as the use of prophylactics and eliminating the use of vague language such as bodily fluids.
Conclusions: To potentialize the role of the media in carrying out educational messages to the general public, sensitization training workshops should be conducted in which a meaningful dialogue between representatives of the media, the health care system and governmental authorities should be enforced.

4084 THE FIGURE IN THE MIRROR: A CRITICAL COMPARISON OF TWO SAFE SEX AND CLEAN WORK CAMPAIGNS IN NEW YORK CITY

[illegible], Joseph. AIDS Coalition To Unleash Power, New York City, NY, U.S.A.

Objective: [illegible]

Method: [illegible]

Results: [illegible]

Conclusion: [illegible]

4085 ADAPTING MASS MEDIA AIDS MESSAGES TO MEET REGIONAL NEEDS IN ZAIRE

R.Eiger*, M.Kyungu*, Kalombo K.**, Kambamba S.A*, J. Convisser*
*PSI's (Population Services International)PEM-SIDA, Zaire.
**BCC (Bureau Central de Coordination de la Lutte Contre le SIDA)

CONTEXT: Comprising over 2,340,000Km2, and 472 ethnic groups speaking roughly 300 different dialects, the country of Zaire boasts a geographic, linguistic, and cultural diversity unique to the world.

OBJECTIVE: To wage a national mass media AIDS campaign that can effectively reach a diverse Zairean population.

METHOD: Working in close colaboration with regional radio stations, the project PSI/PEM-SIDA is assuring the production of regionally relevant AIDS materials by incorporating local communicators (musicians, griots, actors, artists, radio clubs etc...) in the conception, production, and dissemination of AIDS messages.

RESULTS: Diverse populations have taken an active role in their regions fight against AIDS. In the pilot region of Haute Zaire, three months after the start of the campaign, the local radio station has produced, with the aid of their listening audience, one AIDS song produced in three languages (Swahili, French, and Lingala); one 90 minute drama; three micro-programs and three spots all produced in 3 languages and 4 dialects; as well as a number of other diverse productions of longer duration.

DISCUSSION: Given direction and adequate financial and material support, regional communicators can contribute significantly to help insure media relevancy and acceptance.

4087 THE 15 REGIONAL AIDS EDUCATION AND TRAINING CENTERS (ETCs) OF THE UNITED STATES PUBLIC HEALTH SERVICE

Tsutsumida, Cherry; Macher, A.; Martell, B.; Mosley, D.; Moore, D.; Fox, R.

Bureau of Health Professions, USPHS, Rockville, Maryland, USA.

Objective: In response to the increasing HIV/AIDS epidemic, the Bureau of Health Professions has expanded its national program for educating health care providers (HCPs) about HIV-infection and AIDS.
Method: Through a grant program, regional AIDS ETCs have been created to increase the number of HCPs who are effectively educated and motivated to counsel, diagnose, treat and manage individuals with HIV-infection, and to assist in the prevention of high risk behaviors which may lead to infection. The AIDS ETCs provide national coverage and have responsibility for designated geographic areas in which they conduct targeted, multidisciplinary education and training programs for HCPs. The AIDS ETCs serve as resource centers by coordinating hotlines for current accurate information (e.g., HIV-related drug trials). Each AIDS ETC incorporates the following functions: 1) Train community primary care providers to incorporate strategies for HIV-prevention into their clinical priorities; 2) Educate HCPs to provide sensitive and holistic care of HIV/AIDS patients; 3) Train selected trainees to serve as HIV/AIDS educators of HCPs in their local areas; and 4) Emphasize HIV/AIDS training for minority providers, and providers who serve minority populations. In 1989, 2 new AIDS ETCs were created in Florida and New Jersey. To date, over 150,000 HCPs have participated in programs sponsored by the 15 AIDS ETCs.
Conclusion: With no vaccine nor panacea available, education is one of our most effective weapons in the battle against HIV-disease. The national AIDS ETC program has expanded to meet the ever-increasing educational demands of our nation's HCPs.

4088 RESEARCH PROGRAMMING TO SUPPORT AIDS-EDUCATION IN SECONDARY SCHOOLS

Paulussen, Theo*; Wijnsma, P.*; Jonkers, R.*

*Dutch Health Education Centre, Utrecht, The Netherlands.

The Dutch Health Education Centre uses research programming as an important instrument in co-ordinating a more comprehensive approach aimed at developing and implementing Aids-education in secondary schools. A distinction is made between three major innovation levels: student level, school level and regional level. On each level research needs to monitor the process of developing effective strategies of change, as well as the process of implementing standards of effectiveness. These processes on each innovation level can be linked by the following cyclic order of diagnostic and evaluation research: problem- and behaviour analyses, analyses of behavioural determinants, development of interventions and finally evaluation by assessing the effectivity and efficiency of these interventions in changing the determinants and behaviour that proved to be relevant predictors of the problem.
In order to define the innovation outcomes on every distinct level, not only in conceptual but also in valid operational terms, it is necessary to walk through these five research phases on each level; starting at the student, than the school level and finally the regional level. Only in this systematic order we can legitimate our demand for school change. Only than we will know i.e. what specific teaching skills are needed in creating the desired classroom learning opportunities, or in what way teachers can support the innovation process in their own school. And subsequently, by exploring the determinants of the effective Aids-education efforts on the school level, we are better able develop regional support systems to help schools dealing with their own specific innovation problems. In this way, research in the field of Aids-education is linked to research on innovations and education in general.

4089 AN INTEGRATED MODEL FOR SCHOOL AIDS EDUCATION IN LATIN AMERICA: ITS IMPLEMENTATION & EVALUATION IN 3 COUNTRIES.

Schenker Inon, School of Public Health and Community Medicine, Hebrew University-Hadassah Medical Faculty, Jerusalem, Israel

This is an example for a fruitful international collaboration in AIDS Prevention Among Adolescents. It involves innovative approaches, cross-cultural adaptations and genuine sharing of experiences and expertise.
Objectives: To build, implement and evaluate an integrated model for school-based AIDS education in Latin America that would overcome existing barriers to AIDS prevention.
Methods: Two AIDS education curricula used nationally in Israeli schools were culturally modified and translated to Spanish together with accompanying materials (e.g., flip-charts with cartoon, worksheets, role playing cards). A 40H training course for teachers (primary and secondary), M.D.s and psych. Two Israeli experts had trained 480 participants in 6 courses, conducted (1989) in: El Salvador, Costa Rica and Honduras. The courses were sponsored by WHO/PAHO and the local National AIDS Committees. Graduates received the Israeli Kit and techniques for integrating the model to schools, community centers, etc. Graduates filled in a questionnaire evaluating the course. Telephone surveys, written questionnaires and interviews were used to evaluate coverage and implementation.
Results: In all 3 countries the Israeli model was accepted with great success. Scores ranged from "excellent" (45%), "very good" (10%) to "good enough" (7%). Coverage 3 months post course was 50% and 5 months - 84%. Main obstacles in implementation were institutional (e.g., teachers' strike, or illness). The unique collaboration between Israel and the 3 countries discussed created requests from more countries to join the network.

4090 EVALUATION OF A COUNSELLING TRAINING PACK

Thompson Ian, Scottish Health Education Group, Edinburgh, Scotland

OBJECTIVE - Develop, test and publish/use a loose leaf training manual as a flexible, experiential and practical small group resource not only to teach counselling skills but also to enable participants to apply this learning into their real world and to design and deliver courses appropriate to their client population.
Evaluation is a key component of the participant's learning.
METHOD - First stage: extensive developmental testing with a wide range of experimental groups examining materials and methods of learning leading to revision and improvement.
Second stage: pre- and post-course quantitative testing using Likert type tests and structured questions to assess the impact of the learning experience both immediately pre-course and at an interval and after implementation.
Third stage: post publication continuation of the testing to provide active feedback to trainers and authors
RESULTS - The dynamic nature of the development of the training materials via the 3 stages of the evaluation ensures training materials responsive to consumer need.
HIV/AIDS challenges workers to respond to a rapidly changing setting. The consistent feedback is linked to and reassures client need.
CONCLUSION - Counselling for all affected by HIV/AIDS is of primary importance. The evaluation built into this training package assures trainers and writers that the tools remain pertinent to user need. It assures manager and users that the learning experience will meet client need. And it validates in the wider educational setting the careful attention to evaluation at all stages of material development.

4092 THE ROLE OF ALL-PARTY POLITICAL GROUPS IN A NATIONAL STRATEGY FOR AIDS.

Baron,Claire PhD, Key,Robert MP Smith,Chris MP Butler,Ailsa BSc. The All-Party Parliamentary Group on Aids,1The Abbey Garden,Gt College St,London.

The UK has, according to Dr Jonathan Mann, taken a leading role in the international fight against AIDS. Apart from its contribution in the area of scientific research the relationship between the voluntary and statutory sectors, despite its ad hoc nature, has contributed to the strong position of the UK in this field. Historically, the fact that the country has a well developed sector has meant that statutory bodies have been able to rely to a large extent upon voluntary agencies to provide the kind of care, support and education that are crucially needed. These groups, dealing as they do with the problem'at the coalface', also have much to contribute to policy development. What is still missing, however, at a national level, is a long term strategy for AIDS.

The All-Party Parliamentary Group on AIDS, an all party group of UK politicians concerned with ensuring that policy making about AIDS funding prevention and care is adequately developed and effectively executed, aims to provide a bridging function between parliament and the voluntary and statutory sectors. Through its meetings, information base and other activities it has opened up the debate but has managed to hold the middle ground in what, at times, seems to be an increasingly polarized situation. A comparative analysis of the role of such semi-formal groups internationally would be of great practical benefit at the level of policy development as well as of sociological interest.

4093 ON EXPTERISE, LEGITIMACY AND DECISION MAKING

Altman, Dennis

LaTrobe University, Bundoora, Victoria, Australia 3083

The very complexity of AIDS, and the multiplicity of actors it has involved, means that its management constantly raises issues of expertise: who should make the crucial policy decisions and on whose advice. Very different claims for expertise are put forward, ranging from those of mainstream medical researchers and institutions to those of People With AIDS, and this is a source of considerable political conflict.

This paper seeks to elucidate the different forms of expertise which are claimed in AIDS policy making, and the role of governments and the W.H.O. in legitimising certain forms of authority as against others (for example, in the composition of national committees.) By reference to experience in several countries, primarily Australia and the United States, it suggests that only a genuine recognition of the limits of any one type of expertise and the need for partnership between governments, community groups and health professionals can produce an effective set of policies. There are also implications for research, in particular for the need for research which goes beyond the traditional scientific paradigms (e.g. of these abstract forms).

(Note: As this paper is posed in the form of an argument the preferred subheadings do not seem appropriate).

4094 YEAR 2000 OBJECTIVES FOR HIV INFECTION: A PREVIEW

Kamerow, Douglas*, Messore, J.**
*Office of Disease Prevention and Health Promotion and
**National AIDS Program Office, U.S. Pubic Health Service, Washington, DC.

The U.S. Public Health Service is formulating health promotion and disease prevention objectives for the nation for the year 2000. HIV Infection is an important priority area in "Promoting Health/Preventing Disease: Year 2000 Objectives for the Nation" to be published in September, 1990. Other priority areas such as Sexually Transmitted Diseases and Alcohol and Other Drugs contain objectives that relate to HIV infection.

PHS work groups formulated draft objectives after reviewing the testimony of over 700 individuals from a series of regional hearings held during 1987. Work groups were guided by eight criteria in this process: credibility, public comprehension, balance, measurability, continuity, compatibility, freedom from data constraints, and responsibility. Controversies included those over how to measure progress, how to set goals for target groups and whether to include objectives that lacked adequate baseline information. The draft objectives were made available during September 1989 for public review, and hundreds of comments were received, analyzed, and where appropriate, incorporated into the final version.

The Year 2000 Objectives for HIV Infection set targets for reducing incidence and/or prevalence of AIDS cases and HIV infection; for reducing risk-behaviors, such as intravenous drug abuse; for expanding educational programs about HIV infection; and for prohibiting discrimination against people with AIDS or HIV infection. These objectives will be used throughout the nation by States, counties, and municipalities to guide them in setting priorities for their areas. They could also provide a useful model for other nations.

4095 IMPROVING ACCOUNTABILITY AND SERVICE DELIVERY IN AGENCIES RECEIVING GOVERNMENT FUNDING

Duckett, Mary*, Dykes,J**, McCallum,L**, Painter,L**, Stewart,K***, Wiseman,M**. * Office of Public Management, NSW Premier's Department, **ANKALI, Albion Street (AIDS) Centre,***AIDS Bureau, NSW Department of Health, Sydney, Australia.

Objective: To develop performance measurement systems for AIDS service organisations to enhance service delivery to clients and increase accountability to funding agencies. **Method:** Consultants on strategic planning and evaluation were employed to assist ANKALI develop performance indicators. ANKALI trains volunteers to provide emotional support for people with AIDS, their lovers, family members and friends.This project was part of the NSW AIDS Bureau program to facilitate development of performance indicators in funded programs, through skill-building within organisations and the Bureau. The process included comprehensive analysis of intended results, identification of criteria for success for each level of outcome, development of strategies, and identification of performance indicators and reporting mechanisms. **Results:** Performance monitoring has resulted in improved targeting of volunteer sources and client referral agencies, responsiveness to training needs, improved procedures to supervise volunteer/client relationships, ennanced quality of service delivery, support mechanisms and reporting processes. **Conclusion:** This model provides a positive and effective mechanism for enhancing service delivery to clients and for increasing accountability to funding agencies.

4096 A PROSPECTIVE, LONGITUDINAL, CHRONIC DISEASE DATA BANK SYSTEM (ATHOS) FOR HIV-RELATED DISEASE

Fries, James*; McShane, D.*; Lubeck, D.*; Mathews, C.**
*Stanford University, Stanford, California, **University of California, San Diego, California, USA.

