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AIDSTECH Final Report Volume I

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AIDSTECH



Family Health International, Durham, NC, U.S.A.

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Abbreviations

\$-	Refers to US Dollar (unless otherwise specified)
ABEPF-	Associação Brasileira de Entidades de Planejamento Familiar Brazilian Association of Family Planning Organizations
ACTS-	AIDS Communication and Technical Services Project
ADC-	Asociación Demográfica Costarricense Costa Rican Demographic Association
ADRA-	Adventist Development and Relief Agency
ADS-	Asociación Demográfica Salvadoreña Salvadoran Demographic Association
AED-	Academy for Educational Development
AFAA-	Asociación de Lucha Contra el SIDA Association for the Fight Against AIDS (COSTA RICA)
AIC-	AIDS Information Center (UGANDA)
AID-	United States Agency for International Development
AIDS-	Acquired Immune Deficiency Syndrome
AIM-	AIDS Impact Model
ALCS-	Association de Lutte Contre le SIDA Moroccan Association Against AIDS
AMREF-	African Medical and Research Foundation
APROCE-	Associação das Prostitutas do Ceará Association of Prostitutes in Ceará (BRAZIL)
APROFAM-	Asociación Pro-Bienestar de la Familia Family Welfare Association (GUATEMALA)
APS-	AIDS Programme Secretariat (KENYA)
ASIN-	Association for Strength and Integrated National Population and Health Development (THAILAND)
ASPHA-	Haitian Association of Public Health

BEMFAM-	Sociedade Civil Bem-Estar Familiar no Brasil Association of Family Well Being (IPPF Affiliate-BRAZIL)
BMA-	Bangkok Metropolitan Administration (THAILAND)
BRL-	Bureau for Research and Laboratories (PHILIPPINES)
CAPS-	Center for AIDS Prevention Studies
CAR-	Central African Republic
CAREC-	Caribbean Epidemiology Center
CBD-	Community-Based Distribution/Distributor
CBW-	Community-Based Worker
CCII-	Centro de Controle e Investigaçao Immunológica Center for Control and Immunological Research (BRAZIL)
CDC-	Centers for Disease Control
CDS-	Centres Pour le Developpement et la Santé Centers for Development and Health (HAITI)
CEDPA-	Centre for Development and Population Activities
CFU-	Commercial Farmer's Union (ZIMBABWE)
CHASS-	Comité Haitian de Service Social Haitian Social Service Committee
CHW-	Community Health Worker
CIDHAL-	Comunicación, Intercambio y Desarrollo Humano Communication, Interchange and Human Development in Latin America (MEXICO)
CIES-	Centro de Investigación, Educación y Servicios Center for Research, Education and Services (BOLIVIA)
CLETS-	Centro Latinoamericano de Enfermedades de Transmisión Sexual Latin American Center for Sexually Transmitted Diseases (PUERTO RICO)
CMA-	Crescent Medical Aid (KENYA)
CNLS-	Comité National de Lutte Contre le SIDA National Aids Control Committee
CODETS-	Centro de Orientación, Diagnósis y Tratamiento de ETS STD Orientation, Diagnosis and Treatment Center (GUATEMALA)

COIN-	Centro de Orientación e Investigación Integral Center for Integrated Research (DOMINICAN REPUBLIC)
CONASIDA-	Consejo Nacional para la Prevención y Control del SIDA National AIDS Commission
COVICOSIDA-	Comité de Vigilancia y Control del SIDA Committee for the Surveillance and Control of AIDS (DOMINICAN REPUBLIC)
CS-	Child Survival
CSM-	Condom Social Marketing
CSW-	Commercial Sex Worker
DESA-	Directorat d'Education Sanitaire et Assainissement Directorate of Health Education and Hygiene (BURKINA FASO)
DHMN-	Direction de l'Hygiène et de la Médecine Mobile Directorate of Hygiene and Mobile Medicine (NIGER)
DOH-	Department of Health
DR-	Dominican Republic
FEMAP-	Federación Mexicana de Asociaciones Privadas de Planificación Familiar Mexican Federation of Private Associations of Family Planning
FHI-	Family Health International
FLPS-	Family Life Promotion Services (KENYA)
FP-	Family Planning
FPA/SL-	Family Planning Association of Sri Lanka
FTZ-	Free Trade Zone
FUCES-	Fundación Cultural y Educativa Para la Salud Cultural and Educational Foundation for Health (DOMINICAN REPUBLIC)
GDP-	Gross Domestic Product
GHESKIO-	Groupe Haïtien d'Etude du Sarcome de Kaposi et Infections Opportunistes Haitian Group for the Study of Kaposi's Sarcoma and Opportunistic Infections
GLAS-	Groupe de Lutte Anti-Sida Anti-AIDS Group (HAITI)
GNP-	Gross National Product

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GPA-	Global Programme on AIDS
GTZ-	Gesellschaft Fur Technische Zusammenarbeit German Technical Cooperation
HAPA-	HIV/AIDS Prevention in Africa
HBO-	Health Behavior Officer (KENYA & TANZANIA)
HBV-	Hepatitis B Virus
HIV-	Human Immunodeficiency Virus
IBESR-	Haïtian National Institute for Social Welfare and Research
ID-	Instituto Dermatológico Dermatologic Institute (DOMINICAN REPUBLIC)
IDDI-	Instituto Dominicano de Desarrollo Integral Dominican Integral Development Institute (DOMINICAN REPUBLIC)
IDSS-	Instituto Dominicano de Seguro Social Dominican Institute of Social Security
IEC/T-	Information, Education, Communication and Training
IEC-	Information, Education and Communication
IHS-	International Health Service
ILPEC-	Instituto Latinoamericano de Pedagogía de la Comunicación Latin American Institute of Educational Communication (COSTA RICA)
IMIFAP-	Instituto Mexicano de Investigación de Familia y Población, A.C. Mexican Institute for Research on Family and Population
IMPACT-	Implementing Agency for Cooperation and Training
INMHT-	Instituto Nacional de Higiene y Medicina Tropical (ECUADOR) National Institute of Hygiene and Tropical Medicine
INSHAC-	L'Institut Haitien de Santé Communautaire Haitian Institute of Community Health (HAITI)
IPPF-	International Planned Parenthood Federation
IVDU-	Intravenous Drug User
IWG-	Interagency Working Group
iwgAIDS-	Interagency Working Group Model

KAP-	Knowledge, Attitude and Practices
KEMRI-	Kenya Medical Research Institute
KNACP-	Kenya National Aids Control Programme
KRCS-	Kenya Red Cross Society
LA/C-	Latin America and Caribbean Region
MCH-	Maternal and Child Health
MCSC-	Mexicanos Contra el SIDA Confederación Mexicans Against AIDS Confederation
MIS-	Management Information System
MOH-	Ministry of Health
MOPH-	Ministry of Public Health
MSM-	Men Who Have Sex With Men
MTP-	Medium Term Plan
MYWO-	Maendeleo Ya Wanawake Organization (KENYA)
NACP-	National AIDS Control Program
NACU-	National AIDS Control Unit
NBSP-	National Blood Services Program (PHILIPPINES)
NBTS-	National Blood Transfusion Service (TRINIDAD)
NCNR-	National Center for Nursing Research
NGO-	Non-Governmental Organization
NICHD-	National Institute for Child Health and Development
NIH-	National Institutes of Health
NPHLS-	National Public Health Laboratory Service
OCEAC-	Organization de Coordination Pour la Lutte Contre des Endemies en Afrique Centrale Organization for the Coordination of the Struggle Against Endemic Disease in Central Africa
OR-	Operations Research

ORW-	Outreach Worker
PA-	Particle Agglutination
PAHO-	Pan American Health Organization
PATH-	Program for Appropriate Technology in Health
PDA-	Population and Community Development Association (THAILAND)
PE-	Peer Educator
PEM-	Plastic Envelope Method
PHC-	Primary Health Care
PLUS-	Patronato de Lucha Contra el SIDA Foundation For the Fight Against AIDS (DOMINICAN REPUBLIC)
PNLS-	Programme National de Lutte Contre le SIDA National AIDS Control Program
PRISMA-	Proyectos en Informática Salud Medicina y Agricultura Health Education and Agriculture Projects (PERU)
PROCETS-	Programa de Control de Enfermedades de Transmisión Sexual y SIDA Program for the Control of STDS and AIDS (DOMINICAN REPUBLIC)
PSI-	Population Services International
PTA-	Parent Teachers Association
PVO-	Private Voluntary Organization
PWA-	Person With AIDS
RR-	Relative Risk
QA-	Quality Assurance
QEH-	Queen Elizabeth Hospital (BARBADOS)
QuISTD-	Quick Interview-Based STD Index
RDO/C-	Regional Development Office/Caribbean (USAID)
REDSO/WCA-	Regional Development Services Office for West and Central Africa (USAID)
RITM-	Research Institute for Tropical Medicine (PHILIPPINES)
RPR-	Rapid Plasma Reagin

SES-	Socio-Economic Status
SESPAS-	Secretaría de Salud Pública y Asistencia Social Public Health and Social Welfare Secretariat (DOMINICAN REPUBLIC)
SIDA-	Syndrome d'Immunodéficience Acquis (AIDS)
SOLVIDA-	Solidaridad y Vida a Las Personas con VIH/SIDA en Ciudad Nezahualcoyotl Solidarity and Life for Persons with AIDS in Nezahualcoyotl City (MEXICO)
STD-	Sexually Transmitted Disease
TAA-	Transfusion Associated Aids
TAG-	Technical Advisory Group
TASO-	The Aids Support Organization (UGANDA)
TB-	Tuberculosis
TOT-	Training of Trainers
UNDP-	United Nations Development Programme
UNICEF-	United Nations Children's Fund
US-	United States
VDRL-	Veneral Disease Research Laboratory
WHO-	World Health Organization
WHO/AFRO-	World Health Organization Africa Regional Office
WHO/GPA-	World Health Organization Global Programme on AIDS
WMP-	Women with Multiple Partners
ZNACP-	Zimbabwe National AIDS Control Program

Executive Summary

AIDSTECH was established in 1987 when the United States Agency for International Development (AID) and Family Health International (FHI) entered into one of the largest single cooperative agreements between the United States government and a private organization to combat HIV/AIDS in the developing world. From September 1987 to September 1992, AIDSTECH assisted developing countries to build the capacity to design, implement, evaluate and sustain programs that prevent the sexual and blood transmission of HIV.

AIDSTECH's approach to capacity-building within a country was to build working partnerships with government and non-governmental organizations whose work in research, training, program management, and communication facilitated the implementation of AIDS programs. This approach was based on an institutional philosophy which views host country counterparts as primary program implementors and their ownership of the project and process as essential for success. The development of long-term, fully collaborative relationships with in-country programs and program managers -- with an emphasis on local development and implementation of prevention activities -- was a standard requirement for implementation of AIDSTECH projects.

The AIDSTECH team was a multidisciplinary group of professionals with extensive professional experience in the developing world and a wide range of technical skills, including epidemiology, behavioral, social science and operations research, communications, program planning and management, training, health care finance, sexually transmitted disease (STD) diagnosis and treatment, condom logistics, laboratory technology, and mathematical modeling.

To increase the impact of AIDS prevention efforts and to concentrate resources, AIDSTECH activities focused on the major modes of transmission in key target countries. AIDSTECH developed extensive, multifaceted programs in 13 countries and one region: Burkina Faso, Cameroon, Ghana, Kenya, Tanzania, Zaire, Zimbabwe, Philippines, Thailand, Brazil, the Dominican Republic, Haiti, Mexico, and the Eastern Caribbean.

AIDSTECH's first priority was to slow and prevent the sexual transmission of HIV infection. More than 60% of AIDSTECH's efforts were focused on this priority, utilizing a strategy that included:

- Identifying groups whose behavior places them at higher risk than others for acquiring HIV via sexual transmission.
- Developing AIDS education programs targeted to those groups at higher risk and their sex partners.
- Promoting condom use and assuring accessibility of condoms through institutionalized distribution networks.
- STD control.

AIDSTECH's second priority was to prevent the transmission of HIV through transfused blood. About 9% of AIDSTECH's effort was focused on this priority, utilizing a strategy to provide assistance in:

- Strengthening blood screening programs.
- Improving blood transfusion practices.
- Encouraging free and voluntary blood donations by persons not at risk of HIV infection.

AIDSTECH support of interventions included development of information, education and communication programs, provision of necessary training, evaluation, and condom management.

Intervention programs benefitted from the results of ongoing epidemiological, behavioral and operations research, as well as from evaluation research. AIDSTECH recognized the importance of project evaluation. AIDSTECH evaluation research was used at the project level to determine how well the sexual behavior intervention projects worked to reduce risk behaviors. Surveillance of AIDS cases was not useful because of the long incubation period of the disease. HIV incidence, the most useful indicator, was difficult and expensive to measure, because it required testing the same individuals at regular intervals over a long period of time. Most AIDSTECH projects used outcomes such as STD prevalence and changes in reported condom use as evaluation measures. These were supplemented with process indicators such as number of condoms sold or distributed, number of face-to-face educational contacts and number of people trained in various skills.

Epidemiological research focused on evaluating the efficacy of spermicides and STD control in preventing HIV transmission. Operations research focused on answering key programmatic questions such as whether to provide free condoms or to charge for condoms, evaluating different condom distribution strategies, and testing diverse educational strategies.

FHI administered two formal research programs that brought the additional skills of US researchers and research institutions to the AIDSTECH program: a Behavior Research Fellows Program and a Behavior Research Grants Program. The Research Fellows Program was designed to strengthen the AIDS-related behavioral research and prevention programs of both US and developing country institutions. The program provided US and international social and behavioral researchers with opportunities for field experience in developing countries and provided developing country institutions and their researchers with the skills, expertise and technical assistance needed to conduct behavioral research.

The Behavior Research Grants Program was the first of its kind, bringing AID, several Institutes of the National Institutes of Health, including: the National Center for Nursing Research (NCNR), the National Institute for Child Health and Human Development (NICHD) and the National Institute of Aging (NIA) and a cooperating agency together to implement behavioral research. The program funded US and collaborating developing country research centers to carry out applied research to improve understanding of the extent and nature of high-risk behaviors, determine how to modify such behaviors, identify barriers and enhancers to behavior change, and determine how to sustain new behaviors. The research projects consisted of two phases: a Phase I feasibility study, administered by AIDSTECH, and Phase II which comprised the larger body of work and continues until 1994.

AIDSTECH established policy dialogue with selected developing country decision-makers to facilitate sound AIDS-related policies. Mathematical modeling of the AIDS epidemic was an instrumental tool in this dialogue. AIDSTECH worked with several models of the AIDS epidemic in developing countries and contributed substantially to progress in this area, developing modeling formats that show the country-specific effects of HIV/AIDS on a wide variety of development issues (child and adult morbidity, health care costs, hospital bed utilization, costs of prevention), and projecting the impacts of partner reduction, condom use and STD control on these trends.

AIDSTECH administered a Small Grants Program to encourage and support the involvement of US and indigenous private voluntary organizations/non-government organizations (PVOs/NGOs) in AIDS prevention programs. The Small Grants Program not only met the financial needs of organizations working in AIDS prevention; through close collaboration with AIDSTECH staff, the experience gained from these programs was shared with a range of community-based organizations working in AIDS prevention.

AIDSTECH's STD surveillance activities were used to evaluate intervention programs. Targeted STD surveillance helped to verify reported behavior changes more easily than the monitoring of HIV incidence.

AIDSTECH emphasized AIDS prevention programs that were cost-effective and sustainable and helped to develop methodologies for measuring the economic impact of HIV infection and AIDS.

AIDSTECH placed significant emphasis on making sure that the latest findings from research, program implementation, evaluation and surveillance of the epidemic were disseminated. Findings were regularly shared with biomedical, social, and behavioral scientists, program managers, service providers, and implementing organizations. Policy-makers and lawmakers were key figures to receive the latest findings since they shaped the political context in which HIV is transmitted and monitored, and the context in which interventions are made more or less difficult. The public was informed as well, since their response to HIV affected not only the spread of infection, but also the social environment in which prevention and control efforts functioned.

Program Accomplishments

Since 1987, AIDSTECH has assisted with the design, implementation and support of 181 projects in 35 countries. Program accomplishments included:

- AIDSTECH supported 39 targeted intervention programs in 25 countries, reaching high-risk behavior groups including commercial sex workers (CSWs), their clients, STD patients, men who have sex with men (MSM) and adolescents. AIDSTECH supported condom social marketing (CSM) programs in seven countries and STD control programs in 16 countries.
- 48 million condoms were distributed, 23 million through condom social marketing (CSM) programs, 24 million through sexual interventions, and an additional million through other programs.
- 3.5 million face-to-face educational contacts were made.
- Five million pieces of information, education and communication (IEC) materials were distributed: 4.6 million among sexual intervention projects and another 0.4 million in other projects.
- 5,200 peer educators were trained.
- Programs produced consistent behavior change among CSWs with respect to the percentages who reported "always use" of condoms and those who reported increased condom use in the past six months. In all projects where pre- and post-intervention data were available, CSWs showed an increased awareness of the prevention role of condoms, reported an increase in "always use" of condoms over time, and self-reported recent increases in condom use. Project data for clients of CSWs did not show the same degree of success; clients did not report large increases in "always use" of condoms.
- AIDSTECH validated some of the best available ways to slow the sexual spread of HIV/AIDS, including the peer education model, the workplace/social center model and the clinic-based model.
- AIDSTECH introduced condoms and condom education programs in countries where both commodities and services were rarely available and demonstrated that the social marketing of condoms for populations at high risk of HIV infection can be successful, even in low income countries. AIDSTECH expanded the number and types of outlets for condom distribution, making them available in: factories, STD clinics, bars, discos, and hotels. Targeting outlets that make condoms accessible to high-risk populations was successful; an intercept study in Zaire showed that the nontraditional outlets were very effective in reaching the desired population. CSW peer educators also played a critical role in condom sales and distribution; CSW salespersons accounted for 19% of total social marketing sales in Cameroon (1.1 million condoms).

- Prototype educational materials were developed for five targeted high-risk populations: CSWs, STD patients, migrant workers, military personnel and prison inmates. 45,000 copies of these materials were distributed in addition to 4.6 million locally produced IEC materials.
- AIDSTECH developed prototype training programs with accompanying training manuals for trainees of peer educators, counselors, STD clinic staff and laboratory technicians. More than 1,300 trainers were trained, who then trained approximately 7,300 others.
- AIDSTECH upgraded STD diagnosis and treatment at 448 clinics in 14 countries and trained 791 health care professionals and clinic outreach staff in appropriate STD diagnosis and treatment.
- AIDSTECH supported state-of-the-art research on the dynamics of behavior change through funding nine Phase I and five Phase II Behavior Research Grants Program projects and three Behavior Research Fellows.
- AIDSTECH educated policy-makers who were initially reluctant to approve intervention programs targeted toward high-risk groups.
- AIDSTECH developed models to help decision-makers with critical choices about health policies as they relate to HIV/AIDS; these models were used in 11 countries. AIDSTECH modeling demonstrated the importance of combining interventions, showing that modest interventions in three areas (condoms, STDs and sex partner reduction) are more effective than single interventions.
- AIDSTECH evaluated three "rapid" assays (HIVCHEK, SERODIA-HIV and RETROCELL), which demonstrated a cost-effective alternative to conventional ELISA - Western blot testing for HIV-1. HIVCHEK was recommended as a screening test in laboratories that are not equipped with ELISA equipment, cannot support a large volume of screening and require emergency screening of blood.
- AIDSTECH demonstrated that serum pooling can be a cost-effective alternative to single sample testing in countries with a low prevalence of HIV infection and a high volume of testing.
- AIDSTECH examined sustainability issues, program benefit-cost ratios and the economic impact of AIDS and learned that:
 - There was a high benefit to cost ratio in most sexual transmission prevention programs.
 - Blood donor screening in countries where HIV prevalence among blood donors is greater than 0.3% yields substantial economic benefits through a reduction in HIV transmission and, thus, treatment costs.
- A 5,100 article AIDS Information Database was developed. A total of 368 articles in English were mailed to approximately 900 health professionals worldwide; 183 articles in French were mailed to 250 health professionals.

- AIDSTECH provided support to 14 international AIDS conferences, six regional AIDS conferences and two AID AIDS conferences; 390 participants were sponsored and a total of 64 papers and 74 posters on AIDSTECH-funded programs have been presented to date.
- AIDSTECH provided 1,499 person-weeks of technical assistance in support of programs.

Based in part on the AIDSTECH project accomplishments, FHI was awarded a five-year, \$168 million cooperative agreement by AID to expand HIV prevention and control programs.

Lessons Learned

Some of the major lessons learned since AIDSTECH began include:

- How to reach high-risk populations through targeted interventions.
- The necessity of expanding intervention programs to reach the partners of the targeted high-risk behavior groups.
- The importance of changing social norms, especially as they relate to the use of condoms in high-risk situations.
- The necessity of making condoms available, accessible and affordable as an integral part of interventions.
- The importance of a comprehensive program for the prevention of sexual transmission of HIV, combining communication for behavior change, condom promotion and distribution and STD control to achieve the greatest impact.
- The need for large-scale programs if the epidemic is to be slowed down at the national level.
- The cost-effectiveness of using two rapid tests in sequence as a valid option to the ELISA-Western blot sequence for screening blood.
- The importance of establishing quality control procedures in all blood testing programs at all levels.
- The importance of institutionalization of programs to assure their continuation.

AIDSTECH concentrated on working with those groups at greatest risk of acquiring or transmitting HIV, emphasizing face-to-face education and increased condom use. AIDSTECH has demonstrated that individual projects can successfully change risk behavior of targeted populations and has laid the groundwork for expansion and replication of these efforts. These projects must become country wide programs if they are to decrease the spread of HIV.

Introduction

The AIDSTECH Project, funded by the AID through Cooperative Agreement AID/DPE-5972-A-00-7057-00 with FHI, completed five years in September 1992.

This report summarizes activities and experiences of the project, focusing on accomplishments, lessons learned and recommendations for future HIV prevention programs.

In 1987, AIDS was new, lethal, incurable and controversial. The only way to contain the epidemic was to identify and modify those behavioral and biomedical factors that increased the risk of acquiring HIV infection and were open to control. The AIDSTECH program was designed to have four strategic areas for action:

- Prevention of HIV infection through sexual transmission.
- Prevention of HIV infection through blood and blood products.
- Prevention of HIV infection through injections and other skin-piercing activities.
- Prevention of perinatal transmission of HIV.

Through discussions occurring over the first year of the project, AIDSTECH and AID/Washington (AID/W) agreed on the following strategy.

- The vast majority of cases of HIV infection are sexually transmitted; therefore, the most important task was to contain the sexual transmission of HIV infection through intervening with high-risk populations in countries where prevalence was low and the vast majority of the population was uninfected.
- While blood transfusion accounts for less than 10% of infections in developing countries, it is a very efficient mode of transmission, but easily controlled by proper screening; blood programs could provide a politically acceptable entrée into AIDS prevention programs in many countries.
- Intravenous drug use (IVDU) in most developing countries is not widespread, and therefore was unlikely to be a significant focus of activity.
- The best way to reduce perinatal transmission of HIV was to prevent HIV infection in women of childbearing age.

When AIDSTECH began, experience with strategies for prevention of the spread of HIV was extremely limited. The priorities for action were not always clear. Through creativity of approach and flexibility, AIDSTECH responded to evolving needs, answered questions about prevention programs, found out what worked and incorporated lessons learned into its programs.

Background

FHI is a non-profit organization dedicated to improving reproductive health, contraceptive safety, and health service delivery. FHI's work in AIDS follows from its many years of international experience in clinical research, reproductive health and STDs, epidemiology, and social research applied to family planning.

AID awarded the AIDSTECH Cooperative Agreement to FHI on September 16, 1987, as a five-year, \$28 million program. During FY91, the funding authorization for the AIDSTECH Project was increased to \$40 million.

The AIDSTECH Project staff consisted of an integrated and internationally mobile team with multidisciplinary technical and managerial skills, including epidemiology, behavioral, social science and operations research, communications, program planning and management, training, health care finance, STD diagnosis and treatment, condom logistics, laboratory technology and mathematical modeling.

The Project had an office in Washington, D.C. and a core of technical and program staff located at FHI's North Carolina headquarters. In addition, in-country resident coordinators provided program support in eight countries. AIDSTECH was designed by AID to provide technical assistance services to developing countries in AIDS control and prevention in conjunction with AIDSCOM, the Public Communications Project implemented by the Academy for Educational Development (AED).

The AIDSTECH Project provided technical assistance and funding to develop appropriate intervention programs upon countries' requests. The coordination of AIDSTECH's responses was achieved through inter-organizational cooperation with: AID and its overseas missions; the World Health Organization's Global Programme on AIDS (WHO/GPA); the Pan American Health Organization (PAHO); host country governments and their national AIDS committees and ministries of health; local NGOs; other international public organizations; private foundations; and with AED's AIDSCOM Project.

Goals and Objectives

AIDSTECH's goal was to prevent HIV infection and control the AIDS epidemic in the developing world.

AIDSTECH's objectives were to provide technical program assistance to AID missions and to enhance local capacity in confronting the international AIDS crisis.

AIDSTECH's mandate was to support developing countries in the prevention and control of AIDS through technical assistance and program support in such areas as program design and administration, epidemiology, HIV screening, health care financing, applied research, training, provision of equipment and commodities, and information dissemination.

AIDSTECH's commitment was to prevention.

Program and Intervention Strategies

AIDSTECH's approach to implementing its mandate was based on a philosophy and program designed to build and strengthen in-country capacities and skills, enabling country programs to undertake the activities needed to prevent and control the spread of AIDS. This approach focused on the development of long-term relationships with in-country programs, with an emphasis on local development and implementation of prevention activities.

Sexual contact is the primary way that the HIV is transmitted. Thus, as a first priority, AIDSTECH supported interventions in an effort to slow the spread of the disease by the sexual transmission of HIV.

Another significant means of HIV transmission is through transfusion of blood contaminated with the virus. Thus, the second priority for AIDSTECH was assisting countries ensure blood transfusion systems free from HIV infection.

Prevention of transmission through IVDU received only limited attention in the AIDSTECH project.

The resources available through AIDSTECH and other donors were limited, and many developing countries with the most serious HIV infection rates were those least able to confront the problem because of poor infrastructure and inadequate budgets. The design of intervention programs that are cost-effective and sustainable is mandatory, and AIDSTECH emphasized these aspects in planning and providing assistance to developing country programs.

Evaluation

AIDSTECH recognized the importance of evaluation and designed appropriate evaluation measures for intervention projects. The long incubation period for AIDS makes it difficult to assess project impact; no projects were able to demonstrate a direct effect on AIDS cases.

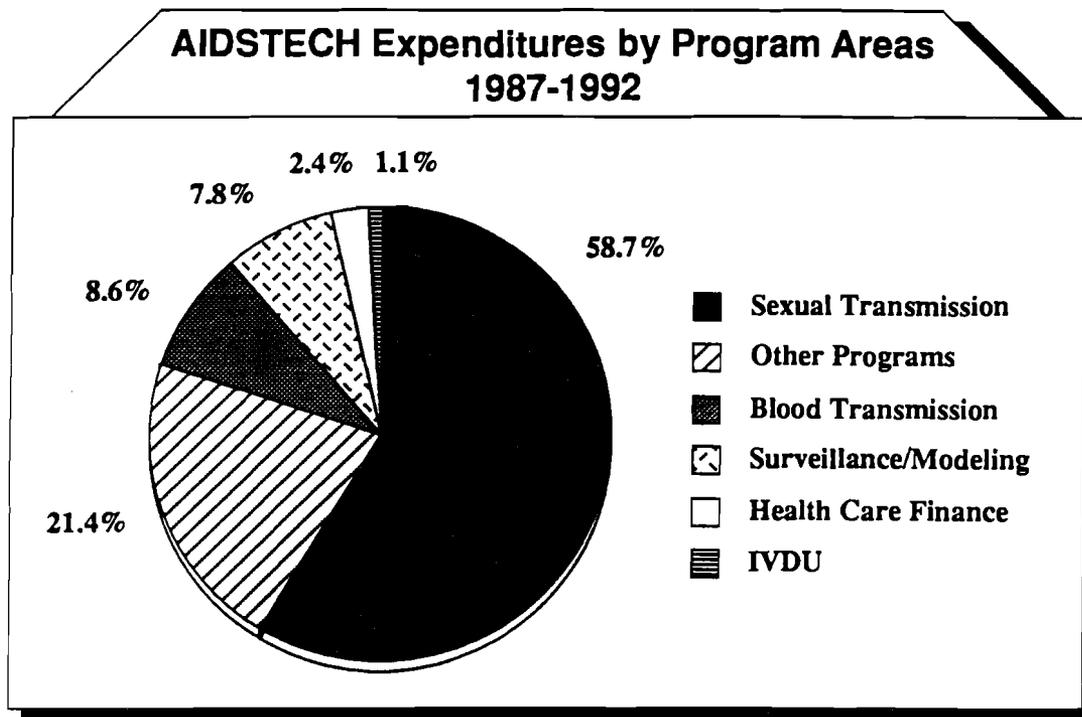
HIV incidence was the most useful evaluation indicator but was difficult and expensive to measure since it required testing the same individuals at regular intervals over a long period of time. HIV prevalence data for high-risk populations were potentially useful as a general warning for the spread of the epidemic and as a measure of project impact. Since no AIDSTECH projects were able to demonstrate a direct effect on HIV incidence or prevalence, STD prevalence was used as an indicator of behavior change where possible.

Most AIDSTECH projects relied on changes in reported condom use and process indicators, such as numbers of condoms sold or distributed, number of face-to-face educational contacts made, and number of people trained in various skills. Direct and indirect costs of projects also were assessed.

AIDSTECH Program Areas

Allocation of resources by program area since the project began are shown in the chart below.

Chart 1



Expenditures for sexual transmission prevention projects accounted for nearly 59% of program area expenditures. Blood projects accounted for 9% of program area expenditures, with health care finance and surveillance/modeling at slightly more than 2% and 8% respectively. The "other programs" category includes general program support for large-scale country programs and training programs for health care providers in disease control procedures.

The next sections summarize AIDSTECH's programs in the following priority and support areas:

- Prevention of HIV infection through sexual transmission.
- Prevention of HIV transmission through blood transfusions.
- Prevention of HIV transmission through IVDU.
- Development of targeted IEC programs and provision of necessary training.

- Condom management.
- Research, including project evaluation, program operations research, ethnography and epidemiological and behavioral research.
- Development of health care financing strategies through recurrent and comparative cost analyses.
- Development and application of surveillance systems to evaluate AIDSTECH programs.
- AIDS epidemiological modeling.
- Small Grants Program for PVOs.
- Information dissemination.
- Conference and training program support.

Each section includes:

- AIDSTECH's *General Strategy* which describes program rationale and direction.
- A *Program Summary* which describes how AIDSTECH implemented its strategy.
- *Accomplishments* which summarize project findings and process and outcome indicators.
- *Lessons Learned* which relate specifically to the AIDSTECH program.
- *Recommendations* which reflect AIDSTECH's vision for the future, based in part upon experience from AIDSTECH programs and in part upon staff perceptions of prevention program needs.

Chart 2 shows the categories of AIDSTECH-supported HIV prevention activities by country.

Chart 2
AIDSTECH-supported HIV Prevention Activities
1987-1992

	Sexual Transmission	Behavior Research	Blood	Sentinel Surveillance	Health Care Finance	Policy/ Modeling
AFRICA						
Botswana		■				
Burkina Faso	■		■	■	■	
Burundi	■			■		■
Cameroon	■	■	■	■	■	■
C. African Rep.	■					
Côte d'Ivoire	■					
Ghana	■		■	■		
Kenya	■		■	■	■	■
Malawi			■		■	■
Mali	■					
Niger	■				■	
Nigeria	■					
Senegal		■	■			
Tanzania	■	■			■	
Uganda	■	■				■
Zaire	■		■			
Zimbabwe	■	■	■		■	
LATIN AMERICA/ CARIBBEAN						
Bolivia	■		■			
Brazil	■					
Chile		■				
Costa Rica	■					
Dominican Rep.	■		■	■	■	
E. Caribbean	■	■	■	■	■	■
Ecuador			■			
El Salvador	■		■			
Guatemala	■					
Haiti	■	■		■		■
Jamaica		■				
Mexico	■	■		■	■	■
Peru	■		■		■	
ASIA/NEAR EAST						
Indonesia		■				
Morocco	■					
Philippines	■		■		■	
Sri Lanka	■					
Thailand	■	■				

Intervention Programs

Since the award of the cooperative agreement, AIDSTECH has supported 181 projects in 35 countries. Table 1 shows the number of AIDSTECH projects by program area and region.

Table 1

**Number of AIDSTECH Projects by Program Area
and Region, 1987-1992**

	Africa	Latin America/ Caribbean	Asia/ Near East	Total
Sexual Transmission	48	47	25	120
IVDU Transmission	0	0	2	2
Blood Transmission	13	6	2	21
Surveillance/ Modeling/Policy	10	5	0	15
Health Care Finance	6	11	1	18
Training	2	3	0	5
TOTAL	79	72	30	181

AIDSTECH developed extensive, multifaceted programs in 13 countries and one region: Burkina Faso, Cameroon, Ghana, Kenya, Tanzania, Zaire, Zimbabwe, Philippines, Thailand, Brazil, the Dominican Republic, Haiti, Mexico, and the Eastern Caribbean.

Prevention of Sexual Transmission of HIV

General Strategy

Sexual transmission of HIV accounts for over 90% of the HIV infections in the developing world. In virtually every project country, AIDSTECH emphasized a range of programs to reduce the sexual transmission of HIV. In designing these behavior change intervention programs, AIDSTECH worked from several guiding principles and assumptions:

Intervention programs need to take a public health approach to AIDS prevention. Targeting has been a vital public health tool for decades. It is based on the principle that intervening with individuals at greatest risk yields the greatest results. The World Bank estimates that targeting can increase the prevention impact as much as eight-fold when compared with programs aimed at the general population. Targeting concentrates limited financial resources and time where the need, and therefore the benefit, is likely to be greatest. AIDSTECH's intervention programs targeted populations with the highest HIV prevalence and/or incidence rates or those who practiced behavior that placed them at higher risk than the general population.

Theoretical frameworks used to explain the determinants of high- and low-risk behaviors in developed countries may not always apply to the developing world. Several theoretical frameworks (e.g., Theory of Reasoned Action, Health Belief Model, AIDS Risk Reduction Model, Social Learning Theory, Diffusion Theory) have been used to explain the determinants of high- and low-risk behavior for a given population and to guide AIDSTECH-supported prevention efforts. Some of the determinants of behavior shown to be important for AIDS prevention include:

- Perceived benefits of low-risk behaviors.
- Perceived effectiveness of risk-reduction behaviors.
- Perceived vulnerability and severity of consequences.
- Self-efficacy in changing behaviors.
- Essential social and negotiation skills.
- Condom use skills.
- Perception of social norms and social approval/disapproval.

AIDSTECH based its work on a combination of theoretical approaches in its intervention strategies to change behavior. Peer education programs, for example, modeled low-risk behaviors, encouraged behavior rehearsal, and transmitted needed information. These programs relied on opinion leaders and informal social networks within the community using interpersonal communication to change attitudes and

social norms and teach new behaviors. In this way, they drew from a range of theoretical models to develop the most appropriate, culturally-specific intervention plan. Most models presuppose choice and decisions, and these may not be relevant for all people in developing countries. AIDSTECH recognized that new models might have to be developed.

Given the difficulty inherent in changing sexual behavior, it is easier to modify behaviors than to completely change or eliminate behaviors; the least change is the most likely change. Realistic messages are more likely to be heard and acted on. Abstinence and monogamy require a significant change of behavior, especially for some populations such as CSWs and their clients. For any population where multiple sex partners is the norm, the message "use condoms" is probably more effective than "fewer partners" or "abstinence." And the message "use condoms when in high-risk situations such as going to CSWs" may be even more realistic and thus more acceptable. AIDSTECH interventions focused on condom use as a first defense against HIV transmission; condom promotion and skills in use and negotiation were central messages for prevention programs.

Information alone is rarely sufficient to change behavior. Educational programs usually have an effect on knowledge of AIDS -- how HIV is transmitted and how it is prevented. However, this change in knowledge rarely leads to behavior change. Because AIDSTECH focused its efforts on populations at high risk, educational messages emphasized behavior change involving the use of condoms for protection. Not only did AIDSTECH-supported interventions promote condom use, but they also tried to ensure that condoms were readily available to targeted populations when and where they were needed.

The AIDSTECH strategy for the prevention of the sexual transmission of HIV included:

- Interpersonal behavior change interventions.
- Social marketing of condoms.
- STD control.

In most of AIDSTECH's programs, combinations of strategies and models were used. For example, in Cameroon peer educator CSWs acted as sales agents for the social marketing of condoms. In Tanzania, AIDSTECH worked with African Medical and Research Foundation (AMREF) to develop an intervention where a peer education program with CSWs and a workplace/social center program for truck drivers were complemented by a component to strengthen STD services available to truckers.

See Chart 3 for an overview of AIDSTECH activities in these areas.

Chart 3

**AIDSTECH Activities for the Prevention
of Sexual Transmission of HIV, 1987-1992**

	Peer Education	Workplace/ Social	Clinic-based	CSM	STD Control
AFRICA					
Burkina Faso	■	■	■	■	
Burundi	■	■	■		■
Cameroon	■	■	■	■	
C. African Rep.	■		■		
Côte d'Ivoire	■	■		■	
Ghana	■	■			■
Kenya	■	■	■		■
Mali	■	■			■
Niger	■	■	■		■
Nigeria	■	■		■	■
Tanzania	■	■	■		■
Zaire	■	■		■	
Zimbabwe	■	■	■		■
LATIN AMERICA/ CARIBBEAN					
Bolivia	■		■		
Brazil	■	■		■	
Costa Rica	■	■			
Dominican Rep.	■	■			■
E. Caribbean	■		■		■
El Salvador			■		■
Guatemala			■		■
Haiti	■	■	■	■	■
Mexico	■	■	■		
Peru	■		■		■
ASIA/NEAR EAST					
Morocco	■				
Philippines	■	■	■		■
Thailand	■	■			■

Program Summary

Interpersonal Behavior Change Interventions

Available seroprevalence data and epidemiological models of the spread of HIV infection show that the risk of infection increases with:

- The number and frequency of change of sex partners.
- The history and presence of STDs.
- The prevalence of HIV infection in the community.

During the critical early stages of the epidemic, individuals with multiple sex partners become infected, subsequently infect others in the community, and contribute to a rapid increase in the prevalence of HIV infection. Where possible, AIDSTECH used existing seroprevalence data from 1985 to 1989 to determine which high-risk populations to target (see Table 2). High-risk populations targeted by the AIDSTECH program were CSWs, their clients, STD patients, MSM and adolescents.

Interpersonal behavior change intervention programs were developed in cooperation with national AIDS control programs, ministries of health, and local implementing organizations. Programs typically included:

- Education to inform target groups about HIV/AIDS, how it is transmitted, and how to reduce risk of infection.
- Condom education, promotion, and distribution to ensure that condoms are used correctly and are readily available to target groups at an affordable price.
- Training for health providers in health education, condom use, and program management.
- Referral to STD control services.
- Program evaluation to improve services, assess outcomes, and plan for sustainable programs and expansion.

AIDSTECH developed three models for reaching high-risk behavior groups: the peer education model, a work place/social center model, and an STD/health clinic education model.

The **peer education model** selected and trained individuals within high-risk behavior groups, such as men and women with multiple sex partners, to teach their peers about AIDS and ways to prevent the spread of HIV infection. AIDSTECH used the peer education model to reach high-risk groups such as CSWs, their clients, truck drivers, factory workers, students and MSM.

Table 2

**Reported Urban Seroprevalence Rates
in Selected Countries, 1985-1989**

	CSWs %	STD Patients %	MSM %	IVDUs %	Pregnant Women %	Blood Donors %
AFRICA						
Burkina Faso	14-21	16-59	-	-	2	-
Cameroon	3-7	-	-	-	1	1
Ghana	2-25	5	-	-	-	0
Kenya	39-64	9-17	-	-	3	2
Tanzania	29-39	9-14	-	-	4	4-11
Zaire	27-40	-	-	-	2-9	4-9
Zimbabwe	-	19	-	-	-	3-4
LATIN AMERICA/ CARIBBEAN						
Brazil	0-6	-	1-31	15-22	2-4	0-1
Dominican Rep.	0-48	4	17-19	0	0	2
E. Caribbean	13	3	10-40	2	-	1
Haiti	53	8-63	-	-	8-9	2-7
Mexico	1-7	-	15-31	29	0	1
ASIA/NEAR EAST						
Philippines	0-3	-	0-0.1	-	-	0
Thailand	1-2	0	1-3	1-44	-	0

Note: Prevalence figures derived from non-representative samples

Sources: U.S. Bureau of Census, Center for International Research. AIDS/HIV Statistics Database. Prevalence, in percent, of HIV. June 22, 1989.

The PANOS Institute. PANOS Dossier: AIDS and the Third World. First Trade Edition. New Society Publishers: Philadelphia, 1989.

The **workplace/social center model** reached high-risk behavior groups through places where they worked or socialized. AIDSTECH provided support for training hotel employers, farmers, factory workers, taxi drivers, bar owners, and brothel managers to provide AIDS education and distribute condoms to their employees or fellow workers and customers.

The **clinic-based model** provided education and distributed condoms through STD clinics, company clinics, health centers and/or family planning clinics located in areas convenient to high-risk behavior groups.

AIDSTECH found it necessary to educate policy-makers who were initially reluctant to approve intervention programs targeted toward high-risk groups. Policy changes were accomplished through collaborative planning, technical assistance, sponsorship to conferences and AIDS simulation modeling.

Chart 4 shows populations targeted by AIDSTECH projects.

Social Marketing of Condoms

Social marketing utilizes commercial marketing techniques to promote a behavior or product for the social good. Social marketing has four essential elements: having the right product, at the right price, sold in the right place, with the right promotion:

- Social marketing programs find a product image that will promote brand loyalty. In Zaire, Population Services International (PSI) consumer research had produced Prudence, a name that conveyed a message of responsible behavior.
- Charging for condoms means that people are more likely to perceive the condom as a high quality product. Condom prices should be kept in line with other products. A condom should not cost more than a small pack of aspirin or gum. Prices generally require no more than three days of labor to purchase a one year supply (100 condoms) for the typical non-CSW user. The right price must be low enough for consumers to afford but high enough for merchants to make a profit from sales. This often requires the provision of condoms at subsidized prices.
- Without social marketing, affordable condoms are primarily available through government distribution. Social marketing programs have traditionally expanded availability to commercial outlets such as small pharmacies, medical centers and small stores and shops.
- Point-of-purchase advertising is key to promotion campaigns as are consumer giveaways such as posters, pocket calendars and T-shirts.

Chart 4

**Targeted High-Risk Populations
in AIDSTECH Program Countries**

	CSWs	Clients of CSWs	MSM	STD Patients	Adolescents	Others
AFRICA						
Burkina Faso	■	■		■		Soldiers, miners, truckers
Burundi	■					Workers
Cameroon	■	■		■		Truckers
C. African Rep.	■				■	
Côte d'Ivoire	■	■				
Ghana	■	■				Military
Kenya	■	■		■	■	Truckers
Mali	■	■				
Niger	■	■		■		Truckers
Nigeria	■	■				
Tanzania	■	■		■		Truckers
Zaire	■	■				Port/dock workers, sailors, miners, truckers
Zimbabwe	■	■		■	■	Farm workers, fishermen
LATIN AMERICA/ CARIBBEAN						
Bolivia	■					
Brazil	■		■			
Costa Rica			■		■	
Dominican Rep.	■	■			■	Hotel and industrial workers
E. Caribbean	■	■		■	■	Migrants, prisoners
Guatemala				■	■	
Haiti	■	■		■	■	Health clinic attendees
Mexico	■	■	■			Pharmacy clients, seropositive women
Peru	■		■	■		
ASIA/NEAR EAST						
Morocco	■					
Philippines	■	■	■	■		
Thailand	■	■	■	■	■	Workers, truckers, IVDUs

The objective of the AIDSTECH-supported CSM program was to make condoms more accessible to targeted high-risk populations. AIDSTECH programs focused on:

- Increasing the number and type of outlets distributing condoms in targeted communities.
- Promoting and selling condoms at sites frequented by high-risk target populations, where sex occurred or was negotiated.
- Distributing appropriate promotional materials to promote condoms as a protective measure against HIV and other STDs.
- Using CSW peer educators as salespersons.

AIDSTECH supported CSM programs in Burkina Faso, Cameroon, Côte d'Ivoire, Zaire, Brazil, Eastern Caribbean and Haiti.

STD Control

There is strong evidence that STDs, especially those causing genital ulcers, are an independent risk factor in the transmission of HIV, perhaps enhancing transmission by as much as fifty-fold in a single act of intercourse. The prevalence of bacterial STDs remains high in many developing countries, and STD prevention and control are likely to slow HIV transmission.

In men, STD diagnosis and treatment are relatively easy: if a man has urethritis, then treatment needs to be given for gonorrhea or chlamydia; if a man has an ulcer, then treatment needs to be given for syphilis or chancroid.

Treating women for STDs is much more difficult, because accurate diagnosis requires a good laboratory infrastructure. Whereas for men diagnosis can be made on a clinical basis, women require laboratory studies. A "vaginal discharge" in a woman can be caused by any of the major STD pathogens and also by the minor ones. Without a pelvic examination, and preferably a speculum exam with a microscopic examination of vaginal fluid, it is very difficult to make a reasonable diagnosis of women's STDs. AIDSTECH provided technical assistance and training and supported research aimed at the development of cost-effective methods of STD control. AIDSTECH collaborated closely with the WHO/GPA and coordinated its activities with national AIDS control programs and other appropriate organizations. Programs included:

- Upgrading STD clinic capabilities for diagnosis and treatment.
- Assisting in the development of treatment guidelines and algorithms and training health workers in their use.
- Evaluating the social marketing of drugs to improve the treatment of STDs.

Upgrading STD Clinics

Health professionals need four basic elements to treat people with STDs: diagnostic tools, training, well-run clinics and appropriate drugs.

- Primary care clinics ideally need examining tables for gynecologic examinations, lamps, reliable supplies of water and electricity, instruments such as specula for pelvic exams, sterilization equipment, gloves, microscopes that work and blood collection equipment.
- Effective STD patient management requires clinic staff trained in a variety of skills, from STD clinical diagnosis to counseling about condoms and partner notification.
- Upgrading STD care, whether through special STD clinics or primary health care centers, also involves improving the management of the facility itself. STD care often can be improved significantly with minimal changes in clinic operations.
- Recommending the right type and dosage of a drug is crucial because inappropriate dosages can often increase the resistance of some STDs, particularly gonorrhea and chancroid, to traditional pharmacologic treatments. The principal obstacle to availability of effective drugs is cost.

Treatment Algorithms

The "syndrome-based" approach to diagnosis and treatment of STDs is the basis for attempting to treat large numbers of people with limited resources. Resources do not exist in most developing countries to allow for large-scale treatment based on laboratory diagnosis, which determines the causative agent for each person's symptoms. Also, when people with STDs seek treatment outside the formal health system, laboratory diagnosis is precluded.

AIDSTECH worked with programs to organize the diagnosis of STDs based on symptoms when testing is not available or when patients seek treatment outside the traditional health care system. In settings with no laboratory facilities, flowcharts are particularly useful for two syndromes: urethral discharge in men and genital ulcer disease in men and women. For urethral discharge, patients are treated for gonorrhea and/or chlamydial infection. For genital ulcer disease, they are treated for syphilis and/or chancroid.

Social Marketing of STD Treatment Packages

In many parts of the world, the majority of people with STDs go to a local healer, pharmacist, shopkeeper or trader for treatments. Perhaps 90% of all STDs are treated at this level. Many receive inappropriate or inadequate treatment because dispensing of drugs by untrained shop staff is common. The challenge is to use the existing treatment system and improve the knowledge of the providers about the treatments they are giving.

AIDSTECH worked with PSI and the Ministry of Health in Cameroon to initiate the testing of the social marketing of STD treatments through pharmacies and health clinics.

Accomplishments

Interpersonal Behavior Change Interventions

AIDSTECH supported 39 behavior change intervention programs in 25 countries. Targeted high-risk behavior groups included: CSWs, their clients, STD patients, MSM, and adolescents.

Table 3 shows the number of condoms distributed, educational contacts made and IEC materials distributed through AIDSTECH sexual intervention projects:

- 24.1 million condoms were distributed, 18 million in Africa, 5.6 million in Latin America and the Caribbean and 0.5 million in Asia. An additional 23.3 million condoms were sold through AIDSTECH supported social marketing programs (see next section).
- 3.5 million face-to-face educational contacts were made.
- 4.6 million IEC materials were distributed.
- 5,200 peer educators were trained.

Commercial Sex Workers

AIDSTECH supported 28 targeted intervention programs with CSWs in 23 countries. The following CSW characteristics were learned from knowledge, attitudes and practices (KAP) surveys, focus groups, and ethnographic research conducted by AIDSTECH programs.

- Many CSWs have been working in their profession for only a very short period of time (often two years or less), suggesting high turnover and that commercial sex work may be a transitory period in many women's lives. However, there is also evidence that a small proportion of CSWs remain in commercial sex for a very long time.
- The lifestyles of CSWs often place them outside the reach of traditional health services.
- CSWs often exert little control over the sex-for-money transactions in which they take part, and are highly vulnerable to exploitation.
- CSWs are highly mobile, visiting other towns and countries frequently.
- During her lifetime, a CSW may move across the categories of bar maid, brothel worker and free-lance CSW.
- Partnerships between CSWs and customers can be long-term (lasting several years) or casual (from an hour to a night). Both types of relationships are often maintained simultaneously.

Table 3**Process Indicator Data from Prevention
of Sexual Transmission Projects**

Country	Target Group	Condoms Distributed	Educational Contacts	IEC Materials Distributed
AFRICA				
Burkina Faso	CSWs/clients/STD patients	315,000	*1,500	2,000
	**HRGs and general population	-	129,455	16,000
	Total:	315,000	130,955	18,000
Burundi	Rural STD patients	21,000	5,000	-
	CSWs/HIV+ persons	16,000	500	8,701
	Total:	37,000	5,500	8,701
Cameroon	CSWs/residents	27,645	16,206	30,000
	Total:	27,645	16,206	30,000
Central African Republic	Young women/health clinic attendees	44,844	7,800	-
	Total:	44,844	7,800	-
Côte d'Ivoire	**CSWs/residents	-	1,800	2,050,720
	Total:	-	1,800	2,050,720
Ghana	CSWs/clients/taxi drivers	14,900	10,923	21,000
	Military	74,000	12,000	20,857
	Total:	88,900	22,923	41,857
Kenya	CSWs/community/youth	325,000	26,000	10,000
	Family planning clients/community	150,316	43,000	360
	Truckers/CSWs	248,500	17,185	49,810
	CSWs/clients workers/STD patients	171,400	36,000	91,124
	Community/CSWs STD patients	1,064,000	22,000	4,000
	Total:	1,959,216	144,185	155,294
Mali	CSWs/clients	1,064,700	1,000	6,333
	Total:	1,064,700	1,000	6,333
Niger	CSWs/STD patients/truck drivers	266,321	5,532	2,070
	Total	266,321	5,532	2,070

Continued

Country	Target Group	Condoms Distributed	Educational Contacts	IEC Materials Distributed
Nigeria	CSWs/clients/STD patients	1,000,000	16,266	3,000
	Total:	1,000,000	16,266	3,000
Tanzania	CSWs/STD patients/truck drivers	5,835,580	50,000	150,000
	Total:	5,835,580	50,000	150,000
Zaire	**CSWs/clients	-	-	300,000
	Total:	-	-	300,000
Zimbabwe	CSWs/clients/STD patients/youth	1,834,923	754,292	372,888
	CSWs/clients/STD patients/workers	1,500,385	90,436	10,965
	CSWs/clients/STD patients/youth/workers	3,086,691	785,108	225,756
	Farm workers/families	900,000	500,000	150
	Total:	7,321,999	2,129,836	609,759
Region Total:		17,961,205	2,532,003	3,375,734
LATIN AMERICA/ EASTERN CARIBBEAN				
Bolivia	CSWs	34,160	916	118
	Total:	34,160	916	118
Brazil	CSWs/MSM	356,925	58,413	32,182
	**CSWs/brothel managers	-	893	-
	Total:	356,925	59,306	32,182
Costa Rica	Adolescents	-	13,893	19,000
	Total:	-	13,893	19,000
Dominican Republic	Youth/community leaders	130,000	24,044	55,000
	Factory employees	90,000	8,000	36,300
	Clients/youth	5,500	1,040	2,500
	CSWs/clients/hotel workers	150,000	32,916	3,280
	CSWs/clients	890,707	41,625	40,823
	Young adults	16,000	12,433	19,000
	Total:	1,282,207	120,058	156,903
Eastern Caribbean	CSWs/STD patients	75,000	333	850
	Migrants/STD patients	149,700	3,578	-

Continued

Country	Target Group	Condoms Distributed	Educational Contacts	IEC Materials Distributed
<i>Continued</i>	STD patients	1,023,800	12,296	2000
	Total:	1,248,500	16,207	2,850
Haiti	CSWs/community	129,623	45,521	21
	Factory workers	707,850	29,189	32,828
	CSWs/community	1,461,000	113,447	158,274
	CSWs/employees/STD patients	96,500	5,343	-
	Total:	2,394,973	193,500	191,123
Mexico	CSWs	225,000	12,000	6,982
	Women	58,297	10,918	48,000
	Pharmacy clients	-	211,680	281,000
	Education for HIV+ women	2,910	2,404	2,500
	Total:	286,207	237,002	338,482
Region Total:		5,602,972	640,882	740,658
ASIA/NEAR EAST				
Philippines	CSWs	74,000	3,566	2,578
	CSWs/clients/STD patients	375,787	64,000	91,000
	Total:	449,787	67,566	93,578
Thailand	CSWs/clients	41,216	**130,000	163,587
	CSWs	43,000	179	-
	Rural teens	-	1,000	-
	Employees	-	100,000	184,480
	Total:	84,216	231,179	348,067
Region Total:		534,003	298,745	441,645
TOTAL		24,098,180	3,471,630	4,558,037

* Estimated

** Social Marketing

- Number of customers per week or type of payment may vary dramatically within and across societies, requiring that the definition of a CSW be flexible.
- With the advent of AIDS, the demand for young CSWs is growing because clients think younger CSWs are less likely to be infected.
- In many communities CSWs treat themselves with antibiotics or are medicated by brothel owners, possibly leading to a greater number of antibiotic-resistant strains of STDs.
- Female CSWs frequently "check" their clients for visible signs of STDs.
- Failure to use condoms is often due to client resistance.

AIDSTECH collected pre- and post-intervention data for 15 CSW projects in 12 countries. Table 4 shows knowledge of the protective value of condoms, reported "always use" of condoms and reported increase in condom use over the past six months for CSWs in these projects:

- Knowledge and reported condom use increased for CSWs in all projects.
- Reported "always use" of condoms with clients increased for CSWs in all 15 projects.

Where possible, AIDSTECH used STD rates to validate reported condom use. Data collected in five countries for CSWs showed that:

- Chlamydia decreased from 38% in 1989 to 16% in 1991 in Cameroon.
- In Mali, gonorrhea decreased from 43% in 1991 to 7% in 1992; syphilis remained stable at 25 to 26%.
- In the Dominican Republic, syphilis decreased slightly from 12% to 8% in Santo Domingo and from 11% to 9% in Puerto Plata.
- Gonorrhea decreased from 4% in 1988 to 2% in 1992 in Olongapo, the Philippines.
- In Thailand, CSWs in brothels in Mae Sai showed a slight decrease in syphilis from 1% to 0% and a slight increase in gonorrhea from 6% to 8% over a three month period.
- CSWs in condom-only brothels in Khon Kaen, Thailand did not show a decrease in gonorrhea; STD rates among male patients at STD clinics did decrease, however.

Table 4

**Pre- and Post- Indicators of Knowledge and Reported Condom Use
Among CSWs, Clients, Male STD Patients, and MSM**

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
FEMALE CSWs						
Burkina Faso	CSWs	57%	94% (what do you do to avoid AIDS)	71% (used condoms with 6 or more of last 10 clients)	79% (used condom with 6 or more of last 10 clients)	65%
		12/88	8/92	12/88	8/92	
Cameroon	CSWs	55%	63%	16% (occas. partner)	31% (occas. partner)	64%
		1989	1991	4% (reg. partner)	18% (reg. partner)	
		1989	1991	1989	1991	
Kenya Mombasa	Home-based CSWs	91%	97%	48% (occas. partner)	89% (occas. partner)	34% (clients)
		12/91	9/92	34% (reg. partner)	90% (reg. partner)	
		12/91	9/92	12/91	9/92	
	Bar-based CSWs	77%	91%	34% (occas. partner)	38% (occas. partner)	36% (clients)
		12/91-1/92	9/92	11% (reg. partner)	27% (reg. partner)	
		12/91-1/92	9/92	12/91-1/92	9/92	

Continued

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
Mali Bamako	CSWs	0% (what do you do to avoid AIDS) 2/91	100% (what do you do to avoid AIDS) 6/92	90% (occas. partner) 59% (reg. partner) 2/91	98% (occas. partner) 71% (reg. partner) 6/92	N/A
Niger Niamey	CSWs	56% (doing something to avoid AIDS) 9/91	86% (doing something to avoid AIDS) 6/92	N/A 9/91	68% (occas. partner) 24% (reg. partner) 6/92	65% (clients)
Nigeria Calabar	CSWs	17% (What can you do to avoid AIDS?) 2-3/89	88% (What can you do to avoid AIDS?) 8/90	11% (in general) 2-3/89	23% (in general) 8/90	N/A
Tanzania	CSWs	29% 4/90	92% 8/91	19% (occas. partner)* 12% (reg. partner)* 4/90	51% (occas. partner)* 45% (reg. partner)* 8/91	45%
Zimbabwe	CSWs	N/A 1988	89% 11/91	5% (occas. partner) 1988	48% (occas. partner) 3/92	N/A

Continued

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
Dominican Republic Puerto Plata	CSWs	80%	96%	75% (new clients)	92% (new clients)	88% (clients)
				43% (reg. clients)	76% (reg. clients)	72% (non-paying partner)
		38% (non-paying partner)	65% (non-paying partner)			
		2-3/90	4/92	2-3/90	4/92	
Dominican Republic Santo Domingo	CSWs in bars	65%	80%	67% (new clients)	73% (new clients)	67% (clients)
				33% (reg. clients)	50% (reg. clients)	48% (non-paying partner)
				28% (non-paying partner)	41% (non-paying partner)	
		2-3/90	3/92	2-3/90	3/92	
	CSWs on the street	83%	88%	86% (new clients)	97% (new clients)	90% (clients)
				67% (reg. clients)	84% (reg. clients)	69% (non-paying partner)
				51% (non-paying partner)	70% (non-paying partner)	
		2-3/90	3/92	2-3/90	3/92	

Continued

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
<i>Continued</i>	CSWs in brothels	93%	100%	92% (new clients)	100% (new clients)	85% (clients)
				65% (reg. clients)	87% (reg. clients)	65% (non-paying partner)
				56% (non-paying partner)	65% (non-paying clients)	
		2-3/90	3/92	2-3/90	3/92	
Mexico: FEMAP	CSWs (Mariscal)	23% (condoms as safer sex)	50% (condoms as safer sex)	53% *	78% *	61%
		23% (condoms as AIDS preventive behavior)	57% (condoms as AIDS preventive behavior)			
		1/89	4/90	1/89	4/90	
Mexico: FEMAP Expansion	CSWs (La Paz)	57% (what do you do to avoid AIDS)	88% (what do you do to avoid AIDS)	26% *	50% *	61%
				34% (occas. partner)	51% (occas. partner)	
		2-3/91	6-7/92	2-3/91	6-7/92	
Philippines Angeles City	CSWs	45%	74%	25% (in general)	30% (in general)	11%
		1/90	4/92	1/90	4/92	

Continued

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
Philippines Olongapo	CSWs	46%	91%	27% (in general)	51% (in general)	26%
		1/90	4/92	1/90	4/92	
Thailand Khon Kaen	CSWs in brothels	N/A	N/A	21% (occas. partner)	61% (occas. partner)	N/A
		10/90	3/91	10/90	3/91	
Thailand Mae Sai District	CSWs in brothels	46%	82%	67% (all episodes last night)	84% (all episodes last night)	N/A
		1/91	4/91	1/91	4/91	
MALE CLIENTS						
Cameroon	Men in bars	86% (reason for using condoms)	96% (reason for using condoms)	N/A	21%	54%
		1989	1991	1989	1991	
Ghana	Military (older cohort)	90%	N/A	14% *	15% *	N/A
		6-7/90	8/92	10% (in general)	16% (in general)	
	Military (younger cohort)	N/A	N/A	N/A	27% *	N/A
		8/92		29% (in general)		
					8/92	

Continued

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
Kenya Mombasa	Men in bars	24%	30%	22%	13%	10% (with CSWs)
		12/91-1/92	9/92	(occas. partner) 12/91-1/92	(occas. partner) 9/92	
Mali	Men in bars	0%	57%	50%	39%	N/A
		(what do you do to avoid AIDS) 1/91	(what do you do to avoid AIDS) 6/92	(occas. partner) 17% (reg. partner) 1/91	(occas. partner) 17% (reg. partner) 6/92	
Niger	Men in bars	72%	59%	66%	16%	14%
		(what are you doing to avoid AIDS) 9/91	(what are you doing to avoid AIDS) 6/92	(occas. partner) 55% (reg. partner) 9/91	(occas. partner) 12% (reg. partner) 6/92	
	Truckers	43%	57%	39%	20%	57%
		(what are you doing to avoid AIDS) 9/91	(what are you doing to avoid AIDS) 6/92	(occas. partner) 32% (reg. partner) 9/91	(occas. partner) 10% (reg. partner) 6/92	
Nigeria Calabar	Clients	57%	62%	8%	4%	N/A
		2-3/89	8/90	(in general) 2-3/89	(in general) 8/90	

Continued

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
Tanzania	Truckers	34%	72%	21%	45%	28%
				(occas. partner) *	(occas. partner) *	
				14%	36%	
		4/90	8/91	4/90	8/91	
Zimbabwe	Clients	N/A	N/A	25%	45%	N/A
				(occas. partner)	(occas. partner)	
				1989	11/91	
Mexico: FEMAP Expansion	Clients	42%	66%	15% *	35% *	40%
		(what do you do to avoid AIDS)	(what do you do to avoid AIDS)			
		2-3/91	6-7/92	2-3/91	6-7/92	
MALE STD PATIENTS						
Cameroon	STD patients	15%	55%	9%	12%	38%
				(occas. partner) *	(occas. partner) *	
				3%	5%	
		1989	1991	1989	1991	
Niger	STD patients	47%	57%	25%	20%	40%
		(what are you doing to avoid AIDS)	(what are you doing to avoid AIDS)	(occas. partner)	(occas. partner)	
				13%	1%	
		9/91	6/92	9/91	6/92	

Continued

Country	Target Group	Knowledge		Always Use		% reporting an increase in the last 6 months at time of follow-up survey
		Baseline	Follow-up	Baseline	Follow-up	
OTHER MALE TARGET GROUPS						
Dominican Republic Puerto Plata	Male hotel workers	71%	73%	14% *	11% *	N/A
				13% (occas. partner)	17% (occas. partner)	
				11% (reg. partner)	12% (reg. partner)	
		4/92	8/92	4/92	8/92	
Philippines Olongapo	Male CSWs	41%	80%	5%	5%	5%
		1/90	4/92	1/90	4/92	
Mexico: FEMAP	MSM	65%	63%	34% *	45% *	52%
		1/89	4/90	1/89	4/90	

* Question asked about condom use in last 5 or 10 acts.

Clients of CSWs

AIDSTECH supported intervention programs that targeted clients or potential clients of CSWs in 17 countries. The following was learned about CSW clients through KAPs, focus groups and ethnographic research:

- Men working in certain professions, such as long-distance trucking, are at high-risk of infection themselves and of spreading infection to others; truckers appear to be a high-risk population with relatively high HIV prevalence.
- Many CSW clients, including most truckers, report having visited a CSW at least once in their lifetime, but there appears to be a bi-modal pattern of behavior where they visit a CSW quite frequently or very infrequently.
- Commercial sex is often accompanied by the consumption of alcohol.
- Higher socio-economic status (SES) clients report fewer different partners in the Dominican Republic.
- Male brothel owners are themselves clients of CSWs and although knowledgeable about HIV infection, they seem to be less likely than other clients to use condoms.

AIDSTECH collected pre- and post-intervention data for nine projects reaching clients in nine countries (see Table 4). Results showed:

- Four of the nine projects were unsuccessful in increasing client reported "always use" of condoms and in these cases a decrease was reported.
- Client reports of "always use" of condoms increased in projects in Mexico (15% to 35%), Tanzania (21% to 45%) and Zimbabwe (25% to 45%). Knowledge of the protective effect of condoms increased from 34% to 72% in Tanzania.
- Although clients did not report large increases in "always use" of condoms, increases in CSW reports of "always use" of condoms indicate that some change occurred; the change may not be enough to protect clients and CSWs, however.

Men Who Have Sex with Men

AIDSTECH supported six projects in Latin America and Asia that included MSM as a targeted group. The following was learned about MSM:

- MSM tend to be relatively well educated compared to other high-risk groups.
- In Juarez, Mexico 70 to 78% of MSM identify as gay, 22 to 30% as bisexual, and 8% report having sex for money.

- 70% to 80% of MSM in Juarez report having receptive anal intercourse.
- Male CSWs appear to be younger than other MSM in Mexico City.
- MSM are more likely to live with female companions than with other males, and a large number (Mexico City) are still living with immediate family members (distinct from US living patterns).
- MSM often maintain sexual relations with women as well as with male partners. Condom use with the last female and male partner were 56% and 52%, respectively.

Only one project with MSM in Mexico collected pre- and post-intervention data (see Table 4); 52% of MSM reported increased condom use in the past six months, and reported "always use" of condoms increased from 34% to 45%.

STD Patients

Twelve projects included STD patients. The following was learned:

- STD patients tend to be fairly knowledgeable about AIDS.
- Compared with some other populations, STD patients are cognizant of their risk of HIV infection. However, women are less likely to perceive themselves at risk than men.
- STD patients tend to be repeat patients; in Trinidad, 65% had been treated for an STD before.
- Both men and women reported burning on urination and large proportions reported having had genital ulcers.
- Recent multiple partners are reported by both male and female patients; men often report visiting CSWs and some attribute their infection to contact with a CSW; in Guatemala, some of the female STD patients reported receiving money for sex, but most women say they are housewives.
- Reported consistent condom use is low. In Trinidad, 82% of patients said they knew how to use condoms; when they demonstrated their knowledge, 93% of male patients were proficient, but only 7% of the females.
- Clients with STDs often seek treatment outside the medical system; 100% of pharmacists interviewed in Tanzania reported customers with complaints of STD symptoms and 44% of pharmacists in Mexico received requests for information on STDs.

Pre- and post-intervention data for male STD clinic patients showed an increase in reported "always use" of condoms from 9% to 12% in Cameroon; 38% reported increased condom use in the past six months (see Table 4).

Adolescents

Five projects included an intervention exclusively or partially targeted to adolescents. The following was learned about adolescents:

- Surveillance data of university students in Burundi show that adolescent women are more likely to be HIV-positive than their male counterparts, reflecting the tendency of men to go with women younger than themselves.
- Boys begin sexual activity earlier than girls and report more lifetime or recent partners than girls.
- Sex with a CSW is seen as a rite of passage for boys in many societies and large proportions of the sexually active male adolescents have visited a CSW.
- Adolescents have fairly high levels of knowledge about AIDS (modes of transmission and prevention) but do not see themselves at risk.
- Girls may be less likely than boys to have received information on AIDS. In Guatemala, girls not sexually active were more knowledgeable than those who were sexually active. In contrast, sexually active boys were more knowledgeable than non-active boys.
- Parents are rarely a source of information about AIDS.
- Very low percentages of adolescents consistently use condoms. Female adolescents are less likely than male adolescents to know about condoms or to use them.

An adolescent intervention in Costa Rica evaluated the effect of AIDS education on reported condom use; condom use increased at a similar rate in the control group and in both experimental communities. The participatory education had a positive impact on knowledge levels, but did not measurably affect behavior change.

Social Marketing of Condoms

AIDSTECH supported eight social marketing programs in seven countries.

- 23 million condoms were sold through AIDSTECH supported social marketing activities that also targeted non-traditional outlets to make condoms accessible to high-risk populations (see Table 5): 5.8 million in Burkina Faso, 5.9 million in Cameroon and 9.8 million in Zaire.
- Targeting outlets that made condoms accessible to high-risk populations was successful. In Zaire, 57% of hotels and 28% of bars and night clubs in project areas participated in the program. In Côte d'Ivoire, 100 hotels, bars, kiosks and CSW homes were used as sales points. In Cameroon, 70 bars/nightclubs and 60 hotels were targeted by CSWs selling condoms.

Table 5

AIDSTECH-supported Condom Social Marketing Programs, 1987-1992

	Target Group	Total Condoms Sold	End of Project Monthly Sales	Outlets Targeting At Risk Population
AFRICA				
Burkina Faso	Residents/CSWs	5,800,000	375,000	1,800
Cameroon	Residents/CSWs	5,950,000	430,000	30,000
Côte d'Ivoire	Residents/CSWs	531,000		100
Zaire	5 cities Residents/CSWs	9,870,000	700,000	457
LATIN AMERICA/ CARIBBEAN				
Brazil	CSWs	2,300	2,000	310
Eastern Caribbean	Residents/CSWs	12,600	1,100	40
Haiti	Residents/CSWs	1,120,000	107,000	> 500
TOTAL		23,285,900		

- An intercept study in the Zaire program showed that 75% of customers cited AIDS prevention as the reason they bought condoms; 80% of those buying for AIDS prevention said they practiced high-risk activities, indicating that the targeted outlets were reaching the desired population.
- CSW salespersons accounted for 19% of total social marketing sales in Cameroon (1.1 million condoms); CSW-reported condom use in the last week rose from 46% in 1989 to 73% in 1991; male bar patrons reported use increased from 54% to 75%.
- Significant sales revenues were generated to offset costs. In Burkina Faso \$136,000, or 9% of program costs, was generated from sales.
- The Brazil CSM program sold only 2,300 condoms in a six week period, far short of its goal of 1.0 million over a 12 month period. The targeted component was delayed because the broader CSM program was not firmly established.

- The first NGO trained in CSM in Haiti sold more than 135,000 condoms in two months.
- A project in the Eastern Caribbean increased condom sales in community-based outlets by making condoms more attractive to potential customers through a lifestyle campaign and improving the display and promotion of condoms through the creation of point-of-purchase materials. The campaign did not promote a specific brand.

STD Control

AIDSTECH assessed STD services in seven countries, evaluating whether the services had:

- Convenient locations.
- Clearly displayed signs directing patients to the clinic.
- Convenient operating hours for persons likely to use the clinic; including evening hours.
- Privacy while waiting and during intake and examination.
- Comfortable waiting areas, supplied with STD educational materials.
- Patient flow requiring minimal waiting time and allowing efficient use of existing staff resources.

These criteria are particularly relevant to STD services because of the social stigma often attached to STD problems.

- AIDSTECH supported upgrading of STD diagnosis and treatment in 450 clinics in 11 countries (see Table 6); 788 health care professionals and clinic outreach staff were trained.
- AIDSTECH assisted in the development of treatment algorithms in Burkina Faso, the Eastern Caribbean and Guatemala; STD surveillance data were used to develop the algorithms and health care professionals were trained in their use. In Tanzania, AIDSTECH supported research that led to revision of the Ministry of Health (MOH) algorithms.
- Pharmacists in the Eastern Caribbean, Mexico and Tanzania were trained in STD prevention and/or management because they are often consulted by men with STDs.

Table 6

**AIDSTECH-supported STD Control Activities
1987-1992**

	Upgrading STD Diagnosis and Treatment		Adapting/ Training in Use of Treatment Algorithms	Social Marketing of STD Treatments
	# of Clinics	Staff Trained		
AFRICA				
Burkina Faso	1	30	■	
Burundi	1	38		
Cameroon			■	■
Kenya	12	60	■	
Niger	1	12	■	
Nigeria	1	2		
Tanzania	4	22	■	
Zimbabwe	3	10		
LATIN AMERICA/ CARIBBEAN				
Dominican Rep.	5	8	■	
E. Caribbean	4	121	■	
El Salvador	3	14		
Guatemala	4	32	■	
Haiti	3	55	■	
ASIA/NEAR EAST				
Philippines	13	285		
Thailand	395	99		
TOTAL	450	788		

Lessons Learned

Interpersonal Behavior Change Interventions

- Primary risk groups can be identified and targeted, are very receptive to targeted interventions, and will change risk behaviors.
- Peer education is an acceptable and successful approach to reaching CSWs; systems must provide continuing opportunities to engage and train new individuals who desire to enter the program and to replace those who move to other areas.
- Despite the common denominator of sex for money or items of monetary value, types of CSWs and types of commercial sex differ widely within and across societies.
- CSWs may not regard sex with their regular partners (especially boyfriends) as high risk and often will not use condoms with them.
- Clients of CSWs also need to be reached in order for a program to be successful; however, client behaviors are much more difficult to change, and probably require that social norms must change for clients.
- Women's ability to negotiate safer sex can be enhanced through efforts to enlist the support of men in AIDS prevention programs.
- Face-to-face communication is a powerful means of affecting behavior change.
- Programs must change social norms to support low-risk sexual behaviors.
- Intervention programs built into existing institutional structures are less costly to initiate and maintain; peer-based education programs may be more costly than those based in clinics.
- Institution-based programs (e.g., worksites, prisons, etc.) must have the support of the institutional decision-makers in order to be successful.
- Availability of and accessibility to condoms are often major problems in Africa.

Social Marketing of Condoms

- Targeted condom social marketing activities can be "piggy-backed" onto well-established condom social marketing projects that are reaching the general population. If the general population program is not well established (as in Brazil), targeted programs may be difficult to initiate and other distribution systems must be found.

- Establishments where commercial sex occurs or is negotiated, such as hotels and bar/nightclubs, can function effectively as condom sales outlets.
- Peer education and CSM can complement each other. CSWs can function effectively as condom salespersons.
- CSM projects need not rely only on advertising through the mass media. Promotional activities conducted at markets and other public gathering places are also effective.
- NGOs can be successful as condom marketers, ensuring that condoms reach the targeted high-risk populations with whom they work.
- It is not always necessary to focus on a specific brand or type of condom; condoms in general can be promoted.

STD Control

- Many men go to pharmacies for STD treatment. Upgrading the skills of pharmacy workers in diagnosis and treatment by algorithm training is a low cost way of improving the existing system and can lead to improved use of appropriate drugs.
- Although AIDSTECH worked with programs to determine the etiology of STDs, in some cases enough prevalence data were probably already available to allow syndrome-based diagnosis.

Recommendations

- **Challenges for future intervention programs include developing models that:**
 - **Change perceived social norms.**
 - **Change the image of the condom to show power, status, popularity and sexuality; enjoyment, pleasure and satisfaction should be emphasized.**
 - **Motivate men and adolescents to increase condom use or produce a reduction in numbers of high-risk partners.**
 - **Motivate men in industries where a large percentage of men are clients of CSWs to reduce risk behaviors.**
 - **Motivate bisexual men who do not self-identify as gay to reduce risk behaviors.**

continued

- Strategies to assure consistent availability of condoms within projects must be developed.
- Diagnostic and treatment protocols may be national standards. Modification of clinical practice may require cooperation of the medical associations and Ministry of Health.
- For clinic-based programs, two key issues need to be addressed:
 - Clinic staff tend to be overworked; as a result, any interventions must take the overall workload into account.
 - When working with marginalized populations (e.g., CSWs, MSM), training should be provided for health care providers to sensitize them to the needs of these distinct population subgroups.
- Determine ways, such as economic impact studies, to convince workplace managers that AIDS prevention is a good long-term investment.
- CSM programs for HIV/AIDS prevention may be most cost-effective in medium to high prevalence countries where a large percentage of the population at-risk provides economies of scale. Other distribution systems may be more cost effective in low to medium prevalence countries.
- The evaluation of the social marketing of STD treatments should continue.
- Research should determine if STDs that do not cause genital ulcers (chlamydia, gonorrhea, trichomoniasis) enhance HIV transmission significantly; if they do, treating them could be more important than treating genital ulcers because non-ulcerative STDs are more common.
- The efficacy of selective, periodic treatment of genital ulcer STDs in targeted high-risk populations should be evaluated; chancroid and syphilis appear to be the most promising candidates.

Program Highlight

Commercial Sex Workers as Prevention Educators in Zimbabwe

HIV infection in Zimbabwe was alarmingly high among selected urban groups by 1991. Data revealed prevalence of 52% among patients at STD clinics and 18% among women visiting antenatal clinics in Harare. Prevalence may be as high as 50% among the military and 30% among workers in some industries. The commercial sex industry in Zimbabwe is large, mobile and most active in bars where alcohol consumption negatively affects behavior and decision-making. In Bulawayo, Zimbabwe's second largest city, clients of CSWs represent a cross-section of society. Across the board, most men were resistant to condom use. In October 1989, the Bulawayo City Council Health Services and AIDSTECH initiated an integrated community outreach and peer education program to prevent HIV infection among sexually vulnerable groups of people.

Project Description

Peer educators were selected from the CSW community and received continuous training in three-hour meetings held each week during the 36 months of the project. In addition to providing training and disseminating promotional materials, these weekly meetings offered the educators time to plan activities, document and review accomplishments, develop and rehearse drama presentations and build morale. CSWs working as educators were provided with a financial incentive to participate in the project. This included free medical treatment and condoms, honoraria and transportation allowances. As the project grew, training was also provided for other potential community educators, including bar and hotel personnel, security guards, the police and municipal employees.

In an average month, more than 180 monthly community-based education and prevention meetings were held in private homes, group residences, hotels, bars, nightclubs, military bases, other workplaces and STD clinics. CSWs, their clients, STD patients and the general public attended these meetings, which often included a performance by one of the five drama groups formed by peer educators to deliver AIDS prevention messages.

Accomplishments

80 educators were trained and more than 7,500 AIDS prevention meetings were held in and around Bulawayo, targeting individuals at increased risk for HIV infection.

More than three million condoms were distributed over a 30-month period, mostly in beergardens, hotels and STD clinics.

During the life of the project, reports of always using condoms during commercial sex increased among CSWs from 5% to 48% and among clients from 25% to 45%. Reports of condom use for the most recent commercial sex act increased among CSWs from 18% to 84% and among clients from 40% to 49%.

By 1992, the program had reached a significant percentage of the targeted populations:

Targeted Group	Estimated Total Population	% Reached
CSWs	14,000	80%
Clients	30,000	66%
STD Patients	30,000	50%
Women in community	30,000	43%
Men in community	100,000	80%

Lessons Learned

A financial incentive may be necessary to ensure the long-term commitment of peer educators who are eager to become prevention educators, but who are fully dependent upon commercial sex for their economic sustenance.

The most effective peer educators among the CSW community are women who are well-known by their peers and elected by them to serve as educators. In venues where familiarity and recognition are less likely, project managers may need to identify and enroll educators after careful screening of their potential as leaders.

Training provided to peer educators must be practical, field oriented and frequently reinforced. Field supervision is essential, especially at the beginning of the project.

Program Highlight

Reaching Men at High Risk of HIV Infection in Tanzania

Most of the goods distributed throughout East Africa are transported by truck along well-traveled routes. Truck stops along these routes offer rest and relaxation for the truckers and this often includes casual sex. Typically, a larger truck stop community has about ten bars and seven guest houses and hotels, and occasionally, brothels. An average of 80 men per night seek lodging. Studies of barmaids and CSWs at truck stops in East Africa show rates of HIV infection ranging from 44% to 86%. Professional drivers are also at risk, with HIV rates of 35% in one study of East African truck drivers. The African Medical and Research Foundation (AMREF), with AIDSTECH support, worked to provide AIDS education and condoms to truckers, their assistants and women working as CSWs at major truck stop communities, along one of Tanzania's major transport routes.

Project Description

The project reached two trucking companies in Dar es Salaam and seven truck stops along the Tanzania-Zambia highway. Motivational meetings were held at the companies. Films and videos about AIDS were shown. Posters with HIV awareness messages were placed in each department. Wooden condom dispensers were placed throughout the companies and resupplied by the cleaning crew when they resupplied toilet paper and soap. Dispensers became a part of the corporate culture, expanding from the original sites (the truckers' compounds) to include every department and executive office.

At each truck stop, local trained educators discussed AIDS with truckers and CSWs and demonstrated correct condom use. Condoms with instructional materials and posters with HIV awareness messages were placed in bars, at reception desks and in hotel rooms. The educators were assertive in overcoming resistance of the target group. Flora, a typical educator, was often seen with the drivers. One driver was reluctant to place a four-foot sticker stating that "Condoms Prevent AIDS" on the windshield of his rig. Flora told him, "This is not a joke. I have just put a sticker on that police vehicle over there. How can you not agree to a sticker when the police have them on their official vehicles." The driver accepted the sticker and is now carrying the message from Dar es Salaam through Zambia to Zaire.

Accomplishments

1,500 bars, hotels and guest house rooms were equipped with posters illustrating correct condom use; 540 trucks were equipped with large "CONDOMS PREVENT AIDS" windshield stickers; 50,000 booklets and leaflets and 13,000 condom stickers for cars were disseminated at project sites.

25 peer educators, including truck drivers, mechanics, barmaids and hotel clerks were trained; more than 50,000 educational contacts were made.

More than 5,800,000 condoms were distributed over 30 months.

Drivers are now reluctant to stay in hotels not supplying condoms, and women increasingly demand condom use from their sex partners; reported always use of condoms with the last five occasional partners rose from 21% of men and 19% of women at baseline to 45% of men and 51% of women at follow-up.

Lessons Learned

Setting up and sustaining a viable condom distribution system was difficult in a country where condom distribution had generally been controlled by medical and paramedical personnel at district hospitals.

Men can be receptive to AIDS prevention messages when approached where they work or where they gather for social reasons. Educational messages concerning the reduction in the number of partners and monogamy were ineffective with truckers and women working as CSWs; however, messages and training to promote correct condom use were effective.

Program Highlight

Condom-only Brothels Help Curb the Spread of HIV in Thailand

In 1988, the reported level of HIV infection in Thailand was low for most high-risk populations. Only IVDUs evidenced significant levels of infection. However, the infection spread quickly from this group to CSWs and then to their clients. As CSWs in some brothels averaged about four sexual contacts a night, often without the protection of a condom, the large and active commercial sex industry became a major threat to the control of HIV throughout the country.

While much intervention research focuses on the education of CSWs, there has been less research on ways to encourage brothel managers to implement "condom-only" policies. Various types of "condom-only" policies had been implemented by Thai officials in several towns and provinces, with varying success. AIDSTECH'S "condom-only" program supported the expansion of two promising initiatives focused on education of brothel managers and owners, and was designed to maximize the use of condoms in provinces where the levels of HIV infection are disproportionately high in relation to the total population.

Project Description

One phase of the program was implemented in the town of Khon Kaen, where studies revealed that condom use varied widely among CSWs in all but two brothels, in which the female managers, or mamasans, had implemented a "condom-only" policy. All clients of the brothels were required to use condoms; their money was refunded and they were asked to leave if they refused to accept the policy. The project provided HIV/AIDS prevention training to the mamasans of all 25 brothels in Khon Kaen with the goal of significantly increasing the use of condoms by CSWs working in these brothels. Training sessions were important because mamasans are generally senior and respected individuals within their communities and are able to educate and influence the women working in their establishments. Educational materials were developed, including a video and a slide show presentation. To monitor the project, data were collected from the mamasans, STD clinics, and other appropriate sources about the number of clients received, the number of sexual contacts made with and without condom protection, the rate of STD and HIV infection, and the reactions of clients to required condom use. Condom use was further validated by participant observers posing as resistant clients.

The second section of the project was to expand the "condom-only" initiative implemented in the province of Ratburi to seven other provinces. This program model, developed by provincial health and political officials, decreed all brothels in a province "condom-only," and depended on cooperation among the provincial governor, law enforcement officials and brothels owners. Public health officials provided condoms, free or low-cost STD exams, and HIV/STD education to the CSWs. Adherence to the policy was validated by methods similar to those used in Khon Kaen.

Accomplishments

In Khon Kaen, the percentage of brothels reporting 100% condom use increased from 21% at project start up to 61% at six months. In those instances where participant observers provided documentation, 100% condom use increased from 59% to 71% during the same period. The prevalence of HIV among CSWs in the town decreased from 2.8% to 2.3% during a six month period. However, levels of gonorrhea did not decrease, suggesting that either condom use is overreported, a small group of core transmitters are responsible for the infection, or non-paying partners are infecting CSWs. STD rates among male patients at the provincial STD clinic did fall during the same period from 4.5% to 1.3%.

The Ratburi project was successfully replicated in seven additional central provinces. In these provinces, the percentage of brothels reporting 100% condom use increased from 21% at project start up to 81% after two months. In one province, reported monthly condom distribution increased more than 200%, from 15,000 to 50,000, and the prevalence of STDs dropped from 13% to 0.5%.

Lessons Learned

Interventions that combine the interests and meet the needs of government policy-makers, law enforcement officials and the commercial sector can be efficiently replicated. Brothel managers are more likely to implement condom only policies when they have the support of the government.

Program Highlight

Development of an STD Clinic to Serve the Urban Poor in Haiti

Gonaïves is a coastal town about 100 miles north of Port-au-Prince, the capital of Haiti. The city has a population of 50,000 people, most of whom live in rapidly growing urban slums. In 1988, an HIV survey performed by Centres pour le Développement et la Santé (CDS) indicated that 10% of the adult population served by CDS was seropositive and that the primary route of HIV transmission in this population is heterosexual intercourse.

In an effort to slow the further spread of the AIDS epidemic in Gonaïves, CDS, with assistance from AIDSTECH, improved STD clinical services at CDS's health care centers. Since STDs are an independent risk factor in the transmission of HIV and the mode of transmission is the same, primary prevention and treatment of one will help prevent the spread of the other.

Project Description

This 21-month project, designed to improve both HIV/STD surveillance and the clinical diagnosis and treatment of STDs, initially entailed the renovation of a free-standing STD clinic where clinical and educational activities took place. However, after three months an evaluation of the clinic suggested that low attendance was caused by the community's reluctance to use the facilities. STD activities were subsequently integrated into primary health care centers, and outreach activities, including condom promotion and distribution, were designed to target high-risk neighborhoods in Gonaïves.

Accomplishments

The original site for the STD clinic was renovated but it became clear that STD services would be more effective and acceptable once integrated into a primary health care center. This move served to reduce the fear of stigmatization that accompanied a visit to an STD clinic, and clinic attendance increased by 100%.

STD treatment was positioned as an essential primary health care concern. Clinic-based initiatives included the development of standardized procedures and protocols for the diagnosis and treatment of STDs, a reorganization of services and the establishment of pre- and post-test counseling sessions for clinic patients. Laboratory protocols were developed. Surveillance, diagnosis and treatment of STDs improved.

A community outreach program was developed, a team of educators from the community was formed, and educational materials were prepared and produced. The team members regularly visited bars, guest houses, community groups, and individual homes in seven neighborhoods in Gonaïves providing prevention education and encouraging condom use and STD clinic visits. The outreach team participated in 110 group education sessions and 2,900 home visits, and made 8,600 contacts, resulting in 574 new clinic patients. Of these new patients, five tested positive for HIV, two of whom were diagnosed with AIDS.

The overall success of the project indicates that it could be used as a model for other STD services in the area.

Lessons Learned

Community-based STD services may be most effective when they are combined with an education program and integrated into existing health care facilities.

More people at risk are reached and educated about prevention by educators working in the community than by clinic staff or educators working solely within the STD clinic. Educators must be assured of adequate supplies and support materials and will benefit from regular refresher courses.

Over 80% of the STD clinic patients were women, which confirmed earlier findings that identified women as the principal users of health services for themselves and their families. Continued efforts are needed to find ways to improve health-seeking behaviors among men.

Program Highlight

Condoms and the Good Life Promoted in the Eastern Caribbean

In 1989, Trinidad, Tobago and Barbados were experiencing some of the world's highest HIV prevalence, based on cases per population. At the same time, other Eastern Caribbean countries were expressing concern about escalating infection rates. There was a growing demand to identify ways to increase condom use as a means of protection. Condoms were traditionally distributed through clinics and shops that closed by 5:00 p.m., thereby limiting the opportunity to purchase condoms at the end of the work day. Although community-based distribution (CBD) programs in some countries were working to expand sales outlets to include nontraditional venues, such as nightclubs, bars, rum shops and discos, their efforts lacked marketing expertise. Retailers were expressing a need for more effective promotional displays to spur sales. AIDSTECH worked with the Caribbean Family Planning Affiliation and the Dominican Family Planning Association's CBD network to implement a campaign to increase condom use for prevention of HIV infection. The campaign was designed to be a low cost way to promote condoms and to increase visibility and sales.

Project Description

A unifying theme was defined for the project: to promote condom use as a desirable component of the good life everyone hopes to experience. The condom was presented as a desirable and essential lifestyle purchase and one that was socially acceptable and relevant to all sexually active people. The campaign set the stage for further education and information about condoms throughout the society.

Medical and health themes as well as negative images were avoided in the campaign. Instead, the theme was lively, upbeat, fun and comfortable. Condoms were presented as a familiar product in familiar scenes from everyday life. For example, a poster developed for the campaign featured a familiar scene -- happy people relaxing at the end of the day on the beach. The poster's tag line was, "Condoms ... Because You Care." The poster was designed to encourage people to integrate condom use into their everyday lives.

The campaign symbol used to unify the campaign and to identify shops and bars providing condoms for sale was a designer graphic rendition of a packaged condom printed in pink, green and blue: the bright colors of the Caribbean. Participating retailers displayed the symbol to signal that condoms were available. The CBD outlets selling condoms were provided with durable, attractive and colorful condom display boxes that were easy for consumers to identify and easy for retailers to assemble and position. Staff at outlets were provided with "Condoms ... Because You Care" buttons to wear.

Accomplishments

Promotional materials were distributed to 30 outlets in November 1990. Within six months, 15 of these outlets had experienced an 83% growth in condom sales, and the number of outlets selling condoms increased by 15%.

Focus groups with retailers and consumers indicated very high message recognition for all aspects of the campaign within one year of launch.

During the first year of the campaign, shop owners indicated not only that condom sales had increased but also that discussions among consumers about condoms had increased noticeably. Consumers also responded favorably to the display boxes.

The campaign contributed significantly to a breakdown in inhibitions about openly discussing condoms and HIV/AIDS. Before the campaign launch, the Dominica Planned Parenthood Association was nearly closed for mentioning the word "condom" on a radio talk show; a year after the campaign, local radio stations country-wide were broadcasting condom information and promotional advertising.

Following the campaign launch and the favorable popular response, the Dominica Ministry of Health requested that promotional materials be distributed to all government health clinics.

Lessons Learned

Condoms can be mass marketed successfully in the same way most mass market consumer goods are marketed, using positive images and a desirable lifestyle promotional format.

Brand loyalty need not be a significant issue in condom promotion campaigns. The condom as a desirable product can be promoted effectively without developing any specific brand name recognition.

Prevention of HIV Transmission through Blood Transfusions

General Strategy

The second priority of AIDSTECH was to prevent the transmission of HIV through transfused blood. Accounting for up to 10% of AIDS cases worldwide, this is the most efficient mode of transmission. The frequency of HIV infection through blood transfusions depends on the prevalence of HIV in the population, the number of transfusions performed, and measures existing for excluding the transfusion of contaminated blood. AIDSTECH's strategy for ensuring a safe blood supply included:

- Strengthening blood screening programs.
- Improving blood transfusion practices.
- Encouraging free and voluntary blood donations by persons not at risk of HIV infection.

See Chart 5 for an overview of AIDSTECH activities in this area.

Program Summary

Strengthening Blood Screening Programs

Screening of blood for transfusion is usually the first concrete action a government takes in AIDS control. This is largely due to the fact that proven technologies exist, immediate action is possible on the basis of results, and the assays are not of insurmountable complexity. By responding to countries' requests for assistance in setting up a system for screening blood, AIDSTECH not only helped those countries ensure safer blood supplies, but established working relationships that allowed initiation of other intervention programs.

A comprehensive program to secure the blood supply includes assessment of needs, program planning, procurement of supplies and equipment, training in HIV testing, development of a quality assurance (QA) program, cost-effectiveness analysis, and planning for the sustainability of programs. AIDSTECH programs under this strategy included:

Technical Assistance

Technical assistance was provided to assess the needs of a country and to help formulate a plan for an effective and sustainable program for an adequate and safe blood supply. Technical advice was given on an individualized basis as well as in the form of general guidelines. Emphasis was placed on developing HIV testing networks which could easily support quality assurance and continuing education programs.

Chart 5

AIDSTECH-supported Activities for the Prevention of Transmission of HIV Through Blood, 1987-1992

	Technical Assistance/ Needs Assessment	Equipment & Supplies	Training	Applied Research	Quality Assurance	Improvement of Blood Transfusion Practices	Improvement in Blood Donor Recruitment and Selection
AFRICA							
Burkina Faso	■	■	■		■		
Burundi		■	■				
Cameroon	■	■	■	■	■	■	
Ghana	■	■	■	■			
Kenya	■	■	■	■	■	■	■
Malawi	■		■				■
Senegal	■	■	■	■			
Tanzania	■						
Uganda	■						
Zaire		■	■	■			
Zimbabwe		■	■				
LATIN AMERICA/ CARIBBEAN							
Bolivia	■	■	■	■	■		
Dominican Rep.	■	■		■	■	■	
E. Caribbean	■	■	■	■		■	
Ecuador	■	■	■	■	■		
El Salvador	■	■	■				
Honduras	■						
Peru	■	■					
ASIA/NEAR EAST							
Philippines	■	■	■	■			

Equipment and Supplies

AIDSTECH provided laboratory equipment and supplies for HIV testing to programs to upgrade laboratories. Every effort was made to provide equipment which was compatible with other systems within the country and which could be maintained within the country. Commodity support often helped meet short-term needs. AIDSTECH did not provide long-term commodity support, but rather assisted in developing self-sustaining programs or coordinating other donor support.

Training

AIDSTECH training was directed at two principal audiences: laboratory technicians and health care providers. Since it was not feasible for AIDSTECH to provide individual training for each member of the target audience, AIDSTECH adopted a "train the trainers" approach, training those in supervisory positions to initiate in-service training to those they supervise. AIDSTECH's main focus was to assist trainees to acquire, enhance or maintain skills, rather than to concentrate on knowledge transfer. Thus, training was competency-based, and evaluation of the training would ultimately be made on the basis of the trainees' subsequent performances. AIDSTECH trained laboratory technicians in HIV testing techniques, laboratory safety, quality control and laboratory management.

Applied Research

AIDSTECH conducted multi-center research projects to identify and validate appropriate cost-effective technology and procedures for HIV screening.

- A multi-center field trial in selected sites in Ghana, Kenya, Senegal and Zaire evaluated an alternative testing strategy using three rapid screening assays. The sensitivity, specificity, negative predictive value, positive predictive value and cost of the alternative strategy using two rapid tests in sequence was determined. HIVCHEK was evaluated as a screening test compared with the ELISA test; SERODIA-HIV and RETROCELL were evaluated as confirmatory tests compared with the Western blot. Blood screening using ELISA and Western blot tests is costly and requires a high volume to justify the expense of the equipment and training. Many small hospitals in rural areas of the developing world do not have the necessary volume of blood transfusions, but do need quick, simple, less expensive and accurate testing strategies to screen and confirm blood for HIV antibodies, often on an emergency basis.
- A multi-center evaluation of serum pooling was conducted to assess HIV testing as a cost saving measure in the Dominican Republic, Ecuador, Trinidad and the Philippines. The studies determined whether sensitivity and specificity of the tests were compromised when sera were pooled, and evaluated possible cost savings.

Quality Assurance

QA programs for HIV testing on a national level ensured delivery of accurate test results and safe blood supplies. Establishing national QA programs was especially important with the new and rapidly changing technologies in HIV testing. QA programs served as important evaluation tools following training programs and initiation of new techniques. Expansion of such a program to include blood transfusion practices in general could lead to reduced transmission of other blood borne diseases as well as HIV and could provide valuable information on the safety of the blood supply. The AIDSTECH-supported QA programs included assistance to countries to:

- Develop a national plan for QA.
- Strengthen quality control practices.
- Distribute proficiency panels.
- Establish regulatory inspection visits.
- Train a core staff of professionals.
- Develop a data management system.
- Examine costs of the program as well as evaluate its effectiveness.

Information Dissemination

AIDSTECH established an information dissemination program aimed toward laboratory personnel with the intent of bringing them up-to-date technical information on the rapidly changing field of HIV diagnostics and safe blood supplies. This included regular mailings of scientific articles and guidelines worldwide as well as publication and distribution of HIV Testing & Quality Control: A Guide for Laboratory Personnel in English, French and Spanish. This book offered practical advice on important issues of quality assurance, equipment maintenance, specimen collection and processing, and laboratory safety.

Improving Blood Transfusion Practices

Measures in addition to screening tests are needed to assure efficient, effective, and sustainable programs for preventing HIV transmission through blood. Improvement of transfusion systems and practices can also decrease HIV transmission through blood. Current transfusion practices, the adequacy of the blood supply and the risks of blood transfusion must be assessed as a first step in determining which improvements should be made.

The activities implemented under this strategy included:

- Developing guidelines for appropriate blood transfusions.
- Providing technical assistance for developing alternative, cost effective strategies for blood banking systems.

Appropriate Blood Transfusion

A first concern must be the reduction of the number of blood transfusions performed unnecessarily or inappropriately. If this were achieved, the demand for blood would decrease dramatically, thus lightening the burden placed on the screening program, as well as reducing the risk of transmission of infectious agents. AIDSTECH provided assistance to the National AIDS Control Program in Cameroon and the National Public Health Laboratory Service in Kenya to establish guidelines for appropriate blood transfusions in these countries. These guidelines are in the approval process in Kenya and have been distributed throughout Cameroon.

Providing Alternative Strategies for Blood Banking Systems

A second concern must be the improvement of blood banking systems so that risks can be reduced in a cost-effective way. AIDSTECH provided guidance to the Ministries of Health in the Dominican Republic and Trinidad on overcoming the problem of inadequate blood supplies and supported the evaluation of public and commercial blood banks in the Philippines and the Dominican Republic. The cost effectiveness of the programs for preventing HIV transmission in the three countries was assessed.

Improving Blood Donor Recruitment and Selection

Blood donor recruitment programs were strengthened to meet the increased demand for safe blood.

Efforts were made to identify risk behaviors in blood donors, to discourage those practicing such behaviors from donating blood, and to increase voluntary blood donations by safe donors.

AIDSTECH activities under this strategy included:

- Surveys of donors conducted in collaboration with the Kenya National Blood Bank to examine risk factors and the development of guidelines for donor deferral.
- Surveys and focus groups with donors and non-donors in Malawi conducted by the Malawi Red Cross Society to determine attitudes toward blood donation that could be used to develop strategies to recruit the safest donors and to increase voluntary blood donations.

Accomplishments

Strengthening Blood Screening Programs

- Technical assistance/needs assessments were provided for 16 countries (see Chart 5).
- Equipment and reagents were provided to 32 programs in 17 countries (see Table 7).
- 554 laboratory personnel were trained as trainers in HIV testing, proficiency testing, validation testing, STD testing and quality assurance in 14 countries to provide training to others (see Table 8).
- Studies in four countries demonstrated that the sensitivity and specificity of using a combination of HIVCHEK as a screening test and an agglutination test as a supplemented test was high and a cost saving of 80% could be demonstrated using this strategy over ELISA-Western blot.
- Completed pooling studies in four countries using several different commercial test kits, which provided the following results:
 - In the Dominican Republic, pooling of ten sera resulted in a decrease in both sensitivity and specificity of testing; it was not recommended for screening blood for transfusion or for HIV diagnosis, but is satisfactory for surveillance studies.
 - In the Eastern Caribbean, sensitivity was slightly decreased by pooling of five sera; considerable laboratory time was saved by pooling.
 - In Ecuador, pooling three sera did not decrease sensitivity and specificity and provided a 67% cost savings on reagents and 64% cost savings on staff time.
 - In the Philippines, pooling of five and ten sera did not decrease sensitivity and specificity of three tests; the SERODIA-HIV agglutination test was used to pool up to 15 samples successfully and was the least expensive.
- Regional QA workshops in Kenya and Senegal conducted in collaboration with WHO provided participants with the tools necessary to plan and implement a national program for quality assurance, and to write a proposal to secure funding for such a program.
- A directory of manufacturers for HIV/AIDS diagnostics was compiled and distributed.
- Information packages were distributed to 100 laboratory scientists.

Table 7
Laboratory Equipment & Supplies Provided Through AIDSTECH
1987-1992

	# HIV Tests	# STD Tests	Equipment	*Lab Supplies	**Misc. Supplies
AFRICA					
Burkina Faso	13,604	500		■	■
Burundi	12,264				■
Cameroon	46,658	39,260	(1) centrifuge (1) horizontal rotor	■	■
Ghana	13,164	7,224	(1) ELISA reader (1) handwash system (1) centrifuge (1) 220V incubator (1) 220V binocular microscope	■	■
Kenya	9,989			■	■
Nigeria	350	120	(1) binocular microscope	■	■
Senegal	7,170		(2) spectrophotometers (1) incubator	■	■
Zaire	7,836			■	■
Zimbabwe	20,000		(1) fluorescent microscope (1) microscope system (4) incubators (2) compressors (3) centrifuges (1) horizontal rotors (3) ELISA readers (1) Quikwash station (2) Uniscan II		
LATIN AMERICA/ CARIBBEAN					
Bolivia	2,252		(2) eight channel repetitive syringe dispenser	■	■
Dominican Rep.	9,161		(2) binocular microscopes (3) centrifuges (1) microcentrifuge (2) bath boekels (3) autoclaves (3) incubators (1) spectrophotometer	■	■
E. Caribbean	400	1,720		■	■
Ecuador	500		(1) orbital shaker	■	■
El Salvador	1,494		(2) centrifuges	■	
Jamaica		500	(1) microscope (1) chest freezer (2) epi-condenser	■	
Peru				■	
ASIA/ NEAR EAST					
Philippines		5,800	(3) ELISA readers (3) strip washers (1) chest freezer	■	■
TOTAL WORLD	144,842	55,124			

* Lab supplies include chemstrips, pipettes, vials, small equipment (<\$1,000), slides, culture media, antibiotic test discs, etc.

** Miscellaneous supplies include coolers, thermometers, plastic gloves, etc.

Table 8
Summary of AIDSTECH Training Activities
Blood/Laboratory Unit
1987-1992

Country	Date	Target Group	Training	# Trained
Bolivia	8/90	Lab Managers & Technicians	HIV testing: Rapid, ELISA, Confirmatory	32
	8/90	Lab Managers & Technicians	HIV testing: Rapid, ELISA, Confirmatory	24
	8/90	Lab Managers & Technicians	HIV testing: Rapid, Confirmatory	32
	8/90	Lab Managers & Technicians	HIV testing: Rapid, Supplementary & Confirmatory	24
Burkina Faso	1/89	Lab Technicians	HIV testing: Rapid, ELISA, Confirmatory, QA	8
Burundi	10/88	Lab Technicians	HIV testing: Rapid, ELISA Confirmatory	22
	1/90	Lab Technicians	HIV testing: Filter Paper Collection	21
Cameroon	5/89	Lab Technicians	HIV testing: Rapid	20
	10/90	Regional Inspectors	QA in HIV testing	10
Dominican Republic	3/92	Lab Technicians	Quality Assurance	8
Ecuador	1/89	Lab Technicians	HIV testing: Rapid, ELISA, Confirmatory	39
	1/90	Lab Managers & Technicians	HIV testing: Confirmatory	9
El Salvador	9/90	Lab Managers & Technicians	HIV testing: Rapid, ELISA, & Supplementary	29
	10/90	Lab Managers	HIV testing: Supplementary & Confirmatory	9
	2/92	Lab Technicians	STD/HIV Diagnostics	2
	2/92	Social Workers	Counseling: Pre- & Post- HIV/STD testing	8
Ghana	1/89	Lab Technicians	HIV testing: Rapid	18
Kenya	10/88	Lab Technicians	HIV testing: Rapid	18
	10/90	Lab Technicians	HIV testing: PATH HIV-1 Dipstick	7
	10/91	Lab Managers	QA in HIV testing	14
Malawi	12/87	Lab Technicians	HIV testing: Abbott Wellcozyme	20
Philippines	6/90	Lab Technicians	HIV testing	65
Senegal	10/88	Lab Technicians	HIV testing: Rapid	18
	12/91	Lab Managers	QA in HIV testing	6
Zaire	10/88	Lab Technicians	HIV testing: Rapid	18
Zimbabwe	3/89	Lab Technicians	HIV testing: Rapid	20
	8/89	Senior & Supervisory MOH Nurses	Orientation & Training of Trainers in Disease Control Procedures	53
TOTAL				554

Improving Blood Transfusion Practices

- A study in Cameroon showed that patients received less than two units of blood on average, indicating that some transfusions were probably not needed. Guidelines for reducing unnecessary blood transfusions developed in Cameroon and Kenya included the following recommendations:
 - Blood should only be given to save lives.
 - Decisions should be based on both haemoglobin and clinical status; decisions should not be based on haemoglobin alone.
 - Clinically stable patients should not be transfused.

- Studies of the blood banking systems were completed in three countries; results showed that:
 - Blood demand could not be satisfied in 17% of the prescriptions in the Dominican Republic; insufficiencies of blood reserves were apparent. Even though the Red Cross is active, over half of the blood comes from paid donors.
 - In Trinidad, 40,000 to 50,000 units are needed each year, but only 15,000 are available. The shortage has resulted in surgery delays. Plans to increase the numbers of donors by 30,000 were suggested.
 - The blood supply in the Philippines is highly dependent on the commercial blood banking systems with paid donors, which supplies half of the transfused blood. Commercial blood banks were more cost-efficient than hospital blood banks because the volume of blood screened was larger and because they use their resources more carefully.

- Cost-benefit studies were completed in Trinidad, the Dominican Republic and the Philippines. Findings showed that:
 - HIV prevalence among blood donors in Trinidad is known to be 1.1%; in the Dominican Republic, 2.6%. In the Dominican Republic and Trinidad the benefits from HIV screening at blood banks are 2 to 11 times greater than the costs (3.2:1 in the Dominican Republic and 11.3:1 in Trinidad).
 - Results from the Philippines were inconclusive since current data indicate that HIV prevalence among blood donors is too low to be evaluated with certainty. However, further analysis indicated that at prevalence rates exceeding 0.3%, a positive benefit to cost ratio would result.

Improving Blood Donor Recruitment and Selection

- 657 volunteer blood donors were interviewed in Nairobi, Kenya and data were linked with their HIV test results. Four factors were shown to be useful in deferring donors:
 - Reported having sex with someone who pays or receives money for sex.
 - Has had genital ulcers during the past year.

- Has been treated for gonorrhoea during the past year.
 - Has had more than five injections during the last year.
- 110 donors would have been deferred before donation using these criteria; 19 of these donors would have tested positive for HIV. At a cost of \$30 to process one unit, \$570 would be saved by not processing these units. The safest voluntary blood donors were:
 - Females.
 - Students or those gainfully employed.
 - Young people, <20 years.
 - Residents of two areas in Nairobi.
- 469 donors and 1,026 non-donors were interviewed in Malawi; focus group data were used to supplement the surveys. Findings included:
 - 80% of blood donors in Malawi were friends or family of the recipients.
 - Females were significantly less likely to donate blood than males.
 - Non-donor resistance to blood donation included fear of the unknown (38%), fear of testing HIV-positive (20%) and fear of side effects (19%).
 - Respondents thought that the public should be made aware of the need for voluntary blood donation.
 - Guidelines were developed for blood donor recruitment.