The Chronic Disease Data Bank model for clinical epidemiologic research, exemplified by the ARAMIS national arthritis data resource, (1) builds high quality longitudinal patient data sets from diverse sources including (a) all clinical data from the provider, (b) economic data, and (c) health outcome data obtained directly from the patient in order to (2) allow multiple investigators to address questions such as natural history, prediction of transition between clinical states, comparison of outcomes in different subgroups, assessment of direct and indirect costs, evaluation of treatments (both approved and unapproved), and the toxicity of treatments. The ATHOS (A Time-Oriented Health Outcome Study) project consecutively enrolls patients from five gay private practices in the San Francisco area and five community clinics in the San Diego area. Data collection procedures restricted to the physician office permit complete confidentiality of data. In the first six months, parameter dictionaries have been developed, office computer procedures developed, 1,900 patients initially enrolled toward a goal of 8,000 patients, and a variety of preliminary descriptive studies completed. This paper explores issues in establishment of a chronic, HIV-related disease data bank system and reviews early results.

4097 SEXUALITY PROGRAMME BENEFITS AIDS EDUCATION IN A DEVELOPING COMMUNITY

Greathead, Erica; Hiles, L; Aalbers, J.
Planned Parenthood Association of Southern Africa, Western Cape Region, Cape Town, South Africa.

Objective: A Family Planning and AIDS Education programme was introduced to unemployed, young adults living in homeless circumstances (Squatter communities) to show that measurable AIDS knowledge could be conveyed.
Methods: The Planned Parenthood Association, a community based organisation, designed the programme to focus on the community's concern about changing sexual practices leading to prostitution, teenage pregnancies, high birthrates and infant mortality. Volunteers, sent by community leaders, are taught about contraception, sexually transmitted diseases and AIDS. These volunteers, known as Masikhanyise (Bringers of light) provide an essential self help service to their own communities. Their educational roles is utilized to evaluate prevailing knowledge and attitudes to AIDS.
Results: Results from the AIDS knowledge assessment will be presented and it's influence on secondary and tertiary levels of education will be shown.
Conclusion: This research concludes that AIDS Education projects benefit from appropriately tailored sexuality programmes in developing communities because they capitilize on immediate community concerns and do not deal primarily with vague, future diseases.

4098 REDUCING THE PERINATAL TRANSMISSION OF AIDS BY PROVIDING FAMILY PLANNING SERVICES IN DRUG TREATMENT CENTERS

Armstrong, Kay*; Sanost, L.*; Bencivengo, M.**
* Family Planning Council of Southeastern Pennsylvania,
**Coordinating Office of Drug and Alcohol Abuse Programs, Philadelphia

A three-year CDC funded study examines the role of family planning services in reducing the perinatal transmission of HIV infection among women enrolled in drug treatment programs. The effectiveness of two service models in 14 drug treatment centers are evaluated. One model provides family planning contraceptive counseling, education and medical services at four drug treatment centers while the other provides the counseling and education at 10 centers but refers women for medical services at nearby family planning clinics. All non-pregnant, non-menopausal women between the ages of 15 and 50 who receive services at methadone maintenance, residential or drug free programs are eligible to be enrolled in the project. A total of 600 women have been interviewed and will be followed for 15 months. Over a six month period, 245 women in these drug treatment programs have utilized family planning services; The majority (58%) accessed medical services with the remaining seeking counseling and referral services. The following outcome measures are assessed using multivariate statistics: acceptance and use of two models of family planning services; use of contraceptives; pregnancy prevention; prevention of HIV transmission; reduction in HIV risk behaviors; and retention in drug treatment programs.

4099 SHOULD SEVERE AIDS PATIENTS BE TREATED IN INTENSIVE CARE UNITS (ICU) ? EXPERIENCE OF A FRENCH ICU

Mertès Paul Michel ; Gérard A.; Hoen B.; May Th. ; Dopff Ch. ;
Amiel C. ; Kreutz G. ; Dureux J.B. ; Canton Ph.
Département de Maladies Infectieuses et Tropicales. CHU NANCY. France.

From 1984 to 1989, 19 severe AIDS patients (3 females, 16 males) were admitted into our ICU (mean age 36 years, ranging from 25 to 59) : 10 for an acute distress respiratory syndrome (ARDS) (8 out of 9 due to Pneumocystis carinii), 1 hemothorax, 1 pneumothorax, 3 for severe neurological manifestations (brain lymphoma, toxoplasmosis), 1 acute toxic renal failure, 2 for plasma exchanges in patients in very poor conditions and 1 for prolonged mechanical ventilation. The 10 ARDS were ventilated. 8 patients died in the ICU (all 8 cases of Pneumocystosis intubed and ventilated died), 6 died soon after being discharged from the ICU. 5 (1 Pneumocystosis, 1 pneumothorax, 2 plasma exchange patients, 1 prolonged ventilated patient) are still alive. Median duration of stay was 25 days for respiratory failure and 8 for neurological manifestations (stays ranged from 4 to 178 days) with a mean cost of 12 000 US dollars per stay.
Conclusion : admission of severe AIDS patients into an ICU should be discussed on the bases of the poor prognosis at this stage of the disease, the indication of intensive care, a previous stay in the ICU, the desire of the patient to be or not transfered into an ICU, the cost of the stay, the psychological impact of severe AIDS patients on the ICU care staff and the higher risk of transmission of HIV (invasive procedures) to health care personnel working in the ICU.

4100 A MODEL FOR PSYCHO-SOCIAL SUPPORT AND COUNSELLING.

Gandil, Paul*; Andersen, T.*, Bjørner, J.**. *The Danish Haemophilia Society. ** University of Copenhagen, Denmark.

Objective: To provide adequate counselling services for the 90 Danish haemophiliacs infected with HIV as well as for their families. This implies 1) Providing psycho-social support, 2) Providing information, 3) Preventing spread of infection, 4)Strengthening the social network.
Methods: The project is carried through by the Danish Haemophilia Society in collaboration with the haemophilia centers. A psychologist and a social worker are employed in a three year project (1988-90). All HIV-infected haemophiliacs in Denmark are now offered a continuous contact with professionel counsellors.
Results: More than half of the patients have been in contact with the psychologist and the social worker for counselling on emotional, sexual, environmental and social problems. Self-help groups have been formed for children/parents and for young HIV-infected haemophiliacs. While the support programme has existed, there has been no recording of HIV-transmission to sexual partners.
Conclusions: Whenever it is possible, psycho-social support should be offered on the patients' conditions and be arranged through the patients' own organizations with the involvement of their own resources. Help-to-self-help means better possibilities for the patients to influence and to take responsibility for their own lives and thus improves their quality of life. The collaboration with the treatment centre is of great importance.

4101 COST AND PRODUCTIVITY CHANGES IN HIV+ PRIMARY CARE

Keyes, Craig W.; Marte, C.; Kelly, J.; Chieffe, R.; Wolbert, J.
Bellevue Hospital Center/ Community Health Project

OBJECTIVE: To examine costs and patterns of use in primary care of HIV+ patients in order to plan for increased patient load in a community based clinic for 1426 HIV+ patients. **METHODS:** Records of all provider visits from December 1985 to December 1989 were examined. Records were drawn from monthly logs at Community Health Project and from encounter, ancillary test, and billing records stored in Bellevue Hospital's data bank. All records were stratified by diagnostic category: AIDS, ARC, and Asymptomatic (AS). Staff additions and management protocol changes were identified. Trends in clinic capacity, provider productivity and ancillary costs were calculated. **RESULTS:** The relative increase in visits required by ARC patients (74%) coupled with the increased time required per patient visit (35%) reduced overall medical provider productivity by 48%. Productivity decline was also associated with fewer AS patients being served by the clinic while the number of AIDS and ARC patients increased. Productivity was increased most by the addition of non-provider staff (eg., nurse, 20%; health educator, 10%, clerk, 12%) and was not affected by increased provider staff, whether MD, NP, or PA. Although ARC patients accounted for the largest increase in baseline ancillary costs per patient (1.6 times that for an AS patient and 1.1 times that for an AIDS patient), labs and medications required by added interventions resulted in a trend toward equalized costs at the higher level. **CONCLUSION:** Resource requirements of HIV+ patients have rapidly increased due to progressive disease and more sophisticated management. The greatest increases by all indices have been in ARC patients. Decreased medical provider productivity has been offset only by increased non-provider staff.

4102 DEVELOPMENT OF AN HIV QUALITY OF LIFE INSTRUMENT: A METHODOLOGICAL STUDY

Carr, Susan E.*, Benedict, S.**
*Alliance Against AIDS, Division of Windsor Home Care, Care Group, Inc., NYC, NY, USA, **HIV Center for Clinical and Behavioral Studies, Columbia-Presbyterian Medical Center, NYC, NY, USA.

Objective: The purpose of this methodological study was to develop an instrument to assess Quality of Life (QOL) in people with HIV Disease.
Methods: 1)Refine and augment the Padilla QOL Scale constructs for people with HIV Disease; 2)Determine reliability and validity of the HIV QOL Instrument. Subjects were sampled from a known population of people with HIV Disease and responded to an anonymous questionnaire and the Padilla QOL Scale.
Results: Constructs specifically relevant to the effects of HIV Infection were added to the Padilla QOL scale in the development of the HIV QOL Instrument. Reliability and validity were established using a sample of people with HIV Disease.
Conclusion: The Padilla QOL Scale was useful in forming the central focus of the HIV QOL Instrument. The HIV QOL Instrument is useful in a variety of setting for the assessment of QOL factors in people with HIV Infection and those affected by the HIV experience such as family members, significant others and friends. Further application of the HIV QOL Instrument would include needs assessment for education and policy revision.

4103 HIV RELATED KNOWLEDGE,ATTITUDES AND BEHAVIOUR IN HEALTH CARE WORKERS IN AN EDINBURGH HOSPITAL.

Richardson, A.M.* and Webb, J.**
City Hospital*, Lothian Health Board**, Edinburgh, Scotland.

Objective: To assess HIV related knowledge, attitudes and behaviour in health staff, of 11 occupations, working in an Edinburgh General Hospital.
Method: All members of staff received an anonymous questionnaire concerned with Knowledge of Infection (KI),General Knowledge (KG) Patient Blame, Attitude, Involvement in Care, Work Education, and Behaviour. 628 staff (approx 55%) replied. Analysis was performed using SPSS PC.
Results: Out of a possible score of 9, 66.2% had less than 3 KI errors and 33.1% had less than 3 KG errors. 62% of those who were involved in care had had education. Those who had received education (46%) or were involved in care (46%) had higher scores on both KI and KG than those who had/were not.($p<.001$). They also had a more positive Attitude ($p<.005$) and are more likely to have changed work behaviour ($p<.001$). Those involved in care were more likely to say that patients were not to Blame ($p<.05$) but were more worried about the Risk of Infection (27.5%) or of Attack (48.5%) by patients ($p<.01$) than those who were not involved. These results were not true of those who had received education compared with those who had not.
Conclusion: Both involvement and education engender better knowledge about and attitudes towards AIDS. Involvement in care may be as important as instruction in fostering positive attitudes. For a high prevalence area, too few HCWs receive education. Health organisations should ensure that employees have education and preferably have opportunities to work with infected patients.

4104 TRAINING AND EDUCATIONAL PROGRAMMES FOR IMPROVING HEALTH CARE DELIVERY FOR HIV PATIENTS AND REDUCING OCCUPATIONAL RISKS.

Fantoni, Massimo; Grasso, P; Marasca, G; Camilli, G; Celani, F.
Università Cattolica Sacro Cuore, Rome, Italy.

Objectives: (i) to assess knowledge and attitudes towards HIV infected patients in nursing staff; (ii) to evaluate adherence to guidelines for the reduction of occupational risks.
Methods: Training modules on HIV infection were introduced for newly employed professional nurses. Nursing staff of the Department of Infectious Disease (DID) underwent regular training updates. Both groups and nurses from two other departments were asked to fill in, before and after training, self-administered questionnaires covering epidemiological, clinical and patient care issues. Questions on attitudes towards HIV infected patients and "AIDS anxiety" were also included.
Results: We obtained 156 valid questionnaires from 165 nurses. Knowledge on modes of transmission of HIV was excellent in DID staff (98% correct answers), satisfying in new staff (75%) and good in the others. Similar results were obtained in the knowledge of HIV related occupational risks.
Conclusion: Although knowledge on HIV infection is fairly good, our study shows the importance of continuous educational efforts to ensure adherence to guidelines, to reduce emotional stress and to provide appropriate patient care.

4105 KNOWLEDGE, ATTITUDES AND BELIEFS ON HIV INFECTION IN ITALIAN GENERAL PRACTITIONERS.

Guenza, Danilo*; Marasca , G**; Vinci, L^; Zampieri, A**.
*Publicis, FCB, MAC, Rome, Italy, **Istituto Superiore di Sanita', Rome, Italy, ^Abacam, Milan, Italy.

Objectives: To assess knowledge, attitudes and beliefs of general practitioners (GPs) on HIV infection.
Methods: A random sample of the 70,000 Italian GPs was selected using a multi stage sampling technique. First we selected 57 cities from a sampling frame adjusted by geographical location, by size of population and rural or urban type. Three hundred and ninety nine GPs were selected from the list of practicing GPs in each of the selected cities (7 per city). GPs were asked by professional interviewers, to fill-in structured questionnaires.
Results: 300 GPs returned valid questionnaires for a response rate of 75%. Questions covering the epidemiology of HIV infection were answered correctly on average by 91.4% of GPs (range 82-98). Correct answers on clinical questions were given by 89.5% GPs (range 79-96). 30% agreed on mass screening of the general population for HIV; 19% would enforce strict isolation for HIV patients regardless their clinical conditions
Conclusion: Knowledge on epidemiological and clinical aspects of HIV infection was fairly good although a relevant proportion of GPs showed prejudices against HIV infected patients.

4106 HEALTH CARE WORKERS IN PUBLIC HOSPITALS AND AIDS

Nixon, Lois LaCivita*; Sangster, E.#; Weslowski, V.+
* University of South Florida, Tampa, FL, USA; Tampa General Hospital, Tampa FL, USA + National Association of Public Hospitals, Washington, DC, USA

Objective: The study evaluates the important role health care workers play as information sources regarding AIDS, assesses the level of knowledge of health care workers in hospitals and assesses their attitudes about safety and about the provision of care to PWAs.
Methods: A survey was disseminated to specific departments within three large public hospitals where PWAs are treated, one in Florida, one in California and one in New York. Both high and low risk departments were included, as well as personnel with direct patient contact and with no patient contact. The surveys were completed anonymously, and surveys contained questions which profile the responder in terms of age, years in health care, level of education, and position. In order to test for consistency, select questions were re-phrased and repeated.
Results: The results illustrate that 100% of health care workers surveyed report that community members asked them informational questions about AIDS. The workers level of knowledge about AIDS was below expectations, with numerous inaccuracies about the disease and transmission. Half of the respondents were concerned about their personal safety on the job. The vast majority (96%) of respondents stipulated care standards for PWAs that equalled or excelled regular care expectations.
Conclusions: Hospital workers in all positions are viewed as information sources about AIDS, although the information they possess is not always accurate. The study points to a need for increased comprehensive educational efforts, from sources that the employees trust and accept.

4107 BURNOUT IN HEALTH CARE WORKERS CARING PWA

Piersigilli, Rosselia*; Speranza, T.**;Salis P.**; Puro,V.**; Ippolito G.***
USL RM10-Rome Italy: *Mothers and Children Health Service, **AIDS Unit ***L.Spallanzani Hospital for Infectious Diseases

Objective: A study has been conducted to assess psychological burden in caring people working in a department for Infectious Diseases, in order to evaluate risk of burnout and to provide a psychological support.
Methods: Two groups counting 30 health care workers (HCW) each (physicians and nurses) have been studied. First group includes HCW working in an infectious diseases department and the second (control group) in a cardiosurgery department. A structureted questionnaire was administred to investigate nine areas: social partecipation, subliminal mechanisms, familiarity with the problem, empaty degree, work motivation, stress intensity and stress types, fear of countagion, anxiety, depression.
Results: Data analisys confirm high and similar levels of work stress in both groups. Significative correlations between empaty and stress type ($r=-0,53$ $p<.001$); empaty and familiarity with the problem ($r=+0.61$; $p<.001$) were found. In HCW who assist HIV-infected patients higher levels of anxiety (more than 30%) and stress (about 40%) have been evidenced. Fear of countagion was more relevant in older workers (65%). The major difference betweeen the two groups is the depression that is higher in the first one (about 80%).
Conclusion: The HCW of both groups are subjected to many psychological stimolations but with a significative difference about stress type, in relation to a range of subliminal psychological mechanisms, as coping strategies. The study confirms that caregivers treating HIV infected patients experience more stress and depression in their work.

4108 HEALTH CARE PROVIDER RESPONSE TO AIDS: AN INTERNATIONAL COLLABORATIVE RESEARCH EFFORT

Taylor, KM,* Carballo, M,** Eakin, JM,* Kelner, Merrijoy* and Skinner, HA*
*Department of Behavioural Science, University of Toronto, Ontario, Canada; **Global Programme on AIDS, World Health Organization, Geneva

Objectives: This project is a joint undertaking of the University of Toronto and the WHO/H&W (Canada) to study the impact of AIDS on health care providers (HCPs). Objectives are to: 1) identify categories of HCPs working with HIV/AIDS; 2) delineate their primary concerns; 3) describe existing strategies to deal with these concerns; 4) describe efforts to design interventions; and 5) review potential obstacles to implementing effective strategies.
Methods: The four-part project involves: 1) the creation and maintenance of an annotated bibliography on the psychosocial impact of AIDS on HCPs (completed); 2) a questionnaire-based survey of health and social service administrators in 20 countries (in progress); 3) an interview-based survey of HCPs in 20 countries to identify their responses to the AIDS epidemic, their perceived risk of HIV infection, and their coping strategies (under development); and 4) the dissemination of results and implications via workshops and seminars.
Results: Findings will assist in manpower planning, revising curricula for training HCPs, and supporting HCPs in providing HIV/AIDS care.

4109 KNOWLEDGE, ATTITUDE AND BEHAVIORS TOWARD HIV AMONG STUDENTS FROM NORTH OF FRANCE IN 1989.

SIVERY, BRUNO ; CHIDIAC, C.; SENNEVILLE, E.; BEUSCART, C.; LEROY, O.; BOUREZ, J.M.; BEAUCAIRE, G. AND MOUTON, Y.
UNIVERSITY HOSPITAL, F59208, TOURCOING, FRANCE.

Objective : To assess basic knowledge, attitudes and behaviors toward AIDS among students from different schools.
Methods : Anonymous multiple choice type questionnaires were administered to the students and a content analysis was performed.
Results : 2072/2501 (82.8%) questionnaires were available for analysis.
Studied population : 813 males, 1259 females, mean age : 20.6 (15 - 38),from high-school (30.2%), medical-school (25.4%), business-school (11,4%), engeenering-school (14.2%) and linguistics-school (18.8%). 72.1% had experimented sexual relations, 31.9% were considered at risk for STDs, 3.7% were homosexual and 8.9% had performed a blood test.
Knowledge toward HIV related disease was good but 17.4% made no difference between AIDS and HIV infection.
Transmission : 83.9% were frightened to get AIDS from blood transfusion, 44% during a blood gift, 6.5% from saliva and 10% from insect bite.
Attitude : 44.5% agreed with universal screening. 19.7% underestimated their own heterosexual risk.
Behaviors : Monogamous relationship (25%), certitude of a negative blood test from sexual partners (25%) and use of condoms (42.7%) resume the different ways of prevention.
Conclusion : Although the knowledge of HIV related disease seems to be good, some points regarding the transmission, the prevention and behaviors modifications need to be improved. Students from medical-school get the best score.

4110 ATTITUDE CHANGE AMONG MASSACHUSETTS SCHOOL STAFF FOLLOWING A TWO DAY AIDS TRAINING

Olin, Nancy E.; Cohen, J.; Cranston, K.; Davoli, G.W.; Massachusetts Department of Education, Quincy, MA, USA

Objective: To evaluate the change in AIDS attitudes of Massachusetts school staff following a two day AIDS training
Methods: Two hundred twenty-eight self-selected Massachusetts public school staff members receiving a two day AIDS training were surveyed using a pre- and post-test to measure their AIDS knowledge and attitudes. The tests were individually matched using an anonymous alpha-numeric code. We were particularly interested in changes in participants' perceived readiness to teach about AIDS and attitudes regarding having an HIV-positive child in their school. A five-point Likert scale was used to measure 23 knowledge and attitude items. Liminal responses (strongly agree/somewhat agree; strongly disagree/somewhat disagree) were combined on the attitude items. Chi-square tests were applied to the measured changes in scores from pre- to post-test.
Results: Statistically significant increases ($p<.001$) were measured in perceived preparedness to teach about HIV transmission, in preparedness to talk to a worried parent about having an HIV-positive student in the school and in willingness to have an AIDS diagnosed and visibly symptomatic child in their classroom. Significant decreases ($p<.001$) were measured in the belief that participants have the right to know whether a faculty/staff member or student is HIV-positive.
Conclusion: The Massachusetts two day AIDS training design appears to strongly and positively affect the AIDS attitudes of Massachusetts school staff.

4111 EVALUATION OF SOCIAL SERVICE NEEDS OF A MINORITY INNER CITY HIV INFECTED POPULATION.

Longstreth, Mary ; Olopoenia, L.; Phillips, P.; Smith, B.; Palmer, R.; Frederick, W. Howard University Hospital, Washington, District of Columbia, USA.

Objective: To describe the service needs of HIV infected patients in a large urban hospital serving a poor minority community and to analyze the outcomes of problems referred.
Methods: Social work files of 160 consecutive HIV infected patient referrals were reviewed to identify the source of the referral, the primary reason for the referral, other secondary needs encountered during the intake interview and to determine the outcome of each problem. Eleven social service needs were evaluated: financial, housing, transportation, placement, in-home services, emotional response to illness counseling, case finding information, continuity of health care, support groups, AZT assistance and family interpersonal problem. Financial needs included health insurance and income.
Results: The majority of patients were males (113), outpatients (106), homosexuals/bisexuals (75), and had ARC (72). Mean age of group was 36.2 years; range 19-54 years. Fifty-three percent of the referrals were from physicians, 33% were from the patients. The highest referral reasons reported were for financial help (63%), AZT assisstance (23%), and housing (14%). Lowest reported needs were for support groups (13%), in-home services (4%) and transportation (3%). The most intensely felt needs were financial for medicaid, housing and long term placement, and AZT assistance. Only 76% and 44% of the financial and housing needs respectively were resolved.
Conclusions: Needs for support groups were not prevalent in this population. Needs for housing and long term placement, although not prevalent in this study, are intense and difficult to resolve. More resources are needed if the needs of minority HIV infected patients are to be met.

4112 EVALUATION OF THE LEVEL OF KNOWLEDGE OF EDUCATORS CONCERNING AIDS-PROBLEMS

Enel, P*; Larher, Marie Pierre* ; Manuel, C* ; Charrel, J*.
*Public Health Service, Marseilles, France.

Objective : Much has been said about the public's apparent lack of information about AIDS. But has sufficient attention been given to the competence of educators who constitute the link between knowledge available, practical possibilities of prevention and the general public ? In this novel perspective we seek to evaluate the level of information of social, medical and para-medical workers in direct contact with young people, families and patients.
Methods : Every two months the Marseilles (France) Centre for Information and Care concerning Human Immuno-deficiencies (CISIH) gives a four-day course to about 25 people. Firstly, in a future perspective, we evaluate the impact of this course on general knowledge, by means of short, written, anonymous questionnaires (yes/no questions and scenario questions) before and after each course. Secondly, we evaluate retrospectively the keeping up-to-date of information in the long term and the usefulness of the course-programme (transmission of knowledge to work-colleagues and other acquaintances ; problems encountered by these vital intermediaries in the communication of their knowledge).
Results : Although these courses are well-received and appreciated, they do not erase or modify pre-conceived ideas of the participants, and reactions to typical scenario-situations do not always take into account knowledge acquired.
Conclusion : Before pursuing a policy of general information of the public, attention should be given to the appropriate information of the intermediaries who will be responsible for informing the public.

4113 AIDS:MASS CONSCIOUSNESS AND MASS MEDIA IN BULGARIA

Anguelov, Zlatko*; Deyanov, D.**
*Zdraven Front newspaper,**Youth and Society magazine, Sofia, Bulgaria

Objective: Mass media is the only public source of information concerning AIDS and AIDS-related topics in Bulgaria. Thus,our study aimed to investigate their social impact in this respect.
Methods: Publications on AIDS in all kinds of media (all state owned) have been studied through content analysis. The mass consciousness about AIDS has been assessed by interviewing and garfinkeling 1257 persons from different age and social groups using standardized questionnaires.
Results: During the two years that followed the "shock" period (July-December 1987) the media promoted the image of the civilized,well-informed and responsible individual who knows what is dangerous. The media dealt mainly with the problems of the uninfected that face the danger of AIDS,and propagated an abstractly formulated tolerance,which contained a latent repressiveness:only monogamous sex,only marital sex. This "freedom without alternatives" shaped an unfree,that is,irresponsible individual,who is motivated to act agressively when the panic returns,e.g.the number of HIV-positive grows to an extent likely to be dangerous for everyone.
Conclusion: The media reflects the dictatorial pattern of social organization. They are unable to respond adequately to the urgent AIDS-information needs. Alternatively,mass consciousness tends to modify their rigidity,and it urges either changes in media policy or new methods of disseminating AIDS information.

4114 FORMULATION OF NATIONAL POLICIES ON CONDOMS IN DEVELOPING COUNTRIES IN THE CONTEXT OF THE AIDS PANDEMIC: PROBLEMS AND PROSPECTS

Jayasuriya, D.C
*Institute of Comparative Health Policy and Law, 40/12 Swarnadisi Place, Nawala, Sri Lanka.

Given the current epidemiological patterns in the global spread of HIV infection and AIDS in developing countries and the limited resources available for public education, counselling, screening and treatment, there is a compelling need to promote the use of condoms, especially those containing the nonoxynol-9 spermicide. In many developing countries, the percentage of condoms users is very low and there are formidable logistics, social, cultural, political, institutional and infrastructre development constraints on popularizing their use. If there is to be an appreciable impact on the spread of HIV infection through sexual transmission, there is a need for every developing country to develop a comprehensive national condoms policy. The elements of such a policy include according high political visibility to the AIDS problem, accompanied by accelerated infrastructre development and public education campaigns to increase the knowledge on the use of condoms and to improve their availability and appropriate use. This calls for the unprecedented mobilization of both public sector and private sector resources for manufacturing good quality condoms and for creating distribution networks.