Lessons Learned

- HIV testing is a technologically complex "task" which requires high levels of training and continuous monitoring to assure good results.
- Training of trainers is the most cost effective method for assuring the proper level of training for laboratory personnel.
- Rapid tests for HIV are often the most appropriate for use in laboratories that cannot support technologically complex equipment, complicated techniques, or have a low volume of testing.
- Two rapid, simple tests used in sequence is a valid, cost-effective option to the ELISA-Western blot sequence.
- Tests which detect antibodies to both HIV-1 and HIV-2 should be used for Senegal, Ghana and other countries where HIV-2 is prevalent.
- Pooling of blood specimens for HIV testing is a less expensive and practical means of blood screening in populations with low HIV prevalence rates and a high volume of testing. Pooling can be utilized without loss of sensitivity or specificity but the method must be carefully evaluated first.

- QA programs can provide important information on supply and demand for test reagents and equipment, and can be used to improve logistics support.
- Blood transfusions are frequently over prescribed in developing countries, increasing the risk of HIV transmission; guidelines for appropriate transfusion of blood and blood products are needed.
- The cost of preventing HIV infection through transfusion is low in relation to the likely cost of medical care for a person with AIDS.
- Deferring donors at high risk not only decreases the risk of transfusing HIV infected blood but reduces the cost by eliminating the cost of processing, testing and then destroying the HIV-positive units.
- Donor deferral may severely affect the already critical shortage of blood donors.
- Potential blood donors need to be given correct information in order to dispel fears and myths about blood donation.

Recommendations

- HIV testing should be incorporated into the curricula for lab technician training, and continuing education programs should be developed.
- Cost-effective testing strategies, such as use of two screening tests or pooling five or fewer serum samples should be considered to assure sustainability of programs.
- The general concept of QA should be incorporated into all testing programs at all levels.
- Technical assistance should be provided for development of logistical systems to ensure adequate supply of test reagents at all times to all levels of laboratories that screen blood for transfusion.
- Many of the lessons learned in the early phases of implementing HIV screening in developing countries can and should be applied to improving laboratory diagnostics and blood transfusion practices in general. They are most often standard elements of good laboratory practice and can be applied to diagnosis of other blood-borne infectious agents and to diagnose STDs.
- Strategies for recruiting voluntary blood donors at low risk of HIV infection are needed in the face of serious shortages of safe blood.

Program Highlight

Evaluation of Use of Rapid Assays in New Testing Strategy for Screening Blood

Transfusion of unscreened blood continues to be a major health problem in developing countries. Blood screening using ELISA and Western blot tests is costly and requires a high volume to justify the expense of the equipment and training. Many small hospitals in rural areas of the developing world do not have the necessary volume of blood transfusions, but do need quick, simple, less expensive and accurate testing strategies to screen and confirm blood for HIV antibodies, often on an emergency basis. A supplemental test based on a different principle than the screening test could be a less expensive alternative to Western blot.

Project Description

AIDSTECH worked with investigators in Ghana, Kenya and Senegal to evaluate an alternative testing strategy for screening blood. The HIVCHEK rapid test was used as a screening test and two agglutination tests (SERODIA-HIV and RETROCELL) were used as supplemental tests for antibodies to HIV-1.

Laboratory technicians were trained at each site to perform the tests. Upon completion of training, a panel of ten sera of known reactivity was tested by every technician on each assay, in order to assess their proficiency in performing the test. HIVCHEK results were compared with those from ELISA and Western blot. SERODIA-HIV and RETROCELL results were compared with Western blot results. Serum was obtained from blood donors, persons practicing high-risk behaviors and suspected AIDS cases.

Accomplishments

19 sites in the three countries participated in the evaluation, including blood transfusion centers, general clinic laboratories, and research laboratories serving as reference centers.

Tests results compared with Western blot showed:

- HIVCHEK exhibited high sensitivity (96%-100%) in field laboratories in Kenya, Senegal and Ghana, and performed well as a screening for antibodies to HIV-1.
- SERODIA-HIV and RETROCELL also exhibited high sensitivity, but relatively low specificity (SERODIA-HIV 78%-90%, RETROCELL 76%-88%) when evaluated as a supplemental test for antibodies to HIV-1.
- Antibody test kits are not equally efficient in detecting HIV-2 positive sera. Not all cases of HIV-2 infection can be detected with these assays.
- When used as a supplemental test, both SERODIA-HIV and RETROCELL were more sensitive than the ELISA test in use, resulting in fewer false negative results.

Costs of using the conventional testing algorithm (ELISA/Western blot) were compared with the proposed alternative algorithm (HIVCHEK/agglutination test); use of the alternative algorithm cost 80% less.

Lessons Learned

Under true field conditions these tests performed satisfactorily and are appropriate for use in screening blood donors, persons practicing high-risk behaviors and suspected AIDS cases.

Agglutination tests offer an alternative to Western blot in addition to their intended use as screening tests; however, the test specificity should be improved.

Agglutination tests could be performed in the same lab as the screening test, resulting in fewer delays in reporting.

The proposed alternative testing algorithm would result in greater cost savings for developing countries.

Assays employing antigens for HIV-1 and HIV-2 are needed for blood screening in countries where both are found.

Program Highlight

Making the Blood Supply Safe in Cameroon

Through the late 1980's, transfusion of contaminated blood and blood products was still contributing significantly to the spread of HIV in sub-Saharan Africa, with an estimated 10% of HIV infections occurring through this transmission mode. While blood transfusion is recognized as a life-saving procedure, it is not without risk. HIV testing was introduced in Cameroon in 1987. Technicians throughout the country were trained in HIV testing techniques with over 70 laboratories screening blood to support clinical diagnosis and surveillance of the epidemic. In an effort to improve the safety of its nation's blood supply, Cameroon's National AIDS Control Unit and AIDSTECH launched activities to: introduce HIV testing techniques in blood screening centers throughout the country, monitor the accuracy of that testing, and improve blood-transfusion practices.

Project Description

AIDSTECH trained technicians in the use of the HIVCHEK rapid assay, ELISA, and Western blot techniques, who in turn trained their colleagues nationwide. Provincial QA supervisors were trained in the capital Yaoundé, and they subsequently made periodic inspection visits to more than 50 laboratories. 40 laboratories participated in the proficiency testing program, in which each laboratory tested a panel of blood samples of known seropositivity. The program then was expanded nationwide. A week-long workshop was held in Yaounde, in which over 45 physicians and blood bank managers representing nine of Cameroon's ten provinces evaluated current transfusion practices and the prevalence of blood-borne infections. Guidelines for transfusions were then developed and standardized.

Accomplishments

20 laboratory technicians were trained in HIV testing to provide training to others; in turn they trained 130 technicians throughout Cameroon.

Evaluation of current blood transfusion practices showed:

- Blood components (plasma, crystalloids, colloids) were under utilized.
- 77% of all transfusions were in pediatric and OB/GYN services.
- Patients received on average less than two units of blood, indicating that transfusion was probably unnecessary.

Developed guidelines and recommendations for appropriate blood transfusions:

- Blood should only be given to save lives.
- Decisions should be based on both haemoglobin and clinical status; decisions should not be based on haemoglobin alone.
- Clinically stable patients should not be transfused.

Distributed guidelines for appropriate blood transfusions in Cameroon to all hospitals and physicians.

64 of the country's 85 laboratories participated in the QA program. The results of the proficiency and validation testing indicated that the blood supply in Cameroon could be safer: in 1991, all participating laboratories correctly identified the proficiency panel samples, but in 1992 eight laboratories did not correctly identify all positive samples.

Lessons Learned

The AIDS epidemic has helped to focus attention on the risks associated with blood transfusions and the need to ensure the quality of testing and to clarify the indications for blood transfusion.

QA is an important evaluation tool which identified several problems in supply logistics and the quality of testing in Cameroon. QA for HIV testing should continue and be extended to other lab activities. Quality of HIV testing should never be assumed; continued QA is a necessary component of Cameroon's HIV testing activities.

The National Blood Transfusion Service should be improved by establishing a system to recruit voluntary donors, promoting the use of blood components, distributing needed reagents and equipment throughout the country, and implementing educational programs about transfusion for lab technicians, clinicians, and the public.

Program Highlight

Attitudes of Malawians toward Blood Donation

Since more than 20% of the blood donated in Malawi tests positive for HIV antibodies, a critical need has developed to recruit safe blood donors in all districts of the country. However, more than 80% of the blood donors in Malawi are family and friends of the patients requiring transfusion, with the exception of Blantyre City where there are some blood donor service activities by the Malawi Red Cross Society and the Friends of Queen Elizabeth Central Hospital. An important strategy in Malawi is to recruit safe blood donors and to encourage their repeat and regular blood donations.

In an effort to improve the blood donor recruitment program in Malawi, the Red Cross Society investigated what motivates regular blood donors to donate blood, and why others do not donate blood. This project explored the myths and fears associated with donating blood and looked for creative incentives to encourage voluntary blood donation on a regular basis. The blood donor recruitment program is a joint effort of the Malawi Red Cross, the Ministry of Health, and the AIDS Secretariat. The results of this project should have a major impact on the educational materials to be developed and on the groups to target for blood donor campaigns.

Project Description

Visits were made to selected district hospitals, schools, markets, factories and offices to collect detailed data by structured questionnaires. Also, formal and informal discussions were held with blood donors and non-donors. These discussions provided valuable insight into what happens during blood donor recruitment and blood collection operations. Additionally, donors provided a great deal of valuable input regarding their likes and dislikes about donating blood and suggested various ways of approaching the problem differently.

Blood donors were asked why they donated blood and why they did not do so more often. The reason most often cited was the desire to help those in need, and to make a contribution. The second reason donors gave was because they were influenced by requests and appeals to save a relative or friend. The reasons most often given for resisting repeat donation were the fear of being discovered HIV positive, and breaches of confidentiality on the part of medical personnel.

Non-donors were asked why they were resistant to donating blood. The reason most often cited was fear of the unknown. Fear of physical pain, seeing blood, or that their blood would be sold were reasons given by approximately 76% of the non-donors. Rumors had spread in several villages, schools, and districts that the Malawi Red Cross Society and the government were selling blood to South Africa. People thought that the Society was being paid to recruit donors, and in turn withholding money from them. Donors felt "cheated," but since the blood collection teams were not aware of these attitudes, they did nothing to dispel them.

Accomplishments

1,495 people were interviewed in this project, 469 of whom were donors and 1,026 non-donors to identify factors that influence people to donate regularly and voluntarily, and fears and obstacles that prevent non-donors from giving blood.

Recommendations were developed for improving the blood donor recruitment program in Malawi.

Lessons Learned

Personnel should be appropriately trained to educate donors and non-donors regarding the facts of blood donation, and to dispel fears and myths that might deter potential donors.

A committee of the Blood Donor Recruitment and Promotion Program should be established in order to coordinate, monitor and assist in blood donation recruitment and promotion programs.

The Malawi Red Cross Society should increase its efforts to appeal to willing individuals and organizations to provide incentives for blood donation. With increased sponsorship from companies, repeat donors would be awarded cash prizes and/or trophies as a way of helping the Society improve its strategies to motivate donors.

Prevention of HIV Transmission through IV Drug Use

General Strategy

HIV transmission through the sharing of needles among IVDUs is less prevalent in the developing world than in the developed world. Thailand is an exception to this. HIV infection among IVDUs in Bangkok became evident in late 1987 when blood testing revealed about 1% seropositivity among 3,279 IVDUs tested. Only three months later, in March 1988, testing performed by the Bangkok Metropolitan Administration (BMA) revealed a seroprevalence of 16%. By September of the same year, seroprevalence for the group was measured at 43%. HIV infected IVDUs were identified as a core transmitter group that could easily infect not only other IVDUs but also spouses and low-fee CSWs. AIDSTECH developed a general strategy to prevent the spread of HIV among IVDUs which included:

- Changing drug use practices so that drug use is less risky.
- Emphasizing the prevention of sexual transmission from IVDUs to their partners.

HIV and AIDS information conveyed to IVDUs was interspersed with three critical messages:

- IVDUs should be encouraged to stop using drugs.
- If the IVDU cannot stop using drugs, they should not share needles.
- If it was necessary to share needles, they should disinfect needles and syringes with bleach.

Condom use was encouraged to protect against sexual transmission.

Program Summary

AIDSTECH supported two projects with organizations that had previous experience working with IVDUs to determine the most effective ways of encouraging risk reduction behavior among IVDUs:

- The effectiveness of two access strategies was tested by the BMA; the first was based at methadone clinics and the second was a community outreach project using ex-IVDUs and health volunteers as outreach workers.
- A community education model targeting the population of Klong Toey slum, where approximately 600 IVDUs and their families resided, was implemented by the Duang Prateep Foundation.

In the BMA project, heroin users at the 17 BMA-sponsored methadone program clinics were targeted. Many IVDUs in Thailand enter methadone programs to "suspend" their drug habit during financial hard times or to lessen the cost of their habits by supplementing heroin intake with methadone, while either continuing needle use during the program or returning to drugs in the future. IVDUs attended the BMA clinics daily for their methadone injections and participated in both group and individual counseling sessions conducted by BMA staff. The community outreach segment of the project targeted active IVDUs in the Bang Sue and Klong Toey neighborhoods of Bangkok. Two models were compared. In Bang Sue, ex-IVDUs based at the BMA detoxification clinic sought out IVDUs in known meeting places, receiving supervisory support from professional anthropologists. The Bang Sue team advocated quitting heroin addiction, but emphasized using bleach to clean needles, keeping needles for personal use, and using condoms for sex. In Klong Toey, community health workers supervised on a monthly basis by BMA social workers, emphasized the methadone treatment available at the clinics.

In the Duang Prateep project, IVDUs, their families and the general population of Klong Toey slum were targeted. Ex-IVDUs and project health workers visited IVDUs in their homes, conducting educational discussions with IVDUs and their families about condom use, proper cleaning of syringes, and distributing bleach and condoms. IVDUs were also encouraged to attend group support sessions. In order to reach the whole community, educational events were conducted for specifically targeted occupational or social groups including motorcycle taxi drivers, vocational school students, youth leaders, police, and housewives. Later in the project education meetings for the general population were also conducted.

Accomplishments

- In the BMA project, 230 health educators and 75 IVDUs were trained as community outreach workers in Klong Toey and Bang Sue; 17,000 prevention comic books and 15,000 posters were distributed.
- In the Duang Prateep project, two CSWs and 16 married women were trained as "health messengers" to disseminate information to their peers; 72 CSWs, 419 motorcycle taxi drivers, 150 police, 96 youth leaders, 100 parent volunteers, 110 vocational school students and 225 housewives attended training sessions; and more than 74,000 IEC materials and 57,000 condoms were distributed.
- 55% of IVDUs said they did not share needles in a pre-intervention survey; 78% said they no longer shared needles post-intervention. The keeping of personal syringes had increased. Those stating they had used bleach the last time they injected increased from 7% to 27%.
- The number of persons who had received condoms from BMA clinics increased from 71% to 80%. Actual reported condom use increased slightly, from 32% to 38%.

Lessons Learned

- IVDUs, when carefully supervised, are highly effective in contacting and conveying educational messages to other IVDUs. Non-IVDU health volunteers are more effective in disseminating messages in the larger community.
- Project supervisors need to work closely with health workers, who may be working in unfamiliar situations when attempting to bridge the gap between the socially acceptable, legal world and the illegal world.
- A critical transmission juncture exists in jails, where drugs are often smuggled and needle sharing is unavoidable (needles are often makeshift, made from such items as Bic pens); in the street IVDUs had become resourceful and cautious concerning HIV infection.
- The most difficult population to approach with AIDS prevention messages was adolescent IVDUs. Adolescent IVDUs are at highest risk due to having less money available to buy personal needles and they are less "street smart" than older IVDUs.

Recommendations

- **There should be a clear distinction between the priorities of AIDS prevention and treating addicts, with the hope that IVDUs will abandon drugs a second priority to AIDS prevention. This distinction should also be made with other community assistance efforts.**
- **The low sex drive of most heroin users may make promotion of condom use less necessary, but if condoms are to be promoted, messages that increase use among IVDUs must be refined and tested for efficacy.**

Support Areas

Information, Education, Communication and Training

General Strategy

As an integral part of interventions designed to slow the spread of HIV, AIDSTECH initiated the development of prototype information, education, communication and training (IEC/T) materials and programs. These materials were designed to serve as models for similar programs worldwide, helping diverse projects find ways to promote sustained behavior change.

The IEC/T strategy included:

- Developing prototype training curricula.
- Designing prototype educational materials.
- Providing technical assistance in all aspects of IEC/T activities.

Chart 6 provides an overview of AIDSTECH's IEC/T programming.

Program Summary

Prototype Training Programs

AIDSTECH worked with in-country organizations to develop prototype training curricula that were adaptable and applied throughout the developing world. The training packages served as models for projects, building upon the lessons learned from similar ventures in other parts of the world.

AIDSTECH training programs focused on improving country and regional capacity in a broad range of technical areas, including:

- Education/communication programs.
- Biomedical programs.

AIDSTECH incorporated a "training of trainers" (TOT) approach in its programming to increase sustainability of skills transfer and improve the capacity of local professionals to train others in specific topics.

Chart 6

**AIDSTECH Information Education Communication/
Training Technical Assistance, 1987-1992**

	Prototype Training Programs		Prototype Materials	Technical Asst. in Designing Programs and Materials
	Education Communication	Biomedical		
AFRICA				
Burkina Faso	■	■		■
Burundi		■		
Cameroon	■	■	■	■
Ghana	■	■	■	■
Kenya	■	■		■
Malawi		■		
Mali			■	■
Niger	■			■
Nigeria	■		■	■
Senegal	■	■		
Tanzania	■		■	■
Zaire	■	■	■	
Zimbabwe	■	■	■	■
LATIN AMERICA/ CARIBBEAN				
Bolivia	■	■		
Brazil	■			■
Dominican Rep.	■	■		■
E. Caribbean	■		■	■
El Salvador		■		■
Ecuador		■		■
Guatemala	■			
Haiti	■		■	■
Mexico				■
ASIA/NEAR EAST				
India			■	
Morocco				■
Philippines		■		■
Thailand	■		■	■

The prototype education/communication training programs included:

Counseling

Counseling has become an integral part of AIDS prevention programming worldwide and, where appropriate, AIDSTECH projects to prevent sexual transmission have incorporated counseling components. Health care providers, social workers, and family life educators have participated in workshops designed to improve counseling-related skills and understanding of sexuality and condom use issues. In Cameroon, AIDSTECH worked with the National AIDS Control Program to help establish a national counseling system, provided an initial TOT and assisted in the development of the counseling manual which has been distributed throughout Francophone Africa.

Materials Development

AIDSTECH provided training in the design, production, and evaluation of educational materials for a wide range of target audiences, including STD clinic patients and low-income families. In Thailand, for example, AIDSTECH worked with Program for Appropriate Technology in Health (PATH) and the Ministry of Public Health's northern region health offices to develop and implement a series of training programs to improve the skills of health workers in designing educational materials. These TOT courses were then replicated throughout the five Northern provinces.

AIDS Education Strategies

AIDSTECH conducted workshops on innovative ways to promote AIDS prevention messages. Workshop participants were involved in a range of interactive training strategies that focused on diverse topics such as communication skills, sexuality, goal-setting, and group process. In Tanzania, for example, AIDSTECH worked with AMREF to develop a training program for peer educators, then incorporated an interactive strategy into an easy-to-use trainer's manual and accompanying participant workbook.

Program Management

Recognizing the important role that PVOs and local NGOs play in implementing AIDS prevention programs, AIDSTECH implemented training on initiating and managing AIDS prevention and condom distribution programs. In Nigeria, for example, AIDSTECH conducted a workshop for NGOs from numerous states. The workshop covered program management skills such as supervision, program design, logistics and distribution.

The prototype biomedical training programs included:

Quality Assurance

AIDSTECH was the first international organization to provide training to laboratory technicians and supervisors in the development of QA programs to ensure effective monitoring of HIV screening in countries where blood transfusions have not been monitored or evaluated.

HIV Antibody Testing

AIDSTECH provided competency-based training to laboratory technicians in a wide variety of HIV antibody testing procedures (Abbott, Wellcome, Rapid, ELISA, and Western blot). Tasks to be performed by a given type of worker were analyzed; then clear, step-by-step descriptions of preparations for and performance of a specific test were given. This method of evaluation guaranteed correct performance and was used successfully in a number of countries.

Infection Control

Workshops were held for senior and supervisory nurses on infection control procedures. These workshops included sessions on the biology of HIV and its effects on the immune system, modes of transmission of HIV, clinical manifestations of HIV infection, and work precautions including sterilization and disinfection techniques.

STD Control

AIDSTECH worked with local experts to develop treatment algorithms reflecting the current epidemiology of STDs in a given country. Local health care workers and pharmacists were trained in the diagnosis, treatment and prevention of STDs using these algorithms.

Prototype Educational Materials

Making use of available research regarding educational methodology and behavior change, along with extensive qualitative research and field testing, AIDSTECH worked with in-country organizations to design and pre-test innovative print and audio-visual materials for use in educational programs. These materials were frequently adapted for use in other countries around the world. The work focused on developing "templates" or prototypes for educational materials that could be replicated or adapted for local situations.

The prototype materials included:

Instructional Brochures and Wallcharts

AIDSTECH worked with local and international organizations to design and pre-test condom instructional materials in various parts of the world. Materials were developed using local communication styles, colors, and formats -- and were pre-tested extensively using focus groups and one-on-one interviews. In a collaborative effort with PATH, WHO, and PSI, AIDSTECH produced simple, easy-to-use condom instructional brochures and wallcharts in both English and French. These were then made available for all AIDSTECH projects in Africa.

Low-literacy Materials

Building on strong community-based and peer education projects, AIDSTECH developed flip charts, comic books, and other materials targeting specific high risk, low-literacy populations. These materials presented information in an entertaining, effective way with illustrations depicting the importance of using condoms, negotiating condom use, and promptly treating STDs. "Emma Says: Each Time, Every Time!" is a 30-page, three-story flip chart designed for use in peer education programs targeting

men and women in Africa. The flip chart attempts to inform the audience in an entertaining yet effective way with lively, colorful and detailed illustrations which present important AIDS/STD prevention messages at a primary school reading level.

Audio-visual Materials

AIDSTECH used videos, slide shows, and audiocassettes in a variety of cultural contexts to bring the stories and situations of people with AIDS and their families to life. These materials acted as "triggers" for emotional responses to the personal stories from the epidemic to help people take the next steps in slowing the spread of HIV in their own lives and communities. In Africa, health care providers expressed the need for materials to "bring home" the reality of living with AIDS. In response, AIDSTECH produced "The Faces of AIDS," a brief educational trigger film which captured the stories of people with AIDS and their care-giving partners in Cameroon and Zimbabwe.

Training Manuals

AIDSTECH documented the techniques and exercises found to be most effective in workshops by designing step-by-step manuals for trainers of peer educators, counselors, nursing supervisors, and laboratory technicians. In the Eastern Caribbean, for example, AIDSTECH's training program in AIDS/STD education and counseling led to the development of a manual for a five-day workshop that has since been replicated in a number of other countries. A modified version has already been developed for use in Africa.

Checklists

AIDSTECH's efforts to ensure that correct information is provided systematically to target audiences resulted in the development of checklists for educational sessions -- typically in a one-on-one format in programs targeting STD patients, prisoners, and migrant farm workers. The checklists facilitated counseling sessions, and reduced the chances that inaccurate or incomplete information would be given by project staff.

Reference Guides

Reference guides were developed as follow-up resources from technical assistance and training provided by AIDSTECH. These guides provided information on specialized areas such as condom logistics and laboratory procedures where little expertise was available in-country. The guides presented a comprehensive overview of the topic in a format which was easy-to-understand and adaptable to specific country needs. Each guide was accompanied by detailed examples, illustrations, and charts.

Technical Assistance in Designing Programs and Materials

AIDSTECH worked to develop and improve country and regional capacity in designing IEC programs and materials. Technical assistance was provided in the development of culturally appropriate prevention counseling and education programming, communications campaigns, evaluation of educational strategies, identification of appropriate agencies and country and regional resources, and encouraging the integration of AIDS prevention activities into existing services, such as family planning or STD clinics.

AIDSTECH emphasized the transfer of skills and practical approaches to designing information and education campaigns. In-country staff developed the capacity to continue project activities with minimal assistance from outside consultants.

Technical assistance in designing programs and materials was provided in the following areas.

Needs Assessment

AIDSTECH staff conducted site visits to identify IEC resources in-country and develop strategies based on realistic situations and attainable goals. In Haiti, AIDSTECH worked with a wide range of NGOs to examine IEC needs and provide guidance in strengthening prevention activities.

Education Programming

Projects frequently requested AIDSTECH assistance in the design of effective educational programs for specific target audiences. In Ghana, AIDSTECH assisted in the design of a comprehensive program targeting men in the armed forces which included regular AIDS education sessions; a condom promotion campaign; publication of articles in the armed forces newspaper; social activities promoting condom use; condom logistics training for army personnel; and the development, research, production and evaluation of AIDS educational materials bearing military themes.

Prevention Counseling

AIDSTECH identified HIV counseling and potential counseling resources in a range of countries. Once identified, plans were developed to utilize existing resources to respond to country-specific counseling needs. In Cameroon and Thailand, staff worked with the National AIDS Control Committees to develop counseling programs to respond to concerns that persons tested for HIV, whether results were positive or negative, were not routinely provided with the information and support necessary for behavior change.

Mass Media Programming

AIDSTECH worked to ensure that innovative communication strategies and channels were utilized to reach the target audience. In Mexico, technical assistance was provided in the development of a radio soap opera, the best vehicle to reach the largest and least educated number of young people. The award-winning soap opera targeting young women and men with AIDS prevention themes was developed by a Mexican association of NGOs. Based on its success, AID/Mexico is to fund a sequel in 1993. In the Eastern Caribbean, AIDSTECH worked with the Caribbean Family Planning Association to develop a condom promotion campaign using a "lifestyle" theme. Specifically targeted promotional materials in point-of-purchase displays led to a significant increase in condom sales through community-based distribution outlets.

Accomplishments

- Innovative prototype materials were developed for five targeted high-risk populations: CSWs, STD patients, migrant workers, military personnel, and prison inmates.
- 45,000 prototype IEC materials were distributed in English, French and Spanish (see Table 9).
- 785 health care professionals, outreach workers, and project staff were trained in the education and communication area; those who received training then trained approximately 4,000 others (see Table 10).
- 554 health care professionals were trained in the biomedical area; those who received training then trained approximately 3,300 others (see Table 8).
- 1,250 audio-visual materials were distributed, including 450 copies of "The Faces Of AIDS" video.
- 4.6 million locally-produced IEC materials were distributed (see Table 3).
- Within six months following the implementation of a "lifestyle" condom promotion communication campaign in the Eastern Caribbean, more than half of all outlets experienced an 83% increase in condom sales.

Lessons Learned

- More native language materials are needed.
- People need training in materials use and distribution as well as materials development.
- Two-phase training (skills training, followed by skills application and then training as trainers) is a successful model; it allows trainees to practice their new technical skills (e.g., counseling, focus group facilitation) before actually becoming trainers of others in the same skill area. This enhances overall program sustainability.
- Even when trained, people have difficulty discussing personal matters, such as sex, with others.
- A competency-based approach to training is most effective at building skills.
- Local experts and target audiences themselves must be involved in program design to ensure that concepts are appropriate and comprehensible.

Table 9

Distribution of AIDSTECH Educational Materials

	English	French	Spanish	Total
Instructional Brochures and Wallcharts				
"How to Use a Condom" wallchart	5,000	3,000	NA	8,000
"How to Use a Condom" brochure	15,000	5,000	NA	20,000
"Condom Bursting" wallchart	800	NA	NA	800
Low Literacy Materials				
"Emma says...Each time, every time" flip chart	1,300	900	NA	2,200
"Philip and Edwina" brochure	3,000	NA	NA	3,000
Audio-visual Aids				
"Faces of AIDS" video *	300	150	NA	450
Reference Guides				
Laboratory Procedures Reference Manual	300	150	150	600
Condom Logistics Information Packet	800	450	250	1,500
Tools for Project Evaluation	850	500	250	1,600
Working with Commercial Sex Workers/Nigeria	200	NA	NA	200
Training Manuals				
AIDS/STD Education and Counseling	474	NA	NA	474
AIDS/STD Education and Counseling in Africa	1,400	650	NA	2,050
STD/AIDS Peer Educator Training Manual and Workbook	1,966	700	NA	2,666
La prise en charge psycho-sociale des personnes atteintes du VIH/SIDA et leurs proches	200	200	NA	400
Checklists				
AIDS/HIV Risk Reduction Counseling Checklist	1,000	NA	NA	1,000
AIDS/HIV Education Checklist for Migrant Workers	120	NA	NA	120
HIV/AIDS Education Checklist for Prisoners	120	NA	NA	120
STD Clinic Interviewer Integrated STD/HIV/AIDS Education Checklist	135	30	NA	165
Total	32,965	11,730	650	45,345

* Includes only videos distributed by AIDSTECH. Wider distribution in Africa is being carried out under contract with Media for Development International.

Table 10
Summary of AIDSTECH Training Activities IEC/T Unit
1987-1992

Country	Date	Target Group	Training	# Trained
Antigua	5/91	AIDSTECH Project Staff	Use of educational materials	2
Bolivia	3/92	Health Educators	HIV/AIDS counseling	5
Brazil	8/90	NGO Staff	Materials development	6
Burkina Faso	6/92	Health Care Providers	Use of STD algorithms & AIDS/STD patient education	30
Cameroon	1/91	Health Care Providers Social Workers Clergy	HIV/AIDS counseling	44
	3/92	Health Care Providers Social Workers	HIV/AIDS counseling	43
Dominica	10/91	Health Care Providers	HIV/AIDS counseling	25
	11/91	Physicians Nurse Practitioners	Epidemiology of STDs, treatment & prevention of STDs	41
	4/92	Physicians	HIV/AIDS counseling	11
	4/92	Nurses	HIV/AIDS counseling	25
Dominican Rep.	8/90	Peer Leaders	Design of STD curriculum	31
Ghana	10/91	Field Assistants	Communication & education skills for AIDS prevention	5
	3/92	Military	HIV/AIDS counseling	2
Guatemala	7/88	Physicians MOH Personnel	HIV epidemiology & surveillance	35
	8/90	Clinic Staff	STD management, counseling & prevention education	23
Haiti	8/91	Social Workers	AIDS/HIV counseling	11
	7/92-9/92	NGO Staff	Social marketing	124
Kenya	4/89	Family Planning Workers	HIV/AIDS prevention counseling	27
Mexico	8/92	Peer Educator Program Staff	HIV/AIDS counseling	20
Niger	6/91	Health Care Providers Social Workers	HIV/AIDS counseling & education	7
	12/91	Physicians	HIV/AIDS counseling & education	21
Nigeria	4/91	Representatives from NGOs & State AIDS Committees	Design & development of AIDS prevention & condom distribution projects	28
	3/92	Health Care Providers	HIV/AIDS counseling	15
	3/92	Health Educators	Educational materials development	4
Senegal	12/91	Project Coordinators	Innovative IEC Methods	25
St. Lucia	5/90	Family Life Educators Public Health Nurses	AIDS/STD counseling & education	9
	11/91	Physicians Nurse Practitioners Pharmacists	Epidemiology of STDs, treatment & prevention of STDs	47
	4/92	Health Educators	Focus group methodology	3
Tanzania	7/92	Pharmacists	STD algorithms and counseling	18
Thailand	10/89	Public Health Professionals	AIDs community outreach for IVDU	70
Trinidad	9/90	Outreach Workers Field Interviewers	AIDS education & outreach skills	8
	1/92	Clinic Staff	HIV/AIDS information	18
Zaire	4/89	Sales Representatives	Social marketing	2
TOTAL				785

- Individuals with low levels of literacy can become good educators when adequately trained and supported in their educational activities.
- Training project staff in focus group research and pre-testing enables staff to be more self-sufficient.

Recommendations

- Explore the effectiveness and use of more non-cognitively based messages in communication programs.
- Use stories to model appropriate social norms and to help change attitudes and behaviors related to HIV. Health care workers who deal with AIDS issues are a priority target audience for this approach.
- Develop programs which facilitate changes in the perception of social norms related to risky behavior to enhance sustainability of behavior change.
- Identify clearly defined target audiences for all communication programming and select appropriate messages, media and persons communicating the message for each specific audience.
- Incorporate multiple communication channels into each program whenever possible.

Condom Management

General Strategy

AIDSTECH interventions to prevent the spread of HIV and other STDs included provisions for condom distribution. Programs not only gave the message to high-risk populations that they should use condoms but also tried to assure that condoms were available where and when they were needed. The major objectives of AIDSTECH's condom management program included:

- Ensuring the consistency of condom supplies for intervention projects.
- Maximizing the accessibility of condoms for high-risk populations.
- Establishing cost recovery systems where appropriate.

See Chart 7 for an overview of AIDSTECH condom management activities.

Program Summary

Condom Supplies/Logistics Systems

Condoms for AIDSTECH sexual intervention projects were generally provided from in-country stocks of AID condoms managed at the national level. Interventions were designed around existing condom supply systems; as programs matured and condom demand increased, supply/logistics systems were regularly overtaxed. Ensuring that supplies moved from central warehouses (where they were often plentiful) to individual project outlets (where they were frequently out-of-stock) started with effective condom logistics planning. AIDSTECH's assistance in condom logistics was designed to work with program managers who did not have full time condom logistics staff and for whom condom distribution was one component of their multifaceted HIV prevention program. AIDSTECH assisted project managers in estimating the number of condoms needed, establishing management information systems to track condom supply levels, improving intermediary storage facilities at the project level, and exploring solutions to transportation problems.

Condom Distribution Channels

To maximize use, condoms must be accessible through many different distribution channels. AIDSTECH worked with programs to promote a diverse array of condom distribution channels. These channels included: Clinic-based programs; community-based distribution through peer educators and non-traditional outlets such as bars and hotels where condoms were provided free or sold for nominal prices; use of existing family planning community-based distribution networks; and social marketing of price-subsidized, brand name condoms in pharmacies and other retail outlets including non-traditional outlets.

Chart 7

**AIDSTECH-supported Condom Management
Technical Assistance, 1987-1992**

	Condom Supplies/ Logistics Systems	Condom Distribution Channels	Condom Cost Recovery
AFRICA			
Burkina Faso		■	■
Cameroon		■	■
Côte d'Ivoire		■	
Ghana	■		■
Kenya	■	■	
Nigeria	■		■
Zaire		■	
Zimbabwe	■	■	
LATIN AMERICA/ CARIBBEAN			
Brazil		■	
Dominican Rep.	■	■	■
E. Caribbean	■	■	
Haiti	■	■	■
Mexico		■	■
ASIA/NEAR EAST			
Philippines		■	
Thailand	■	■	

Cost Recovery Programs

Despite their low unit price, condoms are one of the most expensive components of any AIDS prevention program. AIDSTECH assisted countries in establishing cost recovery programs for condoms, budgeting for condom supplies in prevention programs, and exploring options for cost-effective long-term supplies.

Accomplishments

Condom Supplies/Logistics Systems

- Worked with projects to develop tools to estimate numbers of condoms needed for interventions using quantitative and qualitative data collection methods; estimated condom requirements for AIDSTECH HIV prevention programs in Ghana, Kenya, Nigeria, Zimbabwe and the Eastern Caribbean so that AID could plan for procurement.
 - To meet the demand for condoms among the Ghana military, the military project in Ghana estimated a need for 400,000 condoms per year.
 - Estimates for condoms for CSWs in Kenya indicated that 1,400 condoms per CSW per year were needed. Projected estimates of AIDSTECH project needs alone were 4.5 million.
 - AIDSTECH's Nigeria project needed 432,000 condoms per year to supply 600 CSWs.
 - In the Eastern Caribbean, quality of condom storage facilities ranged from adequate to poor; condom demand was increasing, and AIDSTECH projects needed 800,000 condoms per year.
- Worked with project managers to improve the consistency of condom supplies; recommended improvements in logistics and distribution systems for projects in Kenya, Ghana, Nigeria and Zimbabwe.
 - AIDS programs in Kenya had difficulties with condom supplies; AIDSTECH recommended that programs be able to access the model Maternal and Child Health / Family Planning Logistics Management System operated by the Division of Family Health, that one individual in each program be identified as the condom coordinator, and that each program maintain a three month supply of condoms.
 - Shortages of stock were common in the Ghana Armed Forces project; a more frequent supply schedule was established, monthly condom requirements were established and the level of reserve stock was determined; the program still has problems in maintaining enough condoms.
 - A condom distribution system was designed incorporating three farming cooperatives in Zimbabwe; a system for routine condom ordering that allowed for a reserve of one month's supply in all outlets was established.

- Supported training in condom logistics in Zimbabwe, Thailand, and Ghana.
 - AIDSTECH designed and organized training in condom logistics for one or two "condom coordinators" from each farming cooperative branch in Zimbabwe.
 - AIDSTECH sponsored a condom logistics workshop in Thailand. Almost all the condoms in Thailand in 1990 were being distributed through the STD clinic network. The network had no formal condom logistics management system so there were frequent stockouts. AIDSTECH helped develop a report and inventory system for the Venereal Disease Division of the MOPH and conducted a three-day training workshop on condom logistics management and use of the inventory and report system for division and medical office staff. The training workshop was modified and replicated in four additional regions of the country, greatly improving the efficacy of the condom supply system in the regions in which it was implemented. The MOPH plans to expand implementation of the Condom Logistics Program countrywide.
- Developed a project condom plan to improve project-level condom logistics; plans were completed for 18 projects in ten countries.
- Developed materials for use at the project level by program managers, including information packages on developing fixed interval condom tracking systems and on estimating condom needs and on quality assurance issues.

Condom Distribution Channels

- Supported CSM programs targeted to high-risk populations in Burkina Faso, Cameroon, Côte d'Ivoire, Zaire, Brazil and Haiti.
- Encouraged high-risk population peer educators to provide both education and condoms to their peers.
- Provided training in condom promotion to community-based distributors in the Eastern Caribbean.
- Encouraged the distribution of condoms through "non-traditional" outlets, such as bars, hotels, brothels and discos.
- Facilitated the integration of condom distribution for HIV/STD prevention into the activities of family planning program community-based distributors in the slums of Nairobi, Kenya and Dominica in the Eastern Caribbean.

- Conducted an analysis of the condom market in the Philippines; results included:
 - In 1988, 12 million condoms were distributed in the Philippines mostly to married couples for family planning purposes.
 - Condoms would have to be offered at subsidized prices to attract high-risk populations.
 - The number of persons providing commercial sex would continue to increase in size because of economic need and the growth of tourist industry.
 - Condom use among young adults was rare.
 - Import, distribution and marketing infrastructures can support increased condom demand.

Cost Recovery Programs

- Promoted the use of CSW peer educators as salespersons in Cameroon, Burkina Faso and Nigeria.
- Encouraged NGOs to sell condoms in Haiti.
- Established a viable pricing structure for condoms distributed by the Ghana Armed Forces; the first 30,000 PANTHER condoms were sold at 5 cedis/piece (370 cedis = \$1.00), the second 12,000 at 10 cedis/piece. The price may be raised to 15 cedis/piece in the future. At 15 cedis/piece, 2.2 days of labor would be needed to purchase a one-year supply (100 condoms). The project emphasized affordability over cost recovery.
- Established that a project could go from free distribution to social marketing of condoms with no effect on condom usage observed so far; condom sales in a Mexico CSW project are increasing steadily.
- In the Dominican Republic CSM is a feasible means of cost-recovery for peer-based CSW projects.

Lessons Learned

- Condom plans need to be an integral part of all interventions.
- AIDS awareness has greatly increased condom demand in many areas, leading to inadequate supplies of condoms; supply problems occur as projects grow and become successful.
- Condoms are often not available when and where people need them.
- Supply stockouts are common due to insufficient inventory management and logistics systems.

- The use of "non-traditional" outlets and "non-traditional" salespeople leads to condoms being where they are needed when they are needed for high-risk populations.

Recommendations

- As intervention programs become successful and expand to reach greater numbers of target populations, condom demand must be met as cost effectively as possible by the global donor community; this will require better coordination among international donors.
- The logistics of moving condoms from central distribution points to project outlets should take advantage of commercial distribution systems where possible.

Research

General Strategy

AIDSTECH's mandate was to provide technical assistance in the implementation of interventions to control the HIV pandemic while strengthening the institutions and infrastructures available for this activity. Given this framework, AIDSTECH carried out and supported predominantly applied research, the results of which were directly applicable to project design, implementation, and evaluation. AIDSTECH also supported two programs for basic behavioral research.

The research strategy included the following components:

- Evaluation research
- Operations research
- Epidemiological research
- Ethnographic research
- Behavioral Research Grants Program
- Research Fellows Program

Evaluation

Program Summary

AIDSTECH evaluation research was used at the project level to determine how well the sexual intervention projects worked to reduce risk behaviors. This research had two components:

- Project evaluation including process and outcome indicators.
- Special evaluations to answer specific questions, such as how to estimate the size of a target population.

Process indicators were important project monitoring tools and gave insight into the intervention content and delivery system by using service delivery statistics, such as number of training sessions, number of condoms and IEC materials distributed, and number of educational contacts made by the project.

Outcome indicators measured changes in knowledge or behaviors associated with HIV transmission. The research design used most often to estimate these changes was a simple pre- and post cross-sectional KAP survey of the target population. Rigorous sampling techniques were the exception rather than the rule. STD prevalence rates were used as outcome indicators where possible.

The principal evaluation research questions were:

- Is there an increase in knowledge of risk-reducing behaviors and in the behaviors themselves after an intervention?
- What factors are associated with condom use?
- How sustainable is behavior change produced in an intervention?
- How comparable are social marketing programs in different countries?
- What are the best indicators for evaluating AIDS prevention programs?
- How can the size of a mobile CSW population in an urban environment where prostitution is illegal be estimated?
- Do STD data or other objective measures validate self-reported use of condoms?

Findings

Process indicators were obtained from 22 countries and are discussed in the section on sexual interventions (see Table 3). African countries received the bulk of the condoms and IEC materials distributed, in keeping with AIDSTECH's program strategy and relative need.

Outcome indicators were obtained from 18 projects. The most frequently examined outcome indicators measuring change were:

- Knowledge of condoms as a preventive measure.
- Consistent condom use measured pre- and post-intervention.
- Self-reported increases in condom use at project's end.

In all projects where pre- and post intervention data are available, CSWs showed an increasing awareness of the preventive role of condoms; they also reported an increase in consistent condom use over time, and they self-reported recent increases in condom use (see Table 4).

Project data for men who were intervention targets do not suggest the same degree of success. Only four projects targeting clients showed increases. In many sites projects began their intervention activities with CSWs and only later were they extended to men. Despite the known mobility of CSWs, they may be easier to target; male clients, men in bars and STD clinic patients may make up a much larger and more heterogeneous population than the CSW population, making men less likely to come in contact with repeated intervention exposures.

Findings of the more specialized evaluation questions are found in Table 11. In summary:

- Within a short period of time, certain factors were observed to contribute to condom use cross-culturally.
- Post-intervention behavior change was found to be sustainable, although not always at its peak intervention levels.
- Social marketing programs must vary from country to country depending upon distribution infrastructure.
- The primary indicators for evaluating AIDS prevention programs should cover knowledge of preventive measures, number of partners, condom use and availability, STD levels and management.
- Estimates of CSW populations are possible, but to be done well, are labor intensive for the purposes of baseline enumeration.
- If STD data among CSWs do not confirm reported increases in condom use, there may be over-reporting of condom use, a small group of core-transmitter customers may be maintaining the high levels of STD infections, or infections may be introduced by men who are non-paying partners of the CSWs.

Lessons Learned

- Carefully collected process indicator data may be used to interpret results. Outcome indicators of changes in knowledge are less useful than changes in behavior which are more strongly associated with risk of infection.
- STD data can be useful in validating self-reported use of condoms and should be accessed where possible.
- Some information necessary to develop programs and plan educational strategies, such as the frequency of oral or anal sex, preferred sources of information about AIDS, STD treatment seeking behavior, and attitudes toward AIDS and condoms may be more efficiently collected using focus groups than surveys.

Table 11
Evaluation Research:
Questions, Project Examples, and Lessons Learned

Evaluation Question	Project Example	Lessons Learned
What factors are associated with condom use?		
Exposure to intervention sessions	<p>In Calabar, Nigeria, the overall proportion of CSWs who reported using condoms sometimes or always increased from 40% to 85%. However, among those who had attended at least three educational sessions, 93% reported using condoms sometimes or always with clients compared to 77% who had not attended a session.</p> <p>In Bulawayo, Zimbabwe, a similar pattern emerged. Only 29% of CSWs attending no educational meetings reported always using a condom with a client compared to 47% who had attended two to four meetings, and 59% who had attended five or more meetings.</p>	<p>In both communities, increased exposure led to greater increases in condom use. Also, the increases in condom use over time indicate that social norms were changing in the community; CSWs changed their behavior even when they did not attend meetings.</p>
Different types of CSWs	<p>In the Dominican Republic, "always use" of condoms with clients at follow-up varied across type of CSW, 50% among bar workers; 84% among street workers; and 87% among brothel workers.</p> <p>In Mexico, condom use was higher at baseline and at follow-up among the bar and brothel-based CSWs from Mariscal compared to the older, rural CSWs from La Paz who meet clients in a variety of locations. Condom use for all of the past 10 acts increased from 53 to 78% of the women interviewed in Mariscal and from 26 to 50% in La Paz.</p>	<p>By identifying CSW groups with low condom use, the targeting of groups can be refined.</p>
Different types of partners	<p>21% of men interviewed in bars in Mombasa, Kenya, reported always using condoms with CSWs. Only 3% reported always using condoms with their regular partners.</p> <p>When asked under what circumstances they use condoms, clients interviewed in La Paz and Mariscal in Juarez, Mexico, reported that the relationship with the partner was a determining factor. Over a fourth reported that they use condoms with all partners other than their wives while 56% reported using condoms with CSWs.</p> <p>Among truckers interviewed at truckstops in Tanzania, consistent condom use was only 14% among regular and 21% among occasional partners. After the intervention, consistent condom use almost tripled with regular partners and doubled with occasional partners.</p>	<p>By identifying high-risk relationships where condoms are not used, intervention efforts and educational messages can be tailored accordingly.</p>

Continued

Evaluation Question	Project Example	Lessons Learned
<i>Continued</i>		
Alcohol use	In a study of male students, factory workers, and military recruits in Thailand, alcohol use was linked to inconsistent condom use with CSWs. In Nigeria, female CSWs who do not drink daily are more likely to use condoms frequently (45%) than those who do (33%). Their heaviest drinking clients are also the least likely to use condoms frequently.	Educational efforts should alert men and women that alcohol may interfere with safer sex practices. When alcohol is likely to be consumed, condoms must be easily accessible.
Risk perception	In Puerto Plata, Dominican Republic, 59% of the CSWs interviewed at follow-up did not perceive themselves at risk of infection. When these women were asked why not, over three-fourths explained that they always use condoms.	Condoms are widely perceived as a preventive measure and reduce personal risk perception. It is important to understand why people perceive themselves at risk or not at risk.
How sustainable is behavior change produced in an intervention?	A pilot prevention program initiated in Accra, Ghana with CSWs in 1987 lapsed in 1988. Three years later, focus groups and a follow-up survey of CSWs enrolled in the earlier pilot program showed that condom use had dropped somewhat but not to pre-pilot intervention levels. Although the 1991 coup in Haiti disrupted Ministerial level activities, because of commitment at the community level, some activities continued.	In Accra, behavior change had been sustained even after program support was withdrawn and condoms were no longer free of charge. Lack of access to condoms was not a significant barrier to use.
Comparability of social marketing programs	Two mechanisms for condom social marketing were compared: A Cameroon project that operated through an existing national wholesaler and a project in Zaire that created an independent condom distribution system.	Success of CSM models is highly dependent on the political and social environment and available infrastructure. The most effective approach is to supplement an existing distribution system with non-traditional distributors, such as CSWs.

Continued

Evaluation Question	Project Example	Lessons Learned
What are priority indicators for AIDS prevention programs?	The global priority indicators were field tested in Jamaica. They include: knowledge of preventive practices, condom availability, condom use, number of partners, STD clinical management, STD prevalence/incidence, and HIV prevalence in antenatal populations.	Guidelines have been established as to how indicators are measured. For example, where HIV prevalence is low, surveillance in a high-risk population is recommended as well as in the antenatal population.
How can size of target population be determined?	In Zimbabwe, the capture/recapture method was used to estimate the size of the CSW population in Bulawayo. CSWs were interviewed in a sample of bars on two consecutive Saturday nights and based on how many were reinterviewed the second night, they estimated approximately 14,000 CSWs in the city.	Accurate information on the size of a target population is important for planning, designing and evaluating an intervention program. Population estimates are necessary for projections of the epidemic.
Do STD data or other measures validate self-reported use of condoms?	<p>In Olongapo City in the Philippines, the rate of gonococcal infection among registered CSWs dropped from 3.3% to 1.59% between 1985 and 1991. Consistent condom use increased from 24% in 1990 to 51% in 1992.</p> <p>In Khon Kaen, Thailand, the 25 brothels in the city attempted to adhere to a condom-only policy. Condom use reported in the previous night increased from 74% to 94%, but gonorrhea rates did not decline. However, STD rates among male patients did decline.</p> <p>In Chiang Mai City, Thailand, the HIV seroconversion rate decreased from 10 per 100 person-months in August 1989 to 3-5 in 1990, while prevalence increased from 36% to 43%. Condom use ranged between 85-91%, reportedly five times higher than 1988.</p> <p>Other validation methods were used in Thailand in the condom-only brothels, such as imposter clients. These clients found that the number of brothels in which a CSW insisted on condom use increased from 59% to 71%. In Mai Sai, brothel managers counted the used condoms and compared this number with the number of clients reported by the CSW, with highly favorable results.</p>	<p>If self-reported condom use is accurate, the incidence of STDs or HIV should drop. If STD rates do not decline, the source of the inconsistency may be: overestimated reporting of condom use, contagion occurring between CSW and boyfriend, or a small, uncooperative group of male core transmitters may be responsible for maintaining high STD rates.</p> <p>Counting used condoms is problematic because of the potential risk of infection. Managers may be reluctant to divulge client numbers.</p>

Recommendations

- Efforts should be made to estimate the number of the target population in a catchment area, the number proposed to be reached by the project, and number actually reached by the project.
- The pre- and post cross-sectional design as the basis for evaluation strategy can be improved by using an expansion site as a comparison group for a current project. These data can serve as baseline for the expansion site and also be compared with the initial intervention site.
- Coordination with national research and surveillance efforts should be improved so that HIV and STD trends monitored for other purposes can be used to interpret or complement project data that suggest changes in condom use or other risk-reducing behaviors.

Operations Research

AIDSTECH used operations research (OR) to complement project evaluations or to test strategies to improve the effectiveness of HIV prevention programs. Issues explored through operations research are presented in Table 12.

Lessons Learned

- When HIV prevention programs are flexible, program staff can use OR to test strategies, evaluate them, and revise and improve services relatively quickly.
- Using a control group to evaluate a new strategy can clarify whether changes in behavior are a result of project activities or are also occurring in populations not reached by the project.
- When developing "similar" projects in different settings, standardized data collection instruments make cross-project comparisons more useful.

Recommendations

- Research should be carried out to determine the reasons for high and low turnover among paid and unpaid peer health educators.

Table 12

Operations Research: Issues, Projects, and Findings

Operations Research Issues	Projects	Findings
Incorporating AIDS prevention messages and activities into primary health care or family planning infrastructures vs. more vertical project implementation	STD services in Gonaives, Haiti	Integrating STD services into existing primary health care services increased attendance for treatment and removed the stigma associated with attending free-standing STD/AIDS clinics.
Relative effectiveness of community outreach activities vs. clinic-based educational efforts	Crescent Medical Aid community outreach activities in Kenya	CMA evaluators have found that outreach activities are complemented by clinic-based activities and both types of efforts should be maintained.
Educators of high-risk community versus educators from the community-at-large	Truckstop projects in Tanzania and Kenya	The approach in Kenya was to educate entire truckstop communities, including permanent residents, with educators from the community-at-large. The Tanzanian program focused on truckers and their sexual partners at multiple truckstops with a majority of educators who were CSWs and bar workers. The Tanzanian program was more effective because peer educators were comfortable working in the truckstop setting where they aggressively promoted condoms.
Normative behavior change approaches vs. individualized approaches among CSWs	"Condom-only" brothels in Thailand; CSW community organizing in Ghana and Nigeria	Implementing an "all-condom" policy set a norm for both CSWs and clients. CSW community organizing supported negotiation skill-building activities.
Free condom distribution vs. social marketing of condoms	A community-based AIDS intervention program in Juarez, Mexico	The program evolved from distributing condoms free of charge to the purchasing of condoms by program participants. The transition has been remarkably easy, with condom sales increasing steadily.

Continued

Operations Research Issues	Projects	Findings
Traditional social marketing outlets vs. outlets based on risk behavior (bars, hotels, etc)	Condom social marketing in Zaire	Including outlets where sex occurs or is negotiated, such as bars, night clubs, hotels, and street vendors, attracts a larger number of customers and improves condom use through easy access.
Increasing effectiveness of CSW interventions by incorporating client approaches	AIDS education and condom distribution in Ghana and the Dominican Republic	In Ghana, including taxi drivers as educators provided a conduit for prevention messages and condoms between CSWs and clients. In the Dominican Republic, CSWs formed a theater group to reach clients. Brothel owners and hotel employees were also included in the program as condom distributors and educators, facilitating educational activities and condom distribution with CSWs and clients alike.
Peer educators using participatory techniques vs. more traditional pedagogical methods	Costa Rican adolescent project investigating the effect of education on changes in condom use	Use increased at a similar rate in the control group and in both experimental communities. Investigators concluded that participatory educational methods may have had a positive impact on knowledge levels, but did not affect behavior change.
Identifying family planning clinic female clients at risk of HIV infection by self-assessment vs. a checklist of risk factors	Operations research project in Brazilian family planning clinics	More women perceived themselves at risk than were actually classified at risk according to a checklist of risk factors (55% vs. 36%). Staff recommended the self-assessment because of its simplicity, non-invasive nature, and because condom use intentions among both groups were equally high.