4115 FROM THE EYE OF THE HURRICANE--A MULTI-DISCIPLINARY AIDS STRATEGY FOR THE 90s

Carpenter, Peter F.*f; Conant, M.A.**f; Francis, D.P.***f; Kizer, K.W.****f;Werdegar, D.*****f
*ALZA Corporation, Palo Alto, California, USA, **University of California, San Francisco, California, USA, ***Centers for Disease Control, Department of Health Services, Berkeley, California, USA, ****Department of Health Services, Sacramento, California, USA, *****Department of Public Health, San Francisco, California, USA, fCalifornia AIDS Leadership Committee, Sacramento, California, USA

OBJECTIVE: Develop prototype AIDS prevention and treatment plan for the 1990s that any World Health Organization Type I area can use as a model.
METHODS: The plan developed was based on the authors' diverse perspectives and collective experience (epidemiology, prevention, research, clinical care, state and local government, public policy, and private sector). It incorporates results accumulated through plans developed for California and for San Francisco.
RESULTS: To respond to dramatic increases anticipated in the scope of the HIV epidemic the plan details a seven-point program: (1) epidemiologically monitoring HIV infection; (2) decreasing transmission-prone sexual behaviors; (3) intervening early in cases of HIV infection (behavioral, medical, and psychosocial intervention); (4) reducing transmission by those who continue transmission-prone behavior; (5) sharpening focus of prevention, education, and treatment research programs; (6) devising new funding mechanisms for prevention and treatment; and (7) providing leadership in public and private sectors.
CONCLUSIONS: Successful response to the 1990s HIV epidemic will require an integrated multidisciplinary strategy.

4116 Impact of the HIV Epidemic on Family Planning Programs: Policy Implications

Nancy E. Williamson, Family Health International

FP programs in both developed and developing countries are being affected by the HIV epidemic. How has the epidemic affected FP programs? Many changes are being required in established clinic procedures and counselling regarding choice of FP method. FP programs are being required to provide barrier methods and to expand educational outreach on STD/HIV prevention.

How can FP programs help to slow the spread of HIV? Although AIDS prevention programs are, for the most part, not working with FP organizations, there are a number of specific contributions FP programs could be making to HIV prevention, especially if they had more resources. These include: development and pre-testing of educational materials; distribution of educational materials; individual risk assessment for HIV infection (done as part of FP counselling); helping people (including those known or thought to be infected) make choices about the use of FP and specific methods; condom logistics; referral for STD treatment; and dissemination of research information on AIDS and how to avoid HIV infection. Many FP programs would like to do more to prevent AIDS but have not been in the AIDS prevention network and, with some exceptions, have not shared in the resources being made available for AIDS prevention.

4117 TRAINING HEALTH CARE WORKERS TO ADDRESS AIDS IN NEW ENGLAND

Steve Wrobleski, R.Rudd
JSI Research and Training Institute, Boston, MA USA

Objective: Workshops have been offered to health care workers over a two year period to increase knowledge as well as their level of comfort and perceived self efficacy for their work with clients on AIDS related issues.
Methods: One and two day workshops included presentations on basic facts, risk awareness, testing, and the personal experience of HIV infection, as well as discussions and exercises related to participants' fears, values, perceived risks, and counselling skills and issues. Participants completed pre and post questionnaires addressing attitudes and perceptions.
Results: Two tailed t-test analysis yields statistically significant change from pre to post test. Test results indicate a reduction in bias (related to AIDS patients), an increase in preceived counselling skills, an increase in comfort with AIDS related issues and contacts, as well as an increase in perceived knowledge/understanding regarding psychosocial issues and AIDS. Workshop format, experiential learning activities, as well as pre and post test instruments are discussed and shared. Six/eight month follow up queries of workshop participants indicate that participants feel a greater confidence addressing client needs.
Conclusions: The pre and post test format for workshop evaluations have provided valuable information to program planners and have not proven cumbersome for workshop facilitators or participants. Our findings have indicated that given an opportunity to discuss values, fears, and issues, health care professionals evidence greater comfort applying their existing counselling skills to client needs in face of the AIDS epidemic.

4118 PERIOD OF RISK FOR DRUG USE AND SEXUAL BEHAVIOR AMONG BLACK TEENAGE CRACK USERS.

Weinstein, Meryle, Fullilove M, Fullilove R, Bowser B.
Multicultural Inquiry and Research on AIDS, Bayview-Hunter's Point Foundation and UCSF Center for AIDS Prevention Studies (CAPS), San Francisco, CA, USA

Objective: To study the factors associated with drug use and sexual activity, particularly the relationship between crack use and sexual activity, among Black teenagers.
Method: Semi-structured interviews and life histories were conducted with 30 Black females and 29 Black males aged 13-19, recruited through the Bayview-Hunter's Point Foundation Youth Services.
Results: The life stories presented a consistent picture of a sudden emergence and escalation into sexual behavior and drug use in the age period after age 9 for boys and after age 13 for girls; no differences were found among those youths who used crack and those who did not. After "first kiss" there was rapid progression to intercourse and after first drug use there was rapid progression to other drug use. Prior to these "firsts", there had been no involvement in these "adult" behaviors. Study participants described neighborhood friends as the people most responsible for initiation into these behaviors.
Conclusion: This research suggests that inner-city Black youths are emerging into a high-risk period early in adolescence, mainly influenced by their peers. Interventions to delay sex and drug use should be targeted to this group to prevent the spread of HIV among this population.

4119 HETEROSEXUAL MEN NEGOTIATING SAFE SEX: A CASE STUDY

Waldby, Catherine *; Kippax, S.*; Crawford, J.*
*Macquarie University, Sydney, Australia

Objective: 1. to describe the processes whereby heterosexual men negotiate sexual encounters 2. to analyse these processes in terms of their amenability or resistance to the adoption of safe sex practices.
Method: In-depth interviews were conducted with 8 men into their experience and perceptions of sexual negotiation with women. In addition a discussion group was convened on the same topic and the discussion recorded and transcribed. The data was qualitatively analysed through the selection of one interview as a case-study and the use of the remaining data to compare and contrast.
Results: The case-study subject was found to be amenable to the adoption of safe sex practices because: 1. he was verbal during sexual encounters 2. had eroticised condom use 3. had a fairly high number of sexual partners and was aware of STD risks. Interviewers who were less verbal, had a small number of partners and who disliked condom use were resistant to the adoption of safe sex.

4120 AIDS AND TRADITIONAL CONCEPTIONS OF ILLNESS IN SENEGAL

Sylla O.* ; Coll A.M.*;Diop B.M.*;Dansokho E.*;Sow S.*

* Faculty of Medicine - Dakar - Senegal

Objective : 1) To precise the link between seropotivity and traditional conception of illness ; 2) To determine the link between psychosocial profile and traditional conception of illness ; 3) To precise family role in counselling.
Methods : The sample is compunded by 50 seropositive patients who were hospitalized in Fann Hospital. A questionary on socio-demographic characteristics and main traditional conception were proposed to each of them. Investigation began on October 1989.
Results : 90% of seropositive patients had traditional conceptions of illness (witchcraft, maraboo craft, ancestors spirits) and among them, 87% got traditional care. Migration was a steady factor (89%). 45% of patients had an accompanist for hospitalization and more than the half (67%) of the sample got a scholarship less than 5 years.
Conclusion : Traditional conception of illness was established arong seropositive patients and the community (family, friends, fellows) was looking after their hospitalization care.

4121 REASON FOR ASKING FOR A TEST IN AN OUTPATIENT SERVICE FOR HIV INFECTION (ROME 1985 - 1989)

Schito Sergio*; Antonelli L.°; Corlito A.°; Frigiotti D.°; Girardi E.*; Martini F.°; Narciso P*; Puro V.*; Zaccarelli M.*; Visco G.°.
U.S.L. RM/10* AIDS UNIT ,°L. Spallanzani Hospital, Rome Italy

Objective: To analyse changes in the reasons for asking to be tested for HIV infection, as possible indicators of risk perception in years 1985-1989.
Methods: All subjects attending our service to be tested for HIV have been interviewed. Data regarding subjects who had a previous HIV negative test or who underwent HIV serology for the first time have been analysed.
Results: A total of 3097 consecutive subjects have been observed. Among 2744 of them (88.6%) for which result of the test was known, 506 (18.4%) were positive. No significant modifications of prevalence were found in the different years. The main data on the reason of the requests are summarized as follows:

Motivation/No. subjects	1985	1986	1987	1988	1989	TOTAL
Drug use	72	97	152	107	271	699
Homo-bisexual	47	13	37	13	71	181
Heterosexual	56	63	230	221	633	1203
Other/unknown	65	56	136	201	556	1014
Total	240	229	555	542	1531	3097

Conclusion: A significant increase in number of subjects willing to be tested for HIV has been observed. This trend may be due to an increased perception of the risk of infection linked to heterosexual activity. Moreover although a more large number of subjects have been tested, the annual prevalence of infection is stable.

4122 THE EFFECT OF A TRAINING COURSE ON HEALTH PROFESSIONALS' KNOWLEDGE OF AND ATTITUDES TO HIV INFECTION AND AIDS

Popkiss, Michael EE *; Van Der Velde, P *; Joubert G **;
* Council of the City of Cape Town (CCC) and ** Medical Research Council (MRC), Republic of South Africa.

This survey was undertaken to establish whether continued provision of resources to fund training courses for health professionals at the newly established AIDS training, information and counselling centre (ATICC) in Cape Town is justified.
Methods: Forty three health professionals employed in the Cape Town City Health Department who had attended a three-day ATICC training course (the subjects) and 86 others who had not attended such a course (the controls) completed a confidential questionnaire on 1989-12-19 whilst on duty.
Results: Analysis of 126 questionnaires revealed the subjects and controls to be comparable as regards job, age, sex, and marital status.
Knowledge scores (as expected) were high in both groups and yet using the median test it was found that the subjects scored significantly higher than the controls (X^2 = 29,39 df = 1 p = 0,0001).
Analysis of replies to the attitude questions (using the same test) showed that a significantly higher proportion of subject replies were desirable than of control replies (X^2 = 31,42 df = 1 p = 0,0001).
Discussion & Conclusion: Strengths and weaknesses of the survey will be elaborated on in the full presentation. There is every reason to accept that a truly significant result was achieved and that the continuation of these courses (which cost approximately US $78 per student) is, therefore, justified.

4123 EVALUATING AIDS EDUCATION FOR DENTISTS.

Gerbert, B.*; Sumser, J.*; Maguire, B.*; Miyasaki, Cara*; Bader, J.**
*UCSF Center for AIDS Prevention Studies, San Francisco, California, **University of North Carolina, Chapel Hill, North Carolina, USA.

Objective: To test the effectiveness of an individualized AIDS education program for dentists, we implemented an intervention based on adult learning principles and designed an evaluation to establish whether the program was successful.
Methods: The year-long educational intervention was composed of individualized feedback on participants' pretest responses, easy-to-read bulletins, and a telephone warmline with prerecorded messages. The pretest indicated that dentists needed to improve their a) knowledge about HIV disease, b) knowledge of its oral manifestations, c) oral examination procedures, d) willingness to treat people with HIV disease, and e) infection control practices.
Results: One hundred seventy two dentists volunteered for the program from a nationwide mailing. Seventy percent completed the program. Participants' scores improved significantly on all five scales from pretest to posttest ($p < .05$). To assess whether these improvements were based on our intervention rather than on changes that occurred for all dentists over that period of time, we compared our participants' scores at post-test to a random sample of 300 U.S. dentists (81% response rate). Project participants significantly ($p < .05$) outscored non-participants on all outcomes.
Conclusion: By assessing pretest to posttest gains on outcome measures and comparing participants to nonparticipants, we are confident that this educational intervention was successful at improving dentists' knowledge, attitudes, and behaviors.

4124 EVALUATION OF THE KNOWLEDGE, ATTITUDES AND PRACTICES REGARDING HIV INFECTION AND AIDS IN THE IVORY COAST.

Messou, E., Kale, K., Carballo, M., Carael, M.

Objective: As part of the Ivory Coast's information/education/communication program on HIV infection and AIDS, a survey of the population's knowledge, attitudes and practices was carried out between July 2nd and July 27th 1989. The objective was to provide data on the population's perception of AIDS and HIV infection and thus obtain the information needed to conceive, apply and evaluate educational programs regarding AIDS.
Methods: We used a cluster-type survey (probability proportional to sample size) recommended by WHO for the evaluation of vaccine coverage. Using this survey method and an updated list of cities and towns, 5 samples were constituted: one in Abidjan and four others chosen according to the 4 major ethnic groups on the Ivory Coast. For each sub-sample, 20 clusters of 30 subjects, aged 15 to 65 years were interviewed using a KAP (knowledge, attitudes and practices) questionnaire recommended by WHO. A total of 2990 subjects were interviewed during the survey.
Results: 14.3 % of the subjects declared that they had never heard of AIDS. The proportion of subjects who had never heard of AIDS or who knew nothing about this disease was 49.4%. Only 2.4% of those interviewed estimated that they had extensive knowledge of AIDS. Self-reported knowledge was significantly associated with socio-demographic characteristics of the survey population. 33.2% of interviewed subjects had average knowledge regarding routes of transmission of HIV/AIDS.

4125 POLLING HOSPITAL WORKERS ABOUT UNIVERSAL PRECAUTIONS AND AIDS

Gulick, Roy; Kalaidjian, R.; Baldini, L.; Zaleznik, D. Infection Control, Beth Israel Hospital, Harvard Medical School, Boston, MA, USA

Objective: To survey all employees of a major teaching hospital about the practices of universal precautions and the impact of AIDS on the workplace.
Methods: A survey was developed to address hospital workers' views on patient contacts, risks, and precautions to prevent blood/body fluid exposures. Also assessed were worker and family/friends' concerns about AIDS in the workplace. Surveys were distributed by managers to 5032 employees with all levels of patient contact from primary health care providers to clerical workers, and completed and returned anonymously.
Results: 1479 surveys (29%) were returned. A random sampling revealed those responding to be 37% RN, 11% MD, 11% clerical workers, 8% administrators, 5% technicians with many other workers represented. Further preliminary data revealed: 86% knew about universal precautions with 79% working with blood/body fluids and 69% identifying some occupational risk of transmission. 14 % said they had had some occupational exposure to blood/body fluids from an HIV+ patient. 53% admitted to re-capping needles at least one in ten times. 35% admitted to being uncomfortable with the lack of precaution signs on patient rooms. Over 60% stated fear of AIDS contact at work and over 20% said their family/friends worried about catching AIDS from them. 56% wished they were not working in health care because of AIDS at least some of the time. Given the choice, 68% would choose to work in a hospital again.
Conclusions: A majority of hospital workers, both with and without patient contact, reported knowing about universal precautions. Despite this, a significant proportion of workers responding reported exposure and many feared occupational exposure to AIDS, noted fears of AIDS transmission in family/friends, and sometimes wished they did not work in health care, specifically because of AIDS.

4126 AN ASSESSMENT OF KNOWLEDGE, PERCEIVED RISK, AND BELIEFS AMONG LOS ANGELES, CALIFORNIA PHARMACISTS

SAMBOL, RONNA; GOLDBERG, RICHARD; KARAPETIAN, GALIA
LOS ANGELES COUNTY - DEPARTMENT OF HEALTH SERVICES, AIDS PROGRAMS
LOS ANGELES, CALIFORNIA, USA

OBJECTIVE: Develop a needs assessment survey to evaluate HIV knowledge, attitude, and practice of Registered Pharmacists in Los Angeles County.
METHODS: A needs assessment survey was developed and pre-tested on 100 U.S.C. School of Pharmacy graduate students. 5160 surveys were mailed to every Registered Pharmacist in Los Angeles County. California State Board of Pharmacy offered two continuing education units for the completion and return of the survey. Returned surveys were coded, computerized, and analyzed. Descriptive statistics and crosstabulations were produced.
RESULTS: 1476 (29%) surveys were returned. Generally, Pharmacists' knowledge of prevention was high and most felt a necessity and responsibility to serve patients with HIV. However, 38% answered that working near someone with AIDS posed a threat of infection. 54% believed that eating in a restaurant puts one at risk. 32% stated that there was a possibility of becoming HIV infected by donating blood.
CONCLUSION: Although Pharmacists in this study were knowledgeable about prevention, misconceptions still exist. Our study showed a need for continued AIDS education. This was recommended to the statewide Pharmacists' AIDS Intraprofessional Task Force.

4127 THE INFLUENCE OF NURSES' AND SOCIAL WORKERS' PERCEPTIONS ON COPING WITH PERSONS WITH HIV AND AIDS.

GIAMI, Alain*; Veil, C.**; R.I.T.S. group***
*INSERM, Paris, France; **E.H.E.S.S., Paris, France;***Université Paris 7, France.

Objectives: Identification of representations and fantasies of two samples of professionals in contact with seropositive person and Aids patients, in order to understand the nature and functionning of some intrapsychic processes involved with the practices of prevention. These processes are considered as irrationnal determinant factors of problems related to prevention (both for self-protection and protection of patients).
Method: Clinical semi-structured interviews with nurses (n=50) and social workers (n=50). Discourse analysis (content analysis and psycho-analytical interpretation); comparative analysis of the two groups based on the contact hypothesis: body contact for nurses; verbal contact for social workers.
Results: Some defense mechanisms related to the perception of Aids and Aids patients:
Difficulties and resistance in speaking about their specific experience of Aids;
Use of metaphors showing denial and/or exaggeration in perception of the risks;
Contradictions between professional knowledge and actual practice of prevention.

4128 ASPECTS OF PERSONALITY AND BODY-IMAGE IN HIV AFFECTED SUBJECTS AND THEIR IMPLICATIONS IN COUPLES DYNAMICS

Corlito Anna*; Barnà C.A.**; Bertola A.***; Garavini S.*; Giulianelli M.+; Schito S.+; Visco G.*.
* U.S.L. RM/10 Spallanzani Hospital II Division, ** Società Psicoanalitica Italiana and I.P.A., *** Institute of Psychology University of Rome, + AIDS Unit U.S.L. RM/10 Rome.

Basic intrapsycological dimension (BID) is the resultant of many factors concerning body-image, personality structure, quality and dynamics of defensive mechanisms.
Object: To study the relationship between the BID and the management of sexual life as cofactors of the transmission of HIV infection among heterosexual couples.
Methods: 30 couples, 4 with both HIV +ve partners and 26 with only one HIV +ve member, have been admitted to this study. Only 15 couples agreed to be tested 12 men and 5 women of them were HIV +ve. The subjects , attending the autopatient ward of our hospital, have be selected considering 1) age 2) cultural level 3)risk factors. Exclusion criteria: 1) pre-existant functional psychosis 2) pre-existant organic psychosis 3) people on chronic treatment. Subjects, followed during one year, have been evaluated through:1) clinical interview 2) general anamnestic notice questionnaires 3)DAP Machover/FoglioBonda 4)Rorschach Foglio/Bonda RIFS scale Spivack/ Levine. Statistic test as followes: U of Mann/Whitney; X^2; Wilcoxon test. Significance level 0,5.
Results: In the affected subjects, compared with seronegative partners, results: 1) a difficulty of perception of their body 2) a coercion of their emotivity 3) a narrowness to the external world 4) a dispertion of their sexual activity. In questionnaires a different rapresentation, among partners, of the real sexual intercourse and a large range of informations about it.
Conclusion: By the total scores the importance of knowledge of psycological dynamics within couples management results.

4129 PERSON WITH AIDS (PWA) DEVALUATION AND BIASED AIDS RESOURCE ALLOCATION DECISIONS

Chapman, Daniel; Levin, I.
University of Iowa, Iowa City, Iowa, USA.

Objective: To assess if inferences of blame for AIDS contraction affect medical resource allocation decisions and reflect devaluation of the worth of lives of PWAs judged responsible for contracting AIDS.
Methods: 60 student subjects were presented with hypothetical medical case histories describing each PWA's inferred mode of AIDS contraction (IV drug use or hemophilia), the scarcity of the needed medical resource, and the severity of each PWA's current symptoms. Subjects rated how strongly they felt each PWA should receive the resource and the perceived responsibility of each PWA for contracting AIDS. Subjects were next asked to choose between two treatments of AIDS which differed in risk for two groups of PWAs: IV drug users and hemophiliacs.
Results: Subjects were less likely to allocate medical resources to PWAs judged responsible for AIDS contraction (IV drug users) than to PWAs not believed responsible (hemophiliacs), $F=1275.1$, $p<.001$. Responsibility biases affected resource allocation decisions even when symptoms were severe and the resource was readily available. Similarly, low responsibility PWAs -- but not IV drug users -- were assigned a treatment option guaranteeing a sure savings of life, $p<.001$.
Conclusion: Responsibility biases exert strong effects on resource allocation decisions affecting PWAs, thus corroborating the potency of punitive responses toward those blamed for adverse events. From the vantage of prospect theory, the greater willingness of subjects to take risks involving PWAs blamed for AIDS contraction suggests the lives of these PWAs are devalued, thus rendering denial of a resource more acceptable to subjects.

4130 EXPANDING THE PRIMARY CARE NETWORK FOR PERSONS WITH HIV IN NEW YORK STATE

Burke, G.,M.D.*;Anarella, J.*;Feldman,I.*;Glaros,R.*;Rango, N.,M.D.*.*AIDS Institute, New York State Department of Health, Albany, New York.

Objective. To insure that an estimated 200,000-400,000 HIV infected New Yorkers have access to comprehensive primary care including available treatments that can control or delay the onset of symptomatic HIV disease.
Methods. As part of long range plans to develop a continuum of care for persons with HIV, the New York State Department of Health (NYSDOH) held discussions with providers and conducted a survey at select community health centers to assess their capability to deliver HIV care. The survey process involved patient and financial record review and interviews with clinicians and administrators.
Results. The issues that significantly impact on the delivery of HIV primary care include: 1)HIV patients require more staff time and resources, 2) inadequate Medicaid reimbursement and the large percentage of HIV patients with no health insurance (25-56%) create a financial disincentive for private practitioners, hospitals and health centers to provide HIV care, 3)staff need additional training regarding medical management of HIV and drug treatment issues, 4)nonreimbursable activities will need grant funded support.
Conclusion. As a result of these findings the NYSDOH is sponsoring a series of initiatives that will broaden the network of care to individuals with HIV infection. These initiatives include: 1)enhancement of Medicaid rates for HIV services, 2)targeted grant funding to community health, women's health and drug treatment providers, 3)training and fellowship programs for health professionals and, 4)further development of community based resources.

Opening and Closing Ceremonies/Plenary and Rapporteur Sessions

Afternoon Session Chairs and Moderators

Presenting Authors–Friday

INDEX OF OPENING AND CLOSING CEREMONIES PLENARY AND RAPPORTEUR SESSIONS

Abrams, Donald I.; Rapporteur
Agnos, Art; Opening Ceremony
Allain, Jean-Pierre; Science to Policy/Thursday
Aoun, Hacib; Science to Policy/Thursday
Armitage, Peter; Science to Policy/Friday
Bangura, Ishmael H.; Science to Policy/Saturday
Berzofsky, Jay; State of the Art/Friday
Blanco, Nicholas E.; State of the Art/Friday
Carballo, Manuel; Rapporteur
Coates, Tom; Science to Policy/Thursday
Coffin, John; Rapporteur
Collier, Ann C.; Rapporteur
De Clercq, Erik; State of the Art/Thursday
Delaney, Martin; Science to Policy/Friday
Dittmann, Sieghart; State of the Art/Saturday
Eriki, Peter; State of the Art/Saturday
Fauci, Anthony; Closing Ceremony
Fischl, Margaret; State of the Art/Thursday
Friedland, Gerald; State of the Art/Saturday
Fullilove, Mindy; State of the Art/Friday
Gallwey, John; Science to Policy/Thursday
Gardner, Murray; State of the Art/Friday
Gill, George M.; Science to Policy/Friday
Helquist, Michael; Rapporteur
Hinman, Alan R.; Science to Policy/Thursday
Hoth, Daniel; Science to Policy/Friday
Howse, Debra, Frazer; Science to Policy/Friday
Hulley, Stephen B.; Rapporteur
Kallings, Lars Olof; Closing Ceremony
Katabira, Elly T.; Science to Policy/Friday
Khaitov, Rakhim M.; State of the Art/Thursday
Kiereini, Eunice M.; Opening Ceremony
Krevans, Julius R.; Opening Ceremony
Krim, Mathilde; Science to Policy/Friday
Lamptey, Peter; Science to Policy/Thursday
Larder, Brendan A.; State of the Art/Thursday
Leport, Catherine; State of the Art/Saturday
Levy, Jay A.; Opening Ceremony
Lifson, Alan; Rapporteur
Mason, James; Science to Policy/Thursday
McCullough, Laurence; Science to Policy/Saturday
McGuire, Jean; Science to Policy/Saturday
McKusick, Leon; Opening Ceremony
McMichael, Andrew; State of the Art/Friday
Mills, John; Rapporteur
Mitcham, Constance; Science to Policy/Saturday
Mitchell, Janet; Science to Policy/Thursday
Mulandi, Therese; State of the Art/Saturday
Nakajima, Hiroshi; Closing Ceremony/Saturday
Ngcongco, Vuyelwa Ndiki; State of the Art/Saturday
Ngugi, Elizabeth; Rapporteur
Ntaba, H.M.; Science to Policy/Saturday
Ornelas-Hall, Gloria; Science to Policy/Thursday
Osborn, June; Opening Ceremony
Pankova, Elena; Science to Policy/Saturday
Penny, Ronald; State of the Art/Thursday
Perryman, Sallie; Opening Ceremony
Price, Richard; Science to Policy/Thursday
Relman, Arnold; Science to Policy/Friday
Roper, William; State of the Art/Friday
Rossi, Giovanni, B.; Closing Ceremony
Russo, Vito; Opening Ceremony
Sande, Merle, A.; Science to Policy/Friday
Sela, Michael; Rapporteur
Sepulveda, Jaime; State of the Art/Friday
Sevilla, Rebecca; Closing Ceremony
Smith, Mark; Science to Policy/Saturday
Stimson, Gerry V.; State of the Art/Friday
Sullivan, Louis; Closing Ceremony
Tielman, Robert; Science to Policy/Saturday
van Griensven, Godfried, J.P.; State of the Art/Saturday
Volberding, Paul A.; Opening/Closing Ceremony
Wachter, Robert M.; Opening Ceremony
Willoughby, Anne; Rapporteur
Wong-Staal, Flossie; State of the Art/Thursday
Yarchoan, Robert; State of the Art/Thursday
Yeoh, Eng-kiong; Closing Ceremony
Ziegler, John; Opening/Closing Ceremony