Epidemiologic Research

Applied epidemiologic research provides information to improve interventions, develop country strategies, and contribute to worldwide research progress. AIDSTECH epidemiologic research specifically sought:

- To assess to what extent barrier methods and spermicides prevent the transmission of HIV.
- To test the validity of symptom-based measures as a proxy for STD history and to develop and test symptom-based treatment algorithms.

Program Summary

AIDSTECH contributed to international progress in understanding the epidemiology of HIV by conducting the following research:

- A cohort study of 273 HIV-negative CSWs in Yaoundé, Cameroon to measure the incidence of HIV infection and to evaluate the effectiveness of condoms and spermicides in preventing HIV and other STD infections.
- A study of STD symptoms among male factory workers, men in bars, and men in the general population in Yaoundé, Cameroon, to validate the use of such STD symptoms.
- Epidemiologic research to develop symptom-based treatment algorithms for STDs in Burkina Faso and Cameroon.
- A study to confirm the suspected role of chlamydia as an important pathogen in the Eastern Caribbean.

Accomplishments

Important research findings led to changes in policy and to additional studies. Findings include:

- The Cameroon cohort study showed that consistent spermicide use reduced the risk of HIV infection in the CSWs.
- The use of STD symptoms reported in a survey context as evidence of STDs (Quick STD Index or QuiSTD) was only partially validated since clinical examinations and confirmatory laboratory tests were not performed. Reported symptoms were more prevalent among men in bars than among the other groups, a finding consistent with estimated levels of STDs. Six months appears to be the longest feasible recall period for obtaining a history of an STD symptom. Questions asked in an STD clinic setting or during a face-to-face interview were more likely to generate acknowledgment of STD symptoms than were self-administered questionnaires.

- Algorithms for the treatment of urethritis based on common STD symptoms were developed in Cameroon and Burkina Faso.
- Among antenatal women tested in Antigua, Dominica, St. Lucia, and St. Vincent in the Eastern Caribbean, chlamydial infection was prevalent (13%) and needs to be included in treatment recommendations.

Lessons Learned

- With supervision and incentives, it is possible to follow a cohort of CSWs in an African setting and routinely screen them for HIV and other STDs.
- Use of reported STD symptoms in surveys of men may prove helpful in identifying men who suffer from an STD and in evaluating the effectiveness of condom promotion campaigns. However, clinic and community-based STD surveillance probably offers more advantages for evaluating interventions since their estimates of infection are both more reliable and valid.

Recommendations

- Additional research should be conducted to determine how much STD control will slow the spread of HIV and which STDs are most important to control.
- The QuiSTD index should be validated using clinical examinations and confirmatory laboratory tests.
- Additional research is needed to confirm the finding of spermicide efficacy in preventing HIV transmission, since results of research elsewhere are not consistent with these findings.

Ethnographic Research

AIDSTECH recognized the value of obtaining detailed information about the cultures of groups targeted for intervention. Understanding the target group's beliefs about AIDS and motivations for practicing high-risk behavior is critical for projects promoting behavior change. High-risk individuals were often socially, economically, or politically marginal, and therefore subject to discrimination; they seemed to be more responsive to in-depth interviews in which a strong rapport was developed than to surveys. Ethnographic research was most commonly carried out in the formative phase as background to constructing interventions, surveys, and educational materials. In evaluation and monitoring, ethnography offered new interpretations of unexpected outcomes or response patterns to the intervention.

Program Summary

AIDSTECH funded two ethnography projects (Barbados, Tanzania) and three projects which included ethnography as a major activity (Cameroon, Thailand, Zimbabwe). Each ethnographic study's main objective was to examine and gain insight to target group beliefs and practices of high-risk behavior and prevention. Methods used included: observation of events and behaviors, informal interviews, semi-structured surveys, key informant interviews, focus groups, and participation in daily community life. In Zimbabwe and Thailand (see Behavior Research Programs), field workers went on trips with truck drivers to gain first-hand experience of the realities of life on the road.

Findings

CSWs and Clients

- In Cameroon, low income CSWs are more likely than high income CSWs to self-treat STDs or use ineffective preventive measures, and are less likely to know that condoms are protective against HIV/STDs.
- Methods of preventing sexual transmission of HIV infection are well known among CSWs and their clients, but are not always practiced, due to perceived side effects, difficulty in partner negotiation, and client desire for direct contact during intercourse (Barbados, Tanzania, Cameroon).
- Many clients deny the reality of AIDS in their community. For them, AIDS remains a distant concept; danger is perceived to be minimal (Barbados, Cameroon).
- CSWs are concerned about the limited supply and high price of condoms (Barbados, Cameroon).
- Men in Barbados often visit CSWs for sex acts they will not or cannot request of wives or girlfriends.

Long Distance Truck Drivers

- Truckers hire CSWs because of loneliness, tedium, and the dreariness of hostels and predominantly male environments (Tanzania, Zimbabwe, Thailand).
- Due to the high mobility of both truck drivers and CSWs, the truck stop environment is ripe with opportunities for HIV transmission, and facilitates transmission from these focal points to other urban and rural areas (Tanzania, Zimbabwe, Thailand).
- Truck stops in Tanzania have highly elaborate taxonomies of STDs, without much overlap between communities.

IVDUs

- Prison serves as a school for intravenous drug use experience and is a site of extensive needle sharing.
- IVDUs have tried to adjust their needle sharing patterns to decrease the risk of HIV infection by revising the "pecking order" to take AIDS into account. To prevent AIDS transmission, anybody suspected of being, or known to be, HIV positive is the last one in the group to inject.
- IVDU outreach workers may not be effective when high on illicit drugs or on methadone, may be arrested by the police, and may be available only on a limited basis due to their need to support their habit.

Lessons Learned

- Truckers have arduous, often hazardous lifestyles that middle-class educators and health workers rarely share; therefore, interventions led by peer educators with empathy and credibility may be more effective than those conducted by educators who are not part of the community.
- In order to convince clients of the real danger of AIDS and to motivate them to change high-risk behaviors, AIDS and HIV infection must be demystified and made a part of daily conversation.

Recommendations

- **Ethnographic studies may be most helpful if implemented in the formative/design phase of an intervention.**

Behavioral Research Grants Program

Current research indicates that the acquisition of knowledge through educational materials is not, in itself, sufficient to produce behavior change in many individuals. To be successful, intervention programs must foster long-term changes in behavior. The AIDS Behavioral Research Grants Program was established to support the study of high-risk behavior, examination of the psychological, social, and cultural barriers to and facilitators of behavior change, and exploration of strategies which offer promise of modifying behavior and sustaining those changes. Information gained from research supported by this program will ultimately provide the basis for designing AIDS intervention programs to slow or prevent sexually transmitted HIV, including programs for counseling, adoption of risk-reducing behaviors, promotion of consistent condom use, and comprehensive mass media communications.

Program Summary

The AIDS Behavioral Research Grants Program is a research initiative which funded collaborative efforts between a principal investigator from a US research institution and a co-principal investigator from a university, ministry of health, and/or other institution in a developing country. Funding for this program was provided by AID through AIDSTECH, and the National Institutes of Health (NIH) through the NCNR, NICHD and NIA.

The guiding objectives of the program were:

- To support basic research on high-risk behavior and behavioral change relating to transmission of the HIV virus.
- To strengthen developing country capabilities to design and carry out behavioral research and prevention programs to reduce transmission of the HIV virus.

Research under this program was conducted in two phases. During Phase I (September 1990 - September 1991), US investigators established working relationships with their developing country counterparts and initiated a year-long preliminary study to establish the feasibility of the larger scope of specific research projects. Phase II provided up to three additional years of support for research projects found feasible in Phase I. AIDSTECH supported Phase II for five projects and NIH supported four. During the first phase, information was disseminated through two workshops held prior to the annual international AIDS meetings, through publication of journal articles, and through presentations at international, regional, and national meetings. The workshops facilitated exchanging ideas and progress reports and provided opportunities for problem-solving discussions with grantees and funding agency program staff. The nine projects approved by the Behavioral Research Grants Program Committee are presented in Tables 13 and 14.

Table 13

**Behavioral Research Grants Program:
Project Titles and Collaborating Institutions**

Country	Project Title	US Institution	Collaborating Institutions
AFRICA			
Botswana	Peer Education for AIDS Prevention Among Botswana Women	University of Illinois College of Nursing	University of Botswana
Uganda	The Sociocultural Context of AIDS	Case Western University	Makerere University and Experiment in International Living
Zimbabwe	Understanding Condom Use and AIDS Prevention in Zimbabwe	University of Washington School of Nursing	University of Zimbabwe Psychology Department
LATIN AMERICA/CARIBBEAN			
Chile	A Nursing Intervention to Prevent AIDS in Chile	University of Pennsylvania School of Nursing	Instituto de Medicina Reproductiva and Pontificia Universidad Catolica
Haiti	Culture, Health & Sexuality: Reducing HIV Risk in Haiti	Johns Hopkins University School of Hygiene and Public Health	Centres pour le Développement et la Santé
Jamaica	AIDS Related Sexual Decision Making among Jamaicans	UCLA Neuropsychiatric Institute	University of the West Indies
Mexico	Influencing Risk Behaviors of Bisexual Males in Mexico, Latin America & Caribbean	The Population Council Regional Office	National Council for AIDS Prevention (CONASIDA)
ASIA/NEAR EAST			
Indonesia	AIDS Risk Behavior among CSWs and Clients in Bali	University of Michigan School of Public Health	Udayana University School of Medicine
Thailand	Behavioral Research for AIDS Prevention in Thailand	Columbia University Center for Population	Mahidol University Center for Population and Social Research

Table 14

**Behavioral Research Grants Program:
Target Groups, Objectives, and Findings**

Country	Target Groups	Objectives	Findings
AFRICA			
Botswana	Women	<p>Test effectiveness of nurse-managed peer education for AIDS prevention.</p> <p>Develop culturally-relevant educational materials on AIDS prevention.</p>	<p>Misconceptions about risk of transmission from casual contact make people feel safer sex is meaningless since they will be at risk anyway.</p> <p>Physical discomfort associated with condom use and concerns about the condom remaining inside discourage its use.</p> <p>Reduction of STDs and protection against pregnancy are the major advantages that make some women willing to use condoms.</p> <p>Women who have been successful in persuading their partners to use condoms can provide a model for others who want to practice safer sex but have fears about condom use and/or partner negotiation.</p>
Uganda	Clients who attend the AIDS Information Center (AIC) for testing	<p>Compare risk behaviors of clients who return for results with those who do not.</p> <p>Assess whether knowledge of serostatus leads to reduction in risk behaviors.</p> <p>Identify factors associated with sustained sexual behavior change.</p>	<p>Female AIC clients were more likely to follow counseling messages and decrease risk of acquiring/transmitting HIV.</p> <p>41% of AIC clients reported that they were not in a sexual union at the time of pre-test.</p> <p>Abstinence should be highlighted as a risk-reduction strategy, alongside condom use and monogamy.</p>
Zimbabwe	CSWs, clients, truck drivers, commercial fishermen, STD patients, urban worksite and industry workers, urban and rural dwellers	<p>Identify and understand factors affecting condom use and monogamy in individuals at risk of contracting or transmitting HIV.</p> <p>Compare target groups' beliefs about AIDS, STDS, condom use, and monogamy.</p>	<p>Behavior does not reflect knowledge of prevention: condom use and monogamy rates are low, especially for men.</p> <p>The majority of men had multiple partners in the previous three months.</p> <p>Women have little or no economic and sexual power. Projects should focus on changing men's behavior and not be restricted to women's behavior.</p>

Continued

Country	Target Groups	Objectives	Findings
LATIN AMERICA/CARIBBEAN			
Chile	Homosexual and bisexual people in Santiago, HIV-positive individuals	<p>Investigate the social context of HIV.</p> <p>Investigate the relationship between the health care system and surveillance for HIV infection.</p> <p>Implement a series of standard interventions across sites of entry into the health care system.</p>	<p>Individuals are willing to discuss intimate sexual issues with nurses.</p> <p>HIV-positive individuals are able to locate their stable contacts, and are willing to have them notified of HIV status.</p> <p>The epidemic appears to be predominantly transmitted via sexual relations between men, in contrast with the official picture which emphasizes heterosexual transmission.</p>
Haiti	Residents of a low-income section of Port-au-Prince	<p>Identify local perceptions of AIDS and STDs.</p> <p>Identify barriers to health communication and behavior change.</p>	<p>Nearly all informants had heard of AIDS, but many doubted its importance locally.</p> <p>STDs, including AIDS, are not viewed as distinct from other diseases that can be transmitted from person to person.</p> <p>Condom use with one's spouse is viewed as inappropriate.</p>
Jamaica	General population	<p>Examine psychosocial and sociocultural factors related to sexual decision-making.</p> <p>Identify new areas of focus for intervention strategies.</p>	<p>Female interviewers asked sensitive and probing questions of respondents more consistently than did male interviewers.</p> <p>Even experienced interviewers may require additional training to ensure their ability to discuss highly intimate details of sexual behavior in a research setting.</p> <p>In-country commercial research firms may be concerned about adverse effects of being associated with a study of sexual behaviors. As a result, people in the community may be reluctant to cooperate with future studies.</p>
Mexico	Bisexual men in Mexico City (clients of gay bars, university students, male CSWs, male STD patients)	<p>Investigate risk behaviors and partner networks.</p> <p>Test pilot interventions targeting subgroups within the bisexual population.</p>	<p>The majority of all respondents lived with female rather than male companions.</p> <p>Bisexual men reported greater condom use for sex with men than with women. Those who use condoms with women are the ones who also use condoms with other men.</p> <p>Students and men from bars seek medical opinions for STDs/HIV; men from the STD clinic do not always value medical opinion.</p> <p>Interventions to increase condom use in gay gathering places may increase condom use with female sexual partners of bisexual men.</p>

Continued

Country	Target Groups	Objectives	Findings
ASIA/NEAR EAST			
Indonesia	Male and female CSWs and their clients	<p>Use the health belief model to understand sexual practices of CSWs and client populations, tourist and local.</p> <p>Examine impact of alcohol on sexual behavior and condom use.</p>	<p>Male and female CSWs have inadequate knowledge of AIDS and HIV symptoms, transmission, and prevention, especially low-price CSWs. Foreign clients have high levels of knowledge but continue to engage in unprotected sex.</p> <p>Self-treatment for STDs is the norm.</p> <p>Nine out of ten CSWs reported that they have clients who are drunk and 85% of these workers use alcohol themselves at least occasionally before or during sexual encounters.</p> <p>Indonesian CSW clients are highly mobile, express a desire for "variety" and do not visit the same CSW twice.</p>
Thailand	CSWs, managers of low-income brothels, adult and adolescent males in low-income communities, and long distance truck drivers	<p>Collect qualitative and quantitative data.</p> <p>Define social and sexual networks.</p> <p>Collect information on the social context of sexual conduct.</p> <p>Recommend AIDS prevention program strategies.</p>	<p>A third of truckers report having had STD symptoms in the last three years. 2.4% of 420 truckers were HIV-positive.</p> <p>Truckers have multiple partners on travel routes. High mobility also characterizes CSWs-coming from and returning to rural areas in Thailand and elsewhere, changing locales and clientele often.</p> <p>Data indicate inconsistent use of condoms. Use varies with type of partner, alcohol use, CSW and client appearance, brothel policy, and individual sense of invulnerability.</p>

Lessons Learned

- HIV is spreading in the nine project countries, yet prevention efforts are hampered by lack of knowledge on the modes of transmission of HIV infection (except in Thailand), and by infrequent use of condoms.
- US researchers often focus too intently on getting the study done at the expense of substantive collaboration or local capacity building.
- Using the Phase I and II format allowed for collaborative planning, defining of target populations, determining best method of access, and piloting of instruments.

Recommendations

- **Strengthen the link between research and application, by channeling the results of behavioral research directly to the design phase of AIDS prevention interventions. Future programs should place greater emphasis on collaboration and capacity-building in all phases of research, from proposal writing to analysis and publication. Efforts to disseminate results of behavioral research through publications and presentations should be continued.**
- **Research must continue to focus on the determinants of consistent condom use and other preventive measures reducing risk behaviors in order to develop the most effective intervention strategies. In addition, new approaches to AIDS prevention interventions must be devised to address the specific beliefs and needs of each high-risk audience.**

Research Fellows Program

AIDSTECH initiated a Behavioral Research Fellows Program to provide training and strengthen skills in behavioral research for US and developing country scientists beginning their careers in international health. The program allowed fellows to work with other scientists and participate in the design of effective programs aimed at inducing and sustaining behavior changes.

Program Summary

Each behavioral research fellow collaborated with a developing country institution on a research project relevant to the national AIDS prevention program. Fellows and in-country counterparts worked together on all phases of research, from site selection to project implementation and publication of findings.

Three research fellows were selected and supported by AIDSTECH. The first to participate in the program, Dr. Priscilla Ulin, is a medical sociologist and Associate Professor in the Department of Community and Mental Health, School of Nursing at the University of North Carolina at Chapel Hill. On August 1, 1991, Dr. Ulin began working in Haiti on a project entitled "Psychosocial Factors in Haitian Women's Perceived Ability to Participate in Prevention of HIV/AIDS." She conducted research with Dr. Michel Cayemittes under the auspices of the Institut Haitien de l'Enfance in Port-au-Prince.

Ms. Michelle Lewis, a Ph.D. candidate at American University, was selected in March 1991 as the second fellow. Ms. Lewis worked in Dakar, Senegal under the direction of the National AIDS Control Program. She conducted a study of Senegalese women's perceptions of HIV infection and AIDS prevention for themselves, their partners, and their children. Her project was completed in the spring of 1992.

A third fellow, Mr. Mark VanLandingham, a Ph.D. candidate at Princeton University, began a six-month research project entitled "Prostitute Patronage in a High HIV-Prevalence Environment: Male Sexual Risk-taking in Thailand" in July 1991. He collaborated with Chiang Mai University and the Thai Red Cross.

A summary of the accomplishments, lessons learned, and recommendations of the three Fellows is presented in Table 15.

Lessons Learned

- Efforts to improve the image of condoms may increase use.
- Limiting candidacy to post-doctoral fellows narrowed the field severely, opening candidacy to pre-doctoral students assured an adequate applicant pool.

Recommendations

- **Separate education programs to target men and their responsibility in AIDS prevention should be designed.**
- **Strategies should be developed to improve the method for informing individuals who test HIV-positive.**

Table 15

**Behavioral Research Fellows Program:
Target Groups, Objectives, and Findings**

Research Fellow	Target groups	Objectives	Findings
Dr. Ulin	Women from socially and economically disadvantaged communities in Port-au-Prince and Les Cayes, Haiti	<p>Describe beliefs among women concerning seriousness of HIV infection, personal risk of AIDS, responsibility for preventing HIV transmission, and ability to promote AIDS prevention among their partners, children, and peers.</p> <p>Identify women's perception of norms in sexual decision-making related to risk of HIV infection.</p> <p>Explore intervention areas to strengthen women's role in AIDS prevention.</p>	<p>Results support earlier findings that adults acknowledge the sexual transmission of HIV and fear its consequences but have not yet begun to lower their risk.</p> <p>Focus group transcripts reveal incorrect information about other modes of HIV transmission, male dominance in the sexual relationship, contradictory views on the rights of women and the use of condoms, and a sense of obligation to inform children about AIDS.</p>
Ms. Lewis	Female STD patients (CSWs and non-CSWs) in Kaolack, Senegal	<p>Assess the extent to which urban Senegalese women, particularly CSWs, perceive HIV as a threat.</p> <p>Determine cultural factors affecting the ability to negotiate condom use.</p> <p>Evaluate the efficacy of the clinic's AIDS education program for CSWs.</p>	<p>CSWs know more about AIDS and are more likely to report condom use than non-CSWs.</p> <p>Increased condom use and higher knowledge levels among CSWs compared to non-CSWs point to the success of the clinic's AIDS education program.</p> <p>Although CSWs decide whether they will consent to unprotected sex with clients, both CSWs and non-CSWs feel pressure to accept unsafe sex with boyfriends and husbands.</p>
Mr. VanLandingham	Male students, soldiers, and laborers in Northern Thailand	<p>Determine frequency of CSW visitation and unprotected intercourse with CSWs.</p> <p>Assess men's level of knowledge about the risks of HIV infection.</p> <p>Explore the determinants of consistent condom use among CSW clients.</p>	<p>Social class is negatively and strongly associated with prior sexual experience.</p> <p>Students were much better informed about HIV than the other two groups and soldiers were most likely to have had sex with CSWs.</p> <p>Students were most likely to have used condoms with CSWs.</p> <p>Alcohol use was negatively associated with condom use among the laborers.</p> <p>Perceived peer expectations regarding condom use was associated with increased condom use among all groups of men.</p>

Health Care Finance Assistance

General Strategy

Programs to prevent HIV infection and treat persons with AIDS require resources that are in short supply. Financial planning to ensure that such activities can be supported over the long term is essential. Decision-makers need to determine the most cost-effective means of providing services to prevent HIV and care for persons with AIDS.

AIDSTECH strategies for assisting with financial planning included:

- Promoting project sustainability by measuring project costs and by developing improved methods for financial planning and analysis.
- Measuring the costs and benefits of AIDS interventions by comparing intervention costs to the costs of AIDS treatment.
- Measuring the economic impact of AIDS on hospital resources, alternative care facilities, and national economies.

Program Summary

Sustainability

AIDSTECH's sustainability strategy was designed to promote sustainable interventions through the development and implementation of improved methods for financial planning and analysis.

The activities implemented under this strategy included:

Cost Analyses

Studies were conducted to identify resource requirements of AIDS intervention programs and to promote improved planning for meeting these needs. Typically, external donors support capital and start-up costs of projects and the host country government is required to finance the project's recurrent costs. AIDSTECH provided assistance to host government organizations by identifying project recurrent costs. Recurrent costs reflect the value of resources which are replaced on a regular basis. Examples of recurrent costs relative to AIDS intervention activities include salaries, vehicle maintenance, condoms, and utilities. Since most AIDSTECH-sponsored interventions were heavily involved in targeted condom distribution and health education, the recurrent cost analyses focused on project costs associated with these activities. Sustainability issues were addressed in recurrent cost analyses of high-risk group interventions performed in the following countries: Cameroon, Niger, Tanzania, Zimbabwe, Antigua, Dominican Republic (Santo Domingo and Puerto Plata), Mexico, and Trinidad and Tobago.

Cost Recovery

Plans were developed to promote policies for cost recuperation and revenue recycling into AIDS control programs. Considerable planning and creativity are required to develop prevention interventions which will continue after donor support is discontinued. Since a primary function of AIDSTECH-sponsored high-risk interventions was promotion of behavior change through increased use of condoms, the prospect of charging for condoms was often the sole focus of cost recovery planning. Important issues involved in these condom cost recovery plans were:

- Alternative source purchase price.
- High-risk group demand at various retail prices.
- Percentage of recurrent costs which could be recovered through condom sales.

Costing Guidelines

Recommendations were developed to strengthen in-country capability to measure project costs and to plan strategically for feasible programs which will be supported in the mid- and long-term. The aim of the AIDSTECH costing guidelines was to provide an outline indicating how economic and financial costs from the field can be collected and categorized. The guidelines were used to calculate and report the costs of AIDS interventions using a set of standardized methods. Cost information, as well as the guidelines, have been made available to AIDSTECH staff, host country project personnel and appropriate AID officials for use in decision-making, program planning, budget projections and support of financial and economic analysis. The guidelines were also designed to be utilized by host country governments to assist in policy-making and planning for cost recovery. Estimates of costs of sustaining projects can be made and provided to AIDSTECH's host country counterparts.

AIDSTECH created the costing guidelines to assist interested parties in finding answers for the following financial and economic questions:

- Which costs are required to sustain each project?
- What is the cost per unit of output produced by each project?
- What are current and future financial requirements of each project?

Cost-benefit

Several AIDSTECH projects were evaluated on the basis of cost-benefit. The number of HIV infections averted in six projects were evaluated in terms of the field costs associated with the intervention. The costs per HIV infection averted were then compared with costs associated with AIDS cases which would have been incurred had it not been for the intervention. Cost-benefit analyses were conducted for the following:

Condom Distribution

The ultimate measure of the impact of interventions is the number of HIV infections prevented. Unfortunately, it is difficult to draw a causal link between intervention activities and changes in sexual behavior among target populations, due to the influence of a wide range of external factors. However, through the use of intermediate measures such as the number of condoms distributed, the number of individuals targeted by the intervention, and the change in reported condom use, project impact was estimated. By applying a derivation of an equation of the sex intervention impact model developed at the Harvard School of Public Health by Weinstein et al., the intermediate measures were used to determine the total field cost per primary HIV infection averted. The model estimated the number of HIV transmissions averted by comparing the reported change in condom use with the number of sex acts performed and the size of the target population. Total annual project field costs were then divided by the model's estimate of HIV infection averted to yield the cost per primary HIV infection averted. These costs were then compared to the estimated average AIDS treatment cost in each country. Countries in which the cost to benefit ratio of AIDSTECH-sponsored condom distribution projects were evaluated included: Niger, Zimbabwe, Antigua, the Dominican Republic (Puerto Plata and Santo Domingo) and Mexico.

Blood Donor Screening

AIDSTECH compared the costs and benefits of screening blood donors for HIV. Three independent studies were conducted in which the annual cost of resources utilized in HIV screening was measured and compared to the additional units of HIV positive blood that would have been transfused if no such screening had taken place. Again, the benefits associated with AIDS intervention, in this case, HIV screening, were defined as the lifetime HIV/AIDS treatment costs saved due to HIV infections averted. Countries in which the costs and benefits of AIDSTECH-sponsored blood donor screening projects were determined included: the Dominican Republic, Trinidad and the Philippines.

Economic Impact of AIDS

Direct and Indirect Costs of AIDS

While the human crisis of AIDS is overwhelming, it does not represent the full impact that AIDS will have on developing countries. Because AIDS generally afflicts people in the most productive years of their lives, the impact of this disease must also be perceived in economic terms. Using current epidemiological, macroeconomic and demographic data, AIDSTECH analyzed the direct and indirect economic impacts of AIDS in two African countries hard hit by the disease, Kenya and Malawi. These studies identified the following areas as the principal economic burdens associated with AIDS:

- The direct cost of hospital treatment for people with AIDS.
- The economic costs of AIDS on the national labor force.
- The impact of AIDS on particular sectors of the national economy.

In addition, the direct costs of AIDS treatment was reviewed in Mexico and Barbados.

Cost-effective Treatment Strategies

The Barbados study looked at the feasibility of alternative treatment for AIDS patients and concluded that an AIDS hospice facility would be justifiable both in terms of need and cost-efficiency. Significant savings would be possible in the areas of labor and overhead costs if an alternative care facility were developed.

Cost of AIDS Training Curriculum

AIDSTECH also developed a cost-of-AIDS training curriculum for policy-makers in developing countries. The objectives of the training were to properly identify and account for direct and indirect economic impacts of AIDS in their respective countries, and to identify the long-term economic benefits of AIDS prevention programs.

Accomplishments/Findings

Sustainability

Cost Analysis

Results from cost analysis studies showed that:

- Recurrent costs of intervention programs per month ranged from \$2,100 to \$10,500 (see Table 16).
- AIDSTECH funding of recurrent costs of interventions ranged from 19% to 62% (see Table 17).
- Local government contributions to recurrent costs ranged from 6% to 66%.
- AID contributions to recurrent costs ranged from 15% to 42%. Almost all of these costs represent condoms donated to the interventions.
- Recurrent field cost per condom distributed ranged from \$0.06 to \$0.87 (see Table 18).
- Recurrent field cost per individual reached ranged from \$0.34 to \$35.00.

Cost Recovery

Cost recovery through condom sales was analyzed in six interventions. In the majority of interventions it was projected that condoms would be sold through peer educators and/or through the projects' health clinics. Ideally, condoms would be purchased from international donor organizations, at cost, and sold at competitive prices.

- Under two condom market sales scenarios (first, stable sales and second, 15% decline in sales), it was estimated that a condom cost recovery program could generate between 18% and 88% of total monthly field costs, depending on the size of the target population (see Table 19).
- Other cost recovery plans suggested for further review were the following: STD clinic charges, charging companies for health services and various other user fees.

Table 16**Monthly Field Costs of AIDSTECH Intervention Projects**

Country	Recurrent Costs (\$)	Capital Costs (\$)	Total Costs (\$)
Cameroon	10,500	410	10,910
Niger	3,400	500	3,900
Zimbabwe	4,400	350	4,750
Antigua	2,100	200	2,300
DR (PP)	4,000	200	4,200
DR (SD)	6,100	410	6,510
Mexico	5,300	170	5,470
Trinidad	6,200	300	6,500

Table 17**Source of Recurrent Field Cost Funding of AIDSTECH Intervention Projects**

Country	AIDSTECH(%)	Condom Contribution from AID Mission (%)	MOH (%)
Cameroon	62	20	18
Niger	22	25	53
Zimbabwe	52	42	6
Antigua	19	15	66
Trinidad	42	38	20
Average	39	33	27

Table 18
Cost per Project Output*

Country	Condoms Distributed /Month	Persons Reached /Month	Recurrent Costs/Month(\$)	Cost/Condom Distributed (\$)	Cost/Person Reached (\$)	Other Project Outputs
Cameroon	181,000	N/A	10,500	0.06	N/A	Pamphlet distribution
Niger	14,800	500	3,400	0.23	6.80	STD testing for CSWs
Zimbabwe	59,000	12,900	4,400	0.08	0.34	Pamphlet distribution AIDS education meetings
Antigua	4,800	60	2,100	0.44	35.00	AIDS comic book, poster & pamphlet distribution
DR (PP)	8,250	931	4,000	0.48	4.30	Health promoter recruitment Pamphlet distribution
DR (SD)	21,000	2,300	6,100	0.29	2.65	Health promoter recruitment Pamphlet distribution
Mexico	6,100	850	5,300	0.87	6.23	Spermicidal pack distribution Clinic referrals
Trinidad	41,300	1,300	6,200	0.15	4.75	HIV testing of CSWs Pamphlet distribution

* *Costs per output should not be compared across projects since each project provided other outputs, unmeasurable in terms of cost but that were also included in the service mix.*

Table 19
Condom Cost Recovery Projections for AIDSTECH Intervention Projects

Country	Condom Purchase Price (\$)	Condom Sales Price (\$)	Expected Unit Sales/Month	Expected Revenue (stable demand) (\$)	Expected Revenue (15% decline) (\$)	% of Recurrent Costs Recovered
Niger	0.06	0.20	15,000	3,000	2,550	75%-88%
Zimbabwe	0.03	0.04	59,000	2,360	2,006	46%-54%
Antigua	Intervention was not sustained					
DR (PP)	0.03	0.05	17,250	862	732	18%-21%
DR (SD)	0.03	0.05	103,000	5,150	4,377	72%-84%
Mexico*	0.00	0.10	12,300	1,230	1,045	20%-23%
Trinidad*#	0.00	0.10	41,300	4,300	3,630	85%-100%

* Mexico and Trinidad plans for condom sales assumed that in-kind donation of condoms from international donors would continue.

Trinidad cost recovery scenario based on a "break-even" analysis rather than on projected sales. In this analysis, condom costs were not considered part of recurrent costs, because it was assumed that the project would continue to receive condoms gratis. In this case, the recurrent cost is \$4,300.

Costing Guidelines

- Guidelines were finalized and distributed to the field.
- Guidelines were periodically revised based on experience gathered from the field.

Cost-benefit

AIDSTECH supported studies showed:

Condom Distribution

- Total field costs per primary HIV infection averted ranged from \$11 to \$9,000 (see Table 20.)
- Lifetime direct costs of treating a patient with HIV/AIDS was estimated to range from \$620 to \$3,300.
- Benefit/cost ratios ranged from 0.4 to 59.1.

Blood Donor Screening

- The cost of HIV screening in the three studies ranged from \$2.00 to \$12.60 (see Table 21).
- The cost per primary infection averted through HIV screening was estimated to be between \$230 and \$1,030.
- The benefit/cost ratio ranged from 3.2 to 11.3.

Economic Impact of AIDS

AIDSTECH supported studies showed:

Direct and Indirect Costs of AIDS

- The average lifetime direct cost of treating an AIDS patient generally ranged between \$210 and \$940 in Africa, and \$3,000 and \$5,000 in Latin America and the Caribbean.
- Total direct costs of AIDS treatment in Africa will range from 20 to 35% of the Ministry of Health's curative budgets in 1992.
- The average discounted indirect cost due to future income lost per new AIDS case was estimated to range from \$4,200 to \$6,700 in Africa.
- Estimated total direct and indirect costs associated with AIDS in 1991 were from \$140 million to \$310 million, ranging from 4 to 7% of the GNP of African countries. This figure is likely to rise to between 14% and 37% by the year 2000.
- Employees in the modern sector (service and industry) represent only 6% to 16% of workers in the labor force in Africa. However, they produce between 28% and 46% of the income and represent between 19% and 27% of all AIDS cases.

Table 20

Costs and Benefits of AIDSTECH Sexual Intervention Projects

Country	Cost/HIV Infection Averted (\$)	Direct Cost of AIDS (\$)	Benefit/Cost Ratio*
Niger	140	620 ***	4.5
Zimbabwe	11	650	59.1
Antigua	310	845	2.7
DR (PP)#	2,200	3,300 **	0.7
DR (SD)#	550	3,300 **	2.7
Mexico	9,000	3,300	0.4

* Only primary HIV infections averted were considered. However, it is possible that 2-6 secondary averions can be linked to each primary infection averted. Each additional infection averted would increase the benefit to Cost ratio.

** Figures are estimates based on a study of the direct Costs of AIDS conducted in Mexico.

*** Direct Cost of AIDS figures extrapolated from log-log formula linking AIDS treatment Costs to per capita GDP: $(\text{Log}Y = .40 + .96\text{Log}X)$, where per capita GDP is "X".

Based on 1990 recurrent Cost analysis.

Table 21

Costs and Benefits of HIV Screening of Blood Donors

Country	Cost/HIV Test (\$)	Cost/HIV Infection Averted (\$)	Direct Cost of AIDS (\$)	Benefit/Cost Ratio
DR	2.00	1,030	3,300	3.2
Trinidad	12.60	230	3,300	11.3
Philippines*	3.15	N/A	N/A	N/A

* Results from the Philippines study were inconclusive since data indicated that HIV prevalence among blood donors was too low to be evaluated with certainty. However, further analysis indicated that when an HIV prevalence rate exceeds 0.3%, a positive benefit to cost ratio will result.

Cost-effective Treatment Strategies

- Based on a study performed in Barbados, HIV/AIDS patients can be treated at lower cost at a hospice facility than at a hospital.
- 86% of AIDS hospital costs come from labor and overhead. These costs tend to be 70% less in an AIDS hospice facility.

Cost of AIDS Training Curriculum

- A training curriculum entitled "Economic Impact of AIDS in Latin American and Caribbean Countries: A Training Curriculum" was completed along with a cost of AIDS annotated bibliography, based on major studies of both direct and indirect economic impacts of the disease.

Lessons Learned

Sustainability

- Cost recovery can contribute to the sustainability of interventions. However, obtaining the full value of recurrent costs from condom sales is frequently not a reasonable expectation due to market competition, potential decline in demand and high operating costs.
- Interventions may be able to obtain supplementary income from other sources. For example, charging for STD testing and treatment service, health education programs in the workplace, etc.
- One lesson learned from the Antigua intervention, which was not continued, is that financial commitment must be sustained by all parties involved until a program is sufficiently designed and implemented.
- Cost recovery planning must be approached cautiously and it must not take priority over program survival. Cost recovery should be considered only when: Condom sales and STD service charges are feasible without significantly compromising the program's impact on its target group; and allowances are made for the program to expand its activities geographically and/or demographically.

Cost-benefit

- Targeted health education and condom distribution programs appear to have an extremely high return on investment, despite the relatively long period of time before significant benefits (i.e., before a person with HIV requires direct medical treatment) can be obtained. Additional direct benefits are likely to be obtained as result of secondary and tertiary HIV infections avoided. If the

indirect benefits, such as productive life-years lost, were included, it is expected that the benefit to cost ratios would have increased substantially. Other non-economic benefits gained from the interventions but not considered in the benefit to cost ratios are significant (e.g., the prevention of STD infections).

- Cost-benefit analyses of health education and condom distribution programs are an excellent tool to convince policy-makers that AIDS prevention is one of the soundest and most logical investment a government can make for its citizens. Because of the high return in future cost savings, it makes sense for governments to seek financial assistance and cooperation from international donors in preventing the spread of HIV.
- Blood donor screening in countries where HIV prevalence among blood donors is greater than 0.3% yields substantial economic benefits through a reduction in HIV transmission and, thus, treatment costs.
- In addition to savings realized from direct treatment costs prevented, there are the following additional benefits: The prevention of secondary infections; the avoidance of indirect costs; and public confidence and assurance that transfused blood is safe.

Economic Impact of AIDS

- Review of economic impact indicates that, over the short term, the burden of AIDS is likely to fall upon businesses in the modern sector that employ a highly trained and educated workforce. The shortage of well educated and skilled workers makes it more difficult and costly to find adequate replacements for those who can no longer work.
- Over the longer term, it is likely that an increasing prevalence in rural areas will shift the burden of AIDS from the modern sector to the agricultural sector.
- The burden of treating a person with AIDS in hospitals in Malawi and Kenya is likely to surpass the capacity of governments to provide adequate treatment. Current estimates indicate that persons with AIDS occupy a disproportionate number of hospital beds and consume up to 35% of Ministry of Health curative expenditures. As the HIV seroprevalence rate continues to climb in both of these countries it appears inevitable that without immediate and substantial investment in AIDS prevention and alternative treatment facilities, Kenya and Malawi's health care systems will be completely overwhelmed.
- Other consequences include orphans, funeral expenses, the impact on businesses (insurance, loss of productivity, reduction in product demand), drain of government resources for capital investment, drop in tourism, reduction in foreign business relocation, depletion of educated workforce. All this creates a negative ripple effect.

Recommendations

Sustainability

- Condom willingness-to-pay studies are needed, particularly ones that focus on certain high-risk demographic groups, such as CSWs, bar clients, truck drivers, and hotel clients. Certain groups may be willing and able to purchase condoms sold at higher prices without diminishing demand.
- Interventions should be planned very carefully before implementing cost recovery activities. Plans for program sustainability should be built into a project from the start. Included in the planning process should be an assessment of the impact of cost recovery on high-risk groups of low socioeconomic status.
- A computer model designed to assist host country personnel to perform their own cost analyses should be developed, distributed and taught to field officials. Such a model would enable project personnel to monitor financial requirements and expenditures, and perform cost projections.

Cost-benefit

- Cost-benefit assessments of components of AIDS prevention projects should be performed so that policy-makers allocate limited resources in an informed manner.
- Results of cost-benefit analyses should be disseminated as a tool to promote greater investment in AIDS prevention.
- A health economist should prepare a paper that would provide a better grounding in cost-benefit analysis for AIDS prevention programs. Cost-benefit analyses performed by AIDSTECH never stressed the composition of the savings from forgone income nor to distribution of costs and benefits. The following issues need to be addressed:
 - In many countries, the primary beneficiaries of AIDS prevention programs are CSWs and their clients. Should the lost income from an early death of a CSW be considered a forgone benefit?
 - The public finance argument for intervention programs is that third parties benefit, and, therefore, they should pay. Can the same argument be made for AIDS? Or are the people who pay not the same as the people who benefit? If the gainers are mainly the CSWs and their clients, then they should be made the primary payees; if not, then an argument can be made for third party payment.

Economic Impact of AIDS

- Implement regional workshops for policy-makers to identify the current and future burdens of AIDS.
- Conduct more alternative treatment feasibility studies. Available international data suggest that the number of AIDS patients requiring treatment in the future is likely to increase significantly. Governments must plan for the cost of caring for an increased number of AIDS patients. Cost efficiency will be a key issue as the number of AIDS patients increases. Alternative care facilities providing low cost quality care should be integrated into every country's national AIDS plan.

Development of Surveillance Systems

General Strategy

To assess the effectiveness of a disease control program, some form of surveillance or monitoring is necessary. The formulation of appropriate surveillance methods for the AIDS epidemic was more complicated than for most other disease outbreaks due to the long incubation period of the disease. The incubation period is so long that surveillance of AIDS cases is not useful for program managers to determine whether their prevention programs are working. To be useful, surveillance programs have to concentrate on intermediate indicators of the AIDS epidemic, i.e., the incidence and prevalence of HIV infection and of other sexually transmitted diseases.

Although surveillance was initially to have been an important area of activity for AIDSTECH, it soon became apparent that WHO/GPA was taking a clear leadership role in the area of surveillance by providing technical assistance and developing guidelines, training materials and standardized methods. Thus AIDSTECH worked on surveillance projects in a relatively small number of countries, usually where specific requests were received for AIDSTECH assistance and/or in relation to specific applied research issues.

In order to facilitate the evaluation of programs to prevent the further spread of HIV, AIDSTECH worked on the development and implementation of surveillance systems that could provide information on:

- The HIV incidence rate (number of new infections per year per population).
- The HIV prevalence (the proportion of persons infected with HIV at a given time).
- The prevalence of various other STDs.

Program Summary

The development of standardized field methods for surveillance of the AIDS epidemic is still an active area of applied research by WHO/GPA epidemiologists. AIDSTECH worked with WHO and national AIDS control programs (NACPs) in the earlier stages of this process, and AIDSTECH activities evolved with the development of new approaches to the surveillance of HIV and STDs.

HIV Incidence

While the HIV incidence rate is the most useful indicator of the spread of the epidemic, it was the most difficult to measure because it requires repeated testing of the same individuals for HIV antibodies at regular intervals (e.g., every 6 to 12 months) over a long period of time in order to detect seroconversions due to new

infections. Such an approach was only likely to be useful in countries with very high rates of infection. AIDSTECH conducted a cohort surveillance project in Bujumbura, Burundi in order to test the feasibility of lower-cost cohort surveillance studies in Africa.

AIDSTECH also identified two approaches to estimating incidence rates from prevalence data. One was based on an old method called the "catalytic" method, and the second was based on the progression of HIV-infected individuals to AIDS and death. The second method was originally embodied in the AIDSTECH modeling spreadsheet and was subsequently incorporated into WHO/GPA's EpiModel.

HIV Prevalence

AIDSTECH helped NACPs try various approaches to gathering HIV prevalence data from three types of low-risk population: household population surveys (Mexico), testing of blood donors (Philippines, Malawi, and Kenya) and pregnant women (Cameroon, Malawi, Jamaica, and the Dominican Republic). AIDSTECH also worked with NACPs to do surveillance of high-risk groups such as STD patients, TB patients, CSWs and military personnel in several countries (including Burkina Faso, Burundi, Cameroon, Ghana, Mali, Haiti, the Dominican Republic and Thailand). Surveillance of high-risk populations was extremely useful, especially for countries in the early stages of the AIDS epidemic, because the data were used to give an "early warning" of spread to the general population.

Surveillance systems in most countries have concentrated on gathering data on urban populations. AIDSTECH worked with NACPs in Cameroon and Malawi to look at different approaches to gathering data from smaller cities or rural areas. Mobile teams were used to conduct surveys on an annual basis.

STD Surveillance

STD surveillance activities were implemented by AIDSTECH as an indicator of behavior change, since no projects were expected to demonstrate a direct effect on HIV incidence or prevalence because of their small scale and relatively short duration. STD surveillance strategies differ greatly for men and women, and AIDSTECH's projects had to address these differences.

STD surveillance in men was difficult if a representative group of men was desired. Men did not typically come to health services in any uniform manner as women did for prenatal care or delivery. Since STDs are more uniformly symptomatic in men than in women, reported symptoms of urethral discharge and genital ulcers may provide reliable estimates of the incidence of STDs. Reported symptoms obtained through surveys could provide a rapid and inexpensive means of monitoring STD infection levels, and of assessing the effectiveness of interventions designed to reduce

high-risk behavior. In order to explore the feasibility of getting population-based STD surveillance data from men, AIDSTECH examined the usefulness of self-reported STD histories by men. The Quick, Interview-based, STD Index (QuISTD Index) is the record of men of a particular age group who report having had an STD during a defined period, such as the previous six months. The QuISTD Index was tested in Burkina Faso and Cameroon.

In women, STD surveillance is relatively easy. Women at prenatal clinics or maternity units who are a relatively good, representative sample, can be routinely tested for syphilis and other STDs if resources are available. AIDSTECH worked with several NACPs in programs that included syphilis testing of prenatal patients along with HIV surveillance (Cameroon and Malawi).

Accomplishments

- HIV surveillance data were collected by AIDSTECH projects over time in eight countries (see Table 22). Results indicate:
 - HIV prevalence in Burundi was 15% for workers, 4% for female students and 0.7% for male students; incidence rates for the first year of follow-up for workers were relatively low, about 1.5 seroconversions per 100 person years.
 - In Cameroon, sentinel surveillance data from Yaoundé show a steady increase in HIV prevalence among pregnant women from 1% to over 2%. Data also show increasing levels among STD patients, female CSWs, and TB patients in Yaoundé. This indicates a serious trend in HIV infection in Yaoundé and suggests that control measures in Cameroon may have slowed the epidemic but have not been adequate to keep it from progressing.
 - Prevalence was increasing for pregnant women in Burkina Faso, CSWs in Mali and the Dominican Republic, and in condom-only brothels in Chiang Mai, Thailand.
 - Prevalence was stable or decreasing in male STD patients in Burkina Faso, and in blood donors in Malawi. Prevalence among STD patients in Lima, Peru remained at zero.

- STD surveillance data were collected by AIDSTECH over time in four countries and on a single occasion in an additional eight countries (see Table 23). Results show:
 - The prevalence of syphilis among CSWs in Mali and the Dominican Republic stabilized at about 25% and 10%, respectively, while in Thailand it increased from 48% to 52%. Among STD patients in Yaoundé, Cameroon, prevalence of syphilis remained about the same (34% vs 37%).
 - The prevalence of gonorrhea and trichomonas among CSWs in Mali decreased, as did the proportion of CSWs in Thailand with genital or cervical ulcers.

Table 22

HIV Surveillance Data from AIDSTECH Project Countries

Country/City	Year	Target Group	Tests Performed	%
AFRICA				
Burkina Faso Bobo Dioulasso	1991	Female CSWs	182	45.0
	8/90	Pregnant women	118	4.9
	4/91	Pregnant women	172	7.8
	1990	Male STD patients	74	18.9
	1991	Male STD patients	131	17.5
Burundi Bujumbura	1990	Factory workers	1375	14.7
	1991	Factory workers	1170	13.2
	1991	Male university students	687	0.7
	1991	Female university students	158	4.4
Cameroon Douala	1990	Pregnant women	NR	1.1
Cameroon Garoua	1991	Pregnant women	200	1.5
	1991	STD patients	100	5.0
Cameroon Yaounde	1989	Pregnant women	1202	1.0
	1990	Pregnant women	640	1.3
	1991	Pregnant women	603	2.2
	1989	STD patients	579	1.6
	1990	STD patients	582	3.3
	1991	STD patients	612	2.6
	1988	Female CSWs	168	7.1
	1990	Female CSWs	266	8.6

Continued

Country/City	Year	Target Group	Tests Performed	%
<i>Continued</i>	1991	Female CSWs	314	8.9
	1989	TB patients	373	2.1
	1990	TB patients	245	4.1
	1991	TB patients	511	6.9
Ghana				
	1990	Military personnel	2,000	1.3
Malawi				
	1989	Blood donors	2108	17.5
	1990	Blood donors	2372	20.9
	1991	Blood donors	2591	19.9
	1992	Semi-urban and rural pregnant women	759	7.8
Mali				
Bamako	1991	Female CSWs	103	44.0
	1992	Female CSWs	45	72.1
LATIN AMERICA/ CARIBBEAN				
Dominican Republic				
Santo Domingo	1990	Female CSWs	1,000	1.8
	1991	Female CSWs	265	3.0
	1991	Pregnant women	1056	0.9
	1991	STD patients	1950	4.4
Eastern Caribbean				
	Oct 90 - April 92	STD patients	1519	14.2
	1991	Migrants	343	0.9
	1991	Prisoners	72	0.0
El Salvador				
	1990	STD patients	81	0.0

Continued

Country/City	Year	Target Group	Tests Performed	%
Guatemala				
	1992	Family planning clients	303	0.0
	1992	Antenatal women	301	0.0
	1992	Adolescents (12-21 yrs)	175	0.0
	1992	STD patients	300	1.3
Haiti				
Port-au-Prince	1991	Workers	241	6.6
	1991	Pregnant women	248	7.3
	1991	TB patients	227	22.5
	1991	Orphans (<5 yrs.)	287	9.0
	1991	STD patients	234	33.3
Jamaica				
Kingston	1991	Male STD patients	219	3.2
	1991	Female STD patients	234	1.7
	1991	Antenatal women 15-24	540	0.6
Mexico				
National survey	1988	Males aged 14-45	10,000	0.04
Peru				
Lima	1990	STD patients (cohort study)	618	0.0
	8/91	STD patients (cohort study)	529	0.0
	12/91	STD patients (cohort study)	468	0.0
Trinidad				
	1988	STD patients	1519	14.2
ASIA				
Philippines				
	Jan 89 - Jun 90	Male CSWs	421	0.0

Continued

Country/City	Year	Target Group	Tests Performed	%
<i>Continued</i>	Jan 89 - Jun 90	Female CSWs	918	0.1
	1990	Blood donors	5789	0.0
Thailand Klong Toey	1990	IVDUs	NR	60.0
	1990	Taxi drivers	139	1.4
Thailand Chiang Mai	1989	CSWs	518	35.5
	1990 (March)	CSWs	431	37.8
	1990 (July)	CSWs	319	42.6
Thailand Saraburi	1992	Truckers	420	2.4

Table 23

STD Surveillance Data from AIDSTECH Project Countries

Country/City	Year	Target Group	STD	Tests Performed	% Positive	
AFRICA						
Burkina Faso Bobo-Dioulasso	1991	Female CSWs	Syphilis	182	10.4	
			Trichomonas	182	31.9	
			Gonorrhea	182	5.5	
			Chlamydia	182	10.4	
			Candida	182	4.9	
	7/90-4/91	Pregnant women	Syphilis	290	2.0	
			Gonorrhea	290	0.3	
			Trichomonas	290	17.4	
			Candida	290	20.0	
	7/90-4/91	Male STD patients	Syphilis	205	3.0	
	Cameroon Yaounde	2/89-6/91	Pregnant women	Syphilis	2445	12.9
		1989	Female CSWs	Chlamydia	168	38.3
1989		STD patients	Syphilis	579	34.5	
1990		STD patients	Syphilis	582	37.1	
1991		Female CSWs	Syphilis	314	39	
			Gonorrhea	314	5	
			Chlamydia	314	16	
			Trichomonas	314	17	
10/91-2/92		Men in bars	Syphilis	1002	4.7	
			Gonorrhea	1002	5.0	
	Chlamydia		1002	3.7		
Malawi	1991	Semi-urban and rural pregnant women	Syphilis	759	4.7	
Mali Bamako	1991	Female CSWs	Syphilis	103	25.0	
			Gonorrhea	103	42.7	
			Candida	103	17.5	

Continued

Country/City	Year	Target Group	STD	Tests Performed	% Positive
<i>Continued</i>	1992	Female CSWs	Trichomonas	103	4.9
			Syphilis	45	25.6
			Gonorrhea	45	6.7
			Candida	45	17.8
			Trichomonas	45	0
Niger Niamey	1991	STD patients	Chancroid	2373	20.9
			Syphilitic chancre	2373	4.9
			Syphilis (BW+)	2373	5.4
			Gonorrhea (in men)	N/A	27.9
			Candida (in women)	N/A	7.9
			Trichomonas vaginalis	N/A	3.1
Tanzania	1992	Pregnant women	Syphilis	259	5
LATIN AMERICA/CARIBBEAN					
Dominican Republic Santo Domingo	1989	Female CSWs	Syphilis	15,036*	11.7
	1990	Female CSWs	Syphilis	12,380*	9.0
	1991	Female CSWs	Syphilis	17,641*	8.2
Dominican Republic Puerto Plata	1989	Female CSWs	Syphilis	220	10.9
	1990	STD patients/CSWs	Syphilis	1,977*	9.0
Eastern Caribbean Antigua, St. Lucia, Dominica, St. Vincent	1990	Male STD patients	Gonorrhea	154	38.7
			Chlamydia	154	10.3
	1990	Female STD patients	Gonorrhea	211	3.8
			Chlamydia	211	12.3
	1990	Prenatal women	Gonorrhea	160	1.3
			Chlamydia	160	13.2
Guatemala	1992	Family planning clients	Syphilis	303	0.3

Continued

Country/City	Year	Target Group	STD	Tests Performed	% Positive
<i>Continued</i>			Gonorrhea	303	0.3
			Chlamydia	303	6.9
			Trichomonas	303	7.3
			Chancroid	303	0.0
			Candida	303	1.0
	1992	Antenatal women	Syphilis	301	0.3
			Gonorrhea	301	0.7
			Chlamydia	301	5.0
			Trichomonas	301	10.3
			Chancroid	301	0.0
			Candida	301	3.7
	1992	Adolescents (12-21 yrs)	Syphilis	175	0.6
			Gonorrhea	175	1.7
			Chlamydia	175	6.9
			Trichomonas	175	3.4
			Chancroid	175	0.0
			Candida	175	0.0
	Jamaica Kingston	1991	Antenatal women, 15-24	Syphilis	301
ASIA					
Philippines	1990	National survey of blood donors	Syphilis	5789	2.9
Philippines Manila	1/89-6/90	Female CSWs	Syphilis	918	2.0
			Gonorrhea	918	19.0
			Chlamydia	918	14.0
			Candida	918	6.0
	1/89-6/90	Male CSWs	Syphilis	421	1.4
			Gonorrhea	421	3.0
Chlamydia			421	2.9	

Continued

Country/City	Year	Target Group	STD	Tests Performed	% Positive
Philippines Olongapo	9/89-2/90	CSWs	Gonorrhea	200	17.5
Philippines Angeles	10/89-3/90	CSWs	Gonorrhea	100	40
Thailand Chiang Mai	12/89	HIV+ female CSWs	Syphilis	184	47.7
	3/90	HIV+ female CSWs	Syphilis	163	52.0
			Genital ulcer	163	70.8
			Cervical ulcer	163	61.3
			Positive gram stain from cervical smear	163	59.5
	July 1990	HIV+ female CSWs	Syphilis	136	55.4
			Genital ulcer	136	56.4
			Cervical ulcer	136	21.4
			Positive gram stain from cervical smear	136	50.0
	Thailand Mae Sai District	1/91	CSWs in brothels	Gonorrhea	158
Syphilis				158	0.9
4/91		CSWs in brothels	Gonorrhea	98	8.3
			Syphilis	98	0

* Number of visits rather than tests performed.

- Using the AIDSTECH spreadsheet or EpiModel, AIDSTECH estimated the incidence needed to maintain a "stable" HIV prevalence level. For example, in an African city with a "stable" adult HIV prevalence of 25%, the estimated incidence rate of new HIV infection needed to keep the HIV prevalence from dropping is 3% to 4% per year.
- The use of household surveys and blood donor groups for surveillance can be subject to bias. AIDSTECH supported analysis for a household survey for HIV conducted in Mexico that showed serious bias due to non-participation by the at-risk population. Blood donors can be subject to serious bias due to self-selection and due to screening by the blood banks, who are always looking for "safer" donors.
- Data from surveys of men in Burkina Faso and Cameroon suggested that six months is the best recall period for the QuISTD Index.
- An attempt to validate the QuISTD Index against medical records in Yaoundé, Cameroon was not accomplished as planned.
- Results from a study of the QuISTD Index in Cameroon suggested that it is very important to look at the relative timing of two events: the date that a man begins to use condoms and the date of his most recent STD. The expected association between condom use and STDs was not found, and it is theorized that a recent STD may sensitize a man and motivate him to become a condom user.

Lessons Learned

- HIV sentinel surveillance data are most useful as an early warning sign, as an indicator of the general scope and gross trend of the epidemic, and as a source of data for modeling the epidemic and projecting the future number of AIDS cases. HIV sentinel surveillance data are not very useful as an evaluation tool for intervention programs because of the insensitivity of prevalence in the short term.
- In general, the best low-risk population for surveillance consists of pregnant women whose blood is drawn for syphilis testing and then tested in an anonymous and blinded fashion for HIV antibodies. Pregnant women are the preferred group, because they are generally a fairly representative sample of the sexually active population.
- Cohort surveillance requires relatively large amounts of resources in terms of the time and efforts of skilled personnel. Cohort studies are most appropriate as research tools to look at specific, high-priority research questions.

- Using sentinel surveillance to track the epidemic can lead to missing hot spots; there are real, persistent and important differences in HIV levels between different urban neighborhoods in the same city and between different rural areas in the same country.

Recommendations

- A more comprehensive approach to surveillance is needed. A 40-cluster sample with a sample size of 3,000 or more conducted every 4 to 5 years (as suggested by WHO) would approach the size of a national survey or national surveillance and would be a good, complementary addition to the present strategy of using a small number of sentinel sites.
- Improving clinic-based and community-based STD surveillance methods is probably the best method for evaluating the impact of intervention programs.
- Programs should not rely solely on self-reported history of STD symptoms.

AIDS Awareness and Mathematical Modeling

General Strategy

There has been an urgent need for more accurate forecasts of the future course of the epidemic by policy-makers. AIDSTECH supported the development of various models. The target audience for these models included policy-makers, technical personnel and service providers.

Three different modeling approaches were supported by AIDSTECH, each of which was appropriate for different uses: simple projections of AIDS cases and/or deaths; simulation modeling to look at the effects of interventions; and an impact presentation model to help policy-makers and others understand the future impact of the epidemic.

The various models developed under AIDSTECH can project future trends in the annual number of AIDS deaths, the number of AIDS cases, and the prevalence and incidence of HIV infections in populations in the developing world with given epidemiological, behavioral and demographic characteristics. They provide reasoned estimates for policy-makers interested in the impact of AIDS compared with other diseases, the direct and indirect costs of AIDS and the relative effects of different interventions.

See Chart 8 for an overview of AIDSTECH activities in modeling.

Program Summary

Projection Models

Based on an approach suggested by the WHO/GPA, AIDSTECH prepared a spreadsheet projection model based on HIV seroprevalence estimates. This model estimated the number of adult and childhood AIDS cases through the year 2000 and helped decision-makers understand the implications of HIV's long incubation period. The approach was integrated into a demographic projection model called DemProj, developed by the Futures Group. WHO subsequently developed a program for projections called EpiModel, which was more user-friendly for people who were not already familiar with spreadsheets. In order to avoid possible confusion due to the use of two similar models, several important features of the AIDSTECH spreadsheet were incorporated into WHO's EpiModel, and AID and AIDSTECH agreed to promote the use of EpiModel instead of the AIDSTECH spreadsheet.

Simulation Models

The State Department's Interagency Working Group model (iwgAIDS) was developed by the IWG modeling team. This model actually recreates the epidemic inside the computer, using a complex program to mimic the social, sexual, and drug using behaviors and relationships of different population groups. This model permits the systematic study of alternate scenarios resulting from spontaneous changes in behaviors or from intervention projects. The iwgAIDS model lets the user compare innumerable "what if?" scenarios based on different assumptions concerning behavioral and biological variables or based on the estimated effects of different control strategies.

Chart 8

AIDSTECH-supported Activities for Computer Modeling of the HIV Epidemic, 1987-1992

	Projection Model	Simulation Model	Presentation Model
AFRICA			
Botswana	■		■
Burundi	■		■
Cameroon	■	■	■
Kenya	■		■
Malawi	■		■
Tanzania	■		■
Uganda		■	■
LATIN AMERICA/ CARIBBEAN			
E. Caribbean	■		■
Haiti	■		■
ASIA/NEAR EAST			
India	■		■
Thailand		■	

In collaboration with INSERM/Paris and the Tulane and Zaire Schools of Public Health, AIDSTECH helped develop SimulAIDS, a stochastic simulation model. This model uses a stochastic or "Monte Carlo" approach, which is quite different from, but complementary to the iwgAIDS approach. SimulAIDS is designed to simulate transmission in an African urban environment and thus does not include many features found in iwgAIDS, such as drug use or homosexuality, but it can be used in a similar way to compare strategies to control the heterosexual transmission of HIV or other STDs.

Impact Presentation Model

The AIDS Impact Model (AIM) was developed by The Futures Group, in collaboration with AIDSTECH, based on their experience with the use of demographic models to help policy-makers evaluate the benefits of family planning services. AIM can take the results of the iwgAIDS model, SimulAIDS or the demographic projection model (DemProj), and show the impact of the AIDS epidemic on a wide variety of sectors, including child and adult mortality, health care costs, hospital bed utilization, population growth, the labor force, TB cases, numbers of orphans, etc.

The application of these models in each country was done in a spirit of technology transfer. The estimates generated by the modeling process became the property of each NACP, to be used to improve policy decisions at the national level.

Accomplishments

- A two-day workshop was held at FHI in early 1990 for preliminary modeling presentations and discussions of future directions, attended by the Centers for Disease Control (CDC) and AID representatives.
- Two workshops were held at FHI in July 1991 and June 1992 to determine the effect of interventions on the epidemic. Attendees were from CDC, WHO, the State Department, the World Bank and the Research Triangle Institute.
- An epidemiologically sound approach for medium to long term projections of the AIDS epidemic was devised in collaboration with WHO/GPA. After AIDSTECH's approach to using HIV incidence and prevalence rates for preparing medium to long-term projections was incorporated into DemProj, it became possible to use AIM to present the results of projections based on DemProj.
- STD control was incorporated into SimulAIDS and iwgAIDS models at AIDSTECH's recommendation. AIDSTECH organized a workshop at CDC to discuss the importance of STD parameters for HIV modeling. Consensus was reached regarding key parameters involved in STD/HIV transmission interaction.
- Two one-week regional African workshops were organized to diffuse the capability for making medium- to long-term projections of AIDS cases based on HIV prevalence data to developing country epidemiologists. Participants in the workshops were unanimous in their opinion that other African countries should also benefit from similar workshops.
- AIDSTECH was requested to help in the policy arena in Botswana and played a catalytic role in the establishment of a consensus about modeling approaches among modelers in South Africa.

- The spreadsheet projection model was applied to Malawi surveillance data. The estimates prepared by the AIDSTECH and the Malawi AIDS Secretariat were presented to government officials at all levels by Ministry of Health personnel and by officials in the Office of Planning. The projections have been used for internal planning and have been shared with donors, such as UNICEF, for planning purposes. A report was prepared as a pamphlet to be accompanied by a slide show for use in discussion with Malawi policy-makers.
- The presentation made to President Museveni of Uganda based on the iwgAIDS model was instrumental in convincing him to reconsider his policy regarding the promotion of condoms in the Uganda NACP and in giving added emphasis to STD control as part of the NACP.
- Baseline data were collected from Cameroon that will be used in simulation models to estimate the number of HIV infections averted by AID-supported AIDS control efforts in Yaoundé, especially the promotion and distribution of condoms among high-risk women.
- A workshop on modeling in the Caribbean was held at FHI with participants from Haiti and CAREC.
- Modeling presentations were conducted in Haiti and the Eastern Caribbean. The AIDSTECH spreadsheet and DemProj were used to produce projections of the epidemic and its impact in a "typical" Caribbean country.

Lessons Learned

- Simulation models are best used for research. They are ideally suited to exploring key factors affecting the size and pace of the epidemic and for understanding effects of different interventions. They are not well-suited to awareness or training sessions (such as workshops or presentations) because of the time required to run the models and the difficulty of understanding input requirements, analytical strategies and output.
- Projection models are well-suited to workshops with developing country counterparts. They are quick and easy to explain and use, and can be used in interactive sessions to explore the implication of alternate assumptions about HIV incidence and prevalence. They can be used to produce scenarios that answer most of the important questions raised by the AIDS epidemic, including demographic, health and economic impacts.
- Impact presentation models are useful in workshop and presentation settings. These models can use the output from either the simulation models or projection models to display these projections, their consequences and the effects of interventions. The addition of special charts illustrating key

concepts, such as the incubation period, can also be added to make a complete presentation. Although AIM is ideal for this purpose, commercial slide show software, such as Freelance or Harvard Graphics, can also be used to prepare quick presentations of results.

- A major point demonstrated by AIDSTECH modeling was the existence of three major proximate determinants of HIV transmission: Rate and pattern of partner change; use of condoms or other forms of safer sex; and prevalence of other STDs. AIDSTECH showed that modest interventions attacking multiple points of HIV spread could be more effective than interventions aimed at a single factor.
- The analysis of the relationship between HIV incidence and prevalence levels provided insight into the importance of looking at 15 to 19 and 20 to 24 year olds as a way of assessing short-term changes in the incidence of HIV infection.
- The AIM model has been found to be an excellent educational and motivational tool, both for AID missions and for national personnel.
- The following issues are important to communicate to policy-makers:
 - HIV has a long incubation period; infected individuals can spread the virus for years before they realize they are infected.
 - Most HIV infections result from sexual transmission.
 - HIV infection starts in the highest risk groups and then spreads to the general population.
 - The presence of other STDs is a major factor in the spread of HIV.
 - AIDS control programs should attack all three of the proximate determinants of the sexual spread of HIV through: reducing partners, promoting condoms and safer sex and improving STD control.
 - Interventions will be more effective if implemented early in the epidemic and targeted at high-risk populations.

Recommendations

- **Workshops on projections of the AIDS epidemic should be conducted in Latin America/Caribbean and Asia/Near East.**
- **Modelers must explore the sensitivity of findings to assumptions and consider how data inaccuracies and lack of completeness affect results. Only results that are realistic and appropriate should be included in policy presentations and workshops. Uncertain results should be presented with appropriate caveats or not presented at all.**
- **The validity and predictive value of outputs from the various models should be evaluated continuously.**

PVO/NGO Small Grants Program

Program Summary

The AIDSTECH PVO/NGO Small Grants Program was developed to encourage international PVOs and indigenous NGOs to become involved in AIDS prevention activities. PVOs, with their broad network, extensive experience in health service delivery, and demonstrated ability for capacity-building at the community level, are well placed to carry out HIV/AIDS programs.

The Grants Program provided seed money (up to \$50,000 per year for up to two years) to support innovative approaches to community-based HIV/AIDS prevention services.

Priority was given to proposals that:

- Provided solutions to identified problems.
- Provided new ways of reaching people with high-risk behavior.
- Provided low-cost ways of accomplishing objectives.
- Could be replicated in other settings.
- Could be absorbed into existing health care systems.
- Were aimed specifically at AIDS prevention and control.

The Small Grants Program Review Committee, composed of representatives from AIDSTECH, AIDSCOM and AID/W met quarterly to review concept proposals that had prior support of the relevant national AIDS committee and AID Mission, and to make funding recommendations.

Successful concept proposals were developed in more detail through collaboration between the manager of the proposed project and an assigned AIDSTECH technical monitor who assured the overall progress of the project.

From July 1988 through September 1991 more than 100 proposals were reviewed. Of these, 29 were funded. Of the 29 successful proposals, 11 were awarded to international PVOs; the remaining 18 were awarded to indigenous NGOs.

- 19 projects were education/condom distribution projects targeting either high-risk populations (CSWs, STD patients, IVUDs, MSM) or the general population (low-income women, adolescents) to prevent the sexual transmission of HIV.

- Seven projects trained PVO/NGO staff or community members in preparation for intervention activities.
- Two projects were related to establishing a clean blood supply.
- One project supported a workshop on lessons learned for HAPA funded projects.

Chart 9 shows the PVOs/NGOs and projects funded for each country.

Accomplishments

Several innovative programs were funded:

- The Implementing Agency for Cooperation and Training (IMPACT) provided technical assistance to the Haitian National Institute for Social Welfare and Research IBESR and the Haitian Social Services Committee (CHASS) to develop a peer education project in densely populated zones of Port-au-Prince. Education and motivation were provided to groups identified as being at very high risk of contracting and spreading HIV: full-time bar-based CSWs, part-time CSWs who work on the streets, women who occasionally resort to commercial sex to provide for the needs of their families, and men who were their sex partners. The program was so successful in increasing condom use that it received funding from the AID mission for expansion and continuation.
- The Centre for Development and Population Activities (CEDPA) worked with Family Life Promotion Services, Ltd. (FLPS) in Kenya to provide AIDS education and condom distribution in addition to family planning to low-income workers in city center communities. Initially people in the community did not believe that AIDS was a problem. As the outreach workers discussed the disease and worked with the communities, the people became more eager to learn. Films and videos as well as group publicity and home visits were used to educate people in the community. Condoms were distributed to various sites including hotels/bars, retail outlets, residences, clinics and in the workplace.
- Adolescents need relevant and appropriate information about preventing HIV infection and AIDS in order to make responsible choices about sex. The Costa Rican Demographic Association developed and compared two intervention strategies: The use of trained peer facilitators, and participatory methods versus the distribution of educational materials alone. The participatory method produced a significant increase in knowledge but did not lead to changes in level of sexual activity or to increased condom use.
- The Population and Community Development Association worked with taxi drivers in Thailand to reach individuals at increased risk of HIV infection with prevention messages and to provide convenient access to condoms. Although

taxis are used by the clients of the commercial sex industry in Bangkok and drivers have a timely opportunity to discuss AIDS prevention with them, this project was not successful. Taxi drivers were not interested in supplying condoms when it involved exchanging money during the ride, reporting sales, and taking responsibility for picking up new supplies. Even after training they were uncomfortable talking to passengers about AIDS.

Lesson Learned

- A small grants program is a cost-effective method of determining what works and what does not.
- Successful programs can be expanded or replicated as appropriate.
- The program provided capacity building for indigenous NGOs.

Recommendations

- A small grants program for indigenous NGOs should be established to provide pilot testing for programs that emphasize partner reduction.
- Changes in risk behaviors should be the objective of the projects and evaluation should be designed to establish what changes occurred.

Chart 9
Projects Funded Under the AIDSTECH PVO/NGO
Small Grants Program

Region/Country	PVO/NGO Institution	Project Title
AFRICA		
Interregional	Adventist Development and Relief Agency (ADRA)	AIDS Training Workshops for PVO/NGO Staff and Health Professionals
Interregional	Experiment in International Living (EIL)	Workshop to Review Lessons Learned from HAPA Grants Program
Burundi	Kibuye Free Methodist Church	Kibuye AIDS Project: Intervention with Men who Work Away from Home and Their Families
Cameroon	International Health Services	Evaluation of a Diagnostic Test for HIV
Central African Republic	AFRICAREAIDS	Training and Health Center for Young Women
Côte d'Ivoire	Population Services International (PSI)	Increasing Condom Use Among High-Risk Populations in Côte d'Ivoire
Kenya	Center for Development and Population Activities (CEDPA) and Family Planning Life Promotion Services (FLPS)	Integrating AIDS Prevention into FLPS Family Planning Services
Kenya	Kenya Red Cross	Development of Counseling Manuals and Video Training Film for Pre- Post-HIV Test Counseling
Kenya	Maendeleo Ya Wanawake Organization (MYWO)	Training MYWO Field Workers in AIDS Education and Condom Promotion
Malawi	Malawi Red Cross	Study of Attitudes of Malawians to Blood Donation
LATIN AMERICA/ CARIBBEAN		
Brazil	Implementation Agency for Cooperation and Training (IMPACT)	AIDS Prevention Campaign Focused on CSWs
Brazil	Cultural Concepts	AIDS and Umbanda in Brazil: Training Afro-Brazilian Popular Healers in HIV/AIDS Prevention

Continued

Region/Country	PVO/NGO Institution	Project Title
Costa Rica	Costa Rican Demographic Association	Research on Educational Strategies to Prevent AIDS in Costa Rican Adolescents
Costa Rica	Association to Fight AIDS	AIDS Prevention and Information Hotline
Eastern Caribbean	Project HOPE	AIDS Education Program in the Caribbean
El Salvador	Salvadoran Demographic Association (ADS)	Establishment of STD Clinic
Guatemala	Association of Family Welfare of Guatemala (APROFAM)	Detection of Antibodies Against HIV and Sexual Behavior Survey of People with STDs
Haiti	Implementing Agency for Cooperative Training (IMPACT)	AIDS Prevention Campaign Focused on CSWs and Their Clients
Haiti	Center for Development and Health (CDS)	AIDS Education for STD Patients in Gonaives
Haiti	Center for Development and Health (CDS)	An STD Clinic for Gonaives, Haiti
Mexico	Mexican Institute for Research on Family and Population (IMIFAP)	Pharmacists' and Consumers' Knowledge and Behavior with Respect to AIDS in Mexico City
Mexico	Mexicans Against AIDS (MCSC)	Radio Broadcasting: A Soap Opera
Mexico	Communication, Interchange and Human Development in Latin America (CIDHAL)	Women and AIDS
Mexico	Solidarity and Life (SOLVIDA)	Education for Prevention of AIDS in Women Living Among HIV Infected Persons
Peru	Open Path (Via Libre)	Integrating Persons with HIV/AIDS in the Primary Prevention of HIV Infection
ASIA/NEAR EAST		
Morocco	Association Against AIDS	Education Program for CSWs
Sri Lanka	Family Planning Association of Sri Lanka	AIDS Education Program for Health Professionals and the Tourist Industry Workers
Thailand	Duang Prateep Foundation (DPF)	Klong Toey AIDS Control Project for IVDUs
Thailand	Population and Community Development Association (PDA)	Taxi-based AIDS/HIV Education and Prevention Project for Clients of CSWs

Information Dissemination

General Strategy

The AIDSTECH information dissemination program was initiated in December 1987 with the goal of providing up-to-date information about AIDS and AIDS-related issues to colleagues in the developing world. To accomplish this goal, AIDSTECH collected a series of relevant articles that were compiled into packets and mailed regularly to a selected group of individuals and organizations. Publications distributed through the mailings were selected by an internal review committee on the basis of technical accuracy and relevance to the developing world.

Program Summary

The AIDSTECH mailing list consisted of individual AIDS researchers, health professionals, AID missions, universities, PVOs, MOHs, national AIDS committees and research organizations in developing countries. During the project, hundreds of additions were made to the mailing list as a result of individual requests.

The purpose of the English literature mailings was to help keep colleagues in the developing world informed of the latest developments in AIDS research. Each packet contained between 10 and 15 recently published articles on a variety of AIDS-related topics, including: epidemiology, prevention, transmission, counseling, STDs, and condoms. AIDSTECH also disseminated four theme-based mailings in which all the articles in the packet covered different aspects of the same topic. The subjects of these four special mailings were health care finance, ethical issues, condoms and counseling.

Recognizing that many colleagues in Francophone Africa and the Caribbean were not proficient enough in English to fully comprehend English-language journal articles, AIDSTECH began mailing packets of French-language articles in October 1988, which were distributed quarterly.

In addition to the basic information provided in the bimonthly English information packets, there was a need for more technical information, especially in the field of HIV diagnostics and safe blood supplies. Accordingly, AIDSTECH developed an information dissemination program targeted for laboratory and blood specialists to supplement other information dissemination activities. The pilot program began in February 1990 and consisted of three mailings to approximately 50 individuals in an eight-month period, at which point the program was evaluated and the decision made to continue and expand the program.

AIDSTECH also maintained an AIDS literature database with articles and other publications catalogued by topic. This database enabled AIDSTECH to respond to information requests from the field and provided staff with a valuable resource.

Accomplishments

- 5,100 articles were added to the AIDS Information Database in a five-year period.
- 29 English information packets were compiled and distributed. A total of 368 articles were mailed to approximately 900 health professionals.
- 15 French information packets were compiled and distributed. A total of 183 French articles were mailed to approximately 250 Francophone health professionals.
- Eight laboratory management packets were compiled and distributed. A total of 101 articles were mailed to approximately 100 laboratory specialists.
- 150 subscriptions to Current AIDS Literature were provided to selected health professionals for a three-year period.
- The following books and publications were distributed:
 - 500 copies of A Colour Atlas of AIDS in the Tropics.
 - 500 copies of Triple Jeopardy: Women and AIDS.
 - 500 copies of Blaming Others.
 - 400 copies of Tradition and Transition: A Guide to NGOs in Africa.
 - 400 copies of AIDS in Africa.
 - 200 copies of AIDS 90 Summary and AIDS 91 Summary.
 - 1,300 copies of a special condom issue of Population Reports (900 English, 300 French and 100 Spanish).
 - 1,050 copies of AIDS in the Third World (1,000 English and 50 Spanish).
 - 550 copies of WHO's Guide to Counseling about HIV Infection and Disease (400 English, 100 French and 50 Spanish).
 - 550 copies of WHO's Guide to Planning Health Promotion for AIDS Prevention and Control (400 English, 100 French and 50 Spanish).
 - 400 copies of the Manual for AIDS Prevention in Africa (200 English and 200 French).

Lessons Learned

- The mailings provided critical AIDS information to recipients from the developing world; in many cases, this was the only source of AIDS literature that was available.
- Requests from people in the field to be added to the mailing list can be overwhelming; criteria must be used to determine who will be added.
- Theme mailings are useful for targeted mailings; they can provide recipients with an overview of current thinking, program experiences and unresolved issues.

Recommendations

- Quality of disseminated information rather than quantity should be the focus.
- The mailings can provide a way to disseminate unpublished program findings and experiences.

Conference and Training Support Program

General Strategy

AIDSTECH emphasized building local skills through:

- Supporting attendance of international technical experts and policy-makers working in the area of AIDS at international and regional AIDS conferences.
- Improving the research, IEC and epidemiology skills of developing country researchers through training.

Program Summary

The AIDSTECH Conference Support Program was initiated in January 1988. The initial goal was to support colleagues from less developed countries to the annual International Conference on AIDS. Over the years, AIDSTECH expanded its support to include regional AIDS conferences and workshops. Through this program, both staff and colleagues in the field who were managing AIDSTECH-funded projects were encouraged to submit the results of their activities for presentation at international and regional conferences. Priority to attend conferences was given to those staff and colleagues with accepted papers and posters.

The International Training Programs Fund was established in 1990. The programs attended by selected participants included a CDC course in surveillance and applied epidemiology, an IEC program for AIDS prevention in Santa Cruz, California, the International Workshop for Preventing Sexual Transmission of HIV and Other STDs in London, the STD Comprehensive Course at Baltimore STD/HIV Prevention Training Center in Maryland, the STD Clinician Training Course at the University of California, San Francisco, and the Training Program in AIDS Epidemiology and Prevention Research, a part of CAPS (Center for AIDS Prevention Studies)/WHO Visiting Scholars Program and the University of California, San Francisco.

Accomplishments

- AIDSTECH provided technical assistance, logistics and/or funds to 14 international AIDS conferences, six regional AIDS conferences, and two AID AIDS conferences.
- In total, AIDSTECH sponsored 390 participants to attend selected conferences (see Table 24).
- A total of 64 papers were presented on AIDSTECH-funded programs.

- A total of 74 posters were presented on AIDSTECH-funded programs.
- AIDSTECH sponsored 14 workshops. Nine of these were organized in conjunction with a conference, and five were conducted independently of any conference.
- AIDSTECH sponsored 20 participants to attend training courses at various institutions; six attended the ten-week CAPS/WHO program where each visiting scholar developed a protocol for a specific project with relevance to AIDS prevention to be carried out in the scholar's home country.

Lessons Learned

- Some project managers can spend so much time at conferences that project implementation suffers.
- Regional AIDS conferences are often more useful than large international conferences; they allow for in-depth discussion of issues and exchange of relevant information among participants.
- Training programs are most useful when participants can apply new skills immediately upon return to their countries.

Recommendations

- **Select a few conferences to support with a significant presence; focus program efforts on those conferences.**
- **Conference attendance can be a reward and a valuable learning experience for program managers.**

Table 24**AIDSTECH-supported Participation at International Conferences**

Name, Place and Date	Participants	Presentations
IV International Conference on AIDS June 12-17, 1988 Stockholm, Sweden	72	3
VI African Regional Conference on STDs and Treponematoses March 27-31, 1989 Yaoundé, Cameroon	4	
V International Conference on AIDS June 4-9, 1989 Montreal, Canada	73	9
IV International Conference on AIDS and Associated Cancers in Africa October 16-20, 1989 Marseille, France	4	6
II International Symposium on AIDS Information and Education October 22-26, 1989 Yaoundé, Cameroon	2	1
Implications of AIDS for Mothers and Children November 27-30, 1989 Paris, France	1	
World Consultation on Education for AIDS Prevention February 2-7, 1990 Paris, France	4	
First Annual AID Scientific Mini-Conference February 5-8, 1990 Washington, DC	24	8
VI International Conference on AIDS June 20-24, 1990 San Francisco, CA	68	10
V International Conference on AIDS in Africa October 10-12, 1990 Kinshasa, Zaire	17	10

Continued

Name, Place and Date	Participants	Presentations
II International Conference on AIDS-related NGOs and Community Organizations November 1-4, 1990 Paris, France	6	
Assessing AIDS Prevention October 28 - November 1, 1990 Montreux, Switzerland	6	6
Regional Meeting on Behavioral Intervention for STD and AIDS Prevention December 11-14, 1990 Kingston, Jamaica	11	6
World Congress on AIDS December 7-9, 1990 Bombay, India	2	
VII International Conference on AIDS June 16-20, 1991 Florence, Italy	46	27
V World Conference for Seropositive People September 10-17, 1991 London, UK	1	
First International Conference on the Biopsychosocial Aspects of HIV Infection September 21-18, 1991 Amsterdam, the Netherlands	2	1
II Annual A.I.D. AIDS Prevention Conference November 4-5, 1991 Washington, DC	9	6
SWAA Third International Workshop November 13-16, 1991 Yaoundé, Cameroon	1	
VI International Conference on AIDS in Africa December 16-19, 1991 Dakar, Senegal	25	
VIII International Conference on AIDS July 19-24, 1992 Amsterdam, the Netherlands	12	31
TOTAL	390	138

Regional Programs

The pattern and extent of the AIDS epidemic varies by region, as did the strategies and possibilities for AIDSTECH intervention. Within the AIDSTECH program, priority was given to the Africa region, followed by Latin America and the Caribbean, and Asia/Near East regions.

Regional and country strategies were based initially on the AIDSTECH needs assessment/program planning visits, as well as on priorities established by AID missions and the review of national AIDS plans. As programs in many countries evolved, so did a collaborative strategy development process.

The decision to work in various countries was based on the following criteria:

- Prevalence and incidence of HIV and/or STD infection.
- Potential for rapid spread of HIV infection.
- Ability of existing health infrastructures or local organizations to implement sustainable programs.
- High potential for program impact.
- FHI contacts in country.
- Willingness of national AIDS committees to work with AIDSTECH.
- AID mission support for AIDSTECH activities.
- The availability of add-on or core funding to support programs.

The demand for AIDSTECH assistance exceeded the resources available through the program. As a result, AIDSTECH activities had to be focused, not only on the major modes of transmission, but also on geographic location.

In each region, AIDSTECH identified countries where it supported extensive, multifaceted and integrated programs. Thirteen countries and one region were designated for extensive programs: seven in Africa (Burkina Faso, Cameroon, Ghana, Kenya, Tanzania, Zaire and Zimbabwe), five in Latin America and the Caribbean (Brazil, the Dominican Republic, Haiti, Mexico, and the Eastern Caribbean) and two in Asia/Near East (Philippines and Thailand).

Other countries received AIDSTECH support on a more limited basis. AIDSTECH responded to country needs and mission requests as resources permitted.

About 50% of field-related program resources were spent in Africa, 36% in Latin America/Caribbean and 14% in Asia/Near East.

The following sections describe the patterns of the epidemic in each of the major regions, outline the general regional strategies for AIDSTECH, and describe the AIDSTECH program for extensive program countries. Each country summary includes:

- A program summary, which describes the AIDSTECH program in the country.
- Accomplishments, which summarize project findings and process and outcome indicators where available.
- Lessons learned, which relate specifically to the AIDSTECH projects.
- Recommendations, which reflect AIDSTECH's vision for the future based on project experience and staff perceptions of country prevention program needs.
- Program highlights which illustrate the range and type of project in the various regions.

Africa Emphasis Countries

Epidemiology

Throughout the life of AIDSTECH, Africa has been gravely affected by the AIDS epidemic. Before 1989, WHO estimated that 2.5 million people were infected with HIV. By July 1992, estimates revealed that although sub-Saharan Africa contains only 8% of the world's adult population, it carried over 60% of the world's HIV burden: over 6.5 million sub-Saharan Africans (one out of every 40 adults) were believed to be infected with HIV. Left unchecked, HIV infection is projected to increase to 14 million by the year 2000. At present, the epidemic shows considerable variation by country, but the observed pattern of spread between regions and among countries in a region suggests that all sub-Saharan African countries are vulnerable to the HIV/AIDS epidemic.

The AIDS epidemic in Africa has displayed the following characteristics:

- HIV transmission in Africa is predominantly by heterosexual contact, with rates of infection roughly equal for women and men.
- The epidemic's greatest impact has been on urban areas, particularly in Central and East Africa. Some urban centers have recorded rates of infection as high as 30% among 20 to 49 year olds and over 80% in certain high-risk groups in the population.
- High STD rates in most African countries have undoubtedly accelerated the heterosexual spread of HIV infection compared to other parts of the world.
- Both intra- and international migration have played a key role in the epidemic. Men migrate from rural areas to rapidly growing urban areas to find work, become infected, and then return to their home villages to visit wives and other family members, thus facilitating the spread of HIV to rural areas.
- As more women of child-bearing age have become infected (by early 1992 over three million sub-Saharan African women were believed to be infected), perinatal transmission has played an increasingly important role in the epidemiology of HIV and has already undermined recent gains in child survival. Results from several studies in Africa indicate that overall child mortality (death in the first five years of life) may increase by 10 to 52% in HIV-infected urban areas.
- HIV transmission has also occurred through unscreened blood transfusion. In some countries with widespread infection, surveys showed that over 15% of persons donating blood were HIV-positive. Blood screening and banking systems in many areas were rudimentary, and quality assurance was a new concept.
- Intravenous drug use has not been a significant mode of transmission in Africa.

AIDSTECH Strategy

Because HIV transmission in Africa is predominantly by heterosexual contact, most AIDSTECH activities targeted heterosexual behavior change, which would also reduce the rate of perinatal transmission. In countries where the epidemic was in its early stages and the virus appeared to be localized to certain high-risk groups (e.g. CSWs, their clients, truckers, the military), AIDSTECH focused prevention activities on these groups. In countries where HIV prevalence was widespread, AIDSTECH also targeted broader segments of the general population, such as employees in the workplace and adolescents.

STDs have been identified as an independent risk factor for HIV transmission; consequently, STD surveillance and control activities were supported to prevent the spread of HIV. Moreover, other STDs are transmitted in the same way as HIV, so primary prevention of one helped reduce the spread of others.

Transfusion of contaminated blood and blood products was a significant contributor to the spread of HIV in Africa, so AIDSTECH assessed countries' blood safety needs, developed technologically appropriate blood screening programs, and encouraged integrated blood transfusion systems with concomitant training and quality assurance components.

As the role of migration in the AIDS epidemic was delineated, it became clear that cooperation among nations was necessary to curtail the spread of HIV. Thus, where politically and programmatically feasible, AIDSTECH encouraged collaboration among countries in subregions of the continent as well as collaboration among organizations within a country. To this end, AIDSTECH developed AIDS prevention programs with organizations already involved in health-related activities on regional levels.

Unfortunately, AIDS will be present in Africa for some time. Control of the epidemic will require a long-term effort difficult for most African nations to maintain. Governmental and non-governmental organizations in many African nations charged with the responsibility of combating the epidemic do not have the human or material resources needed for the task. Therefore, AIDSTECH's activities incorporated institutional development through program support, provision of needed equipment, training, and technical assistance.

AIDSTECH Program

AIDSTECH focused its activity in seven African countries: Ghana, Burkina Faso, Cameroon, Zaire, Kenya, Tanzania, and Zimbabwe. In addition, AIDSTECH sponsored projects in Malawi, Mali, Senegal, Nigeria, Burundi, Botswana, Niger, Morocco, Uganda, Côte d'Ivoire, and the Central African Republic.

In each country, AIDSTECH worked within existing health infrastructures in accordance with the desires of the NACP, AID Mission priorities, and WHO global strategies as reflected in countries' Medium Term Plans (MTPs). Where possible, AIDSTECH also actively collaborated with other donor agencies, PVOs, and indigenous NGOs.

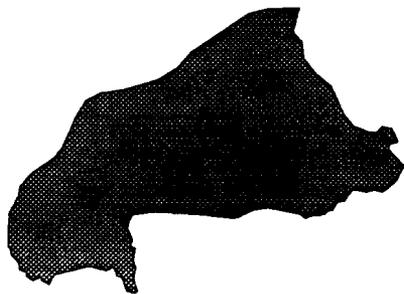
Certain factors made project implementation challenging in Africa:

- Most African countries suffer from weak health infrastructures that were overburdened before the AIDS epidemic.
- Issues arising from the international media's labeling of Africa as the birthplace of AIDS as well as reactions to certain stereotypes of African promiscuity contributed to the delay of addressing the problem in some countries.
- Several governments were reluctant to deal with marginalized, high-risk groups, especially those practicing illegal activities, such as CSWs.
- Until recently, the major weapon in the AIDS prevention arsenal, condoms, were virtually unknown in many countries and when present were often inaccessible, unaffordable or unpopular.
- Cumbersome government approval processes also contributed to delays.

In spite of these challenges, almost half of AIDSTECH's field-related program resources were spent in Africa. Of the \$10.8 million expended for AIDS prevention in Africa, about 68% was committed to prevention of sexual transmission. Through this support, more than 2.6 million educational contacts were made and more than 40 million condoms were distributed to persons at risk of HIV transmission. Approximately 12% of AIDSTECH's obligation to Africa supported improvement of national blood supplies.

The AIDSTECH program in the seven extensive program countries is described on the following pages. Appendix 3 shows activities by country for the region, and Volume II of this report provides detailed one-page descriptions of major project accomplishments and lessons learned for all countries where AIDSTECH worked.

Burkina Faso



Burkina Faso

Program Summary

Burkina Faso's AIDS epidemic has intensified over the past five years. HIV sentinel surveillance of various population groups during this time period, mostly in Ouagadougou and Bobo-Dioulasso, revealed HIV seropositivity rates of 7% among pregnant women (1987), 11% among blood donors (1989), 23% among TB patients (1990), 18% among male STD patients (1991), and over 60% among CSWs (1987).

Epidemiologic data suggested that prevention of sexual transmission among mobile high-risk groups, including STD patients, and to a lesser degree, improvement of the country's blood supply, were appropriate areas of activity in Burkina Faso and were made objectives of the NACP. In response, AIDSTECH supported four projects to prevent sexual transmission of HIV/STD:

- A pilot condom distribution project in Ouagadougou, in which the Direction de l'Education pour la Santé et l'Assainissement (DESA) recruited small commercial establishments (e.g., small stores, gas stations, bars, and hotels) to sell condoms.
- A national condom social marketing project that originally targeted high-risk groups, but because of the government's concern over increasing HIV prevalence among the general population, broadened its focus to make condoms available to all sexually active persons.
- A community and clinic-based HIV education project in Ouagadougou targeting CSWs, their clients, and STD patients conducted in collaboration with DESA.
- An STD surveillance and control project in Bobo-Dioulasso to improve methods of STD diagnosis and surveillance at the Centre Muraz, the regional disease-control research and training agency; this activity represented an initial step in promoting regional efforts to curtail the epidemic.

To reduce HIV transmission by blood transfusion, AIDSTECH supported:

- TOT activities based at the Yalgado Hospital in Ouagadougou to train laboratory technicians from 18 regional hospitals in ELISA, Western blot, and rapid assay techniques for detecting HIV-1 and HIV-2.
- Provision of blood screening equipment to 18 regional hospitals.

Accomplishments

- Over 5.8 million condoms were sold to distributors for resale to the sexually active population in 20 of the country's 30 provinces, with monthly average sales rising from 50,000 during the pilot phase to approximately 425,000 since initiation of national condom social marketing.
- Approximately 300,000 condoms were sold directly to persons at high risk of HIV/STD infection in Ouagadougou and Bobo-Dioulasso.
- Over 304,000 persons were reached nationwide by interpersonal AIDS education/condom promotion activities.
- About \$140,000 in condom sales revenues were generated to support AIDS prevention activities.
- Ten NGOs, including four young adult associations, were recruited to assist in social marketing activities.
- A total of 48 Ouagadougou CSWs were trained to educate their peers in HIV/STD prevention.
- STD and HIV testing was performed among a total of 205 STD patients, 290 pregnant women, and 182 bar girls; prevalence of positive syphilis serologies among the groups was 3%, 2%, and 10% respectively; prevalence of positive HIV serologies was 18%, 7%, and 45%, respectively.
- Techniques of testing for *Chlamydia trachomatis* and *Hemophilus ducreyi* were established at the Centre Muraz laboratory.
- Based on collected epidemiologic data and antibiotic resistance profiles, STD treatment algorithms were developed and disseminated to 30 health practitioners of Bobo-Dioulasso.
- 44 laboratory technicians from 18 regional hospitals were trained in laboratory techniques to screen blood.

Lessons Learned

- Small establishments such as small stores and bars can be effective condom distributors.
- Young adults living in Burkina Faso can be effectively mobilized to assist in HIV prevention activities, including promotion of condom use.

- Condom social marketing projects need not rely only on advertisement through the mass media; promotional activities conducted at markets and other public gathering places are effective in advertising condoms.
- Because of the DESA's limited human and material resources, effective implementation of projects through this organization may require large amounts of technical assistance.
- The DESA will not be able to provide administrative support for intervention activities replicated in other cities; logistical support, including transfer of funds, will need to be negotiated directly with officials in replication sites.
- Transfer of STD diagnostic technologies is an important but difficult aspect of developing STD treatment algorithms.
- The presence of a local facilitator to clear laboratory materials through customs, especially perishable reagents, is critical; otherwise, supplies may be lost or destroyed by lack of refrigeration.

Recommendations

- Condom social marketing activities should be continued, with special effort taken to link target groups to the commercial distribution system.
- Additional activities should be undertaken to educate health officials at the national and provincial levels about what commercialization of condoms entails (i.e., the "private sector" nature of the condom social marketing project).
- A regional West Africa conference of condom social marketing project managers and appropriate NACP officials should be conducted to encourage regional cooperation and collaboration among the projects.
- NACP should be encouraged to invite participation of Burkinabé young adults in AIDS/STD prevention activities.
- Periodic meetings of NACP officials with representatives of organizations involved in AIDS/STD prevention, including donors, should be conducted to improve coordination of activities.

Program Highlight

Energy, High Visibility and Positive Messages Spur Condom Sales in Burkina Faso

The Burkina Faso Ministry of Health, Social Action, and the Family (MOSHAF) initiated a broad-based and diversified national condom social marketing project following the successful completion in 1991 of a 16-month pilot condom distribution project that utilized the existing commercial infrastructure in the city of Ouagadougou. MOSHAF, AIDSTECH and PSI worked together to initiate the expanded project, established as Programme National de Promotion et Distribution des Condoms au Burkina Faso (PROMACO). Condom sales began in September 1991. Due to an efficient distribution system, inspired promotional techniques and an energetic and highly visible sales force, PROMACO is operating one of the most successful condom social marketing programs in the world.

Project Description

PROMACO's goals were to develop sales and promotion strategies and tactics that encouraged increased condom use by persons at risk of HIV infection throughout Burkina Faso, and to ensure that condom distribution mechanisms operated efficiently so that local vendors had easy access to a ready supply of condoms.

The promotional campaign was developed around a sales personality and style best described as "the condom cowboy." The sales staff wear white cowboy hats, sport ammunition belts loaded with condoms and roar into city and town centers on motorcycles. Once they capture the attention of the crowd, they begin to promote PRUDENCE condoms by handing out T-shirts, bumper stickers and potholders emblazoned with the PRUDENCE logo. They exhort the crowd to buy PRUDENCE condoms at any of the many local shops. Campaign slogans, such as, "PRUDENCE: La Joie de Vivre," (Prudence: the joy of life) are upbeat. The campaign is energetic and uses a multimedia approach. In large markets, the cowboys drive into town with truck-mounted sound systems that broadcast popular music and songs with HIV/AIDS prevention themes. PROMACO also sponsors sporting events, dances, films and theater performances, and airs daily promotional messages on the radio. Diverse audiences have been reached across the country and specialized promotions have been developed for more targeted groups including truckers, miners, military personnel and students.

The nation-wide project established a commercial distribution network of 113 wholesalers and more than 1,800 retailers in 20 provinces, which included the country's three largest cities, 17 additional provincial capital cities, and 63 smaller departmental capital cities, mining sites, frontier towns or other areas with large markets.

Accomplishments

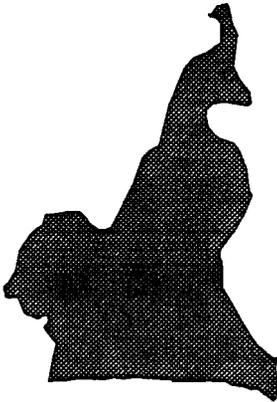
In less than a year, more than 4.4 million condoms were sold to distributors for resale to consumers, representing the most successful start-up of any condom social marketing project in Africa. These sales indicated that PROMACO had achieved an annual consumer sales potential of one condom per capita, a rate that exceeded the existing per-capita sales levels of all other condom social marketing efforts worldwide. More than 76,000 condoms were sold to CSWs, their clients and STD patients in Ouagadougou, 19,000 condoms were sold to truckers, and 20,000 condoms were sold to a student organization that retailed the product to its members.

Lessons Learned

Effective condom social marketing projects can be executed in the developing world on a national scale. Essential components of such projects are: adequate resources, an easily accessible product, appropriate pricing, carefully developed and integrated sales and marketing plans, aggressive promotion, reliable distribution networks, and the full commitment of national policy-makers.

Young adults, the most vital, hopeful and enthusiastic segment of the population, can play an effective and much needed role in promoting condom use.

Cameroon



Cameroon

Program Summary

As of March 1989, 78 cases of AIDS were officially reported in Cameroon. Various seroprevalence studies in Yaoundé, the capital, revealed prevalence of 1% for pregnant women, 1.9% for hospitalized TB patients, 7.3% among CSWs, and 0.3% among blood donors (1988). Seroprevalence rates in the rural areas were under 1%. As in many West African countries, heterosexual contact was the major mode of transmission in Cameroon, with a few cases attributable to blood transfusion. In 1989,

Cameroon's major AIDS problem appeared to be extremely mobile groups practicing high-risk behavior moving through a general population of low prevalence.

By 1989, Cameroon's National AIDS Control Unit (NACU), in collaboration with several international governmental and non-governmental organizations, had already made significant strides to combat the epidemic through the initiation of seroprevalence studies, mass media prevention campaigns, small-scale interventions with education and condom distribution, laboratory technician training, and provision of laboratory supplies. After consideration of the country's epidemiologic pattern and the NACU's objectives and enthusiasm to develop a full array of AIDS prevention activities, AIDSTECH collaborated with the NACU and other organizations already operating throughout the country to develop a model AIDS prevention program.

Because of the epidemiological significance of mobile high-risk groups for sexual transmission of HIV, AIDSTECH supported four projects addressing this target population:

- Community-based and clinic/dispensary-based HIV education targeting CSWs and their potential partners (STD patients, bar patrons, and truckers) in Yaoundé, Douala, Maroua, and Ebolowa, coupled with social marketing of condoms to these groups and to the general sexually active population, conducted in collaboration with PSI and the NACU.
- Pilot social marketing of STD treatment medicines to STD patients and their partners, in collaboration with PSI, to make STD treatment both accessible and affordable in Cameroon.
- Development of an HIV prevention counseling program reaching all of Cameroon's divisions, in collaboration with the NACU.
- Clinical research to determine the effectiveness of barrier contraceptives in preventing HIV/STD infection in a cohort of CSWs in collaboration with the NACU.

AIDSTECH also supported four projects to assist the NACU's effort to improve the safety of the nation's blood supply:

- Quality assurance in HIVCHEK and ELISA testing in collaboration with the NACU.
- A workshop to improve blood-transfusion practices by developing national transfusion guidelines, conducted in collaboration with the NACU.
- Training of laboratory technicians in HIVCHEK and SERODIA-HIV testing techniques in collaboration with the NACU, with concomitant provision of necessary laboratory equipment and supplies.
- Development of a rapid, simple, inexpensive, and practical test for detecting HIV antibodies in collaboration with International Health Services (IHS).

To assist the NACU monitor and predict the spread of the epidemic, AIDSTECH supported two projects:

- Sentinel surveillance of HIV and syphilis infection, conducted in collaboration with the German development agency Gesellschaft Für Technische Zusammenarbeit (GTZ) and the regional health agency Organization for the Coordination of the Struggle Against the Endemic Diseases of Central Africa (OCEAC).
- Computer modeling of the AIDS epidemic to enable policy-makers to examine the future consequences of current HIV seroprevalence levels and to compare the impact of AIDS with that of other diseases.

AIDSTECH provided general program support to the NACU through the AIDSTECH resident coordinator. This individual assisted in administration and implementation of the AIDSTECH-funded projects as well as other activities conducted by the NACU such as international conferences and workshops.

Accomplishments

- Since 1991, 64 CSWs were trained to educate their peers in HIV/STD prevention; they and project staff made more than 13,300 educational contacts with high-risk group members through community and clinic-based activities in Yaoundé, Douala, Maroua, and Ebolowa.
- Since 1989, more than 70 bars and 60 hotels participated in educational activities.
- Two drama troupes of CSWs were formed, one in 1990 and another in 1991. By September 1992 they had performed AIDS prevention skits for more than 3,000 persons.

- Since 1989, over 5.9 million condoms were sold, with CSW salespersons accounting for approximately 19% of total sales.
- From 1989 to 1991, reported condom use among samples of both CSWs and bar patrons increased: for CSWs, 46% reported condom use in the past week in 1989 compared to 73% in 1991, while reported condom use for bar patrons increased from 54% to 75%.
- Since 1991, STD treatment kits and plans for marketing the kits were developed; two baseline KAP surveys of men (household-based and workplace-based) and one survey of pregnant women were conducted; marketing and follow-up surveys will be conducted through AIDSCAP.
- In 1991, a plan to integrate HIV prevention counseling into health centers nationwide was initiated, and about 100 health workers, at least one from each Cameroon division, were trained to provide pre- and post-test and follow-up counseling to individuals tested for HIV, and their families and friends; a training and resource manual for these AIDS prevention counselors was also produced.
- A cohort of 273 CSWs was followed for approximately 12 months to determine the efficacy of barrier contraceptives against HIV and other STDs; results indicated that consistent spermicide use significantly reduced the incidence of HIV.
- Through the nationwide quality assurance program, quality of HIV testing and reporting was evaluated for 90% of all laboratories performing HIV testing in Cameroon by 1992.
- In 1990, with the participation of 45 physicians and blood bank managers representing nine of Cameroon's ten provinces, national blood transfusion guidelines, specific to current conditions in the country, were developed and distributed to all hospitals and physicians in Cameroon. The general guidelines included: a precise diagnosis of anemia that should be made to ensure appropriate treatment; and instructions to always consider the clinical state of the patient and the rapidity of the onset of anemia regardless of the hemoglobin level. Specific guidelines were developed for chronic anemia, acute hemorrhage, and elective surgery.
- From 1989 to 1992, 150 laboratory technicians were trained in HIVCHEK and SERODIA-HIV rapid assay techniques for HIV detection; additionally, about 20,000 HIVCHEK and 3,000 SERODIA-HIV kits were supplied to laboratories in Cameroon.
- In 1990, an HIV-antibody test was developed and field tested in Cameroon; although simple and inexpensive, the test needs improvement in sensitivity and specificity before further testing.

- From 1989 to 1990, sentinel surveillance of HIV infection in pregnant women, STD patients, and TB patients was established in Yaoundé, Douala (port and largest city), Bertoua (capital of the East Province), and Garoua (capital of the Adamaoua Province). Results from 1989 to 1991 in Yaoundé show prevalence among pregnant women increasing to over 2%. Data also show increasing levels among STD patients (from 1.6% to 2.6%), female CSWs (from 7% to 9%) and TB patients (from 2% to 7%).
- A working group was formed by the NACU to gather data, discuss, and critique the results of computer simulations; additional modeling simulation will be conducted through AIDSCAP.

Lessons Learned

- CSWs can function effectively as condom salespersons.
- Drama is a very popular medium through which to present AIDS prevention information.
- Physicians are often reluctant to refer patients to trained AIDS prevention counselors for a variety of reasons, such as potential loss of confidentiality, unawareness of counseling's importance, unwillingness to share responsibility for patient care, and doubt of counselors' capabilities.
- For distant sentinel surveillance sites where no full-time staff is involved, it may be more cost-effective to make periodic visits with a mobile team on a six-month or annual basis than to attempt establishment of a system run by local personnel.
- Interactions between medical specialists and those serving at different levels of the medical system are invaluable for developing national transfusion guidelines.
- The technology developed for the IHS HIV test has considerable potential value to developing countries.

Recommendations

- Current AIDS prevention activities should be expanded to include new sites in other provincial capitals, such as Bafoussam, Bertoua, and Ngaoundere, and Garoua.
- Educational activities for additional male target groups should be increased. These groups could include workers (from breweries, factories, syndicates, and civil servants), the military, prisoners, university students, and sports club members.
- Targeted interventions for CSWs should be expanded to include beer parlor workers and patrons.
- Future condom social marketing activities should include salespersons from targeted high-risk groups.
- Seminars or workshops should be conducted to sensitize physicians to the importance of HIV counseling and the efficacy of the counselors trained to date.
- HIV prevention counseling should be expanded to include training of other individuals already counseling community members (e.g., traditional practitioners, clergy).
- Future activities involving testing of blood for HIV should always include a quality assurance component.

Program Highlight

Targeted Peer Education and Social Marketing in Cameroon

In the late 1980's, studies conducted in Yaoundé, one of Cameroon's largest cities, indicated that while HIV infection rates were less than 1% among pregnant women and blood donors, they exceeded 7% among women working as CSWs. In response, Cameroon's Ministry of Health and AIDSTECH implemented a 12-month pilot project designed to determine if CSWs could successfully educate and change the behavior of their peers. The success of the pilot project led AIDSTECH and Cameroon's NACU to expand the effort into a three-year project to reach CSWs and their potential male clients. Education efforts were carefully coordinated with a condom social marketing project conducted by PSI and AIDSTECH.

Project Description

The project integrated community and clinic-based education efforts to reach CSWs and their partners in four cities: Yaoundé, Douala, Maroua and Ebolowa. Pertinent data collected from CSWs, STD patients, bar patrons, truckers and other targeted groups defined the kind of educational messages needed. CSWs were trained as educators and provided with AIDS prevention "business cards," condom supplies to market and accompanying print and visual materials to distribute. Peer educators and staff conducted weekly education sessions at STD clinics and at community-based meetings. Perhaps most importantly, the educators integrated their messages into their daily lives and work and became identified as a source of accurate information and guidance among their colleagues and among the clientele at the hotels, bars and other gathering places frequented by CSWs and their potential partners. As many educators altered their own risky sexual behaviors to require protection and prevention, they became role models as well as educators, and their influence increased. Educators became enthusiastic condom salespersons, and the evidence of their success was the impressive percentage of total condom sales they delivered.

Drama proved to be a particularly effective way to deliver important education and prevention messages. Two traveling drama troupes were formed comprised entirely of CSWs who developed, wrote and performed AIDS prevention skits that encouraged safer sex practices and focused on the issues that arise when condom use is negotiated. Following each performance, the players moved among the audience selling condoms.

Accomplishments

Trained 64 CSW peer educators and eight clinic staff in HIV prevention counseling; distributed more than 30,000 educational brochures and other prevention print materials to members of the targeted high-risk groups.

Conducted ongoing educational activities in more than 70 bars and nightclubs and in 60 hotels frequented by the educators; reached more than 3,000 people by the AIDS prevention drama troupes.