INDEX OF AFTERNOON SESSION CHAIRS AND MODERATORS

Andrieu, Jean-Marie; B4
Ankrah, Maxine; D10
Ballantine, Aileen; D5
Barr, David; D3
Bartholomew, Courtney; C3
Bell, Ermini; B2
Belman, Anita; PDS/Sat
Bez, Gabriel; D8
Bohlin, Ann-Britt; C10
Boland, Mary; D4
Bolognesi, Dani; A5
Brill Edwards, Michele; D11
Brown, Lawrence; D12
Bunn, James; D5
Castilho, Euclides; C7
Chieco-Bianchi, Luigi; A6
Christen, Pat; D7
Clavel, Francois; A1
Clayton, Alistair; C6
Cohn, David; B1
Colebunders, Robert; B10
Collins, Peter; D6
Cooper, David; A11
Dalgleish, Angus; A7
Davoli, Marina; C6
Diquet, Bertrand; B5
Duckett, Margaret; D2
Esparza, Jose; PDS/Sat
Essex, Max; A6
Fanning, Mary; B1
Fay, Oscar; PDS/Sat
Feinberg, Judith; B8
Fernandes, Maria; C12
Ficarra, Giuseppe; B12
Fluss, Sev; D3
Folks, Thomas; A2
Francioli, Patrick; C5
Gallo, Robert; A11
Garcia-Alvarez, Rafael; C9
Gartner, Susan; A9
Girard, Pierre Marie; B9
Goudsmit, Jaap; A4
Greco, Dirceu; C10
Greenspan, Deborah; B12
Harris, Jeffrey; C7
Hayami, M.; PDS/Fri
Hellerstein, Marc; PDS/Th
Hernandez, Sandra; D10
Hira, Subhash; D6
Hollander, Harry; B6
Hulley, Stephen; C4
James, John; B3
Kaptue, Lazare; C4
Kaswarra, Joel; PDS/Fri
Katlama, Christine; B8
Kennedy, Ronald; A5
King, Daniel; A7
Krown, Susan; B4
Kurth, Reinhard; A10
Lashof, Joyce; C2
Laurence, Jeffrey; A8
Mannucci, Pier; C8
Marriott, Deborah; B9
Mateus Loures, Luis Antonio; B7
Mbidde, Edward; C9
McArthur, Justin; B6
Mcclure, Jan; A4
Modlin, John; PDS/Sat
Montagnier, Luc; A3
Monzon, Ofelia; A2
Moss, Andrew; PDS/Fri
Narayan, Opendra; A10
Nichols, Stuart; B2
Obikeze, Dan; D4
Padian, Nancy; C12
Pettyjohn, Roger; D9
Phanuphak, Praphan; C8
Pinel, Arletty; D1
Piot, Peter; C1
Plata, Fernando; A12
Plummer, Francis; C2
Pokrovsky, Vadim; C11
Porter, Veneita; D2
Prober, Charles; B5
Putney, Scott; PDS/Fri
Ratner, Lee; A1
Rekart, Michael; C11
Richman, Douglas; B11
Rubsamen-Waigman, Helga; A3
Rutherford, George; C1
Schechter, Martin; B7
Schram, Neil; D11
Schultz, Alan M; A12
Senanayake, Pramilla; D1
Silverman, Mervyn; D8
Stein, Zena; C3
Stiles, B.J.; PDS/Th
Tempesta, Enrico; D12
Valdespino, Jose Luis; C5
Vanichseni, Suphak; D9
Vilde, J.L.; PDS/Th
Wainberg, Mark; B11
Weber, Jonathan; A9
Weller, Ian; B3
Wirima, Jack; B10
Zarling, Joyce; A8

Key: PDS=Poster Discussion Session

INDEX OF PRESENTING AUTHORS–FRIDAY

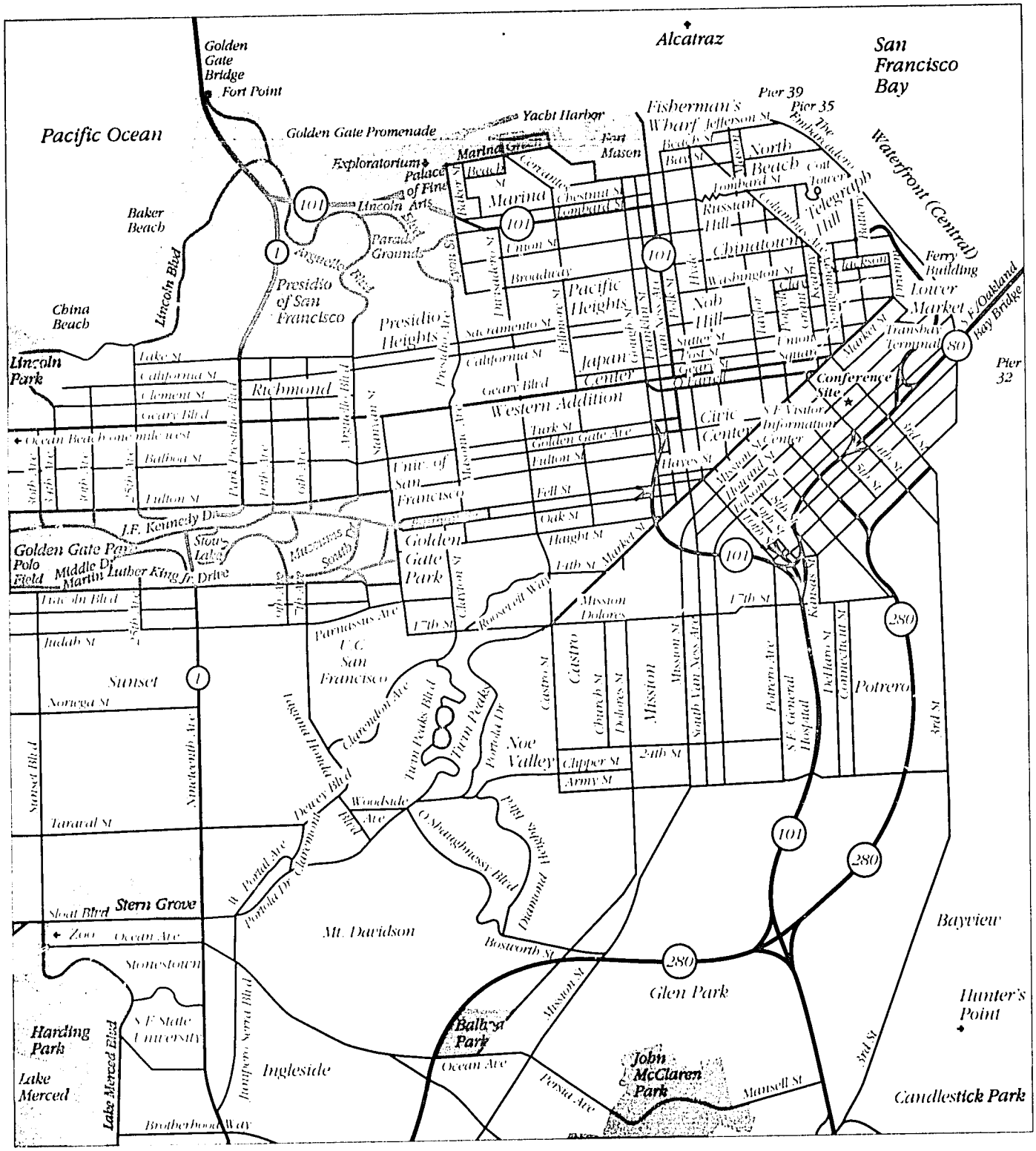
Abramowitz, Alton G.; F.C.763
Abrutyn, Elias; F.C.671
Adams, Colleen W.; F.A.207
Adams, Irene K.B.; F.C.580
Adeodato Filho, Sergio; F.D.842
Adib, Maurice; F.C.724
Adinolfi, Anthony J.; F.B.497
Adjorlolo, Georgette; F.C.601
Aggleton, Peter; F.D.888
Ahlstrom, Promise A.; F.B.465
Aiuti, Fernando; F.C.46
Alary, Michel; F.C.573
Alcami, Jose; F.A.252
Allain, Jean-Pierre; F.C.589
Allen, David M.; F.C.551
Altmann, Michael A; F.C.686
Alves, Carlos B.; F.C.582
Ames, Lynda J.; F.C.715
Anand, Rita; F.A.304
Anderson, Sandra E.; F.D.875
Andreev, Sergej M.; F.A.284
Ankrah, E. Maxine; F.D.798
Antinori, Spinello; F.C.635
Antonacci, Concetta M.; F.B.416
Apisuk, Chantawipa; F.D.114
Apte, Sharad V.; F.C.611
Aral, Sevgi O.; F.C.747
Arca, Massimo; F.C.223
Arno, Peter S.; F.D.831
Arribas, Jose L.; F.D.807
Artigas, Juan; F.B.418
Asjo, Birgitta; F.A.248
Auerback, Barry S.; F.B.505
Augustyniak, Linda M.; F.C.565
Awa Ndao, ; F.C.602
Bacchetti, Peter; F.C.692
Bahraoui, Elmostafa; F.A.270
Baillou, Armelle M.; F.A.208
Bakker, Leendert J.; F.A.311
Bartholow, Bradford N.; F.C.718
Bash, Margaret C.; F.B.467
Batter, Veronique; F.B.459
Battjes, Robert J.; F.C.552
Baum, Marianna; F.B.32
Beach, Richard S.; F.C.590
Beeker, Carolyn G.; F.C.719
Beisswenger, Klaus-Dieter; F.D.863
Bell, David; F.C.33
Belman, Anita L.; F.B.473
Benedetti, Paolo; F.D.903
Benito-Garcia, Ana; F.C.662
Benjamin, A. E.; F.D.816
Bergmann, John E.; F.A.282
Bertozzi, Stefano M.; F.D.806
Beuscart, Claude M.; F.D.856
Bez, Gabriel GB; F.D.811
Bhave, Geeta G.; F.C.612
Biczak, Laureen A.; F.B.530
Bieniek, Bernhard; F.B.508
Biggar, Robert J.; F.C.214
Bird, Graham A; F.C.222
Blower, Sally M.; F.C.678
Bobkov, Aleksey F.; F.A.293
Boccellari, Alicia; F.B.376
Bohlin, Ann-Britt; F.B.442
Bolan, Gail; F.C.685
Boland, Mary G.; F.D.819
Bomboko, Bombelenga F.; F.C.709
Bornstein, Robert; F.B.365
Bottiger, Margareta; F.C.646
Bouzas, Maria B.; F.C.672
Bowser, Benjamin P.; F.C.760
Boyer, Richard; F.D.894
Breard, Jaqueline; F.A.261
Bressler, Peter B.; F.A.80
Brinchmann, Jan E.; F.A.255
Brito, Germania R.; F.D.768
Brubaker, Glenn; F.C.659
Bryce, Jennifer W.; F.D.848
Bukrinskaya, Alice; F.A.242
Burek, Vitomir; F.C.653
Burke, Michael; F.C.628
Butini, Luca; F.A.281
Butler, Karina M.; F.B.22
Byers, Robert H.; F.C.697
Cabral-Evins, P.A. M.P.H., Daramola N.; F.C.684
Calvelli, Theresa A.; F.B.456
Cameron, Charles; F.D.834
Campbell, Scott R.; F.C.38
Campbell, Robert J.; F.C.571
Canavaggio, Michel; F.A.12
Canick, Jonathan D.; F.B.366
Cao, Yunzhen; F.A.306
Capellan, Mirtha R.; F.C.586
Carbonara, Sergio; F.B.395
Caredda, Francesco; F.B.534
Carlyn, Marcia; F.B.439
Carrillo, Ma. Elvira R.; F.D.902
Carton, Jose Antonio; F.B.517
Castagna, Antonella; F.B.396
Castro, Blesila A.; F.A.296
Cauley, Kate; F.D.63
Cavelier, Annick; F.C.620
Cefai, Daniel; F.A.78
Chaisson, Richard E.; F.B.425
Chamot, Eric; F.C.647
Chan, Roy KW.; F.C.616
Cheek, James; F.C.221
Chehimi, Jihed; F.A.258
Cheitlin, Me'vin D.; F.B.529
Chela, Clement; F.B.479
Cheynier, Remi; F.A.73
Chinelli, Leila; F.B.419
Chin, James; F.C.217
Choi, Kyung-Hee; F.C.761
Church, Deirdre L.; F.A.307
Church, Joseph A.; F.B.514
Ciesielski, Carol A.; F.B.424
Cilleruelo, Maria Jose; F.B.484
Cinque, Paola; F.B.520
Ciricillo, Samuel E.; F.B.400
Clark, Wayne W.; F.C.764
Clarke, Sian E.; F.C.651
Cleven, Karen A.; F.B.495
Clouse, Kathleen A.; F.A.310
Coats, Michael E.; F.B.367
Cohen, James P.; F.B.502
Cohen, Mitchell; F.D.847
Collman, Ronald G.; F.A.273
Coltin, MPH, Kathryn L; F.D.813
Connolly, Sean; F.B.409
Connor, Edward M.; F.B.21
Constantine, Niel T.; F.C.599
Conway, Brian; F.A.334
Conway, George A.; F.C.545
Coombs, Robert; F.B.84
Cooper, Ellen R.; F.B.477
Corey, Larry; F.A.2
Coste, Joliette S.; F.C.674
Coudurier, Ana; F.D.62
Courpotin, Christian; F.B.444
Coye, Molly J.; F.D.821
Craib, Kevin J.; F.C.693
Cronin, William; F.B.537
Crooks, Levinia; F.D.791
Crovari, Pietro M.; F.C.630
Curran, James; F.D.52
Dab, William; F.C.753
Dabis, Francois X.; F.B.493
Damm, Christa; F.D.884
Danila, Richard N.; F.C.569
Dattel, Bonnie J.; F.C.570
Davenny, Katherine; F.B.430
Davies, Peter M.; F.C.712
Davis, Brian R.: F.A.301
Davis, Arlene M; F.C.737
De Cock, Kevin M; F.C.103
De Francesco, Stephen; F.D.898
De Jose Gomez, Ma Isabel; F.B.20
De La Rosa, Blanca; F.D.804
De Martino, Maurizio; F.B.450
De Stoutz, Noemi; F.B.511
De Wit, John B; F.C.716
DeVico, Anthony L.; F.A.230
Deicken, Raymond F.; F.B.402
Del-Rio, Aurora Z.; F.C.754
Denis, Francois A.; F.C.588
Desmond, Gerald M; F.D.881
Dickover, Ruth E.; F.A.342
Dieterich, Douglas T.; F.B.94
Dietrich, Ursula; F.A.206
Dietz, Susan E.; F.D.769
Dijkgraaf, Marcel G.; F.D.799
Dilley, James W.; F.B.29
Dixon, Jill; F.D.115
Doebbert, Gwendolyn; F.D.838
Doerr, Hans W.; F.C.626
Dolan, Katie A.; F.C.108
Dominguez, Angel; F.B.516
Dondero, Dale; F.A.333
Donegan, S. Patrick; F.C.750
Dooneief, George H.; F.B.411
Downs, Angela M.; F.C.220
Drager, Nick; F.D.828
Drenaggi, Davide; F.B.518
Drew, W. Lawrence; F.B.93
Duliege, Anne-Marie S.; F.B.478
Dutcher, Gale A.; F.D.861
Dwyer, Dominic E.; F.A.324
Edelmann, Frederic; F.D.113
Egan, Vincent; F.B.388
Eichberg, Jorg; F.A.4
Eiden, Lee E.; F.A.285
Eisenhandler, Jon; F.C.562
Ekstrand, Maria L.; F.C.707
Elbaz, Gilbert; F.D.789
Elder-Tabrizy, Kelly A.; F.D.868
Elifson, Kirk W.; F.C.549
Ellam, G. A.; F.C.650
Ellaurie, Maadhava; F.B.474
Ellerbrok, Heinz; F.A.236
Ellis, Bernard H.; F.C.728
Elorza Arizmendi, Javier F. J.; F.B.463
Emanuel, Peter D.; F.A.313
Emilie, Dominique; F.A.347
Erickson, Julie R.; F.C.756
Escaich, Sonia; F.A.357
Estermann, Josef C.; F.C.623
Estrada, Antonio L.; F.C.757
Evans, Louise A.; F.A.260
Evans, Patricia E.; F.C.555
Ezzati, Trena M.; F.C.691
Federico, Maurizio; F.A.243
Feigal, Ellen G.; F.C.665
Feijoo, Rosa; F.D.840
Feingold, Lisa; F.C.748
Feller-Dansokho, Elisabeth A.; F.B.437
Fenouillet, Emmanuel; F.A.291
Ferguson, Leona; F.D.771
Fermin, Cesar D; F.A.294
Fernandez Esquer, Maria E.; F.C.730
Ferro, Santiago; F.C.576
Fisman, Noemi L.; F.D.841
Fitt, Sarah M; F.D.833
Flahault, Antoine; F.C.215
Flam, Lisa; F.D.901
Fleetwood, Debbie; F.B.431
Flori, Yves Antoine; F.D.801
Folgueira, Dolores; F.C.642
Follansbee, Stephen E.; F.B.91
Forbes, Anna S.; F.D.906
Fordyce, E. James; F.C.744
Fowler, Arnold K.; F.A.340
Frazier, Kevin; F.C.710
Freedberg, Kenneth A.; F.D.832
Freeman, Mark; F.D.855
Frenkel, Lisa M.; F.B.490
Friese, Klaus; F.B.461
Fuente, Luis de la; F.C.110
Gabiano, Clara; F.A.358
Gabuzda, Dana H.; F.A.237
Gagnon, John H.; F.D.867
Gail, Mitchell H.; F.B.86
Galgani, Simonetta; F.B.401
Galli, Massimo; F.C.112
Galvao-Castro, Bernardo; F.C.579
Gama Sosa, Miguel A; F.A.227
Garcia, Maria De Lourdes G.; F.C.714
Garcia, Homer D.C.; F.D.796
Gardiner, Ben; F.D.865
Garraffo, Rodolphe; F.B.491
Garrett, Laurie; F.D.51
Gastaut, Jean-Albert; F.B.380
Gaudino, James A.; F.C.666
Gendelman, Howard E.; F.A.253
Genderini, Augusto; F.B.523
Gerberding, Julie L.; F.C.35