Made more than 8,000 educational contacts with women and 5,200 with men through educational sessions at STD clinics, at community-based meetings, and at the trucker and taximan syndicates.

Approximately 20%, or more than one million, of the nearly six million condoms sold during the first 25 months of the social marketing project were sold by CSW salespersons.

Reported condom use during the preceding week increased from 46% to 73% among a sample of CSWs and from 54% to 75% among a sample of male bar patrons during the course of the project.

Lessons Learned

Peer educators offer an effective and efficient way to reach difficult to access communities of people that share similar risk factors for HIV infection. They also provide project planners with critical and specific information needed to speed the development of well targeted and successful information/education materials.

CSWs can be effective educators and condom salespersons, and targeted condom social marketing programs can be successful. In addition to providing access to a ready supply of affordable condoms, such programs must provide the ongoing education and motivation necessary to empower people to change behavior.

Ghana



Ghana

Program Summary

Early HIV seroprevalence studies in Accra revealed low rates among the general population: 0.5% among blood donors (1988) and 0.7% among pregnant women (1990). However, elevated rates, were observed among high-risk groups: 2.5% among CSWs and 4.6% among STD patients (1987). Heterosexual contact was the major HIV transmission mode, with a few cases attributable to blood transfusion.

In 1988, to respond to increasing HIV infection in the country, particularly in highly mobile, sexually active groups, the Ghana NACP developed an MTP whose objectives included: Providing HIV prevention, education and condom distribution to mobile high-risk groups; strengthening STD surveillance systems; and ensuring the safety of blood transfusions. AIDSTECH provided assistance to the NACP in meeting these MTP objectives.

AIDSTECH supported two projects to prevent sexual transmission of HIV among populations at high risk:

- An HIV/STD education/condom distribution intervention, including HIV/STD surveillance and strengthening of STD services, targeting male soldiers was initiated in 1989 by the Ghana Armed Forces in conjunction with the NACP.
- An HIV/STD education/condom distribution program targeting 2,000 CSWs and their clients in Accra, Tema, and Kumasi was initiated in August 1990 by the Ministry of Health. This intervention provided a critical link to an earlier FHI-supported pilot project carried out from 1987 to 1988, prior to AIDSTECH's involvement in Ghana.

AIDSTECH also supported one project to identify and validate appropriate cost-effective technology for HIV screening of blood:

- A field trial of three new rapid assays (HIVCHEK, SERODIA-HIV and RETROCELL) to determine their sensitivity, specificity, predictive value, and cost was carried out in seven laboratories.

Accomplishments

- Reported condom use with every sexual act among CSWs increased from 34% in 1987 to over 50% in 1991, and by 1991 (following one year of expanded project activities) 93% of new CSW participants reported using a condom with the last client; the percentage of military who had never used a condom decreased from 46% in 1990 to 29% in 1992.

- Since 1989, 22 CSWs and 328 taxi drivers who were trained to educate their peers and clients about HIV/STD prevention reached approximately 1,300 CSWs and 2,310 clients in Accra, Tema, and Kumasi; seven health officers representing each of the seven garrisons have reached an estimated 12,000 soldiers and their spouses nationwide. Over 40,000 educational materials, including brochures, condom use charts, posters, and bumper stickers, were developed and distributed to target groups.
- Condom promotion and distribution systems were established for CSWs in Accra and Kumasi as well as for seven army garrisons, through which more than 74,000 condoms were sold to target group members; the distribution system to CSWs was phased out after verification that a AID-supported condom social marketing project was providing affordable, accessible condoms to CSWs and their clients.
- An HIV/STD surveillance system for the Ghana Armed Forces was established; activities included training of two military nurses in pre- and post-HIV test counseling, two lab technicians in screening and confirmatory HIV and syphilis rapid plasma reagin (RPR) testing and 18 technicians in the use of rapid tests, serum collection and storage; procurement of equipment and renovation of laboratory facilities also took place at three sites. 2,000 samples were tested; preliminary results indicated a low HIV prevalence rate of 1.3%.
- Evaluation of HIVCHEK, SERODIA-HIV, and RETROCELL under field conditions at seven sites showed that the tests performed satisfactorily in sensitivity, specificity, test efficiency and predictive value for HIV-1.

Lessons Learned

- Despite the reputation of being "off-limits," soldiers can be targeted for AIDS prevention activities, but implementation of such a program demands close collaboration with military authorities. This pilot activity is encouraging other African countries to consider replication of similar activities with their uniformed services.
- Professionally developed educational materials can enhance national and international visibility of AIDS prevention programs, resulting in increased credibility of target group activities.
- CSWs prefer educational activities that directly address the risks of HIV transmission through the range of commercial sex acts.
- High mobility of CSWs makes follow-up studies and lapsed follow-on educational activities difficult to implement.

- The HIVCHEK test demonstrated a sensitivity equal to or better than the ELISA test for HIV-1; initial screening by HIVCHEK followed by supplemental agglutination testing (SERODIA-HIV or RETROCELL) of positive or indeterminate samples is as effective, more practical (needs less equipment and training), and much less expensive than the conventional ELISA and Western blot algorithms.
- Rapid assays tested in 1989 were not able to detect HIV-2 (which is present in Ghana) satisfactorily.

Recommendations

- Educational programs with CSWs in Accra, Tema, and Kumasi should be consolidated and expanded. NACP should make a special effort to link activities in the three sites and employ lessons learned from previous projects.
- The AIDS prevention program with the Ghanaian Armed Forces should be continued and enhanced. A condom logistics expert should be hired to provide substantial technical assistance in the development and implementation of a condom management system for the military. In addition, military authorities should be encouraged to develop policies concerning HIV-positive soldiers and ameliorate and expand their HIV/STD counseling program.
- Diagnosis and treatment of STDs provided through national STD services in all major cities should be assessed and improved as indicated.
- HIVCHEK and SERODIA-HIV should be used in laboratories that do not have access to ELISA equipment, do not support a large volume of testing, or require emergency screening of blood. The rapid assay algorithm should be utilized to decrease costs and, therefore, assure sustainability of an HIV testing program.
- Since Ghana has both HIV-1 and HIV-2 infections, rapid kits for detection of both should be evaluated.

Program Highlight

AIDS Prevention Focused on the Military in Ghana

Military personnel all over the world have been identified as being at particularly high risk of HIV infection. The frequent movement of troops increases the likelihood that servicemen will have multiple casual sex partners. This contributes to the rapid spread of HIV infection evident around some large military installations. Little information is available on HIV prevalence rates among military personnel in Africa, but indications are that rates may be quite high in East Africa and on the rise in West Africa. To meet the challenge presented by HIV infection, the Ghana Armed Forces sought assistance from AIDSTECH to initiate a comprehensive AIDS/STD prevention program in 1990.

Project Description

This multifaceted two and half year project was designed to improve the ability of the Ghana Armed Forces to test military personnel for HIV/STD infections, to educate servicemen about ways to prevent the spread of HIV and other STDs. To accomplish these goals, military facilities and equipment were evaluated and laboratory techniques were assessed. Surveillance testing procedures were established and initial sample testing was completed. Pre- and post-test counseling services were defined. Prevention educators were identified from among military officers and provided with training in prevention education and condom promotion. Educational and promotional materials were developed using military themes, such as "combat readiness, condom readiness." Materials and messages were pre-tested among servicemen, then finalized, produced and distributed.

Accomplishments

The laboratory facility was renovated and appropriate equipment was procured to conduct HIV/STD testing. Technicians were trained in appropriate laboratory techniques. Two nurses were trained to provide pre- and post-testing counseling services. Initial HIV/STD surveillance testing was performed on 2,000 samples. HIV seroprevalence was low at 1.3%.

A condom promotion and distribution system was established at stores and mess halls in seven garrisons. Officers were trained in condom promotion and sales. Approximately 74,000 condoms were sold over a ten-month period.

Approximately 12,000 contacts were made with soldiers by trained officers at formal and informal AIDS/STD and condom promotion sessions. Seven focus groups were held with soldiers to help identify the most effective messages and materials to develop for educational purposes. Subsequently, a one-hour film was written and produced depicting soldiers' attitudes and behaviors as they related to AIDS/STD prevention. Other educational materials were pre-tested and produced. The project distributed 4,690 posters, 1,467 key chains, 2,500 T-shirts, 3,700 bumper stickers, 600 information folders, 7,500 comic books and 400 postcards to soldiers and officers.

Lessons Learned

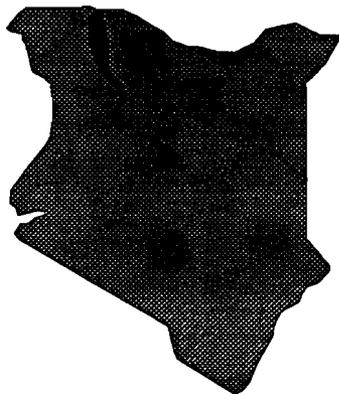
Clinical serosurveys and personal interviews conducted at project initiation revealed that HIV seroprevalence was low among servicemen, while knowledge about AIDS, how it is transmitted and the protection provided by condoms was very high. However, only 54% had ever used a condom, increasing to 71% at project completion. The proportion reporting that they always use condoms increased from 10% to 16%. This rate was 29% among a younger group of soldiers. At project completion 37% of the older and 48% of the younger group reported having discussed AIDS with a military officer. About 15% had bought condoms at the Military Health Department.

The sophisticated structure of the military provides great potential for development and implementation of AIDS prevention and control activities. The armed forces have the necessary organizational and communications systems already in place to reach large numbers of men efficiently.

Military administrative procedures and decision-making hierarchies are very different from those found in the government and private sector. Aspects of this education, service and product delivery project required the military to operate outside of its own set of systems and procedures, often causing lengthy delays. A liaison officer who is familiar with all systems and is delegated the authority to expedite processes may be a program asset.

The project and the materials developed for it served to heighten awareness among the international health community of the need for HIV/AIDS prevention education within the military.

Kenya



Kenya

Program Summary

The first case of AIDS in an indigenous Kenyan who had not traveled outside the country was diagnosed in 1984. For the period of October 1987 through the end of 1988, the national HIV seroprevalence among unpaid blood donors was approximately 2.3%. Most blood donors in Kenya are secondary school and college students and workers, with males far outnumbering females.

Much higher rates of HIV infection were reported in certain high-risk groups. Seroprevalence rates as high as 80% were found in some groups of Nairobi CSWs in 1988. In Mombasa, in Coast Province, an HIV infection rate of 39% was found among a group of 366 CSWs and barmaids tested in late 1988. A group of 74 Ugandan and Kenyan truck drivers and truckers' assistants studied in Kampala in late 1986 were found to have a seropositivity rate of 35%. Available data indicated that most HIV transmission in Kenya at that time, as now, was due to heterosexual intercourse.

Based on epidemiologic data and the objectives of the Kenya NACP's MTP, AIDSTECH's strategy was to work with local organizations to reduce the spread of HIV transmission, particularly among high-risk groups. The NACP also placed a high priority on ensuring a safe blood supply and that, coupled with an initial reluctance on the part of the government to work with high-risk groups, shaped AIDSTECH's early programmatic response.

AIDSTECH supported ten projects that targeted the sexual transmission of HIV among populations at high risk of infection. All but one were implemented by NGOs, and three were supported by the AIDSTECH PVO/NGO Small Grants Program:

- A pilot AIDS prevention and condom promotion outreach program targeting truck drivers and their sexual partners in two truck stops on the Kenya segment of the Trans-Africa highway and in three trucking companies in Mombasa; implemented by AMREF in 1989. AIDSTECH supported a comparative evaluation of this intervention and a similar AMREF program in Tanzania.
- A community and clinic-based AIDS education and condom promotion program targeting CSWs, their clients, STD patients, and workers in Mombasa implemented by the Mombasa District STD/AIDS Committee within the Office of the Provincial Medical Officer in 1991. Administrative support was provided by the Aga Khan Health Services; technical assistance in training and IEC materials development was provided by the University of Nairobi and PATH.
- A training program in community AIDS education and prevention counseling for Crescent Medical Aid (CMA) community-based workers (CBWs) serving urban slum dwellers, including a high number of CSWs, in and around Nairobi.

- A program to upgrade CMA's clinical and laboratory STD services, including provision of laboratory equipment and supplies, and training of clinicians, laboratory technicians and CBWs in collaboration with the Microbiology Department of the University of Nairobi.
- A program to integrate AIDS education, prevention counseling and referral services into Family Life Promotion Services, Ltd.'s (FLPS) existing family planning education and clinic program serving low income workers in Nairobi's city center. Center for Development and Population Activities (CEDPA) was awarded funds through the AIDSTECH PVO/NGO Small Grants Program in 1991 to support FLPS staff training in AIDS education and prevention counseling.
- An AIDS education and condom promotion training program for staff and volunteers of a grassroots women's NGO with a national membership, implemented by Maendeleo Ya Wanawake (MYWO) in 1991 as part of the AIDSTECH PVO/NGO Small Grants Program.
- A materials development and training project to produce HIV/STD prevention materials targeting patients in STD clinics and women attending MCH and family planning clinics, and to train clinic staff in their use. This project was implemented by PATH in conjunction with MOH personnel in 1991.
- Assistance to the Kenya Red Cross Society (KRCS) in production of a training manual and video for HIV/AIDS counseling and for training of National Public Health Laboratory Service (NPHLS) staff in pre- and post- HIV test counseling; the KRCS was awarded funds under the PVO/NGO Small Grants Program in 1991.
- An advertising campaign emphasizing AIDS prevention as part of the family planning oriented condom social marketing program in Kenya. AIDSTECH provided support to PSI to develop and implement the campaign in 1992.
- A KAP study of adolescents, designed by the Kenya NACP and Kenyatta National Hospital and carried out by the Center for Adolescence, a Nairobi-based NGO, in 1990.

AIDSTECH supported four projects to prevent HIV transmission through blood:

- A field evaluation of three rapid HIV assays in six laboratories in Kenya, implemented in collaboration with the Kenya Medical Research Institute (KEMRI) and NPHLS.
- A program for QA in HIV testing in collaboration with the National AIDS Committee, NPHLS and KEMRI.

- A computerized blood bank data management program, implemented by the Kenya National Blood Bank and the NPHLS, with development of blood donor recruitment and deferral guidelines.
- A field trial of a simple low-cost HIV test: the PATH HIV dipstick assay.

AIDSTECH also provided program support to the Kenya NACP:

- The development and installation of a management information system (MIS) within the AIDS Program Secretariat (APS) of the NACP to track and coordinate AIDS prevention activities nationwide.
- The development and installation of a computerized system for collecting, storing, analyzing and reporting data on HIV/AIDS, specifically sentinel surveillance, AIDS cases, and blood donor data.
- A study on the economic impact of AIDS in Kenya; including assistance with modeling the AIDS epidemic.

AIDSTECH also provided general program support to the NACP through its resident coordinator in Kenya, who worked with the APS to identify and respond to assistance needs. In addition, the resident coordinator provided assistance to individual projects as needed, and played a vital role in communication between AIDSTECH, the NACP, and local and international organizations involved in AIDS prevention in Kenya.

Accomplishments

- 91 CBD/CBWs from two NGOs were trained in AIDS community outreach, AIDS education, condom promotion and prevention counseling.
- 62 workers and high-risk group members were trained to educate their peers in HIV/STD prevention; 11 worksite managers received training in HIV/AIDS and the importance of promoting AIDS prevention at their worksites.
- 37 clinicians and four laboratory technicians were trained in diagnosis and treatment of STDs based on the national STD algorithm; these and an additional 26 health professionals were trained in clinic-based STD/HIV education and prevention counseling; 20 NPHLS staff members were trained in pre- and post- HIV test counseling.
- 112 MYWO leaders and staff from five districts were trained in AIDS prevention.
- An estimated 144,000 educational contacts were made in truckstops, workplaces, hotels, bars, homes, clinics and at community-based educational events; more than 250 establishments were involved in AIDS prevention activities.

- More than 2,000,000 condoms and approximately 440,000 AIDS educational materials were distributed, including training materials and the posters and promotional materials described below.
- Two series of six posters, with accompanying flip charts and audio cassettes in ten languages were pre-tested, developed and produced for use with men in STD clinics and women attending MCH/FP clinics; 4,000 poster sets (2,000 for each target group) and 700 flip charts were printed.
- Advertising and condom promotional materials in English and Kiswahili were developed to supplement a traditional family planning CSM project, including: two magazine advertisements, newspaper advertisements, and 150,000 copies of a cartoon book. An additional 100,000 copies of a comic book targeting truckers were distributed through petrol stations. The comic books, developed by UNICEF, each contained a DUREX condom.
- Training of trainers' materials for HIV/AIDS counseling were developed and produced, including a trainers' guide and a counseling training video.
- Survey data from 1,172 boys and 1,138 girls from 21 secondary schools in five districts showed that:
 - 39% of the students reported being sexually active.
 - 36% of the girls and 28% of the boys had had sex by age 16.
 - 59% had heard of condoms.
 - 12% of the students felt it likely they would contract AIDS; 56% said they were unlikely to become infected, and 32% did not know if they were at risk of contracting AIDS.
- 1,875 specimens were tested in a multi-layered testing strategy using the HIVCHEK test as a screening test with an agglutination test as a confirmatory or supplemental test. When compared with the conventional strategy of ELISA confirmed with Western blot, the sensitivity of the alternative testing strategy was 96% and specificity was 99.3%, with a cost savings of 80%.
- A national QA program reaching beyond the central level to the provincial and district level was developed and implemented; two proficiency panels were developed, distributed, and analyzed, personnel were trained, and laboratory supervisory visits instituted.
- A computerized system for processing donor and recipient data for blood donations and transfusions was developed and installed at the NPHL facilitating retrieval and analysis of data. Blood donor recruitment and deferral guidelines were developed and implemented.

- 1,200 specimens from low-risk individuals and 412 specimens from high-risk individuals were tested; the HIV dipstick performed well under field conditions with an overall sensitivity of 99.3% and specificity of 97.3%. The HIV dipstick; had a higher sensitivity than the ELISA; the ELISA was higher in specificity than the dipstick; however, the difference was minimal.
- MIS software for the APS was designed and installed; preliminary information from donor organizations concerning AIDS prevention activities was elicited and entered.
- Using EPI-INFO, all past sentinel surveillance data received was entered into the system; a multi-level security system to ensure confidentiality and accuracy in data entry was installed; key personnel from 13 sentinel surveillance sites were trained in the new system; a two-way reporting system was designed for providing statistical feedback to the field and requesting late reports.
- The estimated direct and indirect cost of AIDS in 1991 was found to be \$310 million consuming 2% to 4% of the Gross Domestic Product (GDP). Estimated costs will rise to at least \$1.3 billion and could consume from 6% to 15% of the GDP by the year 2000.
- An internal report prepared for AID/Kenya modeling the AIDS epidemic in Kenya projected that AIDS deaths, TB cases and orphans will rise dramatically in Kenya in the next eight years.

Lessons Learned

- AIDS prevention activities can be integrated into the regular duties of community-based workers, such as CBDs involved in family planning, with sufficient training, continuous support and supervision.
- Introduction of an HIV/AIDS component can enhance family planning service delivery by expanding the range of client population with which CBDs interact.
- A local network of NGOs with staff with diverse skills can provide reciprocal, needed assistance to other network members.
- Funding a program to be implemented by a government department can become bogged down in bureaucracy. Project implementation is much easier with a PVO or NGO.
- Careful assessment of an implementing organization's research capabilities should precede research activities; any technical assistance required should be identified and discussed and agreement reached on how it will be provided prior to project initiation.
- Rapid, simple HIV tests are appropriate for use in field laboratories in Kenya.

- Deferring blood donors at high risk of HIV not only decreases the risk of transfusion of HIV infected blood, but reduces the costs by eliminating the cost of processing, testing, and destroying HIV-positive blood.
- An MIS to track and report AIDS-related data, such as surveillance and program data, is important but difficult to create and maintain in Kenya.
- AIDS has disproportionately affected the modern sector, although recent rural prevalence rates suggest that the small farm sector may be the next affected.

Recommendations

- Support of the AIDS prevention efforts of indigenous NGOs should continue. However, the impact of funding and technical assistance will be increased by working through a group or network of NGOs, rather than funding numerous small projects.
- Program support to strengthen the coordination role of NACP should continue. Efforts, such as the MIS, may facilitate and streamline the lengthy project review and approval process, while improving the NACP's ability to track AIDS prevention efforts.
- Condom social marketing efforts targeting individuals practicing high-risk behaviors should be expanded; use of non-traditional outlets, such as bars and hotels and use of CSWs as salespersons should be explored.
- Presentations modeling the AIDS epidemic in Kenya should be made to policy-makers at the parliamentary and ministerial level to gain their support and commitment to addressing HIV/AIDS as an issue that will have a profound affect on every aspect of Kenya's future.

Program Highlight

NGO Takes Initiative To Prevent HIV in High-Risk Population in Kenya

Crescent Medical Aid (CMA) is a non-profit, charitable organization that operates a pharmacy and eight clinics serving the urban poor in and around Nairobi. Several of these communities include concentrations of people at increased risk for HIV infection, such as CSWs and long distance truckers. The clinics provide a range of preventive and curative services. Statistics from the clinics reinforce the notion that residents are at high risk of HIV infection. Approximately 25% of the clinic visits in recent years have been STD-related. In addition to CMA's clinic services, a group of community based workers (CBWs) do community outreach, including health education and condom distribution. Originally, their work focused on family planning and child survival. In response to the needs in their communities, education for the prevention of AIDS and STDs became an important part of their activities. The CBWs acknowledged their own lack of information; at their request AIDSTECH assisted CMA to develop a training program to prepare CBWs to contribute to the prevention and control of HIV and STDs. Later, assistance was extended to improve the CMA clinic-based STD services.

Project Description

The project upgraded skills of CMA staff and prepared staff to work together to provide improved clinic and outreach services through a team approach. Clinic and laboratory staff were trained in prevention, diagnosis, and treatment of STDs. CBWs were trained in community education and counseling and contact tracing, and were assisted to expand the outreach program and integrate AIDS and STD prevention into all aspects of their work. Folk media were used to increase community outreach. The existing condom distribution system was expanded to improve access to high-risk individuals through distribution outlets in bars, restaurants, police stations, bus stops, workplaces, etc.

Accomplishments

An estimated 50,000 people were reached with AIDS and STD prevention messages through clinics, home visits, school and community presentations, plays, and video screenings; the Chania Drummers and Dancers, a traditional performing group, were integrated into CMA AIDS prevention programs presented in five communities.

A booklet for low-literacy adolescents was developed with active community participation; 10,000 copies were distributed.

Approximately 2,437,000 condoms were distributed during the two years of project activities; an estimated 1,389,000 of these were distributed through expanded AIDS prevention activities.

Clinical evaluation guidelines for STD treatment were developed with assistance from physicians at the University of Nairobi; during the second of two assessment visits to all clinics, improvements were observed in clinicians' history-taking, physical examinations, and use of MOH STD treatment guidelines; further work is needed in clinic-based STD education and counseling.

Lessons Learned

Women in the community were positive about their interactions with the CBWs. Male truck drivers were positive about the concept of CBWs, but most had not talked to a CBW about AIDS and said it would be difficult to talk to women about HIV/AIDS. The likelihood of reaching men at higher risk of HIV infection may be improved by recruiting and training more male CBWs.

Drugs, such as erythromycin and benzathine penicillin, essential for treatment of genital ulcer diseases, are not available through the clinics due to the expense. Efforts should be made to supply clinics with these essential drugs.

A feasible contact tracing system was not developed; CBWs were not able to elicit contacts from CSWs, and STD clients were not willing to inform partners of STD infections despite counseling.

Continuing education is needed to maintain gains made in improving clinical knowledge and skills and to further improve education and prevention counseling by clinicians.

Tanzania



Tanzania

Program Summary

AIDS was first recognized in Tanzania in 1985. Seroprevalence rates in Dar es Salaam, as well as other urban areas, were causing concern by 1986. In that year, 4.4% and 3.6% of groups of blood donors and pregnant women, respectively, tested in Dar es Salaam were HIV positive; 9.3% of a group of STD patients and 28.8% of barmaids tested were infected with HIV. Rates in Dar es Salaam continued to rise, particularly among high-risk groups, and in 1988, surveys revealed prevalence rates of 14%

among STD patients, and 38.7% among barmaids. The primary mode of transmission, as in other countries in the region, was heterosexual. The role that migration and transportation played in the spread of the epidemic was evident. Professional truck drivers were recognized as an important group in the spread of HIV infection along trade routes in East Africa. A study was done in Uganda in 1986 of 74 East African truck drivers and their assistants who took their trucks from the coast of Kenya through Uganda to Rwanda, Burundi, Tanzania, and Zaire; more than one-third tested positive for HIV.

The Tanzania NACP and the international community recognized the gravity of the AIDS situation in Tanzania. AIDSTECH worked closely with the NACP and AID/Tanzania to identify an area for AIDSTECH assistance which would contribute to the implementation of the 1988 five-year MTP and complement other national and international AIDS prevention initiatives in Tanzania. The resulting AIDSTECH program focused on prevention of sexual transmission of HIV and other STDs for targeted groups at increased risk of HIV infection. AIDSTECH supported three projects, one with two major components:

- An ethnographic study that used rapid ethnographic assessment techniques to gather cultural information on the truck stop environment in Tanzania; qualitative information was gathered in four truck stops in mid-1991 under the direction of a team composed of an AIDSTECH consultant and two researchers from the Behavioral Sciences Department of the Muhimbili University College of Health Sciences.
- An AIDS education and condom promotion outreach project targeting transport workers and their sex partners in seven truck stops implemented by AMREF/Tanzania; project activities were carried out along a transport route linking Tanzania to Zambia and in two trucking companies in Dar es Salaam from 1989 to 1992. A qualitative evaluation compared this project to a similar AIDSTECH-supported project implemented by AMREF/Kenya.

In 1991, a component to improve STD services for target group members was added to this project. AMREF upgraded laboratory and clinical capabilities for STD diagnosis and management in four company and occupational health clinics with transport workers among their clientele. AIDSTECH carried out a recurrent cost analysis of this component of the project.

- A pilot STD education program for pharmacists in Dar es Salaam, to assess the current STD knowledge and practices of pharmacists and pharmacy workers; the pilot project was implemented in 1991 by the Department of Pharmaceutics and Pharmaceutical Microbiology of Muhimbili Medical Center.

In addition to these specific projects, AIDSTECH provided general program support to the NACP as requested, primarily through the AIDSTECH resident coordinator. The resident coordinator also assisted individual projects, as needed, and functioned as a liaison between AIDSTECH, AID/Tanzania and local implementing agencies.

Accomplishments

- Two social science professors from the Muhimbili University College of Health Sciences and eight field workers without previous ethnographic research experience gained knowledge and experience in rapid ethnographic research techniques.
- Ethnographic research in four truck stops found:
 - The truck stop environment is conducive to transmission of HIV.
 - Truckers and their female partners are highly mobile, traveling frequently to other truck stops, urban centers, and rural home villages.
 - Condom use is variable according to type of partner; women often do not choose to use condoms with regular partners even if they suspect this partner has other partners; condom use is more common with casual partners.
- 25 PEs from seven truckstops were trained. A prototype peer educator training manual and an interactive AIDS prevention flip chart for use by semi-literate educators were developed collaboratively by AIDSTECH, AMREF staff and PEs.
- An estimated 150,000 educational materials, including posters and stickers promoting condoms, booklets, T-shirts, ashtrays, etc. were distributed.
- More than 50,000 educational contacts were made with transport workers, truck stop residents, and trucking company employees in seven truck stops and two trucking companies.
- Cross-sectional surveys at selected truck stops pre-intervention and 18 months later showed increased consistent use of condoms:
 - Reported use of condoms in the last five sex acts with an occasional partner increased from 19% to 51% among women and from 21% to 45% among men.
 - Reported use of condoms in the last five sex acts with a regular partner increased from 12% to 45% among women and 14% to 36% among men.

- More than 5,800,000 condoms were distributed free at the truck stops, trucking companies, and in company clinics.
- 22 clinicians and laboratory personnel from four clinics were trained in STD/HIV prevention counseling, STD diagnosis and treatment; laboratory facilities for STD diagnosis were upgraded in three participating company clinics, but the fourth was unable to identify an appropriate room as a laboratory.
- 1,288 STD patients (26% transport workers) were diagnosed and received treatment based on the National STD Algorithm.
- 73% of the *N. gonorrhoea* isolates tested were resistant to penicillin, commonly used for treatment in Tanzania.
- Recurrent cost analyses in two clinics found that 95% of the clinic costs were recurrent costs, and the bulk of these costs were for laboratory supplies (45%) and STD drugs (between 14% and 21%), with labor costs accounting for only 4% to 7% of overall field costs. The field cost per STD patient diagnosed and treated was highest for syphilis (\$13) and gonorrhea (\$10). Trichonomiasis and candidiasis were least expensive to treat and diagnose.
- Data collected from pharmacists and pharmacy workers through a KAP survey of 43 pharmacists, three focus group discussions with pharmacists, and 224 visits to pharmacies with interviewers posing as clients with an STD indicate that:
 - Pharmacists play a significant role in the treatment of STDs. 100% of the pharmacists reported that people come to the pharmacy complaining of symptoms associated with STDs and 98% reported having sold treatments for STDs in the past month.
 - At baseline, when asked what drugs pharmacists use to treat specific STD symptoms, none of the pharmacists indicated the drugs recommended by the algorithm. At follow-up, over 50% named algorithm-appropriate treatment.
- 18 pharmacists participated in a three-day workshop on the National STD Treatment Algorithm, STD/HIV prevention education and counseling, and the role of pharmacists in STD control.
- The National STD Treatment Algorithm was revised to include more readily available drugs as a result of the project's research; 3,500 posters with revised algorithms were printed and distributed to pharmacists nationwide.
- The curriculum of the Department of Pharmaceutics of Muhimbili Medical Center has been revised to include STD education and the role of the pharmacist in STD control, with the addition of practical work in an STD clinic as part of pharmacists' training.

Lessons Learned

- Rapid ethnographic techniques can be useful in validating and giving further insight into findings of quantitative research, providing information for project implementation, as well as identifying questions for further research.
- Strong community involvement in the selection of PEs leads to a sense of community ownership in a project and a commitment to see it continue.
- The geographical, social, cultural and economic differences between the truck stops influence project implementation, such as the selection of and level of support needed for peer educators.
- The company clinic-based STD program was costly and limited in reach to regular clinic attenders; women with STDs, often asymptomatic, are frequently missed by this approach. A pharmacy-based STD education intervention using a syndrome-based algorithm may reach a greater number of STD patients, particularly symptomatic males, at a lower cost than a clinic-based project to upgrade STD diagnosis and treatment.
- Treatment according to the National STD Algorithm was effective; in the absence of laboratory services, the syndromic approach works better for males than females.

Recommendations

- **Outreach AIDS prevention activities should be expanded to additional truck routes in Tanzania, with continued efforts to sustain present established activities with fewer outside resources.**
- **Activities within transport companies should be expanded, building on lessons learned from the pilot project and AIDSCOM's Dar es Salaam-based AIDS in the Workplace Program.**
- **CSM should be integrated into prevention activities along truck routes, and use of PEs as sales persons should be explored.**
- **Reaching the rural and town populations surrounding the truck stops, as AMREF has begun to do, should be a next step; adolescents in these areas are at increased risk.**
- **Although the AMREF STD program in company clinics was costly and limited in scope, the STD surveillance information was valuable. This program, with modifications, should be continued.**
- **Adequate and appropriate STD services should be tested and made available to women along the truck route.**
- **An expanded program of STD research and education for pharmacists should be implemented, including integration of condom promotion and social marketing.**

Program Highlight

STD Education for Pharmacists in Tanzania

In Tanzania, STD infections affect a significant number of the population, placing them at increased risk of HIV infection. People who think they have an STD infection tend to rely on one or more of the three available major options for diagnosis and treatment: medical clinics, traditional healers, and pharmacies. The extent to which each of these different options is used is not known. However, since people are likely to prefer an option that is familiar, quick, private, nearby and inexpensive, it is thought that many people rely on pharmacies for guidance and medications when they have symptoms of STD infection. In late 1991, AIDSTECH initiated a project with the Muhimbili Medical Center (MMC) to increase the ability of pharmacies in Dar es Salaam to treat and prevent the spread of STD infections.

Project Description

The initial task involved collecting data from pharmacists and pharmacy assistants about their knowledge of STDs, their standard pharmacy procedures and the number of customers who seek treatment for STD infections. Data were collected by interview, focus group discussions and by interviewers posing as customers seeking treatment for symptoms of STD infection.

Educational materials were developed for pharmacists and pharmacy assistants which conformed with newly developed standard MOH algorithms and treatment regimens. A poster was designed for use as a quick reference guide for pharmacists and pharmacy workers. The project also conducted training sessions with 18 pharmacists in the prevention and control of STDs.

Accomplishments

A three-day training workshop for 18 pharmacists was conducted to educate them on AIDS and STDs and ways to prevent them. Instruction was also provided in the use of the MOH algorithm, counseling techniques, and the expected role pharmacists could play as AIDS/STD prevention educators.

Quantitative and qualitative data collected from pharmacists and pharmacy workers before and after the intensive training confirmed that pharmacists play a significant role in the treatment of STDs. In fact, all 43 pharmacists interviewed at baseline reported that people come to the pharmacy complaining of symptoms associated with STDs and virtually all reported having sold STD treatments in the past month.

Substantial improvement in knowledge and treatment practices was evident as a result of the training. At baseline, when asked what drugs they use to treat clients presenting with symptoms associated with specific STDs, none of the pharmacists consistently responded with the combination of drugs recommended by the algorithm. At follow-up, over 50% of the pharmacists named an algorithm-appropriate treatment for each symptom. The substantial improvement in treatment observed during follow-up actor interviews suggested that those who attended the workshop shared their knowledge with other pharmacists and pharmacy workers and that the posters describing the algorithm were being used by those who had not been trained.

At baseline, some of the drugs required by the algorithm were not available at the pharmacies; at follow-up, there was an increase in the availability of these drugs. The MOH algorithm was amended to include alternative appropriate drugs more readily available in Tanzania as a result of the project's research findings. Posters describing the algorithm were produced and distributed to all pharmacies.

Pharmacy students trained at Tanzania's MMC will be educated in STDs. Practical training at the medical center clinic and prevention counseling have been integrated into the curriculum.

Lessons Learned

Well-trained pharmacists may represent a valid and effective way to influence and improve health seeking behaviors, particularly in the area of STD education, prevention and control.

Pharmacists are willing to enhance their knowledge of proper procedure, treatment regimens and counseling techniques, as this not only serves to increase business by solving problems for customers, but also provides a way to make a meaningful contribution to HIV/STD prevention efforts.

Prevention activities that combine the expertise and services provided by physicians and pharmacists and enable them to work more closely together may dramatically increase the potential impact of this prevention and control intervention.

Zaire



Zaire

Program Summary

AIDS cases were confirmed in Zaire as long ago as 1983, and by 1989 seroprevalence surveys revealed rates of 5% to 8% among Kinshasa's general sexually-active adult population and over 40% among CSWs. In 1989, the annual incidence of cases for the adult population of Kinshasa alone was estimated at 380 per million inhabitants.

Concurrent surveys of the rural population found HIV prevalence around 1%, but experts believed rural transmission was accelerating. The majority of

HIV transmission occurred through heterosexual sex, but maternal/child and blood transfusion routes were also significant. Blood screening facilities were extremely limited in most of Zaire.

The Central Office of Coordination, Zaire's NAC, set as high priorities activities to quickly reach urban populations practicing high-risk behavior as well as to improve the country's blood supply. To assist the NAC meet these goals and simultaneously avoid overburdening this agency, AIDSTECH worked directly with NGOs already present in Zaire to:

- Implement condom social marketing to persons practicing high-risk behavior in five Zairian cities; the collaborating organization, PSI, conducted condom and spermicide social marketing in Kinshasa in the context of family planning and STD control.
- Evaluate three rapid HIV assays in five small hospitals in four regions of Zaire and develop strategies for sustainable blood screening programs in rural hospitals; the collaborating organizations were the Rural Health Project (SANRU) and Projet SIDA.

Unfortunately, the deteriorating political situation in Zaire forced premature termination of these activities.

Accomplishments

- From August 1989 to September 1991, over 9.8 million condoms were sold directly through AIDSTECH-supported marketing activities in Kinshasa, Matadi and Goma (large commercial centers), Lubumbashi (mining center), and Kisangani (mining and river transportation center); monthly sales increased from 128,000 in September 1989 to over 700,000 by July 1991. Despite the termination of financial support because of political instability, condom sales have risen to a monthly average of 940,000 since July 1991.

- Percentage of total AIDSTECH-supported sales at outlets where sex often occurs or is negotiated (e.g., bars, nightclubs, hotels, street and ambulant vendors) increased from approximately 10% in June 1990 to about 30% by July 1991.
- In some target regions, 57% of all hotels, 28% of bar and nightclubs, 49% of medical centers, and over 88% of pharmacies participated in project activities.
- Approximately 300,000 educational and promotional materials (e.g., posters, wall and pocket calendars) were distributed to condom purchasers.
- Approximately \$35,000 were generated in revenues from condom sales to support local project costs.
- Three rapid assays (HIVCHEK, SERODIA-HIV, and RETROCELL) were evaluated for use in rural Zaire. Results showed that initial screening by HIVCHEK followed by supplemental agglutination testing (SERODIA-HIV or RETROCELL) of positive or indeterminate samples is as effective, more practical (needs less equipment and training), and only 20% the cost of the conventional ELISA and Western blot algorithm.
- 19 participants from five regional hospitals were trained to train their colleagues in pre- and post-HIV test counseling.
- Guidelines for pre- and post-test counseling services were developed and distributed in the five rural hospitals participating in the rapid assay test.

Lessons Learned

- Establishments where commercial sex occurs or is negotiated, such as hotels, and bars/nightclubs can function effectively as condom sales outlets.
- Targeted condom social marketing activities can be "piggy-backed" onto well-established condom social marketing projects targeting the general population.
- HIVCHEK should be used in laboratories that do not have access to ELISA equipment, do not support a large volume of testing, or require emergency screening of blood.
- The rapid assay algorithm should be utilized to decrease costs and, therefore, assure sustainability of an HIV testing program.

Recommendations

- Once the political situation allows, condom social marketing should be continued in all target regions and expanded to rural areas.
- A QA program should be implemented to evaluate use of the rapid assay algorithm in Zaire.

Program Highlight

Social Marketing To Zairians at Greatest Risk

In 1989, Zaire reported a high rate of HIV infection in the general population and an even higher rate among its highly mobile CSWs; surveys revealed a 40% seroprevalence among CSWs in Kinshasa, the largest urban area. Although a condom social marketing project linked to family planning and STD control efforts had been ongoing in Kinshasa since 1987, the availability of condoms in other areas with active commercial sex industries was limited. In April 1989, the Zairian National AIDS Committee, AIDSTECH and PSI initiated a multi-year social marketing project to distribute condoms and provide AIDS prevention education to women working as CSWs and their potential partners in five cities: Kinshasa, Matadi, Goma, Lubumbashi and Kisangani. Although project funding was interrupted after two years because of political instability in Zaire, the accomplishments clearly support the decision to target CSWs and their clients with condom social marketing.

Project Description

The project maximized its potential for reaching high-risk communities by utilizing many of the successful social marketing mechanisms already established by the PSI program serving the general population of Kinshasa. The focus of the project was to reach CSWs and their potential clients at sites where sexual activity occurs or is negotiated and at service centers and retailers frequented by the target audience.

Peer educators from among the CSW communities in two large urban areas were identified and trained to provide prevention education and to sell condoms. Posters, wall and wallet calendars and other promotional print materials were developed and distributed. Points of sale were identified at all project sites. These included traditional outlets, such as pharmacies and medical centers and non-traditional outlets, such as hotels, bars, nightclubs and sporting events. Condom promotions were developed for use by retailers.

The program's condom was marketed under the brand name "PRUDENCE," and the product name, packaging and logo design were developed and tested specifically to meet the perceived needs of the Zairian market. The wholesale price for each package of three PRUDENCE condoms was set at a price that undercut the price of competing brands by as much as 50%.

The original goal was to sell approximately six million condoms in five target cities. This goal was exceeded by several million condom sales in spite of difficulties caused by political unrest during the life of the project.

Accomplishments

Sold more than 9.8 million condoms in project sites during the two years the project was operational, exceeding established sales goals by more than 50%.

Distributed more than 300,000 educational materials in project sites to target audiences.

Increased the percentage of sales occurring at outlets where sex occurs or is negotiated from 10% to 30% in a 14-month period.

Successfully negotiated the participation in some regions of 57% of all hotels, 28% of bars and nightclubs, 49% of medical centers and 88% of pharmacies.

Generated \$35,000 in sales revenues to support local project costs.

Trained 25 CSWs in two cities as peer educators who provided prevention information to 150 additional CSWs.

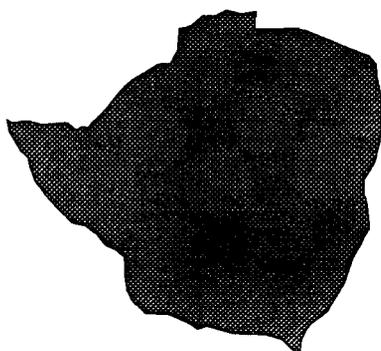
Lessons Learned

Targeted condom social marketing activities can be effective extensions of existing condom social marketing programs aimed at the general population.

Individuals and commercial establishments dependent upon the commercial sex industry for income can become actively and effectively involved in promoting condom social marketing activities.

Hotels, bars, nightclubs and other non-traditional outlets can be effective points of sale for condom social marketing programs.

Zimbabwe



Zimbabwe

Program Summary

AIDS was first seen in Zimbabwe in 1985. In June 1987, 18.5% of patients at a Harare STD clinic were HIV positive. As early as 1988, infants with HIV infection or AIDS were being seen in hospitals, and in early 1989, the MOH estimated that as many as 250,000 people (2.7% of the population) were HIV positive. Results from the national sentinel surveillance system, established in 1990, indicated a rate of 40.6% among STD patients and 16.5% among antenatal clinic patients tested in sites across Zimba-

bwe between November 1990 and February 1991. Rates were high in both urban and rural areas at this time, although urban areas were, and are, harder hit. The information available on HIV prevalence and documented AIDS cases in Zimbabwe suggested heterosexual transmission as the primary mode of infection. A sharp rise in STD rates (from 500,000 treated cases in 1986 to approximately 1,000,000 in 1989) was also a cause for concern in light of the presence of HIV.

The Zimbabwe NACP recognized the role that CSWs and their sex partners could play in the transmission of HIV in Zimbabwe. The MTP for the Prevention and Control of AIDS developed in 1988 emphasized the prevention of heterosexual transmission of HIV, specifically the importance of behavioral risk reduction among individuals who have multiple sex partners. AIDSTECH's program in Zimbabwe focused on this objective, targeting high-risk groups and, as the epidemic spread, reaching out to segments of the wider community and rural populations. To a lesser degree, AIDSTECH contributed technical and financial support to the maintenance of a safe blood supply and infection control in health care settings, also objectives of the MTP.

AIDSTECH supported four projects to prevent the sexual transmission of HIV, three based in municipalities, with technical assistance from the University of Zimbabwe, and one in rural Zimbabwe:

- A community-based pilot education and condom distribution project targeting CSWs, their clients, and STD patients implemented by the Bulawayo City Department of Health Services in 1989. After 22 months, the pilot was expanded to include community groups, primary and secondary school students, and workers (including truckers, military and police). This project provided a model for replication to other sites in Zimbabwe; a special evaluation and recurrent cost analysis were conducted for this project.
- A modified replication of the Bulawayo project which combined targeted activities for CSWs, their clients, and STD patients with a community-wide outreach to students, workers and community groups in Masvingo. This project was initiated by the Masvingo Health Department in early 1991 with technical assistance from Bulawayo project staff.

- A second replication of the Bulawayo project with an intensive outreach to CSWs, their clients, and STD clients, as well as activities for residents of Kariba and surrounding rural areas, including a special focus on the area's fishermen. This project was initiated in May 1991, by the Kariba District Hospital with technical assistance from Bulawayo and Masvingo project staff.
- An AIDS education and condom distribution program targeting the members of the commercial farming sector and their families through the infrastructure of the Zimbabwe Commercial Farmers' Union (CFU). Begun in 1991, this project built on an AIDS prevention effort piloted on the CFU AIDS Prevention Coordinator's own large commercial farm.

AIDSTECH also sponsored research on risk behaviors contributing to the spread of HIV:

- A study applied Fishbein's Theory of Reasoned Action to identify and understand the factors affecting patterns of condom use by individuals at increased risk of sexual transmission of HIV. This study, begun in September 1990 by the Battelle Seattle Centers in collaboration with the University of Zimbabwe, is part of the AIDSTECH Behavioral Research Grants Program.

To assist in maintenance of a safe blood supply and control infection in hospital settings, AIDSTECH provided:

- Technical and financial assistance to equip and supply five regional hospitals with blood screening equipment; limited equipment was also supplied to the Blood Transfusion Services.
- TOT in HIV testing for supervisory laboratory technicians, in collaboration with the Public Health Laboratories of the Ministry of Health.
- TOT for supervisory nurses to improve disease control procedures for government and non-governmental institutions, in collaboration with the Department for Nursing Education in the MOH.

Accomplishments

- Approximately 200 CSW peer educators were trained; at the end of the program period, 150 were actively engaged in AIDS prevention and condom promotion activities in Bulawayo, Masvingo, and Kariba; 10 CFU Volunteer Branch AIDS Coordinators and 38 representatives of three farmers cooperatives were trained in AIDS prevention and condom promotion and distribution.
- More than two million educational contacts were made during formal and informal meetings in CSW residences, bars, beer gardens, STD clinics, workplaces and schools, at farmers' associations and on farms.

- AIDS prevention messages were integrated into drama, traditional music and dance in the Bulawayo, Masvingo, Kariba, and CFU projects.
- Simple, low-tech HIV/STD leaflets were developed and printed in three languages. More than 600,000 were distributed by PEs during project activities.
- More than 7,000,000 free condoms were distributed through PEs in Bulawayo, Masvingo, and Kariba, and through 35 outlets of Zimbabwe's three farmers cooperatives.
- In 1988, only 13% of "ever sexually active" women reported taking preventive action to avoid AIDS when interviewed as part of a national survey of reproductive-age women conducted by Demographic and Health Survey. An AIDS awareness module, funded by AIDSTECH, was added to the survey by the Institute for Resource Development.
- Pre- and post-project intervention data indicated that the percentage of CSWs who always use a condom increased from 5% to 48% and the percentage of clients of CSWs who always use a condom increased from 25% to 45%.
- Condom use was associated with the number of educational meetings attended. Only 29% of CSWs who had not attended a meeting reported using a condom all of the time, compared with 59% of those who had attended five or more meetings. Similar increases were noted in Masvingo and Kariba among fisherman, CSWs and clients.
- Data from a 1992 representative survey (n=2,853) of bar-based CSWs estimated that the project reached approximately 80% of the 14,000 CSWs in Bulawayo.
- Recurrent costs per condom distributed and person reached were \$0.08 and \$0.34 respectively for the Bulawayo project.
- As part of the Battelle Seattle Centers/University of Zimbabwe study of condom use, 296 members of various groups in two cities were surveyed; as a group, CSWs reported the highest consistent use of condoms, with 38% reporting condom use in ten of their last ten sex acts. Less than 10% of all other high-risk groups (male and female STD patients, male CSW clients, truckers, soldiers and fishermen) reported consistent condom use.
- Six senior MOH nurses were trained as co-trainers for supervisory nurses training of trainers; 47 supervisory nurses participated in a TOT workshop focusing on HIV/AIDS and disease control procedures in the health care setting.

- 20 Public Health Laboratory supervisory technicians participated in a three-day TOT workshop based on correct use of the Abbott Recombinant Test for HIV.
- Equipment and supplies were provided to establish HIV testing laboratories at five district hospitals.

Lessons Learned

- Implementation of innovative programs for marginalized groups benefits from strong but quiet, institutional and political support.
- Peer education is a viable means of reaching marginalized groups such as CSWs; selection and training of PEs is crucial to the effectiveness of the strategy. "Seeding" PEs in networks, both geographical and according to work locations, improves coverage of and credibility with the target population.
- Reaching clients of CSWs proved difficult. Numerous and varied presentations at bars and beer gardens, timed early in the evening when men were present but before they were drunk, was a strategy used to reach clients; multiple contacts were made with individuals through repeated programs at key social centers.
- The linkages established by the four projects to Zimbabwe's national condom distribution system, managed by the Zimbabwe National Family Planning Council, ensured condom availability to target populations.
- Men in Zimbabwe are not generally monogamous and have the stronger role in sexual decision-making; the reason most often cited by women (both CSWs and non-CSWs) for not using a condom is partner resistance.
- A successful community-based project targeting marginalized high-risk groups can be replicated in multiple and diverse sites. Careful delineation of key project components and training of project staff in these key areas is needed. Strong supervision and consultation during project start-up, along with a willingness to revise project design as dictated by local conditions, are required.
- Expanding a pilot project within a municipality by adding new and diverse target groups can be problematic. Expansion often requires hiring new staff and collaborating with more government and non-governmental bodies. Unless carefully done, expansion can lead to overburdening the project with unsuited staff and administrative requirements.
- Strong management is vital to program success; a full-time paid coordinator, responsible for coordinating project activities, reporting and financial accounting, etc. is ideal. Other arrangements, such as use of part-time or volunteer coordinators, are workable but can require added administrative and technical support.

- For projects to recover full condom costs through condom sales would be difficult due to the limited income of target groups and the price of alternative condoms.
- Existing infrastructures can provide a basis for implementation of AIDS prevention activities at a low cost. However, since the primary functions of the parent organization will take precedence, this must be taken into account during realistic planning of AIDS prevention activities.

Recommendations

- Activities targeted at high-risk groups should continue, but increased emphasis should be placed on the wider community, particularly men, through social centers, workplaces and schools.
- As the number of local projects based in municipalities increases, a mechanism for consultation between projects should be formalized. Biannual two-day workshops bringing staff from all projects together to examine implementation issues of shared interest should receive financial and technical support.
- The national initiative begun by the Commercial Farmers' Union should be continued, with additional support in condom logistics and promotion, project administration and record keeping, management and training of volunteers.
- Alternatives for condom supply should be explored. As provision of free condoms becomes increasingly difficult, options for cost recovery should be fully examined. Supplementary income could be gained from the sale of subsidized condoms through projects fees from industry for AIDS education programs, raising revenue through project drama performances, etc.

Program Highlight

Zimbabwe Farming Communities Mobilize for Prevention

Approximately one in 20 Zimbabweans were infected with HIV according to 1991 estimates from the Zimbabwe Ministry of Health, an infection rate with serious implications for the country's continued social and economic development. At present, the stability of Zimbabwe's economy is largely dependent upon its commercial farming sector. Commercial farm production not only feeds the nation, but also accounts for 80% of the value of goods produced for export. The farming sector employs 300,000 laborers, representing the country's second largest work force. When the families of the laborers are included, the estimated on-farm population is about two million, or nearly 20% of Zimbabwe's total population.

In late 1990, AIDSTECH supplied assistance to the Commercial Farmers' Union (CFU), representing 4,500 licensed farmers, to work with three farming supply cooperatives to launch a nationwide AIDS prevention and condom promotion program among agricultural workers on commercial farms. The program was based on the successful experiences gained in a pilot project implemented on one particular farm.

Project Description

The project, which ran from late 1990 to early 1992, built on existing CFU and supply cooperative infrastructure to keep implementation costs low and to maximize the scope, acceptability and sustainability of the intervention. Volunteer AIDS coordinators were identified from each of the CFU's regional branches. Educational outreach, information dissemination and data collection activities were made an integral part of CFU's operations. AIDS prevention updates were published in CFU newsletters.

Educational programs were shaped by AIDS coordinators to meet the needs of the CFU's eight regional branches. In addition to assisting individual farmers establish prevention programs and condom distribution sites on their farms, a broad range of educational materials and methods were employed. These included posters for display at condom distribution sites, the production of on-farm drama presentations performed by local youth, individual discussions with people infected with HIV, slide presentations and the enhancement of HIV prevention education provided through mobile and on-farm clinics.

The condom distribution system utilized 35 outlets of the farm supply cooperatives. These outlets were stocked with condoms provided at no cost by the Zimbabwe National Family Planning Council. Farm owners collected their free condoms during regular trips to the cooperatives to purchase agricultural supplies. Condoms were distributed on the farms through existing and frequently visited sites, such as farm stores, pay desks and health clinics.

Accomplishments

Ten CFU Branch AIDS Coordinators were trained, as were 38 condom coordinators/promoters from 30 supply outlets.

Multiple condom distribution points were established in about 25% of the CFU's 4,500 farms. 900,000 condoms were distributed through the program and an estimated 500,000 farm village residents were reached through program activities.

Lessons Learned

The costs, efficiency, acceptability and sustainability of an AIDS prevention and condom distribution program can be enhanced when it is integrated into existing private sector operations and infrastructures.

Private sector organizations with established and regular access to large segments of the work force can perform an important role in AIDS prevention.

Farming is a seasonal endeavor and dependent on uncontrollable conditions, such as weather and land use restrictions, which can affect project implementation.

Latin America and the Caribbean Emphasis Countries

HIV infection rates in many Latin American countries are still relatively low compared to rates in African countries. All countries in Latin America have detected and reported AIDS cases. AIDS will probably become the number one cause of death among sexually active adults by the year 2000. Regional projections indicate that approximately one million Latin Americans will be HIV-infected by 1992. Hardest hit among Latin American and Caribbean countries are the urban areas in Brazil, the Dominican Republic, Mexico and Honduras.

Several countries in the region (Trinidad, Barbados, Bermuda, Guadalupe, Bahamas, and Haiti) have experienced some of the world's highest infection rates per population. Unfortunately, an already serious situation is threatening to worsen as a predominantly youthful population enters its most sexually active years during this decade.

The highest levels of seroprevalence were reported among groups practicing high-risk behaviors, primarily MSM and CSWs. Between 1987 and 1989, HIV seroprevalence rates among CSWs in the capital cities of Brazil and the Dominican Republic were 3% and 2.6%, respectively. One Brazilian study reported a prevalence of 65.8% among young male CSWs.