546

Gerbert, Barbara; F.D.869
Getzenberg, Joy; F.D.776
Geyer, Sharon J.; F.A.339
Giannini, Valerio; F.B.536
Giaquinto, Carlo; F.B.466
Giblett, Terence W.; F.D.786
Gir, Elucir; F.B.494
Glaser, Debra; F.D.117
Glick, Ellen J.; F.B.89
Glueck, Dorothee; F.C.624
Gnaore, Emmanuel; F.C.663
Goettlinger, Heinrich G.; F.A.241
Golden, Eve R.; F.C.742
Gomez, Luis I.; F.D.808
Gonzalez, Jose J.; F.D.860
Gonzalez Molina, Andres; F.B.469
Granato, Celso; F.C.581
Graves, Genevieve M.; F.D.785
Green, Jesse; F.D.826
Greenspan, Allison L.; F.D.853
Grippo, Antonello; F.B.398
Gronowitz, Simon J.; F.A.332
Grose, Robert N.; F.D.874
Guerena, Fernando B.; F.C.544
Guerrero, Ernesto; F.C.736
Gust, Dulce; F.D.889
Gutfreund, Klaus; F.B.504
Guydan, Cheryl; F.C.767
Gwinn, Marta; F.C.43
Habeshaw, John A.; F.A.289
Hahn, Beatrice H.; F.A.295
Hall, Colin D.; F.B.392
Hall, Christopher S.; F.D.854
Halleron-Tweedley, Trish; F.D.862
Hamill, David N.; F.C.696
Hansell, David A.; F.D.773
Hansen, Brian D.; F.A.250
Hardy, David; F.B.92
Haren, Noreen; F.B.496
Harouse, Janet M.; F.A.266
Harris, Noreen V.; F.C.564
Hartgers, Christina; F.C.638
Hattori, Toshio; F.A.290
Hauck, Walter W.; F.C.679
Hausser, Dominique; F.D.892
Hay, Joel W.; F.C.676
Hayman, Charles; F.C.572
Hays, Robert B.; F.C.722
Healey, Donald G.; F.A.288
Hedlund, Kathleen A.; F.D.835
Heilbron, David C.; F.C.680
Helguera, Gabriela; F.D.850
Hellinger, Fred J.; F.D.122
Hendriks, Jan C.; F.C.218
Hengelein, Hans; F.D.790
Henry, Sally A.; F.A.328
Hernandez, Ramon A.; F.D.787
Herrera, Gisela; F.B.441
Herrera-Ortiz, Flor M.; F.C.593
Herrmann, Reiner; F.A.302
Herskowitz, Ahvie; F.B.510
Herve, Vincent M.; F.A.10
Hill, Andrew M.; F.A.240
Hill, Deirdre A.; F.C.731
Hintz, Elizabeth A.; F.D.822
Hira, Subash K.; F.D.878
Hitimana, Deo; F.B.485
Hodges, Sally; F.B.25
Hollander, Harry; F.B.28
Holmes, William S.; F.C.698
Holodniy, Mark; F.A.337
Hommes, Mirjam J.; F.B.531
Hoover, Donald R.; F.C.685
Hsia, Karen J.; F.A.338
Hsu, Ho-Wen; F.B.464
Huet, Thierry; F.A.9
Hufert, Frank T.; F.A.312
Hughes, Gail D.; F.C.706
Hunt, Andrew J.; F.C.688
Hunter-Young, Nancy; F.D.809
Iguchi, Martin Y.; F.C.561
Ikuta, Kazuyoshi; F.A.297
Imrie, Robert A.; F.D.886
Indyk, Leonard; F.D.866
Ippolito, Giuseppe; F.C.34
Irova, Tatjana I.; F.B.462
Isensee, Jill D.; F.C.720
Izaguirre, Carlos A.; F.A.344
Jacas, Carlos; F.B.385
Jacobson, Mark; F.B.82
Jacobson, Mark A.; F.B.96
Jager, Johannes C.; F.D.121
Jagger, Janine; F.C.37
Jain, Sunita; F.C.667
Janvier, Blandine M.; F.A.209
Japour, Anthony J.; F.A.336
Jason, Janine M.; F.D.852
Jay, Margaret A.; F.D.890
Jendis, Jorg B.; F.A.268
Jimenez, Etha M.; F.A.316
Jinadu, Kolawole M.; F.D.845
Johnson, Victoria A.; F.A.66
Jones, Billy; F.D.116
Jones, David C.; F.D.788
Jouault, Thierry; F.A.274
June, Robert A.; F.A.278
Kahn, James G; F.D.823
Kalibala, Sam; F.B.458
Kalter, D. Chester; F.A.280
Kambamba, Soli Ami; F.D.910
Kamps, Bernd S.; F.D.864
Kandaswami, Jayapaul; F.C.613
Kane, Fadel; F.C.603
Kanki, Phyllis J.; F.C.658
Kaplan, Mark H.; F.C.670
Kaplan, Jonathan E.; F.C.673
Kaplanski, S.; F.B.487
Karon, John M.; F.C.213
Kavenaugh-McHugh, Ann L.; F.B.483
Kawamura, Meiko; F.A.205
Kawashima, Hisashi; F.A.360
Keffelew, Atnaf; F.C.107
Kegeles, Susan M.; F.C.733
Kelley, Patrick W.; F.C.543
Kellogg, Timothy A.; F.C.548
Kerndt, Peter R.; F.C.758
Kestens, Luc; F.A.356
Khabbaz, Rima F.; F.C.664
Khodakevich, Lev N.; F.C.216
Kingsley, Lawrence A.; F.C.550
Kiprov, Dobri D.; F.B.501
Kirchhoff, Frank; F.A.203
Kittelsen, Peter; F.C.639
Klaassen, Rob J.L.; F.B.509
Klauke, Stephan; F.B.525
Klaus, Stark; F.C.625
Klein, Ami; F.A.262
Klimkait, Thomas; F.A.235
Kocsis, Agnes E.; F.B.370
Koenig, Scott; F.A.76
Koff, Wayne; F.A.1
Kojouharoff, Georgi; F.A.299
Kokkevi, Anna; F.B.389
Konopka, Krystyna; F.A.277
Koopman, James S.; F.C.681
Koralnik, Igor J.; F.B.399
Kornbluth, Richard S.; F.A.309
Korniewicz, Denise M.; F.B.468
Kovacs, Andrea; F.B.24
Kowalewski, Mark R.; F.C.759
Kozlov, Andrei P.; F.C.649
Kramer, Larry; F.D.118
Krell, Pamela G.; F.B.369
Kunsch, Charles; F.A.305
Kuritzkes, Daniel R.; F.A.14
Kwok, Shirley Y.; F.A.318
Kyungu, Momat; F.D.846
LaBoy, Felicity; F.C.708
LaPorte, Anne; F.B.428
Lacassin, Flore; F.B.528
Lacoste, Denis; F.B.513
Lallemant-LeCoeur, Sophie; F.A.201
Landers, Daniel V.; F.B.460
Lang, Marie-Claude; F.A.202
Lange, Joep; F.B.81
Langhoff, Erik; F.A.254
Larsen, Charles E.; F.A.287
Laughlin, Mark A.; F.A.246
Laurent, Anne; F.A.229
Lauria, Catharina; F.C.585
Layne, Scott P.; F.A.317
Lazzarin, Adriano; F.B.448
Le Guern, Muriel; F.A.256
Le Pont, Francoise; F.C.219
Lebow, Joanne; F.B.429
Lee, Tun-Hou; F.A.271
Lee, Tzong-Hae; F.A.326
Lee, Jacalyn; F.D.775
Lee, Brenda; F.D.782
Lemp, George; F.B.85
Lentino, Joseph R; F.C.668
Lever, Janet; F.C.741
Levin, Bonnie E.; F.B.361
Levine, Alexandra M.; F.A.3
Levy, Robert M.; F.B.408
Lewis, Dorothy E.; F.B.451
Lewis, Bradley; F.B.506
Lewis, Diane K; F.C.762
Li, Jian Jun; F.A.355
Liekweg, Richard J.; F.D.818
Liesnard, Corinne A; F.B.426
Lifson, Jeffrey D.; F.A.286
Lim, Seng G.; F.B.500
Lindholm, Merete; F.D.858
Linette, Gerald; F.A.77
Liuzzi, Grazia M.; F.B.421
Livermore, Timothy A; F.C.567
Longiaru, Mathew; F.A.322
Longini, JR., Ira M.; F.C.212
Los, Anton P.; F.C.637
Louis, Jean Paul H.; F.C.732
Loveday, Clive; F.A.329
Lucas, Sebastian B.; F.B.427
Lugoboni, Fabio; F.C.633
Luo, Nkandu; F.C.36
Lutz, Renate D.; F.B.447
Luzzati, Roberto; F.B.512
M'Boup, Souleymane; F.C.102
M-Fontelos, Pablo; F.B.480
MacDonald, Kristine L.; F.C.559
MacKenzie, Betsy; F.D.905
Magis, Carlos R.; F.C.592
Magruder, Charles D; F.C.740
Maitra, Ratan K.; F.A.292
Malaviya, Anand N.; F.C.614
Maldonado, Yvonne A.; F.B.475
Marasca, Giuseppe; F.D.805
Marchand, Sophie MS.; F.C.621
Marchisio, Paolo; F.B.489
Marder, Karen S.; F.B.386
Mariotti, Martine; F.A.354
Markoulatos, Panayotis; F.A.353
Marra, Christina; F.B.382
Marshall, Ruth; F.D.50
Marte, Carola; F.B.532
Martin, Eileen M.; F.B.379
Martin, Alex J.; F.B.397
Marton, Randy; F.B.542
Maruff, Paul T.; F.B.378
Mastrolanni, Claudio M.; F.B.394
Mastrucci, Mary T.; F.B.476
Matheny, Samuel C.; F.D.824
Mathez, Dominique; F.A.351
Matondo, Patrick; F.C.749
Matsuda, Shunji; F.A.308
Mattison, Andrew M.; F.D.784
Mazzulli, Tony; F.B.503
Mc Lean, Kenneth A.; F.C.652
McArthur, Justin C.; F.B.31
McArthur, Julie H.; F.B.407
McCarthy, Michael C.; F.C.605
McCormack, Thomas P.; F.D.778
McCoy, H. V.; F.C.766
McCray, Eugene; F.C.44
McCune, Joseph M.; F.A.72
McGrath, Michael S.; F.A.67
McIntosh, Kenneth; F.B.492
McKay, Carolyn Y.; F.C.765
McManus, Thomas J.; F.C.723
Medaglini, Stefania; F.B.420
Merino, Fernando; F.C.644
Merzel, Cheryl R.; F.D.815
Michels, Berthold; F.B.541
Micheluz, Sandra; F.D.871
Miedema, Frank; F.A.79
Miedzinski, Lil J.; F.D.829
Miller, Michael D.; F.A.74
Miller, Richard N.; F.C.675
Miller, Laurel A.; F.D.777
Miller, Kim S.; F.D.849
Miotti, Paolo; F.C.101
Mitchell, Charles D.; F.B.488
Mitchell, Janet L; F.C.563
Mitchell, Winnifred I.; F.D.899
Mizrachi, Yaffa; F.A.265
Moas, Carlos M.; F.D.64
Modlin, John F.; F.B.454
Moglia, Arrigo; F.B.405
Mohamed Ali, Omari; F.C.729
Mohar, Alejandro; F.B.434
Molen, Mary; F.D.802
Monforti, Jeff; F.D.117
Mongalo, Gloria; F.D.876
Moran, Patricia A.; F.A.341
Moreira, Edson D.; F.B.436
Moriyama, Etsuko N.; F.A.200
Morlat, Philippe; F.C.622
Mosca, Joseph D.; F.A.71
Moses, Stephen; F.D.837