The epidemic in Latin America and the Caribbean has the following characteristics:

- The virus is transmitted primarily by sexual contact.
- Recent epidemiological evidence from many countries shows a decrease in the male to female ratio of AIDS cases, indicating increasing heterosexual spread of the virus. In some areas of Mexico, the male to female AIDS case ratio has dropped from 15:1 in 1988 to 5:1 in 1992. In Brazil and the Dominican Republic the male to female ratio now approaches 2:1. Bisexual activity is the most significant variable in the epidemiology of HIV infection in Mexico, accounting for as much as 28% of AIDS cases among women who acquired HIV heterosexually.
- The safety of the blood supply varies greatly throughout the region. While some countries offer integrated blood transfusion services, others lack basic infrastructures for storing and screening blood for transfusions.
- Intravenous drug use is not at present a major mode of transmission, but there are pockets where this activity is practiced.

AIDSTECH Strategy

Because sexual transmission accounted for the vast majority of AIDS cases, it received a proportional amount of emphasis in AIDSTECH's regional program. AIDSTECH recognized the pivotal role men play as decision-makers, specifically with regard to

numbers and types of sexual partners and use of condoms, and sought to involve males in intervention programs designed to reduce high-risk behavior.

Because the safety of the blood supply varied throughout the region, AIDSTECH's strategy for preventing transmission of HIV through blood was country-specific and based on existing laboratory infrastructure, staff capabilities, HIV prevalence rates, and reliance on commercial blood donors.

AIDSTECH Program

AIDSTECH focused its activity in the region on Brazil, the Dominican Republic, the Eastern Caribbean, Haiti and Mexico. In addition, AIDSTECH sponsored projects in Bolivia, Chile, Costa Rica, El Salvador, Guatemala, Ecuador and Peru.

AIDSTECH worked with public and private non-profit agencies, professional associations and businesses in collaboration with PAHO, WHO/GPA, local health ministries, national AIDS committees and AID missions. Existing laboratory and STD clinic facilities were incorporated, where feasible, in prevention, diagnosis, treatment and surveillance activities. These collaborative efforts facilitated the identification of and access to recognized target groups and encouraged the development of viable infrastructures for program planning, implementation and evaluation.

Factors impeding timely project implementation included:

- Political instability and its associated impact on the public health infrastructure.
- The concurrent cholera epidemic, which in many countries limited the resources available for AIDS prevention.

In spite of these factors, 36% of AIDSTECH's field-related program resources were spent in Latin America and the Caribbean. Of the \$8.2 million expended for AIDS prevention in Latin America and the Caribbean, almost 60% was spent on prevention of sexual transmission. Through this support, approximately 649,000 educational contacts were made and about 6.9 million condoms were distributed to persons at risk of HIV infection. About 6% of AIDSTECH's obligation supported improvement of blood supplies.

The AIDSTECH program in the five emphasis program countries is described on the following pages. Appendix 3 shows activities by country for the region and Volume II of this report provides one-page detailed descriptions of major project accomplishments and lessons learned for all countries where AIDSTECH worked.

Brazil



Brazil

Program Summary

The demographics of AIDS and HIV infection in Brazil have changed significantly since the first reported case in 1980. AIDS and HIV infection, initially identified in affluent homosexual communities in urban districts (25% HIV seroprevalence among MSM in Rio de Janeiro in 1987 and 30.9% in São Paulo in 1986), have spread to all segments of Brazilian society. A national sample of 754,000 blood donors was tested in 1989 with a resulting 0.6% seroprevalence rate. AIDS/HIV infection has

increasingly become a heterosexual disease. 1986 findings show 10.8% HIV prevalence among female CSWs in Campinas and 6% to 8.8% in Rio de Janeiro.

AIDSTECH's work in Brazil was constrained by the Brooke Amendment, failure of the Brazilian government to sign the Nuclear Nonproliferation Act, and the Foreign Assistance Act, prohibiting AID from providing condoms in direct support of government programs. Funds could be used only to continue support to programs initiated by NGOs affiliated with AID before 1983, or for training programs.

Following a review and ruling by AID's legal office, AIDSTECH initiated a two-phase program, the first of which focused on training to develop and enhance institutional capabilities, and the second to continue support to develop interventions for diverse target populations. In the first phase, AIDSTECH provided financial and technical support to four programs:

- A series of week-long training courses for health care providers, government health post personnel and NGOs in AIDS/HIV counseling and education implemented in six states by the Sociedade Civil Bem-Estar Familiar no Brasil (BEMFAM), the largest family planning organization in Brazil. The program was expanded in the second phase to establish a training of trainers component which enabled organizations in four states to implement AIDS/HIV education and counseling programs.
- Development of a series of training courses to strengthen NGO skills in administration and management, research, marketing, accounting, word processing, computer skills and data base development and analysis for the Centro de Controle e Investigação Imunológica (CCII), a center providing educational activities and support for persons affected by HIV in Campinas.
- Training of family planning service providers in the use of specially designed educational materials targeting semi-literate low-income populations by the Associação Brasileira de Entidades de Planejamento Familiar (ABEPF), an umbrella association of Brazilian family planning organizations.

- The peer education training component of a larger intervention targeting CSWs and MSM in northeast Brazil conducted by the Implementing Agency for Cooperation and Training (IMPACT).

In the second phase AIDSTECH supported:

- An expansion of the CSW intervention including training, materials design and outreach for male and female CSWs in two cities in northeast Brazil implemented by IMPACT and the Associação das Prostitutas do Ceará (APROCE).
- An intervention utilizing HIV positive persons or their family members as HIV/AIDS educators targeting mothers at day care centers, implemented to build upon the skills developed by CCII in the previous phase.
- An intervention for traditional healers to reach CSWs, MSM and low-income populations in Fortaleza implemented by Cultural Concepts, a non-profit social medicine research organization.
- Targeted CSM to reach CSWs in the central zones of São Paulo City implemented by DKT do Brasil, a subsidiary of PSI, in collaboration with the São Paulo State Secretary of Health.
- A pilot testing of verbal AIDS/HIV risk assessment strategies for women attending family planning clinics operated by BEMFAM in Rio de Janeiro and Recife.

Through the AIDSTECH resident coordinator, AIDSTECH provided general program support to Brazil's NACP and support to specific projects as needed. This support included assistance in planning, implementing, and evaluating, as well as financial and narrative reporting responsibilities to all AIDSTECH-sponsored projects nationwide. The resident coordinator was also the liaison between AID/Brasília and AIDSTECH.

Accomplishments

- 273 health professionals from six states were trained by BEMFAM to provide AIDS/HIV counseling. 48 of these later attended a training of trainers workshop.
- Management training for CCII facilitated organizational restructuring and streamlining of systems.
- Three training sessions were held by ABEPF for 81 family planning service providers; 7,000 booklets targeting low-income populations were printed and distributed to clinics in three cities.

- 23 peer educators were trained by 15 students; in the second phase, 58,413 educational contacts were made (38,134 female CSWs, 19,255 male clients, 1,024 MSM), 32,182 educational materials and 356,925 condoms distributed.
- A 24-minute video was produced to be incorporated into training Umbanda religious leaders, however, the time required to produce the video made it impossible to train Umbanda leaders as planned.
- Condom sales teams called upon 310 commercial sex establishments and sold 2,304 condoms in the six-week targeted social marketing project.
- An open-ended question, "Do you think you are at risk for HIV infection?" identified more women in family planning clinics who perceived themselves at risk (55%) than a checklist of risk factors (36%).

Lessons Learned

- Training programs are extremely beneficial in skills transfer, yet have little impact on immediate changes in seroprevalence rates.
- Using CSWs as paid peer educators raises expectations that alternative, dependable sources of income will consistently be available.
- Timing is important when adding a targeted approach to a broader CSM program; to be most effective, the social marketing program must be well established before incorporating a targeted component.
- Focus group results from low-income, urban populations showed a higher comprehension of written messages than originally anticipated.
- The non-invasive nature and simplicity of the verbal risk assessment was preferred to the checklist for screening women for counseling and condom promotion in family planning clinics. The verbal risk assessment created the same demand for condoms as the checklist.

Recommendations

- **Extend prevention activities to include more targeted interventions with the following populations:**
 - **MSM may not self-identify as gay or bisexual, therefore, strategies must be developed to reach this group.**
 - **HIV transmission via needle sharing is increasing, especially in the regions of Rio de Janeiro and São Paulo, and prevention programs are now needed to address this problem.**
 - **Street children who take part in the illicit traffic of commercial sex and drugs should be targeted for AIDS prevention.**
 - **Changing male sexual behavior is the key to slowing the spread of HIV infection in Brazil.**

- **The price of condoms is an obstacle for prevention programs. Brazil pricing and taxation policies must be addressed.**

- **Socially marketed Prudence condoms were sold at prices only marginally lower than commercial products. The pricing of CSM condoms needs either supervision or reevaluation.**

- **Based on focus group experience with women attending BEMFAM family planning clinics, these clinics need to explore mechanisms with which to target the male partners of their clients.**

Program Highlight

HIV Risk Assessment in Family Planning Clinics in Brazil

Sexual transmission accounts for the majority of cases of HIV infection in Brazil. The male to female ratio of AIDS cases has shifted from 30:1 in 1985 to 6:1 in 1991. Some estimates link 44% of infected women to male partners who have sex with other males. Most family planning clinics target women, thereby providing opportunities to educate women of their potential risk of HIV infection and provide valuable prevention strategies. Although HIV counseling and testing for all clinic attendees is cost-prohibitive, one US study showed that a verbal risk assessment alone identified 57% of HIV positive women. A similar risk assessment tool could provide a cost-effective method of targeting Brazilian women at risk of HIV infection for risk-reduction counseling. In January 1992, an operations research project to test two risk assessment methodologies to see which identified more women at risk was implemented at two family planning clinics, part of the Sociedade Civil Bem-Estar Familiar no Brasil (BEMFAM) network, in Rio de Janeiro and Recife.

Project Description

The first methodology tested was the open-ended question, "Do you think you are at risk of HIV infection?"; the second was a health provider's assessment based on the client's answers to a checklist of seven risk factors regarding her own and her partner's STD history, IV drug use, sexual practices and multiple partners. The project also planned the production of appropriate AIDS educational materials for women attending family planning clinics in Brazil.

Accomplishments

Four focus groups were conducted with ten women each in the two cities to assess clinic attendee's thoughts related to AIDS, their perceived risk of infection, and preferences for educational materials. Participants expressed conflicting views regarding their personal risk of AIDS. On the one hand, some women believe that being married provides a measure of prevention and that trusting their partner is part of the delicate conjugal relationship. If a woman communicates her mistrust, it often leaves her vulnerable. On the other hand, women openly admit that the double standards of their culture condone multiple partners for men and some women are certain that their partners are unfaithful.

A comic book soap opera entitled "Talking Leads to Understanding" was designed and produced. The story depicted a young mother whose often absent husband infected her with HIV. Neighbors rally to help her and in the process become more informed about transmission and prevention. Finally, the husband also attends a neighborhood gathering and tells his story, all the while encouraging condom use and greater communication between couples and with their adolescent children. 14,000 copies were distributed to BEMFAM clinic clients in Rio De Janeiro and Recife.

Two staff members from each clinic were trained in the use of the risk assessment methodologies and risk-reduction counseling, the two methodologies were tested among 400 clinic attendees. The open-ended question identified more women who perceived themselves at risk (55%) than the checklist of risk factors (36%). The response to the open-ended question varied between Rio de Janeiro and Recife: in the former, 68% perceived themselves at risk compared to 42% in Recife. However, the checklist identified 38% and 36%, respectively. About 70% of the women at risk reported intentions of leaving the clinic with condoms regardless of which methodology was used. Among women who responded to the verbal checklist of risk factors, the three most frequently reported were genital sores in the past year (18%), anal intercourse in the past year (15%), and husbands with multiple partners (14%).

BEMFAM clinic staff believe the counseling combined with the educational materials contributed to the large numbers of women who perceived themselves at-risk. They plan to use the risk screening question before and after counseling to determine the impact of counseling.

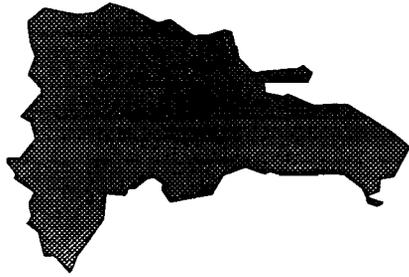
Lessons Learned

The open-ended question was preferred to the checklist because of its simplicity, non-invasive nature, and because it created as high a demand for condoms as the checklist. The clinic plans to continue research activities to compare the intention to leave the clinic with condoms with the actual number of women who take condoms with them.

No alarm or increased demand for HIV antibody testing was seen as a result of the intervention, a source of considerable concern to program managers prior to implementation.

It is difficult for women to discuss risk reduction measures with sex partners due to a lack of power and authority in the relationship; therefore, men also need to be targeted for risk reduction.

Dominican Republic



Dominican Republic

Program Summary

The common practice of engaging in sexual activity with multiple partners and an extensive commercial sex industry contribute to heterosexual transmission accounting for more than half of the 1,645 reported AIDS cases in the Dominican Republic. Economic and political migration from neighboring Haiti, and a thriving international tourist trade, particularly in Puerto Plata, have also influenced this trend, as evidenced by an AIDS case rate of 23.2 per 100,000 in Puerto Plata compared to 6.4 in the capital of

Santo Domingo. Only a small proportion of cases have been traced to blood transfusions or to IVDU. Surveillance studies conducted from 1987 through 1989 also support this profile with HIV seroprevalence rates of 0.7% to 1.6% among blood donors, 2.6% among CSWs, 4% among male STD patients, and an average of 4% among Haitian and Dominican cane cutters. Due to a lack of adequate testing facilities and reagents, actual HIV seroprevalence and AIDS case ratios are likely to be considerably higher.

Established in 1987 by the MOH, the Program to Control AIDS and STDs (PROCETS), in collaboration with the National AIDS Commission (CONASIDA), the Foundation for the Fight Against AIDS (PLUS), PAHO and AID, developed a three-year MTP to prevent and control the spread of HIV. AIDSTECH's four-year program in the Dominican Republic, funded by AID add-on and central funds included the following projects in support of MTP goals:

- A sentinel surveillance system to monitor the epidemiologic trends of HIV infection among general patients and female CSWs at STD clinics, antenatal patients, and of cord blood at a maternity hospital in the capital city was established by PROCETS with material assistance from AIDSTECH and the collaboration of PAHO.
- Assessment and prevention of HIV transmission through blood and its products, including:
 - A QA program to ensure that HIV diagnostic and screening tests are 100% reliable in all laboratories that process blood and blood products was piloted by the MOH's National Laboratory, "Defillo."
 - Technical feasibility and cost-effectiveness of HIV screening with pooled serum samples to reduce the cost of screening blood donors and to estimate HIV seroprevalence was investigated by the National Laboratory with AIDSTECH support.
 - A blood bank needs assessment implemented by PROCETS that examined the current blood collection, processing and transfusion systems, its efficiency and effectiveness to improve coverage and quality of services in the country.

- Prevention of the sexual transmission of HIV among CSWs and others with multiple partners such as CSW clients, youth, and tourist industry employees:
 - AIDS and STD prevention projects targeting CSWs in Santo Domingo and Puerto Plata were developed by PROCETS. The projects informed CSWs about transmission and prevention of HIV and STDs; encouraged lower risk sexual behaviors, especially condom use; increased access to condoms by establishing a community condom distribution network; and improved STD clinic services. The Center for Integrated Research (COIN) administered the project in Santo Domingo, while in Puerto Plata, the Committee to Control AIDS (COVICOSIDA) managed the AIDS prevention program. In both intervention sites, projects were expanded to include managers of bars and brothels, CSW clients and in Puerto Plata, employees of a large tourist complex. The evaluation of project sustainability and impact were important components in the two intervention sites.
 - A volunteer community-based AIDS information and referral network for young adults with civic groups in the eight health regions of the country was established by the PLUS.
 - In the AIDS Theater Project, AIDS-related plays were developed, produced and performed by the Cultural and Educational Foundation for Health (FUCES). Post-performance educational sessions for youth and community volunteers working in AIDS prevention throughout the country were conducted.
 - A project to increase AIDS awareness among sexually active young adults with a community-based AIDS prevention network in two squatter settlements was implemented by the Institute of Integral Dominican Development (IDDI).
 - A work-site AIDS prevention program was piloted, targeting female and male employees of the Free Trade and Industrial Zones of Haina. COIN and members of the Free Trade Industrial Association cooperated in this project to increase AIDS knowledge and awareness, to decrease discriminatory attitudes against persons with AIDS, and to increase healthy behaviors such as condom use and timely and appropriate diagnosis and treatment of STDs among employees.

Technical assistance and program support were provided to PROCETS, the National Laboratory, and five PVOs in program planning, development, management and evaluation of all projects. The AIDSTECH/DR office and resident coordinator provided on-site logistic and administrative assistance.

Accomplishments

- The sentinel surveillance system tested a total of 2,745 serum samples from April through November 1991. The overall HIV-1 seroprevalence of STD patients was 4.4%. Males had higher rates than females. Reported homo/bisexual practice was significantly associated with seropositivity in males. Among female CSWs rates were 3%. The 1,056 sera drawn from women seeking antenatal care showed an HIV prevalence of 0.9%. Ten additional sites were selected for 1992. Preliminary evidence suggests that early interventions may have contributed to a "containment" effect on the epidemic phase of HIV transmission.
- The national program for QA was piloted in Santo Domingo with 41 laboratories. Personnel were trained in principles of QA, calibration and maintenance of laboratory equipment, data collection, data management and proficiency testing. Training and evaluation workshops revealed the need for and value of standardizing the practice of HIV screening. A national extension of the QA program was designed for 1992-1993, to include all the laboratories in the country that perform HIV testing.
- In the serum pooling study, 5,500 sera were tested singly and in pools using both Abbott Recombinant and Ortho HTLV-III assays. Pooling resulted in a decrease in sensitivity and specificity. This approach is satisfactory for surveillance studies and may be considered in resource-scarce environments where individual testing is prohibitively expensive.
- The blood needs assessment project revealed that:
 - Nearly one-fifth of the blood banks continue to supply blood units unscreened for HIV.
 - The DR Red Cross accounts for only 4.5% of the national expenditures on blood collection but collects 40% of the total supply.
 - The benefit to cost ratio of detecting one unit of HIV-positive blood and the lifetime cost of treating an AIDS patient is 3.2:1.
- In Santo Domingo, Puerto Plata and environs:
 - 31 CSW peer health leaders trained 727 volunteer PEs, and, along with 700 bar and brothel owners, reached close to 15,000 people in their communities, making more than 70,000 educational contacts.
 - "Maritza's Triumphs" and "Maritza's Advice," two comic books emphasizing negotiation skills, condom use and STD issues, were produced by project staff and CSWs. These comic books, together with additional brochures and posters, account for more than 44,000 educational pieces distributed in project sites.

- More than one million condoms were distributed through the CSW peer network, as well as through the establishment manager and hotel employee components of the high-risk project sites.
 - Consistent condom use with new and regular clients has increased in all CSW groups.
 - Basic laboratory equipment was provided to three STD clinics in Santo Domingo and Puerto Plata and recommendations were made to standardize STD diagnosis, treatment and data collection among all participating clinics.
 - Syphilis incidence rates from STD clinics serving CSWs indicate a decrease from 11.7% in 1989 to 8.2% in 1991 in Santo Domingo, and from 10.9% in 1989 to 9% in 1990 in Puerto Plata.
 - An HIV seroprevalence study of 1,000 CSWs at STD clinics indicated a prevalence of 1.8% in 1990; compared with 2.6% between 1987 and 1989 and 3.0% in the 1991 Sentinel Surveillance Study.
 - Recurrent cost analyses were completed for Santo Domingo and Puerto Plata CSW projects that identified potential sources of revenue including condom social marketing, expanded clinical and laboratory service provision, flat fees to participating business and AIDS educational consulting to community organizations.
- In the community-based projects with young adults, 197 volunteer PEs were trained and approximately 37,500 contacts were made through AIDS prevention activities and theater performances, during which 74,000 educational materials and more than 150,000 free condoms were distributed.
 - 23 firms in the Free Trade and Industrial Zones of Haina participated in the worksite intervention, reaching 8,000 employees with HIV prevention and anti-discrimination messages.
 - 16 tourist hotels near Puerto Plata collaborated in an AIDS prevention program reaching 35% of their employees in four months.

Lessons Learned

- To a great extent, the sexual intervention projects in both Santo Domingo and Puerto Plata owe their progress to the fact that CSWs have played a fundamental role in all aspects of project design and implementation, from developing program activities and conducting surveys to producing educational materials and distributing condoms. This opened doors and created an appropriate education strategy for this marginalized group, providing an avenue for increasing self-esteem and community solidarity.
- Inter-institutional collaboration, though difficult, can be successful when all organizations have clear roles and responsibilities. This was particularly true in Puerto Plata with the MOH, COVICOSIDA and the Dermatologic Institute. Donor agency collaboration was appropriate and fruitful in the Sentinel Surveillance Study.

- Drama is an appropriate medium to explore controversial or taboo issues with less sophisticated target populations.
- The private sector is a powerful resource and potential collaborator in implementing AIDS prevention activities with the general population who engage in sexual relations with multiple sexual partners, as well as in the commercial sex and tourist industries.
- Preliminary sentinel surveillance and syphilis incidence data suggest that early AIDS prevention interventions might have a containment effect on the HIV epidemic.
- The cost of preventing HIV transmission through blood screening is low in relation to the likely cost of medical care for a person living with AIDS.

Recommendations

- Although some programs for MSM have been established, mainly with low income MSM, efforts should be made to reach MSM with higher education and income because they may facilitate overall change in the MSM community.
- Theater groups and bar-based programs have been used successfully to reach clients of CSWs, yet condom use has been difficult to measure. Workplace strategies should be further explored as they offer great opportunities to measure behavior change over time.
- Algorithm diagnosis and treatment protocols for STDs should be standardized and appropriate health care personnel should be trained in their use.
- The network of NGOs working in HIV education and prevention should be strengthened to improve their administrative, program planning and evaluation capacities.
- Because the cost of preventing HIV transmission through blood screening is low relative to the cost of medical care for a person living with AIDS, the Ministry of Health should restructure the national blood bank system, improving quality assurance and training in the appropriate use of blood and blood products.

Program Highlight

Intervention with High-risk Populations in the Dominican Republic

The total population of the Dominican Republic is only seven million people. Urban areas have grown dramatically in the last decade as the country responds to opportunities provided by increased travel and tourism to the area. The number of women working as CSWs has also increased; an estimated 25,000 CSWs work in Santo Domingo alone. In 1989, data indicated an HIV seroprevalence of about 2.6% among these women. Given the relatively small population of the country, a high infection rate among CSWs places the general population at clear risk. In 1989, the MOH sought ways to reduce the risk to these women and to the population at large. AIDSTECH collaborated with other communications professionals to support MOH's effort to develop an AIDS and STD intervention project for 5,000 CSWs in Santo Domingo.

Project Description

This 48-month project was designed to provide education and training to the target group, to enable easy access to free condoms and to improve STD clinic services in the targeted area. Work began with the provision of training and equipment to improve STD clinic services and with the creation of materials that would enable working CSWs to alter their own behaviors and effectively negotiate behavior change among their clients and other sex partners. A network of peer educators was trained to provide ongoing education and condom supplies to CSWs. Managers of bars and brothels were also targeted with educational sessions tailored to their needs.

CSWs were actively involved in defining the materials and providing needed information and advice to their peers on a daily basis. A fictional comic book character named "Maritza" was created, and she is now a role model among women in the CSW community. Maritza is a CSW with the self-esteem necessary to keep herself informed and healthy and to demand her partners' cooperation to use condoms. She is the main character in a series of comic books that focus on the identification and treatment of various STDs, and on how to negotiate condom use with client stereotypes identified in focus group discussions with CSWs.

Accomplishments

"Maritza's Triumphs" and "Maritza's Advice" (the comic book and flip chart series) were developed, produced and distributed among the target population. 40,823 educational brochures, pamphlets, and comics were distributed, more than 36,000 by PEs and the remainder by bar managers and a traveling drama group.

Managers of 295 bars and 61 brothels attended 212 educational sessions; a total of 500 bars and brothels cooperated in project activities.

891,000 condoms were distributed to CSWs, their clients and bar managers, and projects reports indicate:

	<u>% always using condoms</u>					
	New Clients		Regular Clients		Nonpaying partners	
	Pre-	Post-	Pre-	Post-	Pre-	Post-
Bar CSWs	67	73	33	50	28	41
Street CSWs	86	97	67	84	51	70
Brothel CSWs	92	100	65	87	56	65

Necessary laboratory equipment was provided to three clinics in Santo Domingo along with assistance in standardizing STD diagnosis and treatment. Data collection protocols were developed to improve surveillance. Data from STD clinics serving CSWs in Santo Domingo show a decrease in the positive diagnosis of syphilis of all tests performed from 11.7% in 1989 to 8.2% in 1991.

Lessons Learned

People at particularly high risk of infection are receptive to interventions targeted to meet their needs and will change risk behaviors. Positive role models, continual reinforcement and easy access to condoms and STD treatment increase program acceptability.

Focusing on core groups is a strategic use of limited resources; preventing or curing an STD in a member of a core group has much more impact than doing so in a person who is unlikely to transmit the infection.

Bar managers reinforced condom use among CSWs and clients, they used condoms more themselves and facilitated condom sales, distribution and educational activities in their businesses.

Eastern Caribbean



Eastern Caribbean

Program Summary

The Eastern Caribbean includes the countries of Antigua/Barbuda, Dominica, Grenada, Montserrat, St. Kitts/Nevis, St. Lucia, St. Vincent and the Grenadines, Barbados, and Trinidad and Tobago.

Seroprevalence data for Trinidad in 1988-89 showed HIV prevalence of 40% in MSM, 1% in blood donors and 3% in STD patients. St. Lucia and St. Vincent reported about 1% HIV prevalence for migrant farm workers and Barbados reported 1% for

blood donors. MSM, STD patients, CSWs, and migrant workers have been identified as probable high-risk behavior groups for the Eastern Caribbean. The incidence of reported STDs had increased significantly by 1989 in all Eastern Caribbean countries, particularly Trinidad, St. Vincent, and Antigua.

The ACTS project, a \$7 million AIDS prevention program funded by the AID Regional Development Office/Caribbean, (RDO/C) was designed to establish the capacity to develop and implement cost-effective surveillance, information, education and intervention strategies in support of slowing the transmission of HIV infection. The project assisted and supported the implementation of the subregional MTP of the Caribbean Epidemiology Center (CAREC), the regional PAHO epidemiology program. Technical support was provided by AIDSTECH and AIDSCOM.

The ACTS project focused on three major strategies:

- Conducting research, including surveillance of HIV infection and STDs, ethnographic studies and KAP surveys.
- Implementing programs for prevention of HIV infection through sexual transmission.
- Strengthening program management and testing costing alternatives.

AIDSTECH supported programs under each of the strategies. See Chart 10 for an overview of AIDSTECH activities.

Chart 10
AIDSTECH-supported Activities in the Eastern Caribbean
1987-1992

	Antigua	Dominica	St. Lucia	Barbados	Trinidad
RESEARCH					
<i>Surveillance</i>					
Workshop on AIDS/HIV/STDs					■
Small grants for STD/HIV research	■	■	■		■
Modeling advisor					■
<i>Behavioral Research</i>					
General population KABP	■		■		
Target population KABP	■		■		■
Ethnography of CSWs				■	
PREVENTION OF SEXUAL TRANSMISSION					
<i>Targeted Interventions</i>					
CSWs	■				■
Migrant workers			■		
Prisoners			■		
STD patients	■		■		■
<i>STD Control</i>					
Clinic assessment	■		■		
Equipment	■		■		
Clinic intake form			■		
STD algorithm workshops		■	■		
<i>Training in Counseling</i>					
STD staff			■		■
Health care professionals		■	■	■	
Family life educators			■		
CBD staff		■			
<i>Condom Promotion</i>					
Needs assessment	■	■	■		
"Lifestyle" campaign		■			
Logistics assistance		■			
PROGRAM MANAGEMENT					
<i>Strengthening CAREC</i>					
Epi Info training					■
LogFRAME training					■
Behavior research advisor					■
<i>Costing Alternatives</i>					
Serum pooling					■
Cost recovery for blood screening					■
Alternative treatment facilities				■	

Accomplishments

- AIDSTECH assisted with a CAREC-sponsored workshop in HIV/STD surveillance held in Trinidad in November 1989. 35 participants from 17 countries took part. The workshop emphasized that STD surveillance is complementary to HIV and AIDS surveillance activities. Workshop recommendations included:
 - Confidentiality in testing must be maintained if testing is linked to patient names; counseling services should be in place.
 - Unlinked, anonymous testing can be useful for sentinel surveillance surveys, particularly in low prevalence countries.
 - STD surveillance should focus on urethral discharge (gonorrhea and chlamydia) and genital ulcer diseases (syphilis, herpes, and chancroid).
- Chlamydia and penicillin-resistant gonorrhea were found to be important pathogens in the Eastern Caribbean.
- Modeling showed that 2% to 5% of the adult population in the Eastern Caribbean will be HIV-positive by the year 2000, costing the countries from 2% to 5% of their national gross domestic product.
- An ethnographic study of CSWs in Barbados was conducted. Men go to CSWs primarily for sexual behaviors considered more intimate or more dominating and violent than sexual behaviors practiced with their spouses. In general men object to condoms and do not mind acquiring and spreading STDs. CSWs have the power to demand condom use, but sometimes they do not with "special" men, regular customers and boyfriends. Sometimes CSWs run out of condoms. Wives can rarely insist on condom use with their husbands.
- AIDSTECH provided technical assistance in developing a standardized KAP survey for the Eastern Caribbean, prepared a data processing system using the SURVEY software package that was shared with participating countries and assisted with pre-testing the questionnaire in Antigua and St. Lucia. Data from St. Lucia showed that 72% of the men and 62% of the women had vaginal sex in the previous six months; of those having sex, 25% of the men and 16% of the women said they always used a condom.
- KAPs with targeted high-risk populations showed consistently low condom use pre-intervention, mainly because clients of CSWs did not like using condoms.
- Comprehensive IEC materials were developed for STD patients, CSWs, migrant workers and prisoners. More than 2,800 materials were distributed.
- The projects reached approximately 16,000 people with educational messages and condom distribution programs; more than 12,000 were STD clinic patients.

- More than 1.2 million condoms were distributed to targeted populations.
- In Antigua, data on HIV infection and STDs showed decreases in rates of infection during the project.
- Clinic assessments were conducted in Antigua and St. Lucia; critical diagnostic equipment was provided to both clinics.
- Two nurses from St. Lucia were trained in STD diagnosis and treatment at Johns Hopkins University.
- Clinic intake forms were designed to speed charting of patient visits and assure that essential information was gathered.
- Half-day workshops were held for 47 physicians, nurse practitioners and pharmacists in St. Lucia and 41 physicians and nurse practitioners in Dominica to present the epidemiology of STDs and HIV, to review treatment algorithms and to encourage counseling STD patients about risk of HIV and promotion of condoms as a method of prevention.
- In St. Lucia, two STD clinic staff and eight family life educators were trained to provide STD/HIV prevention counseling at an AIDSTECH five-day workshop; later in the project, AIDSTECH supported a six month STD/HIV counseling skills course; weekly sessions were attended by 24 health care professionals.
- In Trinidad, STD clinic outreach workers were trained to educate STD patients and CSWs.
- In Dominica, 25 health care professionals attended a five-day workshop and follow-up training on pre- and post-HIV test counseling and condom demonstration skills.
- AIDSTECH assessed condom needs, logistics, distribution systems and promotion for six Eastern Caribbean countries (Antigua, Dominica, Grenada, St. Kitts, St. Lucia and St. Vincent).
- Findings included:
 - Distribution figures showed that condom use was rising; condom demand was expected to increase by 50% over three years, primarily as a result of AIDS awareness.
 - Stockouts had occurred in several countries.
 - Condom storage facilities ranged from adequate to poor.
 - Outlets needed better promotional materials and marketing assistance.

- AIDSTECH worked with the Caribbean Family Planning Affiliation and the Dominica Family Planning Association's CBD network to implement a low-cost campaign to increase condom visibility and sales. Promotional materials using a "lifestyle" message, "Condoms... Because You Care," were produced and distributed to 30 outlets in Dominica. Within six months, the 15 outlets sampled experienced an 83% increase in condom sales; the number of outlets selling condoms grew by 15%. Focus groups with shop owners and members of the target audience indicated very high message recognition for all aspects of the campaign.
- AIDSTECH trained 14 CBD managers in Dominica in condom demonstration, logistics and promotion.
- AIDSTECH provided technical assistance to CAREC in the development of a standardized STD and HIV surveillance system for the Eastern Caribbean.
- AIDSTECH provided CAREC staff with training in research methodologies, data analysis packages (EPI-INFO), questionnaire design and pretesting, data collection and data processing.
- AIDSTECH provided 14 CAREC staff with training in LogFrame, a project planning tool; one staff member attended a five-day training course for training of trainers with AIDSTECH support.
- AIDSTECH supported a behavioral science advisor to provide CAREC assistance with the design, implementation and analysis of behavior research projects; a training package that focused on project development, research design, methods and data analysis was developed.
- The behavioral science advisor provided technical input into CAREC's three year behavioral research agenda.
- An evaluation of pooling of sera for HIV testing was conducted in Trinidad to determine whether sensitivity and specificity of the tests were compromised by pooling and to evaluate possible cost savings; in the Eastern Caribbean, sensitivity was slightly decreased by pooling of five sera, but considerable laboratory time was saved.
- AIDSTECH provided technical assistance to the National Blood Transfusion Service in Trinidad to improve the cost-effectiveness of the blood banking system and to increase number of donors:
 - The benefits from HIV screening at blood banks were 9 to 12 times greater than the costs.
 - A pricing schedule for blood products was recommended for cost recovery.
 - 40,000 to 50,000 units were needed each year but only 15,000 were available; plans to increase the number of donors by 30,000 were suggested.

- Based on an evaluation performed in Barbados, AIDS patients can be treated more humanely and at lower cost at a hospice facility than at a hospital; 86% of AIDS hospital costs come from labor and overhead, which tend to be 70% less in an AIDS hospice facility.

Lessons Learned

- STD patients who are suspected of having urethritis or cervicitis should be treated for both chlamydia and gonorrhea at the initial visit.
- In spite of the reluctance of government officials, networks of CSWs exist and can be used to provide AIDS education and condom distribution.
- In small island countries confidentiality is of great importance in HIV testing, STD testing, survey research and counseling high-risk individuals.
- Shorter KAP surveys used with targeted populations produced results similar to larger scale general population surveys and were much less expensive.
- Appropriate approvals for potentially controversial materials must be identified and secured early in the development process.
- Condoms in general can be promoted, without reference to a specific brand or type.

Recommendations

- HIV sentinel surveillance should be conducted for STD patients and antenatal clinic patients.
- STD patients should continue to be targeted with treatment, HIV prevention education and condom promotion and distribution; patients should be reached with programs wherever they enter the health care system, through STD clinics, general health clinics, private physicians or pharmacists.
- Condoms should be made available where they are needed, when they are needed. Programs should continue to target non-traditional outlets that are open later than 5:00 pm and to change the image of condoms and the social norms surrounding their acceptability.
- Intervention programs that are successful in one country should be adapted for use in other countries throughout the region.

Program Highlight

Reaching High-risk Populations in Trinidad in the Eastern Caribbean

By 1989, HIV rates among high-risk populations in Trinidad had reached 10% in CSWs and 18% in STD patients. Rates of other STDs had increased dramatically between 1985 and 1987; more than 10,000 patients were being seen each year at the Trinidad STD clinics. In Port-of-Spain, the STD clinic provides an institutional base from which to reach men and women at high risk of HIV infection, with continued outreach through the bars and social centers that are frequented by CSWs and their sex partners. AIDSTECH, in collaboration with CAREC and the MOH, initiated a 21-month education and condom distribution program in the public STD clinics in Port-of-Spain and San Fernando and selected bars and social centers patronized by CSWs and their sex partners.

Project Description

The project was designed to provide appropriate education to selected STD clinic attenders and bar/social center clientele about HIV infection and the need for people to protect themselves by using condoms. Condom distribution systems were established at the STD clinic and through the bars/social centers.

STD clinic attenders were selected for participation in an intensive counseling program if they were diagnosed with syphilis, herpes or genital ulcers or if they had a previous STD. The STD clinic distributed condoms to all clinic attenders and others who came to the clinic seeking condoms. Bar managers and bartenders worked with the STD clinic outreach workers in implementing on-site AIDS education. Outreach workers conducted educational sessions in or near the bars, and ensured that each bar/social center was supplied with sufficient condoms for distribution. Educational materials, including a slide presentation for the clinic, posters, stickers and coasters promoting condoms were developed, tested and distributed. Both the clinic and the bar educational materials stressed the same theme of consistent and correct condom use, using culturally-appropriate language and images.

Accomplishments

26 clinic outreach workers and staff were trained in AIDS education, prevention and outreach.

Educational materials were placed in about 15 bars and social centers; 500 posters and 1,500 stickers and coasters promoting condoms were distributed in bars.

Approximately 250 CSWs were reached in bars and social centers by the STD clinic outreach workers in Port-of-Spain.

An integrated STD/HIV checklist for clinic interviews and an accompanying patient information sheet were introduced in the clinic. In addition, informational signs for the clinic waiting room, a condom care (breakage prevention) poster and a slide show were developed for the STD clinics.

More than 1,000,000 condoms were distributed and 12,000 people were reached through the STD clinics.

Lessons Learned

It is important to look at all aspects of clinic services (e.g., intake procedures, waiting room set-up, record-keeping) when implementing education and counseling programs on site.

Openly acknowledging concerns about condom breakage verbally and in print can enhance the trust between health care providers and patients.

Bar managers need to provide active support for prevention programs if a bar-based intervention for CSWs is to be successful.

Haiti



Haiti

Program Summary

AIDS was first recognized in Haiti in 1982. Prevalence studies conducted from 1986 to 1988 revealed HIV seroprevalence rates of 7% in blood donors (Port-au-Prince), approximately 10% in pregnant women of low socio-economic status (Port-au-Prince), over 40% in urban CSWs and from 0% to 2% among rural adults. Health officials estimated that about 10% of the urban sexually active adult population was infected, and the increase in HIV infections in urban areas was estimated at 1% per

year. The primary mode of transmission in Haiti is most likely heterosexual contact. Transmission through needle sharing or transfusion of infected blood is less significant.

In consideration of the epidemiologic data, the priorities of Haiti's Coordinating Office for the National AIDS Program, the activities supported by other large international donors, and AID/Haiti's country strategy, AIDSTECH's involvement centered on prevention of sexual transmission of HIV (the MTP's highest priority), followed by epidemiologic surveillance and behavioral research. Thus, AIDSTECH supported eight projects to prevent sexual transmission of HIV:

- A community-based education and condom distribution project targeting CSWs, their clients, and other persons with multiple sex partners in Port-au-Prince, Gonaives, Cap Haitian, and St. Marc; the project was conducted by the Implementing Agency for Cooperation and Training (IMPACT).
- A community and clinic-based education and condom distribution project targeting the sexually active populations of two slums in Gonaives; the implementing agency was the Center for Development and Health (CDS), and activities included the establishment of an STD clinic with concomitant HIV prevention counseling.
- An AIDS-in-the-workplace education and condom distribution project targeting the employees of approximately 150 factories in Port-au-Prince; the implementing agency, the Anti-AIDS Group (GLAS), is a consortium of private sector companies.
- A national condom social marketing project, conducted in collaboration with PSI that integrated the distribution activities of several AIDSTECH-supported NGOs into its marketing operations.
- An AIDS education project targeting adolescent schoolchildren in Port-au-Prince, conducted in collaboration with ten NGOs.

- An AIDS awareness campaign for schoolchildren in Carrefour sector of Port-au-Prince, conducted in collaboration with the Haitian Social Service Center (CHASS).
- An education project designed to sensitize pastors about HIV-related issues in Port-au-Prince and Cap Haitien, conducted by the Seventh-Day Adventist Church of Haiti.
- A counseling project to provide prevention education and psychosocial support to families with HIV disease, conducted in collaboration with the Haitian Association of Public Health (ASPHA).

To assist Haitian health authorities monitor and predict the spread of the epidemic, AIDSTECH supported two projects:

- HIV serosurveillance, conducted in Port-au-Prince's National Laboratory and Research Institute, containing a prevention counseling and psychosocial support component; the implementing agency was the Haitian Study Group of Kaposi's Sarcoma and Opportunistic Infections.
- Computer modeling of the AIDS epidemic to assist policy-makers project the future number of HIV infections, the related social and economic costs, and the effect of interventions.

AIDSTECH also sponsored research on risk behaviors contributing to the spread of HIV:

- A study of the relationship of culture, health, and sexual practices to HIV risk reduction behaviors in an urban slum area of Port-au-Prince, conducted in collaboration with Johns Hopkins University and the Haitian Centers for Development and Health.
- A study of the factors influencing Haitian women's perceived abilities to participate in HIV/AIDS prevention, conducted in collaboration with the Haitian Childhood Institute.

AIDSTECH provided general program support to the NACP (until the coup d'état) and to NGOs participating in AIDS prevention activities through the AIDSTECH resident coordinator. This individual was responsible for overseeing and providing technical assistance to AIDSTECH-funded projects as well as coordinating these activities with AIDS prevention activities of other organizations.

Accomplishments

The political and economic instability that followed the September 1991 coup d'état seriously hampered AIDS prevention in Haiti. AIDSTECH was instructed by AID to restrict implementation of its program until May 1992, when AIDS prevention activities were excluded from the restrictions of the Foreign Assistance Act. In spite of the disruption, significant accomplishments were achieved. Since 1989:

- Over 245,000 educational contacts were made, involving a minimum of 19,875 CSWs, 3,550 clinic attendees, 5,000 factory workers, 41,960 other sexually active adults, and 16,500 adolescent schoolchildren; through these activities, approximately 2.4 million condoms were distributed free to sexually active persons.
- Over 190,000 educational materials (e.g., brochures, posters) were distributed to members of the target groups.
- Nationwide, over 1.1 million condoms were sold to distributors for resale to consumers through the CSM project; sales of the HAITIAN brand rose from a monthly average of 35,000 before AIDSTECH support to over 107,000 by June 1992.
- One NGO sold over 30,000 condoms in its first month of marketing; approximately 124 personnel from three NGOs received training in condom marketing techniques.
- 96 community outreach workers, 117 factory workers, and 60 Seventh-Day Adventist pastors were trained to provide AIDS prevention education to target populations; 16 clinic staff were trained to provide prevention counseling and psychosocial support to persons with HIV disease.
- A serosurveillance system was established; results from 1991 Port-au-Prince data reveal HIV prevalence rates of approximately 7% in pregnant women, 33% among STD patients, and 23% among TB patients.
- 18 focus groups with the residents of Cite Soleil and an ethnographic map of the Cite Soleil Quarter were completed. Results indicated that the heterogeneity of Cite Soleil may preclude consideration of the Quarter as one community. Moreover, AIDS is greatly feared, stigmatized, linked with fear of death and contagion, and associated with multiple sex partners and other "undisciplined" sexual behavior. Because sexual contact is seen by this population as merely intense "casual" contact, any disease transmittable through casual contact is considered an STD.

- 18 focus groups of women of Port-au-Prince and the provincial city Les Cayes as well as 18 key informant interviews were conducted. Preliminary results indicated that although adults acknowledge the sexual transmission of HIV and fear its consequences, they do not lower their risk. Expression of male dominance in the sexual relationship and contradictory views on the rights of women and the use of condoms have been noted.

Lessons Learned

- Community-based programs implemented by NGOs displayed remarkable resiliency to deteriorating political and economic conditions, while workplace interventions were particularly susceptible to political and economic disruption.
- STD services in a community are most effective when they are combined with community outreach activities and integrated into existing health care facilities.
- Communication needs to be improved between physicians and social workers in order to develop effective counseling services for persons with HIV.
- NGOs have great potential as condom marketers.
- Relatively simple projection models are adequate for most modeling and subsequent policy formulation.
- Computer simulation of the AIDS epidemic can educate many different staff levels in addition to policy-makers.

Recommendations

- Because of the current political situation, AID should continue to rely on NGOs to implement AIDS prevention programs; where possible, participation of NGOs in condom social marketing should be encouraged.
- Activities that facilitate utilization of behavioral data in the development of interventions should be conducted (e.g., a workshop or seminar of researchers and AIDS prevention program managers.)
- Because of the current dearth of activities targeting adolescents, caused by the withdrawal of donor assistance, support of AIDS prevention activities for this group should be encouraged.
- Pilot AIDS prevention activities should be developed for the population of rural Haiti.

Program Highlight

Haitian Sex Workers Accept and Promote Condom Use

As early as 1988, studies among urban CSWs in Haiti revealed HIV seroprevalence rates of 40%. Health officials further estimated that 10% of urban adults were infected and that infection rates were increasing by at least 1% each year. AIDSTECH worked with the Implementing Agency for Cooperation and Training (IMPACT) to expand an ongoing IMPACT project designed to develop a peer educator network among women working as CSWs in densely populated areas of Port-au-Prince. The expanded project, which ran from May 1989 through September 1992, served four urban areas: Port-au-Prince, Gonaïves, Cap-Haïtien and St. Marc. Activities were shaped to meet the needs of three carefully targeted subgroups: women who worked full time as established CSWs; women who worked the streets occasionally as CSWs; and women who practiced commercial sex less frequently to meet pressing economic needs of their families. Additionally, the project targeted men who were the sex partners of these women.

Project Description

A goal of the project was to reach about 13,000 women working full time or occasionally as CSWs and as many as 60,000 of their male partners. A well-trained educator network was essential and each educator needed to be motivated to deliver multiple prevention messages on a regular basis.

Ongoing training and training follow-up sessions in prevention, condom use, and communication and negotiation were provided to peer educators selected from the CSW communities in all four project sites. Condoms were provided to the educators to distribute. A minimum of two educational sessions were held each month at each site and no fewer than three neighborhood visits were made every week by each educator. Each site had its own community-based technical team to provide ongoing supervision, assistance and motivation, and each team conducted three supervised program visits every month.

Innovative information and education materials were developed and distributed, including an AIDS prevention storyboard that allowed educators to use a wooden "bulletin" board and dolls made of felt to show as well as tell how HIV is spread and how to prevent it.

Although the widespread uncertainty and instability that followed the September 1991 coup d'état interrupted project progress, the achievements were impressive due to the project's early success in building strong community-based commitment to project goals.

Accomplishments

44 educators were recruited and trained by the project teams. They, in turn, made nearly 113,447 AIDS prevention contacts with other CSWs and their male partners. The number of contacts made by educators exceeded original project goals.

The educators distributed approximately 160,000 prevention brochures.

More than 1.4 million condoms were distributed.

At project completion, 87% of 599 bar- and street-based CSWs said that condoms were the best available protection against HIV infection. More than 80% of bar-based, full-time CSWs reported using condoms consistently. Consistent condom use among occasional CSWs was approximately 60%.

Lessons Learned

Strong community-based programs are able to survive the barriers and limitation to project implementation resulting from internal strife and political instability. This fact is particularly relevant for agencies that provide assistance for initiatives implemented in developing countries.

Difficult to reach people at particularly high risk of infection can be reached and informed. When they are also provided with an acceptable means of protecting themselves, they can and frequently do choose to change their sexual behaviors.

Among women working as CSWs, some resistance still exists about negotiating the use of condoms during each sexual contact with a stable or preferred sex partner. In such cases, reported condom use occurred 50% of the time.

Mexico



Mexico

Program Summary

Mexico has the second highest AIDS case load in Latin America, although overall seroprevalence is still relatively low. According to sentinel surveillance data from Mexico's NACP (CONASIDA), 64,018 Mexicans were infected with HIV as of 1989, with a resulting national seroprevalence rate of .04%. In Mexico City the seroprevalence rate was 38% for homosexual and bisexual males and 5.2% for CSWs. While the epidemic has been confined largely to

men, especially MSM, it is spreading rapidly to women through heterosexual intercourse and transfusion-associated HIV infection.

AIDSTECH's program in Mexico focused specifically on the prevention of sexual transmission of HIV and incorporated a broad range of activities that directly addressed or supported these prevention efforts. A key component of the program was support for NGOs involved in AIDS prevention, including support to several networks/federations of NGOs representing a total of 80 affiliated NGOs.

There were a total of six projects focused directly on prevention of sexual transmission of HIV, addressing the needs of diverse target audiences at varying levels of risk for HIV infection. AIDSTECH supported three programs which addressed the sexual transmission of HIV among populations at high risk:

- A community-based peer education and condom distribution program targeting male and female CSWs, clients, and MSM in Ciudad Juarez. The project was initiated in 1989 by the Mexican Federation of Private Family Planning Associations (FEMAP). With support from AIDSTECH, FEMAP developed a large-scale education and outreach program in an area of the city with a concentration of CSWs. AIDSTECH carried out a recurrent cost analysis of the project, and projected the costs of maintaining a condom distribution network through social marketing.
- A pharmacy-based AIDS education and condom promotion initiative targeting pharmacy customers seeking advice and treatment for STDs. The program, implemented by the Mexican Institute for Research into Family and Population (IMIFAP) in 1989, trained pharmacy staff in Mexico City in issues related to HIV transmission, AIDS/STD prevention, and condom promotion -- particularly in their service provision for people presenting with STD-related symptoms.
- A study of the sexual behaviors of bisexual males, examining their sexual networks and behavioral patterns to aid in the design of risk-reduction programs targeting particular subgroups within this community. The Population Council, in collaboration with CONASIDA, has implemented this research, a part of the AIDSTECH Behavioral Research Grants Program.

In addition to these programs targeting populations at high risk, AIDSTECH supported a range of interventions to reach other specific audiences:

- An AIDS prevention education program to reach women in Mexico City through a network of community-based women's organizations. CIDHAL (Communication and Interchange for Human Development in Latin America), a research and education association of women's groups, trained representatives of women's organizations in AIDS education, sexuality, and condom use.
- An award-winning radio soap opera series emphasizing AIDS prevention themes targeting young women and men in thirteen Mexican cities. The soap opera was developed and implemented, with support from AIDSTECH, by Mexicanos Contra el SIDA (MCSC), a confederation of 22 NGOs active in AIDS prevention.
- Training of HIV-positive women as community AIDS educators for women in Nezahualcoyotl City, an area outside of Mexico City. Implemented by Solidarity and Life for People with HIV and AIDS (SOLVIDA), the project also established support groups for seropositive women in the community.

In support of these diverse activities addressing the sexual transmission of HIV, AIDSTECH implemented a series of activities to provide data to enhance program development and strengthen the organizations involved. These included:

- A series of workshops on program administration, management, evaluation, and sustainability for staff from NGOs in three states, including organizations that work with MSM and other groups at risk. The workshop series was conducted by MCSC in 1991-1992.
- Fieldwork in nine states and the analysis of stored serum samples collected in the Mexican National Seroepidemiological Survey to estimate HIV prevalence among men 15 to 44 years old and determine risk factors for HIV infection.
- A study in collaboration with CONASIDA to estimate the current and future direct costs of AIDS in Mexico. The study measured the magnitude of the financial burden which AIDS currently imposes on the public sector in order to prepare policy-makers to plan for the budgetary requirements in serving the needs of people with AIDS.

Accomplishments

- FEMAP trained 203 peer educators in AIDS/HIV/STD awareness and teaching, reaching more than 4,000 people in Juarez, including more than 1,000 female CSWs, 304 MSM and 2,696 clients.

- More than 200,000 condoms were distributed to CSWs, clients, and MSM in Juarez. FEMAP's share of the condom market among CSWs increased from less than half to approximately 70% by the end of the project. The proportion of MSM reporting FEMAP as their source of condoms increased from 28% to 57%.
- Labor costs accounted for 93% of recurrent costs for FEMAP's peer health education activities. Estimated projections of condom sales suggest that selling condoms at a nominal fee could cover approximately 20% of the project's recurrent costs.
- A total of 135,000 posters, 175,500 pamphlets, and 3,400 comic books and fliers on AIDS prevention and correct condom usage were produced and distributed in Juarez and Mexico City.
- 174 pharmacy employees in Mexico City participated in three one-day training sessions on AIDS and other STDs. Preliminary data indicate that the participants reached 211,680 persons in the six months following the training.
- A manual for pharmacy employees, AIDS: Information to Give to Pharmacy Clients, and an accompanying instructor's manual were designed by IMIFAP. 22,000 copies were distributed to instructors and pharmacy workers in Mexico City. Both manuals have been adapted for use in other Latin American countries.
- An audio slide show based on the testimony of a Mexican woman who died from AIDS complications was produced by CIDHAL and used at the beginning of educational sessions as part of an intervention to reach women with messages about AIDS and risk reduction. The show won an honorable mention award from the Third National Congress on AIDS in Mexico City and has been distributed in other countries. Proceeds from sales were used to establish a foundation for people living with AIDS.
- 40 HIV-positive community AIDS educators reached more than 900 adults and 1,500 adolescents in Nezahualcoyotl City with educational programs about AIDS prevention.
- An estimated five million listeners tuned in to a 20-episode radio soap opera with AIDS prevention themes, broadcast in 13 cities throughout Mexico. Based on the program's success, AID/Mexico is to fund a sequel in 1993.
- A study of the sexual behaviors of 251 bisexual males indicated:
 - Bisexual males involved in stable relationships with women commonly engage in sex with men.
 - Bisexual men who use condoms with women are those who tend to use condoms with men.
 - Almost a fourth of these men reported at least one episode of unprotected receptive anal intercourse in the past three months.

- Cost projections made for 1994 estimate that assuming all AIDS treatment demands are met the required annual cost of treatment will amount to nearly one-third of Mexico's projected national health budget in 1994.

Lessons Learned

- Family planning organizations targeting high-risk populations can be effective in implementing AIDS prevention programs, but free condoms delivered through family planning should not replace condoms that were previously purchased through pharmacies.
- Response to the expressed needs of the target population in coordination with community-based AIDS education increases motivation and sustained participation in health promotion activities for AIDS prevention.
- Condom negotiation training can lead to improved self-esteem among CSWs, which is positively associated with an increase in reported condom use.
- Pharmacists taking part in a training program and receiving the accompanying materials can move the condom inventory more quickly than those who receive only training or only materials.