54

Moss, Andrew R.; F.C.553
Moyer, Mary Pat; F.A.259
Moyle, Graeme J.; F.B.95
Mozharova, Galina I.; F.D.872
Muehler, Werner E.G.; F.A.225
Muga, Roberto; F.C.643
Mukadi, Yadiul; F.C.608
Mulhall, Brian P.; F.C.48
Muller, Olaf; F.B.438
Murphy-Corb, Michael; F.A.5
Musgrave, Stanley; F.C.607
Mwilu, Roy; F.D.780
NDoye, Ibra; F.C.689
Naber, Dieter H.; F.B.372
Nadeau, Denise; F.C.735
Nahmias, Andre J.; F.B.446
Nakamura, Gerald R.; F.A.233
Nance, Matthew L.; F.B.383
Nelson, Kenrad E.; F.C.109
Nerrienet, Eric; F.A.210
Netter, Tom; F.D.49
Neumann, Peter W.; F.A.349
Neumuller, Magnus; F.A.330
Northfelt, Donald W.; F.B.507
Nunez, Emmanuel; F.B.526
Nyambaka, Monica; F.B.498
Nyongo, A.; F.B.453
O'Brien, Thomas R.; F.C.656
O'Brien, Maura A.; F.D.900
O'Farrell, Nigel; F.C.604
O'Reilly, Kevin R.; F.C.717
O'Sullivan, Anna M.; F.D.907
Odero, Theresa A.; F.D.793
Ogunyankin, Olamide; F.D.843
Ohlsson-Wilhelm, Betsy M.; F.A.352
Ojofeitimi, Ebenezer O.; F.C.752
Oksenhendler, Eric; F.B.519
Oliveira, Edson I.; F.C.583
Olivier, Rene; F.A.251
Olivo, Noemi; F.C.546
Ollo, Christine L.; F.B.413
Omi, Joanna; F.D.779
Onorato, Ida M.; F.C.655
Ornelas, Gloria; F.D.781
Oros, Cheryl J.; F.D.909
Ostrow, David G.; F.C.726
Ouedraogo, Hamade; F.C.595
Padgug, Robert A.; F.D.812
Pagano, Miguel; F.B.403
Palloni, Alberto; F.C.701
Pando, Jose A.; F.B.423
Papaevangelou, George J.; F.C.627
Patel, Raj R.; F.C.560
Pauwels, Rudi; F.A.68
Pauza, David C.; F.A.249
Pellegrino, Michael G.; F.A.245
Perdices, Michael; F.B.373
Pereira, Rosemarie; F.A.263
Perin, Patrick; F.B.482
Perno, Carlo-Federico; F.A.275
Perrella, Oreste; F.B.390
Pezzella, Mario; F.A.359
Phillips, Constance R.; F.C.734
Pista, Angela; F.C.641
Pokrovsky, Vadim V.; F.C.648
Pollack, Lance M.; F.C.721
Pollock, Laurie A.; F.A.321
Poon, Man-Chiu; F.C.751
Pott, Elisabeth; F.D.887
Poulin, Louise; F.A.272
Prazuck, Thierry; F.C.596
Principi, Nicola; F.B.481
Probst, Deborah C.; F.D.792
Prudent, Nicole; F.D.857
Pudney, Jeffrey; F.A.315
Pulliam, Lynn; F.A.303
Putney, Scott D.; F.A.211
Raboud, Janet M.; F.C.682
Rader, Alison D.; F.D.783
Ramos-Filho, Celso F.; F.B.527
Rango, Nicholas A.; F.D.825
Rankin, R. Michael; F.D.794
Recker, David P.; F.A.331
Ree, Howe J.; F.B.524
Rees, Malcolm S.; F.D.124
Rekart, Michael L; F.C.577
Remis, Robert S.; F.C.575
Reuben, James M.; F.B.470
Revuelta, Arturo; F.D.839
Reyes, Oswaldo M.; F.C.739
Riccio, Massimo; F.B.363
Richardson, Andrew F; F.D.877
Rico, Blanca; F.D.882
Riedel, Rianer R.; F.B.410
Robbins, Susan; F.C.746
Roberts, Beverly D.; F.A.16
Roberts, Noel A.; F.A.69
Robertson, Wendy T.; F.B.377
Robertson, Kevin R.; F.B.417
Rodrigues, Lair G. de M.; F.C.98
Rodriguez, Evelyn M.; F.C.587
Rodriguez, Maria R.; F.D.817
Roffman, Mark; F.B.415
Rolinski, Boris; F.B.19
Romieu, Isabelle; F.C.743
Rose, Thomas; F.C.711
Royal, Walter; F.B.387
Rubinstein, Arye; F.B.449
Rubinstien, Eytan; F.B.433
Rubio, Liliana M.; F.C.578
Rude, Nathalie; F.C.699
Rukarangira, Nkera Wa; F.D.844
Rumbaitis, Maria del Rio M.; F.D.893
Ryder, Thomas B.; F.A.319
Saag, Michael; F.A.346
Saimot, Adrien G.; F.B.539
Sakaguchi, Mamoru; F.A.269
Sakai, Koji; F.A.239
Salisbury, Zora T.; F.D.883
Salla, Roger; F.C.598
Sampaio, Paulo R.S.; F.B.522
Sano, Kouichi; F.A.323
Santagostino, Elena; F.B.521
Santos, Omar Da Rosa; F.B.535
Santos Ferreira, Maria Odette; F.A.327
Sarazin, Francine F-A.; F.B.374
Sawyer, Robert C.; F.B.499
Scara, Maria Teresa; F.C.631
Schade, Sylvia Z.; F.A.350
Schielke, Eva; F.B.406
Schiltz, Marie-Ange; F.C.619
Schindler, Stephen; F.D.891
Schlacht, Irene; F.B.515
Schoenfeld, David; F.B.83
Schultemaker, Johanna; F.A.264
Schuman, Paula; F.B.17
Schwartz, David A.; F.B.455
Sciandra, Mauro; F.C.634
Seitz, Steven T.; F.D.879
Sell, Randall L.; F.C.713
Selnes, Ola A.; F.B.364
Selwyn, Peter A.; F.C.111
Senderowicz, Adrian M; F.B.393
Serwadda, David; F.C.100
Seto, Deborah; F.A.257
Shah, Kiran; F.B.471
Shank, Peter R.; F.A.226
Shaunak, Sunil; F.A.348
Shepard, Donald; F.D.125
Shepard, Julia B.; F.D.127
Shiboski, Stephen G.; F.C.705
Shields, Anne W; F.D.803
Shih, Yihshing; F.A.325
Shimasaki, Gary; F.D.800
Shioda, Tatsuo; F.A.267
Shipway, Pamela F.; F.D.908
Siegel, Guenter; F.B.445
Singleton, James A.; F.C.677
Sinicco, Alessandro; F.B.540
Siyambango, Joseph; F.C.609
Slutkin, Gary; F.C.104
Smith, Elmer W.; F.D.827
Smith, Mark D.; F.D.830
Snyder, Frederick R.; F.C.755
Soda, Kenji; F.C.615
Solomon, Liza; F.D.851
Sonza, Secondo; F.A.345
Souteyrand, Yves; F.D.58
Souza Dias, M. Beatriz; F.C.584
Spadaro, Maria; F.B.384
Spector, Stephen A.; F.B.391
Spencer, Jack; F.D.836
Sperduto, Andrea R.; F.A.247
St. Lawrence, Janet S.; F.C.725
St. Louis, Michael E.; F.C.700
Stanley, Sharilyn; F.A.314
Stanley, Ann E.; F.C.704
Stapinski, Andrzej; F.C.640
Steger, Kathleen A.; F.C.558
Stein, Barry S.; F.A.238
Stein, Michael D.; F.B.435
Stern, Yaakov; F.B.26
Stone, Valerie E.; F.D.820
Stoneburner, Rand L.; F.C.41
Strand, John W.; F.D.60
Stratton, Pamela; F.B.457
Stricof, Rachel L.; F.C.47
Stroad, Margaret A.; F.B.368
Struchiner, Claudio J.; F.C.703
Strug, David L.; F.C.687
Studemeister, Alex E.; F.C.547
Sumser, John; F.D.870
Sunzeri, Franklin J.; F.A.335
Suzgo, Kapanda; F.B.538
Swales, Thomas P.; F.B.486
Swanton, Katherine N.; F.C.654
Sweeney, Patricia A; F.C.568
Szabat, Ronald P.; F.D.897
Tacconi, Federica; F.C.632
Takeda, Akira; F.A.276
Tamalet, Catherine; F.C.661
Tang, Shen-Bei; F.A.244
Tang, Alan L.; F.B.533
Tapia-Conyer, Roberto; F.D.123
Tapko, Jean-Baptiste; F.C.657
Tarantola, Daniel; F.D.59
Tartaglione, Teresa; F.B.414
Tasco, Carolina; F.C.690
Tateno, Yoshiko; F.A.343
Taylor, Jeremy MG; F.C.695
Tembo, George S.; F.C.660
Terwilliger, Ernest F.; F.A.228
Thanprasertsuk, Sombat; F.C.99
Thompson, P I; F.D.797
Thorburn, Kim; F.D.772
Tillemans, Geert J.; F.D.885
Todts, Sven; F.C.618
Tollefson, Janet E.; F.D.880
Tor Aguilera, Jordi; F.C.645
Torres Mendoza, Blanca; F.C.594
Tozzi, Valerio; F.B.30
Travis, Bruce M.; F.A.283
Trenkwalder, Claudia; F.B.412
Triomphe, Annie; F.D.814
Tristem, Michael; F.A.204
Trotot, Pierre M.; F.B.404
Tsubota, Hiroshi; F.A.70
Turner-Hubbard, Kathleen A.; F.D.895
Tuset Ruiz, Concha; F.B.443
Unger, Matthias; F.B.452
V. Sonnenburg, Falkner; F.C.702
Valdespino, Jose Luis G.; F.B.440
Vanhems, Philippe; F.D.810
Vanichseni, Suphak; F.C.105
Vaquero, Catherine; F.A.234
Velin, Robert A.; F.B.362
Verano, Andre S.; F.B.422
Vicenzi, Elisa; F.A.231
Villasana, David P.; F.B.371
Vilmer, Etienne; F.C.617
Vlaev, Russi M.; F.D.126
Vlahov, David; F.C.557
Vogetseder, Werner; F.A.279
Volsky, David J.; F.A.65
Von Laer, Dorothee; F.A.300
Vranizan, Karen; F.C.554
Walker, Christopher M.; F.A.75
Waller, Robert R.; F.D.911
Wang, Richard Y.; F.A.320
Ward, Helen; F.C.738
Watters, John K; F.C.106
Wawer, Maria J.; F.C.606
Weber, Thomas; F.B.90
Weidenheim, Karen M.; F.B.472
Weinstock, Hillard S.; F.C.727
Weintrub, Peggy S.; F.B.23
Weisfuse, Isaac; F.C.574
Wendtland, Bernd; F.B.27
Werdegar, David; F.D.770
Whitaker, Rupert E. D.; F.D.57
White, Allen; F.D.53
White, Elizabeth McC.; F.C.591
Wiebel, Wayne; F.C.556
Wigfall-Williams, Wanda L.; F.D.904
Wiktor, Stefan Z.; F.A.13
Wiktor, Stefan Z.; F.C.669
Wilfert, Catherine M.; F.B.18

Willey, Ronald L.; F.A.232
Williams, Chris; F.A.11
Williams, Kenneth R.; F.D.89
Willoughby, Brian C.; F.C.45
Wilson, Mary J.; F.C.566
Wilson, Mary T.; F.D.795
Wisniewski, Amy M.; F.B.381
Wolf, Hans; F.A.6
Woo, Stephen; F.B.375
Woods, Joycelyn S.; F.D.873
Wright, Robert A.; F.C.42
Wright, Paul M.; F.C.694
Yeoh, Eng-Klong; F.C.610
York-Higgins, Debbie; F.A.29
Young, Mary A.; F.B.432
Young, Peggy; F.C.745
Zacarias, Fernando R. K.; F.D.61
Zaccarelli, Mauro; F.C.629
Zekeng, Leopold; F.C.597
Zerboni, Roberto A.; F.C.636
Zessler, Laurent F.; F.C.97
Zewdie, Debrework; F.C.600
Zhang, Xing Q.; F.A.15

SAN FRANCISCO