Recommendations

- Nationwide pharmacy worker AIDS prevention education, incorporating a high quality training video on HIV transmission and condom promotion, should be implemented collaboratively with private and public sector support.
- In order to sustain the extensive involvement in AIDS prevention by Mexican NGOs, a national HIV/AIDS prevention training institute should be established to provide training workshops for governmental organizations and NGOs.
- HIV/STD prevention education, risk reduction, and condom distribution should be promoted through the networks of gay and bisexual men since MSM continue to be infected with HIV at a faster rate than the general population.
- High-quality AIDS prevention educational materials developed should be adapted and used throughout Spanish-speaking Latin America.
- HIV/STD prevention education with young female factory workers in US owned assembly plants in Juarez should be implemented because many practice high-risk sexual behaviors including exchanging sex for money.

Program Highlight

Marginalized Groups at Risk Reached by Cooperative Effort in Mexico

In 1988, 87% of the 1,126 reported AIDS cases were among MSM. By 1991, the number had increased six fold and the ratio of male to female cases had changed from 15:1 to 6:1. About 10% of the female AIDS cases were in women who worked as CSWs. AIDSTECH collaborated with FEMAP, a nonprofit family planning organization, to implement a four-year AIDS/STD prevention project among female CSWs and among MSM. The project took place in Ciudad Juarez, a thriving industrial center along the US/Mexico border with a population of one million and an active commercial sex industry.

Project Description

The project focused its efforts in the Mariscal and La Paz districts of Ciudad Juarez, as these are areas with the highest concentration of commercial sex activity. Considerable initial effort was made to establish community support for the project among the targeted populations and bar owners at project sites. This was important for program implementation and long-term support, but it also was critical in helping to identify the social networks so important to reaching marginalized groups of people at risk. Peer health educators were recruited and trained among the CSW community and among networks of MSM. Educational and promotional materials were developed and produced to meet the information needs of the different target groups, including clients of CSWs.

The project encouraged increased condom use by improving access to condom supplies and by enhancing condom negotiation skills. A network and a system for the distribution of condoms to the targeted groups of men and women were developed and implemented. Additionally, the project promoted greater utilization of the public health care system, FEMAP and other private clinics for timely diagnosis and treatment of STDs.

Accomplishments

203 peer educators were trained and 199 were active at project completion.

More than 1,800 training sessions were conducted for peer educators and coordinators. Approximately 70% of these meetings were targeted to female CSWs and 30% to MSM.

Peer educators conducted 7,500 informal education sessions with female CSWs and 2,248 sessions among MSM. More than 2,600 individual contacts were made with the clients of CSWs.

126 bars, brothels, dance halls and other places where sex is negotiated were included in program activities.

Nearly 7,000 educational pamphlets, fliers and comic books were produced and distributed to appropriate target audiences.

More than 200,000 condoms were distributed in the target communities and survey data indicated that in all targeted groups condom use had increased and become more consistent. For example, at project initiation, 53% of the CSWs in Mariscal reported always using a condom; this increased to 78% by project completion. Only 26% of clients surveyed reported always using a condom during sexual contact with anyone other than their wives before the project began; nearly 60% reported this behavior by project completion.

Lessons Learned

Community-based organizations with a history of providing family planning services in high-risk communities are well positioned to implement AIDS prevention programs among marginalized populations.

The active participation of community members in project implementation facilitates ongoing access to the target population, provides continuity and permanence to the project and contributes to a high retention rate among volunteer peer educators.

Reaching MSM requires familiarity with and the support of social networks that are more difficult to identify and access than the work environments of some other high-risk groups.

Asia and the Near East Emphasis Countries

Epidemiology

AIDS came comparatively late to Asia relative to other regions. However, in the last five years, HIV prevalence and AIDS cases have increased dramatically, driven by a combination of factors including a widespread commercial sex industry and intravenous drug use. Most sources predict that by the year 2000, absolute numbers of HIV cases in Asia will outstrip those of Europe, Africa and the Americas combined.

In Thailand estimates of HIV infection were as low as 0.2% in the general population until 1988, when prevalence among Bangkok IVDUs increased from 1% at the end of 1987 to as high as 43% in some groups in September of 1988. From this core transmitter group, the epidemic quickly spread into the CSW population. By the end of 1990, sentinel surveillance data showed prevalence ranging from 25% to 40% in CSW populations, particularly in the northern regions.

The Philippines has remained a relatively low prevalence country, with the number of AIDS cases reported to WHO increasing from 148 at the end of 1989 to 294 by the end of 1991.

The AIDS epidemic in Asia displayed the following general characteristics:

- Intravenous use of heroin, which increased HIV prevalence exponentially in a matter of months in Thailand, is a major threat in a number of other countries.
- HIV transmission is predominately through sexual contact, with slightly higher rates for men than women although the percentage of infections among females is increasing.
- A vigorous commercial sex industry catering to international clients exists in many countries, and tourism, with commercial sex as a significant attraction, is a major part of the economy of the region.
- There is also a pervasive commercial sex industry serving local clients, with visits to brothels or saunas considered a behavioral norm by many Asian males.
- A high rate of internal and cross border migration occurs among both CSWs and their clients. This is particularly evident in Southeast Asia, where Burmese and Laotian women migrate to Thailand to work as CSWs, and males from the poorer countries in the region migrate to Thailand and Malaysia to work in construction or as seasonal laborers.
- HIV prevalence is highest in urban areas. However, it should be noted that prevalence in rural areas is largely unknown.

AIDSTECH Strategy

AIDSTECH activities in Asia focused primarily on preventing sexual transmission and, to a lesser degree, intravenous transmission of HIV. Because the epidemic was in the early stages when AIDSTECH began activities, interventions were focused on groups at high risk of HIV infection, including IVDUs and CSWs. As early data indicated that clients control the sexual transaction, this risk group was also included in AIDSTECH's intervention scope. In Thailand, where the epidemic moved very quickly, interventions that focused on broader segments of the population were also called for, and interventions with employees at their workplaces were added.

As the role of STDs as a cofactor for HIV infection became clear, projects to improve the diagnosis and treatment of STDs received emphasis. STD treatment components were integrated into sexual intervention projects, and projects to improve the diagnostic and treatment capabilities of STD practitioners were implemented.

Although the risk of transmission by blood transfusion was initially low, given the rapid increase in prevalence for at-risk populations, projects to improve the capabilities of laboratories to effectively and efficiently screen blood for HIV were supported to a limited degree.

AIDSTECH Program

AIDSTECH focused its activities in two Asian countries: the Philippines and Thailand. In addition, projects were implemented in Morocco, India, Indonesia and Sri Lanka. All projects were in accordance with the MTP and developed in collaboration with local health authorities and the AID mission. Collaborating agencies included local and international PVOs and NGOs, educational institutions, and various levels of the national health system. AIDSTECH provided training, technical assistance and needed equipment to promote institutional development, working with existing organizations to improve infrastructure and organizational capabilities.

Issues that presented challenges for AIDSTECH programming included:

- A reluctance of some government officials to prioritize AIDS prevention, fearing that doing so would tarnish their country's image abroad and deter tourism.
- Persons such as IVDUs and CSWs often feared punitive action by police if they identified themselves as members of these at-risk groups.
- Political insurrections caused lapses in funding to occur and fragmented project implementation. Natural disasters such as volcanic eruptions of Mt. Pinatubo, also impeded progress.

In spite of these challenges, about 15% of AIDSTECH's field-related program resources were spent in Asia and the Near East. Of the \$2.4 million spent for AIDS prevention in Asia/Near East, about two-thirds was spent to prevent sexual transmission and 8% to prevent transmission through IVDU. Through this support more than 323,000 educational contacts were made and almost 600,000 condoms were distributed.

The AIDSTECH program in the two extensive program countries is described on the following pages. Appendix 3 shows activities by country for the region, and Volume II of this report provides one-page detailed descriptions of major project accomplishments and lessons learned for all countries where AIDSTECH worked.

Philippines



Philippines

Program Summary

According to WHO, the Philippines has not experienced the surge in HIV infections and AIDS cases that many other countries in Asia and the Pacific Region have experienced. As of March 1992, the cumulative number of AIDS cases reported to WHO was 61, approximately double the number of cases (31) reported in 1988. The number of reported HIV infections has also remained low, increasing from 148 at the end of 1989 to 294 at the end of 1991 for the total population.

Although early data indicated that the Philippines was a low prevalence country, conditions that could facilitate the rapid spread of the virus were present. A commercial sex industry catered to tourists and indigenous clients. There was a high prevalence of STDs and effective diagnosis and treatment were problematic. Finally, the blood supply available from both public and private facilities was largely of unknown status.

A strategy was developed by AIDSTECH within the guidelines of the national MTP for the Prevention and Control of AIDS in the Philippines (1988-1992) to improve the capacity of the Philippines health infrastructure to meet the challenge of AIDS. The strategy aimed to prevent the sexual transmission of HIV among CSWs and their clients, increase access to condoms, diagnose and treat STDs, and screen blood for HIV.

As part of the strategy to prevent sexual transmission, four projects were designed, implemented and evaluated with AIDSTECH support and technical assistance:

- An education and condom promotion project which targeted CSWs in the Ermita entertainment area of Manila through social hygiene clinics and workplace outreach.
- A community-based intervention in the cities of Olongapo and Angeles City that targeted CSWs and their clients and focused on educational outreach, STD control and structural change in the community to support AIDS prevention.
- An analysis of the economic, social and commercial factors which have an impact on the condom market in the Philippines.
- An STD clinic upgrade project that provided training to the staffs of 13 social hygiene clinics throughout the country to broaden the scope of STDs that could be diagnosed and treated. This project served as a model for a follow-up project with a separate donor to upgrade additional clinics.

Three projects were supported to improve blood screening practices:

- A project that assisted the Bureau of Research Laboratories (BRL) to upgrade 19 Regional Blood Centers for the testing of HIV and hepatitis B.
- A project to assess the sensitivity and technical feasibility of pooling blood samples before testing for HIV as a method of cost saving.
- An evaluation of the resources and procedures of the blood banking system, with recommendations for improving the efficiency of both private and public blood banks.

AIDSTECH also provided general program support to the NACP, primarily through the AIDSTECH resident coordinator, who was responsible for providing services on an ongoing basis as requested by the NACP, as well as on-site assistance to specific AIDSTECH projects. Ongoing assistance was given in the planning and implementation of the Department of Health (DOH) Operational Plan, the revised MTP, the National Sentinel Surveillance Program and numerous other activities conducted by various offices of the DOH, AID, WHO and other donor agencies.

Accomplishments

- Created AIDS training manuals for community leaders, health educators, peer educators and CSWs.
- Selected and trained more than 1,600 CSWs and others as peer educators who provided over 64,000 AIDS educational contacts in Olongapo and Angeles.
- Provided AIDS education sessions to a total of 61,000 persons, including health workers, bar owners, uniformed services, university and high school teachers, CSWs, students, political leaders, prison inmates and PTA members.
- Distributed more than 74,000 condoms to CSWs and their clients in Manila, and more than 375,000 condoms in Olongapo and Angeles; most condoms in Olongapo and Angeles were provided by the US Navy.
- Gonorrhea rates decreased from a range of 2.0% to 3.6% during 1985-1988 to 1.4% to 1.6% during 1989-1992 in Olongapo; HIV seroprevalence decreased from 3.0 per thousand before the project in 1987 to 0.2 per thousand in 1991.
- Compiled and disseminated an assessment of the condom market in three major urban areas; (Metro Manila, Cebu, and Davao), as a basis for a national condom marketing strategy. Although adequate import and distribution infrastructure exists for condom marketing, condom sales may meet consumer resistance due to economic factors.

- Trained 285 STD clinic staff (approximately 70% of the total STD medical staff) in laboratory diagnostic procedures, epidemiology of STDs, counseling and health education. Upgraded a total of 13 clinics, including four that are now model training clinics. Developed an STD procedure manual that is now in use throughout the country.
- Trained 65 blood laboratory staff at 19 blood centers to perform either particle agglutination or ELISA tests, and provided necessary laboratory equipment.
- Verified the accuracy and cost-effectiveness of pooling ten blood specimens for HIV testing; disseminated testing recommendations to all laboratories in the Philippines. Identified the SERODIA HIV-1 test as the most accurate and effective of the general use kits tested and verified the accuracy of particle agglutination testing on thawed sera.
- Identified commercial blood banks as more economical processors of blood than hospitals, because the volume of blood screened was larger and because they use their resources more carefully. The cost of screening blood for HIV would add \$3.40 per pint to the consumer cost; HIV prevalence among blood donors is too low to be evaluated with certainty. At prevalence rates exceeding 0.3%, a positive benefit to cost ratio results.

Lessons Learned

- Community-based prevention programs that include multiple political, social and economic levels can significantly increase HIV prevention knowledge, reduce risk behavior, and lower STD and HIV prevalence.
- There is adequate import, distribution and marketing infrastructure in the Philippines to support increased condom demand. However, unless condoms are made available at a significantly subsidized price at point-of-use locations, and potential users are given strong reasons for condom use, condoms sales should be expected to meet consumer resistance.
- Given resources and technical assistance, the Communicable Disease Control Service and the BRL could both effectively carry out training and upgrade programs for STD and blood laboratories.
- Blood pooling is a highly cost effective and feasible method for blood screening in low prevalence countries such as the Philippines.
- The technical efficiency of the Philippines blood banking system can be vastly enhanced by improved staff training and retention of staff by commercial blood banks.

Recommendations

- Using lessons learned from all existing community-based models, a national community-based intervention model should be developed for both urban and rural outreach to provide basic "how to" steps on project development and case studies of problems overcome. Also, a national AIDS Education Center should be established to provide training and resources for Filipinos and foreign nationals involved in AIDS prevention activities.
- Existing data suggest that returning overseas workers may have high rates of infection. Interventions should be implemented to provide education to departing workers and testing, counseling and condom access to returnees.
- Targeting of CSWs catering to primarily low-income, Filipino clients should be given high priority.
- Encouragement of early diagnosis and treatment of STDs must continue. Upgrading facilities and training staff in diagnosis, treatment and counseling should continue in both private and public clinics.
- Continue constant monitoring of procedures and equipment to verify quality assurance capabilities of private and public laboratories to perform accurate HIV testing.
- Testing of pooled blood needs to be re-evaluated when local HIV prevalence increases.

Program Highlight

Public and Private Sectors Team with Sex Workers to Curb HIV in the Philippines

The reported prevalence of HIV infection was relatively low in the Philippines in 1989. However, the virus was spreading rapidly among the large population of CSWs who worked in Olongapo and Angeles City, two of the country's port cities and the centers of the country's active entertainment industry. These cities served not only as major connection points for international travelers, but also as rest and relaxation sites for large numbers of transient, international military personnel. In these two cities, an estimated 9,000 women worked as licensed CSWs. Surveys showed that these women did not have easy access to condoms in their workplaces, were not encouraged to use condoms for protection, used them rarely and did not know how to negotiate condom use with clients. Historically, the rates of STD infections other than HIV were high. In 1989, AIDSTECH joined with the city councils and health departments of Olongapo and Angeles City to implement an initiative to provide AIDS education and condom distribution to the licensed CSWs and operators of entertainment-related businesses.

Project Description

In October 1989, the project leaders formed The AIDS Prevention Task Force, which was composed of city health officials, staff from the mayor's office, educators, representatives from the media, bar owners, prominent business people, CSWs, military personnel and citizens. The Task Force met regularly to set project priorities, develop strategies, set policy, review project activities and provide visible support and recognition for the initiative.

Interactive training methods were used to provide AIDS prevention knowledge and skills to peer educators and bar and massage parlor owners. Considerable emphasis was placed on proper condom use and the negotiation of safer sexual practices. Education and counseling outreach were provided to licensed CSWs at both the Social Hygiene Clinic and at workplaces. Condom supplies were provided at numerous sites including the clinic, in bars and other entertainment businesses, as well as in barber and beauty shops and billiard halls.

Educational materials, including slide presentations, posters and fliers were developed, tested and distributed as appropriate. Special AIDS awareness and condom promotion messages were displayed in bars, discos and massage parlors along with supplies of condoms.

Accomplishments

A total of 1,600 peer educators were provided information and training about HIV and other STDs and ways to prevent transmission, the proper use of condoms and ways to encourage safer sexual practices.

More than 91,000 HIV/STD prevention posters, brochures, comic books and stickers were distributed.

Women who reported always using condoms increased from 27% in Olongapo in 1990 to 51% in 1992. In Angeles City, the reported number increased from 25% in 1990 to 62% in 1991, but dropped to 30% in 1992 as one result of the increased migration and influx of new sex workers following the eruption of Mt. Pinatobo.

In 1990, 37% of the licensed CSWs surveyed in Olongapo reported that workplaces always provided condoms; 81% reported regular condom availability in 1992.

The rate of gonococcal infection among licensed CSWs was reduced from 3.0% in 1987 to an average of 1.4% for the project years.

The HIV seroprevalence rate in the two cities was 3.0 per thousand before project initiation, 0.3 per thousand at mid-project and 0.2 at project completion.

Lessons Learned

The potential for success of a community-based intervention program is greatly enhanced when it is supported by existing community, business and government structures and established social networks. The involvement of the community in all aspects of the project increases the potential for program sustainability over the long term.

When targeting particularly mobile populations, the identification, selection and training of peer educators must be an ongoing activity.

Thailand



Thailand

Program Summary

In 1988, the reported HIV infection for Thailand was low for most high-risk populations. Only IVDUs had significant levels of HIV, as 25% to 43% were seropositive. The infection quickly spread from the IVDU population to low-income CSWs and their clients. Once HIV entered the major risk groups, it spread into both urban and rural populations, as infected men and women carried the virus back to their families, villages and neighborhoods.

In collaboration with the NACP, AIDSTECH programs focused on preventing the spread of HIV through contaminated needles and through sexual transmission.

AIDSTECH activities included:

- Prevention of HIV transmission through contaminated needles by targeting interventions with IVDUs:
 - A comparison of the effectiveness of a detoxification clinic-based model and an outreach model using health educators and former IVDUs as outreach workers, implemented with the Bangkok Metropolitan Administration (BMA).
 - A community-based program targeting IVDUs, their families and other residents of Bangkok's Klong Toey slum, carried out by the Duang Prateep Foundation.
- Prevention of sexual transmission through behavior and epidemiological research with high-risk populations, CSWs, their clients and adolescents:
 - A study of male sexual networking among commercial sex partners, non-commercial sex partners and wives in Supanburi, an urban setting.
 - A study of male sexual interactions with CSWs in Chiang Mai, a northern city, conducted through the AIDSTECH Research Fellows Program.
 - An ethnographic study of long-distance truck drivers in central and northeast Thailand.
 - An in-depth study of low-income CSWs, adult and adolescent males and long-distance truck drivers in central and northeastern Thailand, conducted through the AIDSTECH Behavior Research Grants Program.
 - A cohort study of CSWs in Chiang Mai which correlated seroconversions with STDs and reported condom use.

- Prevention of sexual transmission by targeting interventions with male and female CSWs and their clients.
 - Condom only brothel projects in seven provinces in central Thailand and in Khon Kaen province in the northeast.
 - An HIV education and condom distribution program for male CSWs in Bangkok.
 - Use of flip charts to educate low-income Thai CSWs in Payao and Burmese CSWs in Mae Sai implemented by PATH.
 - Use of the female condom by CSWs in Khon Kaen, Payao and Bangkok to determine acceptability.
 - Use of taxi drivers in Bangkok to provide education and sell condoms to clients of CSWs, implemented by the Population Development Association (PDA).

- Interventions with workers and youth:
 - A workplace education program with 300 institutions in Bangkok in collaboration with PDA.
 - A mobile disco education and condom distribution program for adolescents in Lampang.

- Upgrading health care infrastructure:
 - Training health personnel as trainers in counseling and IEC materials development, implemented in collaboration with PATH.
 - Training staff of the Venereal Disease Division in condom logistics management.
 - Conducting an assessment of STD diagnosis, treatment and prevention activities in private clinics in Lampang and Bangkok.
 - Developing STD educational and reference materials for private clinics and training private clinic staff in their use, implemented by PATH.

Accomplishments

- In the BMA project, 230 health educators and 75 IVDUs were trained as community outreach workers in Klong Toey and Bang Sue; 17,000 prevention comic books and 15,000 posters were distributed.

- In the Duang Prateep project, two CSWs and 16 married women were trained as "health messengers" to disseminate information to their peers; 72 CSWs, 419 motorcycle taxi drivers, 150 police, 96 youth leaders, 100 parent volunteers, 100 vocational school students and 225 housewives attended training sessions; and more than 74,000 IEC materials and 57,000 condoms were distributed.

- At baseline, 55% of IVDUs said they no longer shared needles, compared with 78% of IVDUs in the post-survey; the keeping of personal syringes had increased. Those stating they had used bleach the last time they shared needles increased from 7% to 27%.
- The number of persons who had received condoms from BMA clinics increased from 71% to 80%. Actual reported condom use increased slightly, from 32% to 38%.
- The most common sexual network pattern for men in Thailand was a combination of CSW, girlfriend and casual partners, and marital relationships. The mean number of CSW contacts among high-risk men was 15 for single men and 12 for married men in the last six months. The mean number of non-CSW partners was two for single men and one for married men. Condom use was more common in CSW relationships than with other partners.
- Visiting CSWs was a male group activity and a way of building camaraderie. Recent drinking nearly tripled the odds of a visit to a CSW; condom use is less likely if the client is drunk. Students were more likely to use condoms with CSWs than laborers or soldiers; laborers and soldiers visited CSWs most often. Two-thirds of the soldiers, 54% of the laborers and 49% of the students reported having had more than one non-CSW partner in the past six months; condom use with non-CSWs was low.
- Truck drivers practice very high-risk behavior by combining alcohol and drug use with low-cost commercial sex. Truck drivers did not believe they were at risk for HIV infection although 2.4% of one group were HIV-positive, and did not use condoms when they visited CSWs; only 28% reported consistent condom use with CSWs and only 5% with regular partners.
- In a cohort study of CSWs in Chiang Mai, HIV rates increased from 36% to 43% over a nine-month period; condom use was 85%-91% over the period. Risk factors for seroconversion included genital ulcers (RR=4.9), low fees and many customers (RR=3.2), and a history of STDs (RR=1.8).
- The percentage of brothels in which CSWs insisted on condom use increased from 21% to 81% in seven provinces in central Thailand, and from 59% to 71% in Khon Kaen. In Samut Sakhon province, condom use by CSWs increased from 15,000 per month to 50,000 per month; STD incidence decreased from 13% to 0.5%. In Khon Kaen, HIV incidence decreased from 2.8% to 2.3% among CSWs exposed to the project. Gonorrhea rates did not decrease among CSWs; however, among male STD patients, STD rates fell from 4.5% to 1.3% during the six-month period.

- Workshops targeting male CSWs in Bangkok increased knowledge but had no effect on male CSW attitudes toward condoms or increases in condom use. Condom use rose in the control bars because bar owners actively promoted their use; bar owners left promotion to project staff in the bars where the workshops were conducted.
- Educational flip charts were effective in changing AIDS related knowledge of those attending training sessions. Although CSW condom use increased during the project, the increase was not related to their knowledge about AIDS.
- The female condom was used for 4% to 9% of total sexual encounters by CSWs in the project. CSWs who used the female condom preferred it to male condoms because there was less chance of breakage, and it was easier to use with uncooperative clients. CSWs were able to successfully use the female condom based upon graphic instructions in an educational pamphlet.
- Taxi drivers were not interested in supplying condoms when it involved exchanging money during the ride, reporting sales and taking responsibility for picking up new supplies. Even after training, they were uncomfortable talking to passengers about AIDS; the drivers successfully distributed 163,000 AIDS education materials and 41,000 condoms.
- Approximately 100,000 workers, their families and friends received HIV/AIDS prevention information through a workplace program conducted in 326 Bangkok institutions.
- A mobile disco was used to reach 14% of adolescents in seven villages in rural Thailand. The educational program produced changes in AIDS prevention knowledge; the percentage of men who thought that men should stop visiting CSWs increased from 66% to 78% for those attending the disco, compared with a decrease from 69% to 64% in five control villages.
- 20 district health personnel were trained in HIV/AIDS counseling and in how to train others; they then conducted six district level counseling workshops.
- 41 district health workers were trained in developing IEC strategies, with an emphasis on focus group research. After developing IEC materials in their own provinces, they attended a second workshop, which provided training on pre-testing, distribution and evaluation of materials.
- A condom reporting and inventory system was developed for the Venereal Disease Division, and 75 staff from 28 provinces were trained to implement and maintain the system. The system implementation effectively ended condom stockouts in these provinces.

- An assessment of private STD clinics identified two needs for these clinics: STD patient counseling should be promoted by all clinic staff, doctors, nurses and medical technicians and patient IEC materials are needed for three groups, CSWs, clients of CSWs and housewives. 1,000 STD clinical management packages and 30,000 patient education packages were developed and distributed to 375 clinics in 73 provinces as well as to 30 medical universities and NGOs. Two workshops on improved case management techniques and patient counseling were conducted for 99 participants. Participants were positive about technical aspects of workshops and willing to distribute IEC materials but were unreceptive to counseling STD patients.

Lessons Learned

- IVDUs, when properly trained and supervised, can be highly effective AIDS educators of other IVDUs. Non-IVDU health volunteers are more effective in disseminating messages in the larger community. There should be a clear distinction between the priorities of AIDS prevention and treating addicts, with the hope that IVDUs will abandon drugs a second priority to AIDS prevention.
- A prevention program focusing exclusively on the risk within a closed CSW/client network would address a significant amount, but not all, of the behaviors that place individuals at risk for HIV infection. Sexual activities of clients create a bridge between CSWs and other women.
- Programs to promote condom use among CSWs may have more success in protecting clients from HIV than protecting CSWs. Condoms must be used in virtually 100% of sexual contacts to protect CSWs.
- Increases in condom use can lead to substantial reductions in STD rates.
- Bar owners more successfully promote and increase condom use among employees than outside educators.
- The female condom may be most useful for those brothels with the highest STD rates (and probably the lowest consistent male condom use).
- STD clinic staff are resistant to counseling STD patients about the risk of HIV; in future training of STD clinic staff, emphasis must be placed on the need for counseling.

Recommendations

- Identify ways to reach youth with messages that accomplish risk reduction, especially adolescents that are IVUDs and those visiting CSWs frequently.
- Promote condom only brothels and continued diagnosis and treatment of STDs for CSW populations.
- Programs targeting laborers, soldiers and long-distance truck drivers should focus on increasing the perception of personal risk.
- Focus on behavior change initiatives that target males, since they control most sexual transactions, with emphasis on lower social class males.
- Employ interventions that target contributing factors to risky male-oriented behavior, such as integrating AIDS and alcohol education, or promoting condom use with popular "macho" male imagery.

Program Highlight
Improving Condom Access Through Improved Logistics Management in Thailand

Condom use is accepted and supported by the Thai government. Supplies have been adequate for family planning needs, but the increased demand generated by the STD/AIDS epidemic has strained the current distribution system. Access to condoms by those at risk of HIV infection has not been as easy as it should be. The Thai government recognizes that the key to a successful AIDS prevention program is behavior change: creating a perception of risk in an individual, motivating him/her to use condoms to lower that risk, and developing his/her skills in correct condom usage. It also recognizes that a critical element in achieving and sustaining behavior change is assuring a dependable supply of condoms to both project personnel and potential condom users. In addition to being constantly accessible, users must also be confident that the condoms are of good quality and will not break.

Two divisions of the MOPH were responsible for distributing condoms through the public sector. The Family Health Division (FHD), responsible for family planning, had an excellent condom management system, but supplied relatively few condoms. The Venereal Disease Division (VDD), responsible for supplying condoms for AIDS and STD prevention, had no condom management system, and due to the AIDS epidemic, their demands had increased dramatically. Stockouts at VDD warehouses and outlets were common, particularly in the northern provinces where HIV infection rates are highest. Many condoms were poorly stored, causing them to deteriorate rapidly. In September 1990, AIDSTECH and the MOPH implemented a pilot condom logistics management system in five provinces of the northern region. This successful program was then expanded by AIDSTECH and the MOPH to five other regions.

Project Description

A physical inventory of the condom supply and inspection of the condom storage areas at the FHD and VDD warehouses in the provinces of Chiang Mai, Chiang Rai, Payao, Lamphun and Lampang were conducted. A simple stock and requisition form stating balance, stock received, stock issued, and current balance was developed. Based on the system used by the FHD, a system was also developed to summarize the number of condoms available in the Bangkok central warehouse, track data on consumption patterns and estimate consumption for the upcoming 12 months. In addition, guidelines for proper temperature and humidity control, and shelving and stock rotation strategies were adopted.

One person from the Office of the Chief Medical Officer in each of the five provinces was designated as the condom logistics manager. These designated managers and one or two higher ranking medical personnel (often the Chief or Deputy Chief Medical Officer from the province) were then trained in implementing and maintaining the system during a two-day workshop.

Accomplishments

Under the pilot project, 15 persons from five provinces in the northern region were trained in setting up and using the new system. In the follow-up project, the system was implemented in 23 provinces in four other regions, with an additional 60 persons trained.

After implementation, condom stockouts at the district and provincial level were eliminated. Although evaluating improvement of condom quality was beyond the scope of the project, project staff found that storage conditions had improved greatly and that stock rotation techniques were generally being followed.

The condom logistics management system developed by this project was expanded to all regions of the country in May 1992, using funds provided by the MOPH.

Lessons Learned

A condom logistics and management system can improve greatly the distribution of condoms, providing a supply on which prevention efforts can depend, and a lasting improvement in prevention infrastructure.

An effective intervention that fulfills a critical need can lead to sole government expansion and ownership.

Management

The management structure of the AIDSTECH program and its relationship to other divisions within the FHI organization provided the basis for responding quickly to technical program needs. AIDSTECH's technical assistance was coordinated by a team of highly qualified specialists who formed the project's core staff. AIDSTECH had an important, two-way relationship with the rest of FHI. The AIDSTECH team drew upon FHI's institutional resources in administration, field development and training, program evaluation, reproductive epidemiology and STDs, library, data processing, the information dissemination program and its international network. In fulfillment of its commitment in its original proposal, FHI used non-AID corporate resources to strengthen AIDSTECH. FHI used corporate and other resources to:

- Provide management oversight and administrative support.
- Develop the AIDS Prevention Manual for Africa.
- Support interventions to slow HIV transmission among high-risk populations in Brazil, the Dominican Republic and India.

Staffing

The heavy workload resulting from the projects developed under AIDSTECH necessitated a major expansion of the staff over the life of the project from the initial staff of 12 to a peak of 65. Chart 11 shows all staff who worked for AIDSTECH during the period from September 1987 through September 1992; overall, 88 staff were part of the AIDSTECH team in North Carolina and Washington, D.C. In addition, nine staff served as country resident coordinators overseas. Country resident coordinators were used in selected countries where the scope of program activities justified the placement of such a coordinator. FHI/AIDSTECH placed country resident coordinators in Cameroon, Kenya, Tanzania, Brazil, the Dominican Republic, Haiti, the Philippines and Thailand.

Technical areas of staff expertise included epidemiology, operations research, program evaluation, behavioral research, laboratory, health care financing, surveillance, modeling, STDs, condom logistics, competency-based training, and information, education and communication.

Dr. Peter Piot, Institute of Tropical Medicine, Antwerp, Belgium, served as AIDSTECH's Technical Advisor. Dr. Piot provided input in developing the AIDSTECH strategy for the prevention of blood transmission, reviewing related protocols and advising on issues of STD control.

Dr. Thomas Coates, Center for AIDS Prevention Studies (CAPS), University of California, San Francisco, served as AIDSTECH's Behavior Advisor. Dr. Coates provided input in developing a behavior research strategy, identifying relevant research questions, designing behavior research protocols, and evaluating AIDSTECH intervention programs.

Chart 11
AIDSTECH Project Staff Roster
1987-1992

<u>Headquarters Staff</u>	<u>Title</u>	<u>Employment Dates</u>
Archbold, Edwin	Laboratory Specialist	06/88 - 08/91
Bailey, Patsy	Operations Research Specialist	12/91 - 09/92
Bancroft, Donna	Program Assistant	11/91 - 09/92
Banik, Arabinda	Admin. & Info. Coordinator, DC	07/91 - 03/92
Bashore, Kristin	Administrative Services Assistant, DC	10/90 - 03/92
Boring, Sandra	Program Analyst	01/91 - 07/92
Bratton, Andra	Administrative Assistant, DC	01/90 - 06/90
Brenden, Neil	Deputy Director	08/90 - 09/91
Brokenshire, Catherine	Regional Coordinator	01/90 - 01/92
Brooke, Carol	Program Assistant	08/91 - 09/92
Cameron, Sandra	Bilingual Executive Secretary	10/90 - 06/91
Carswell, Wilson	Regional Advisor	08/88 - 03/89
Cataldo, Sandra	Bilingual Executive Secretary	05/91 - 06/92
Caussy, Harry	Modeling Specialist	03/91 - 05/92
Chickering, Kirstin	Program Analyst	07/89 - 09/92
Cole, Lynda	Deputy Director	10/87 - 09/92
Craige, Tito	Regional Coordinator	08/91 - 09/92
Dascy, Henriette	Regional Coordinator	05/89 - 10/89
De Buysscher, Rose	Info. Dissemination Coordinator	03/89 - 03/92
Dunn, Angela	Executive Secretary	09/90 - 07/92
D'Atre, Adonice	Program Assistant	08/91 - 12/92
Eberly, Marc	Word Processor/Clerical, DC	06/90 - 10/90
Farmer, Beverly	Executive Secretary	05/89 - 04/90
Feinberg, Rita	Program Liaison Officer, DC	09/91 - 03/92
Field, Mary Lyn	Training Associate	01/90 - 12/91
Forsythe, Steven	HCF Research Associate	01/90 - 08/92
Fox, Laurie	Regional Coordinator	05/91 - 09/92
Giannone, Paul	Regional Coordinator	06/89 - 08/90
Githens, Windy	Regional Coordinator	01/91 - 10/92
Goodridge, Gail	Condom Specialist	12/90 - 10/91
Gringle, Rob	Editorial Specialist	07/91 - 09/92
Hanson, Debbie	Program Analyst	02/89 - 11/91
Harber, Lucy	Program Assistant	08/91 - 09/92
Hardesty, Leda	Bilingual Executive Secretary	10/88 - 02/91
Hardy, Nancy	Program Liaison Officer, DC	07/88 - 08/91
Hassig, Susan	Operations Research Specialist	01/90 - 09/91
Henegar, Rebecca	Administrative Assistant	09/90 - 07/92
Hermes, Amalie	Administrative Assistant, DC	11/88 - 09/89
Hubert, Corinna	Administrative Services Assistant, DC	01/91 - 03/92
Israel, Ami	Regional Coordinator	06/91 - 10/92
Jaenson, Carol	Behavioral Research Specialist	09/90 - 10/91
Janowitz, Barbara	Operations Research Specialist	09/87 - 01/89

Continued

<u>Headquarters Staff</u>	<u>Title</u>	<u>Employment Dates</u>
Khalaf, Salim	Graphics Designer	01/89 - 09/92
Kohler, Rebecca	Program Assistant	08/91 - 09/92
King, Timothy	Program Assistant	06/91 - 07/92
Kliesen, Robert	Regional Coordinator	07/90 - 09/92
Lamm, Scott	Program Assistant	10/90 - 09/92
Lampzey, Peter	Director	09/87 - 03/92
Lamson, Nancy	Senior Regional Coordinator	04/89 - 09/92
Lee, Sheryl	Executive Secretary	04/90 - 07/91
Marchot, Anne	Bilingual Executive Secretary	11/87 - 09/88
Martin, Anne	Health Care Finance Specialist	10/87 - 09/90
Martínez, Daphne	Program Coordinator	09/91 - 09/92
Mathias, James	Administrative Assistant, DC	08/89 - 08/91
McIntyre, Susan	Regional Coordinator	12/90 - 10/91
Mitchell, Sheila	Laboratory Specialist	10/87 - 09/92
Mugrditchian, Doris	STD Specialist	06/89 - 01/92
Oliver, Regina	Senior Program Analyst	08/89 - 09/92
Ornoz, Tita	Bilingual Executive Secretary	05/91 - 03/92
Ostfield, Marc	IEC Specialist	10/89 - 09/91
Phillips, Anne	IEC/Training Associate	02/92 - 09/92
Piedrahita, Carla	Program Assistant	03/89 - 06/91
Quick, Karen	Executive Secretary	08/91 - 09/92
Raza, Paul	Public Health Specialist	12/87 - 01/89
Reusche, Carolyn	Program Assistant	07/91 - 09/92
Rich, John	Training Specialist	11/87 - 09/92
Romocki, LaHoma Smith	IEC/Training Coordinator	08/90 - 09/92
Ryan, Kelley	Program Assistant	05/89 - 12/92
Sagebiel, Stephanie	Senior Program Coordinator, DC	12/87 - 12/88
Schwartz, Enrique	Program Analyst	03/90 - 08/91
Scollon, Sarah	Executive Secretary	12/87 - 04/90
Sketo, Pilar Muñoz	Administrative Coordinator	05/88 - 09/92
Sokal, David	Associate Director	09/88 - 09/92
Spilsbury, James	Regional Coordinator	04/89 - 09/92
Stalker, Michael	IEC Associate	10/91 - 10/92
Sullivan, Nicole	Program Analyst	09/91 - 08/92
Tenorio, Sara	Bilingual Executive Secretary	03/92 - 08/92
Thompson, Andrew	Senior Program Analyst	10/91 - 10/92
Villinski, Michele	Research Analyst	01/92 - 09/92
Wallace, Cynthia	Program Assistant	05/88 - 07/89
Watson, Phyllis	Exe. Sec./Admin. Assistant	05/90 - 09/92
Weir, Sharon	Research Associate	03/88 - 09/92
Weiss, Ellen	Regional Coordinator	05/89 - 04/91
Welsh, Michael	Associate Director	08/89 - 09/92
Williams, Elaine	Executive Secretary	04/88 - 03/89
Woods, Frédérique	Program Assistant	08/91 - 08/92
Yancey, Sabine	Bilingual Executive Secretary	04/89 - 08/92
Young, Leslie	Secretary/Receptionist, DC	12/91 - 03/92

Continued

<u>Field Staff</u>	<u>Titles, Field Staff</u>	<u>Employment Dates, Field Staff</u>
Bennett, Tony	Resident Coordinator/Thailand	10/89 - 09/92
Calica, Carlos	Resident Coordinator/Philippines	02/90 - 09/92
Coleman, Tito	Resident Coordinator/DR	08/90 - 09/92
Genece, Eddy	Resident Coordinator/Haiti	11/89 - 09/92
Kuate, Alexis	Resident Coordinator/Cameroon	01/90 - 12/91
Levy, Barry	Resident Coordinator/Kenya	12/89 - 09/92
Lux, Lois	Resident Coordinator/Kenya	05/90 - 09/92
Outwater, Anne	Resident Coordinator/Tanzania	06/89 - 09/92
Pimenta, Cristina	Resident Coordinator/Brazil	09/88 - 09/92

AID/W Coordination

The FHI Washington office was responsible for cable traffic between AIDSTECH and AID missions and for coordinating AIDSTECH activities with AID and AIDSCOM.

The AIDSTECH program operated in close coordination with the Cognizant Technical Officer (CTO) in AID's Office of Health. Early in the program, biweekly meetings were held in Washington with the CTO and other Office of Health staff, the AIDSTECH Director and members of the AIDSTECH staff. AIDSTECH worked with Regional Bureau staff and AID Missions to keep them informed and to coordinate AIDSTECH programs. Regular meetings were also established between AIDSTECH and AIDSCOM to coordinate planning and activities.

AIDSTECH participated in the monthly AID AIDS management meetings that reviewed cooperating agency programs in AIDS prevention.

Technical Advisory Group (TAG)

Coordination between AIDSTECH and AIDSCOM was facilitated by the establishment of a joint Technical Advisory Group (TAG). The first meeting of the TAG was held in Washington in July 1988. The meeting provided an opportunity for independent experts to review AIDSTECH strategies in the areas of STDs and blood screening. The TAG recommended that: (1) AIDSTECH's first priority in STDs be chancroid control, followed by syphilis control, interventions in chlamydia and gonorrhea and the provision of preventive education or counseling at STD clinics; and (2) AIDSTECH not establish integrated blood transfusion services where they do not exist already and not invest in Western blot testing.

The second meeting of the TAG was held in Washington in February 1989. The TAG recommended that: (1) operations research be conducted on how to promote and sustain behavior change; (2) appropriate simple and inexpensive technology be used in STD diagnosis; (3) efficacy of condoms and spermicides in reducing HIV be evaluated; and (4) program sustainability and training of counterparts be emphasized. The meeting provided an opportunity for independent experts to review AIDSTECH research strategies in the areas of sexual transmission, blood screening and health care financing.

The third meeting of the TAG was held in Washington in July 1989. The meeting was preceded by two days of Task Force Meetings on: (1) lessons to be learned from family planning: how to bring about behavioral change, and (2) the Dominican Republic: program insights on behavior research priorities. The family planning task force meeting was organized by AIDSTECH. Of the 30 participants, ten were working mainly in AIDS, 15 in family planning, and the remainder in both AIDS and family planning. The group discussed the lessons family planning programs have learned that might be relevant to AIDS prevention, difficulties in achieving widespread condom use, and research priorities. Two important lessons discussed from family planning programs were that methods must be easily available and that providers'

attitudes are crucial for successful promotion. In the discussions of the many obstacles to condom use, the group concluded that the poor image of condoms among both consumers and providers was the major barrier to widespread use. Condom research was given a high priority, particularly that research focusing on characteristics of successful users, characteristics of use occasions, breakage rates under different use conditions and best ways of teaching people how to use condoms. Task Force recommendations were presented to TAG members. The TAG recommended that both AIDSTECH and AIDSCOM become involved with problem-solving and basic behavioral research.

The fourth meeting of the TAG was held in Washington in February 1990. The meeting was preceded by a two-day Mini-Conference to present lessons learned from the AID AIDS programs and by two days of Task Force Meetings on: (1) primary prevention of STDs through behavior change; (2) secondary prevention of STDs through behavior change; and (3) STD diagnostics in resource-poor settings. Task Force recommendations were presented to TAG members. The TAG recommended that both AIDSTECH and AIDSCOM become more involved with STD prevention and control. Specifically, the TAG recommended that:

- AIDSTECH and AIDSCOM staff receive STD training.
- Existing access points (STD clinics, public health clinics, private physicians and pharmacies) be used to target persons being treated for STDs.
- Training of clinic staff be emphasized, particularly in counseling for HIV and behavior change.
- Patient waiting time in clinics be used to show AIDS/STD messages.
- The AID program play a facilitating role in the development of new diagnostics through setting up an inter-agency working group to coordinate efforts.

An AIDSTECH Task Force Meeting organized around the theme of "Strategies for Behavior Change," was held April 2-5, 1991 in Durham, North Carolina. The purpose of the meeting was to provide a technical overview of specific issues for behavior change and an opportunity to participate in group discussions focusing on: (1) the relevance and applicability of the various topics to AIDSTECH's program; and (2) recommendations for new approaches and projects in program and research areas for AIDSTECH. The Task Force brought together experts in the fields of behavior change, educational strategies, and communication theory/methodology to discuss the behavioral problems faced in the prevention and control of AIDS/HIV. Eighty participants from AID, WHO/GPA, NIH, CDC, AIDSTECH, AIDSCOM, and various universities and organizations working in AIDS prevention attended the three-day

meeting. Keynote speakers and panelists made presentations on barriers to condom use, social learning theory, social marketing strategies and diffusion of innovation and community empowerment. The Task Force Proceedings were published and provided to all participants and to the TAG.

The fifth meeting of the TAG was held in Washington in November 1991. The meeting was preceded by a two-day mini-conference to present lessons learned from the AID AIDS programs. The TAG reviewed: (1) the AIDSTECH and AIDSCOM behavior research agendas; (2) the program recommendations from the CDC International STD Research Workshops; (3) the implication of HIV program indicators; and (4) the AIDSCAP implementation plan. Specifically the TAG recommended that:

- AIDSTECH's successes and failures be fully documented and disseminated worldwide.
- Successful programs be continued and strengthened.
- Additional research on acceptability and efficiency of using spermicide with condoms be conducted, particularly among CSWs.
- Work continue to validate syndromic approaches to STD diagnosis and treatment and the use of male STD history for calculating HIV risk.

WHO Relationships

AIDSTECH established a strong relationship with WHO. AIDSTECH coordinated its programs closely with the WHO/GPA. The Director of AIDSTECH made regular trips to Geneva; a number of AIDSTECH technical staff collaborated with WHO staff in the areas of surveillance, health care financing, training, STDs, blood screening and quality assurance, targeted interventions, program evaluation and modeling. AIDSTECH established good working relationships with WHO/GPA country resident staff and routinely met with them to ensure in-country collaboration.

Similar collaborative relationships in the areas of surveillance, STDs and blood screening technical assistance were established with PAHO and CAREC in Latin America and the Caribbean.

Specific examples of collaboration include:

- WHO/GPA staff reviewed AIDSTECH technical protocols.
- AIDSTECH assisted WHO/GPA in a workshop for laboratory technicians on HIV testing and establishing HIV testing sites in Malawi; AIDSTECH shared with WHO/GPA training modules developed for laboratory technicians. WHO/GPA used the modules in subsequent training.

- AIDSTECH staff met with WHO/GPA staff to discuss blood safety initiatives.
- AIDSTECH staff collaborated with WHO/GPA on the design of a genital ulcer protocol and strategies for AIDS and STD control programs.
- AIDSTECH collaborated with WHO/GPA as well as CDC, the World Bank, and the Institute of Tropical Medicine in Antwerp to develop a strategy for improving the surveillance of STDs so that changes in STD transmission might be used to evaluate behavior changes produced by AIDS control activities.
- AIDSTECH worked with WHO/GPA staff in the development and testing of costing guidelines.
- AIDSTECH worked with WHO/GPA, AIDSCOM and CDC to establish indicators for program evaluation.
- WHO/GPA reviewed intervention programs to assess their effectiveness in preventing HIV transmission; seven of the 14 developing country interventions reviewed were supported by AIDSTECH.

Technical Assistance

AIDSTECH provided 1,499 weeks of technical assistance to 39 countries. Staff and consultants made a total of 792 trips. Table 25 gives a breakdown of number of weeks of assistance by program area, country and region.

Subproject Management

AIDSTECH supported 181 subprojects with funding and technical assistance over the five-year period. Experience in managing these subprojects has provided insights for future AIDS prevention efforts. The following management lessons have been learned:

- It is essential to inform, educate and motivate crucial policy- and decision-makers to support programs for high-risk populations. Such programs can be controversial and difficult to get approved by governments and missions.
- Country resident coordinators are essential for large-scale multifaceted programs. They can provide general support to national AIDS programs and coordination with other donors, as well as assistance to specific projects. Extremely qualified people (often expatriates) can be recruited locally to fill these positions.

- The role of resident coordinators and central office technical monitors, particularly in relation to local implementing agencies/subcontractors, should be carefully delineated and discussed with in-country project staff. Clarification of lines of communication and reporting are particularly important.
- Early attention should be given to determining the best methods for sending supplies, transferring money and communicating with in-country project managers. Logistics and communications are often difficult but can be managed with appropriate planning.
- Formats for financial reports, program progress reports, and evaluations should be provided to projects from the beginning; project staff should receive appropriate training in completion of reports; and regular schedules of reporting should be established and monitored for compliance, with regular feedback to projects on progress reported.
- The capacity of local implementing agencies must be carefully assessed, and the scope of a project and required assistance (in both technical areas and organizational/institutional development) planned accordingly; technical assistance must be provided in management areas (budgets, staffing, scheduling) as well as in technical areas.
- Missions should receive regular updates on country programs to keep them informed and supportive of programs.
- New subprojects should not be initiated later than one year prior to the end of field activities for the cooperative agreement; subprojects should end at least four months before the end of the cooperative agreement to allow for timely completion of final subproject reports.

Table 25
AIDSTECH Field Technical Assistance
Person Weeks, 1987-1992

	Needs Assessment	Sexual Transmission	Blood Transmission	IVDUs	Sentinel Surveillance	Health Care Finance	Policy/Modeling	Total Weeks	Total Visits
AFRICA									
Botswana	0	2	0	0	0	0	5	7	3
Burkina Faso	0	73	11	0	4	0	0	88	31
Burundi	6	15	11	0	15	0	6	53	22
Cameroon	2	63	13	0	4	5	9	96	43
Côte d'Ivoire	0	2	0	0	0	0	0	2	3
Ghana	4	57	9	0	2	0	0	72	32
Kenya	8	62	20	0	0	6	5	101	46
Malawi	2	0	5	0	10	9	5	31	11
Mali	0	19	0	0	0	2	0	21	10
Niger	1	14	0	0	0	2	0	17	8
Nigeria	7	22	0	0	0	0	0	29	13
Rwanda	3	0	0	0	0	0	0	3	2
Senegal	12	5	0	0	0	0	0	17	8
Swaziland	3	0	0	0	0	0	0	3	1
Tanzania	2	28	0	0	0	2	0	32	19
Uganda	10	10	2	0	0	0	3	25	11
Zaire	2	10	7	0	0	0	0	19	10
Zimbabwe	3	56	5	0	0	2	4	70	32
TOTAL AFRICA	65	438	83	0	35	28	37	686	305
LATIN AMERICA/ CARIBBEAN									
Bolivia	8	3	7	0	3	0	0	21	9
Brazil	7	43	0	0	0	0	0	50	19
Chile	0	2	0	0	0	0	0	2	2
Dominican Rep.	7	48	12	0	6	8	0	81	53
E. Caribbean	25	124	2	0	3	15	2	171	186
Ecuador	6	13	12	0	2	0	0	33	18
El Salvador	2	6	14	0	2	0	0	24	13
Guatemala	0	10	9	0	0	0	0	19	12
Haiti	41	66	0	0	2	0	7	116	42
Honduras	5	0	0	0	0	0	0	5	2
Jamaica	4	4	0	0	2	0	0	10	7
Mexico	5	50	1	0	0	14	0	70	42
Peru	4	2	10	0	0	0	0	16	7
TOTAL LAC	114	371	67	0	20	37	9	618	412
ASIA/NEAR EAST									
Fiji	0	0	0	0	0	4	0	4	1
India	3	3	0	0	0	0	0	6	2
Indonesia	3	8	0	0	0	0	0	11	5
Morocco	0	5	0	0	0	0	0	5	3
Philippines	15	75	9	0	0	4	0	103	38
South Pacific	6	0	0	0	0	0	0	6	1
Thailand	9	33	2	14	0	0	0	58	24
Tunisia	2	0	0	0	0	0	0	2	1
TOTAL A/NE	38	124	11	14	0	8	0	195	75
TOTAL WORLD	217	933	161	14	55	73	46	1,499	792

Conclusions

AIDSTECH represents five years of solid experience in the development, implementation and evaluation of AIDS prevention programs in the developing world. AIDSTECH gave priority to developing replicable, cost-effective interventions; to building local capacity; to creating prototype IEC materials and training programs. Successful individual projects are ready for scale-up into national programs. AIDSTECH programs made more than 3.5 million educational face-to-face contacts with target populations and distributed more than 48 million condoms.

Targeting still makes sense as a cost-effective public health approach to prevention of HIV infection. Commercial sex workers (CSWs) and their clients became a focus for AIDSTECH projects. These groups remain important, but other high-risk or vulnerable populations such as men who have sex with men (MSM), STD patients, adolescents, and the military, must receive attention.

The peer educator (PE) model was particularly effective for programs targeting CSWs. Interpersonal communication is especially suited to changing attitudes and social norms and teaching new behaviors. Models used to reach clients of CSWs were a secondary focus and were less successful. Reaching men at high risk, whether clients of CSWs, men with multiple non-CSW partners or MSM, remains a challenge for future AIDS prevention programs.

Sustainable behavior change may only come about as a result of changing social norms. People often do things because they are socially acceptable, not because there is a rational reason. The use of condoms in high-risk situations must become so much a part of life and sex that people would not think of having sex in certain situations without them, whether or not they know why. The PE programs with CSWs emphasized use of condoms with clients, and this became a norm for the group. Drama presentations in bars showed condoms publicly as an acceptable part of sex with CSWs. Condom promotion campaigns using lifestyle messages sought to change the image of condoms and the social norms that surround them. For behavior change to occur, it may be more important to change perceived social norms than to change attitudes, knowledge and skills.

When AIDSTECH began, experience with strategies for AIDS prevention was limited, priorities for action were unclear and even which countries would participate was unknown. AIDSTECH answered many of these unknowns through its creativity and flexibility. The AIDSTECH approach to program implementation remained flexible throughout the project, allowing AIDSTECH to respond to evolving needs, and incorporate lessons learned into subproject modifications.

In 1987, AIDS was new, lethal, incurable and controversial. In 1992, it is still lethal and incurable, threatening to undermine progress in economic and social development in many developing countries. Much has been learned about HIV transmission and control, but behavior change has not occurred rapidly enough to stop its spread. HIV is well established in many parts of the world and will be endemic for the foreseeable future. Controlling its spread will be increasingly costly, but it can be done.

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Appendix 1

Cumulative Expenditures by Type 16 September 1987 - 31 December 1992

Salaries and Fringe Benefits	\$ 7,249,905
Service Centers	168,229
Consultant and Professional Fees	910,184
Contracted Labor	1,423,342
Travel-Domestic	542,258
Travel-Foreign	3,559,539
Supplies - Office	261,690
Supplies - Medical	825,435
Office Rent, Telephone, Postage	249,745
Printing, Publications, Subscriptions	424,536
Office Equipment, Medical Equipment, Equipment Rental, Maintenance, Depreciation	471,250
Freight	186,818
Subagreements	11,729,336
Dues and Registration Fees	206,889
Other Purchased Services	562,389
Other Expenses, Key punching, and Bank Service Charges	573,323
General and Administrative Costs	6,981,687
TOTAL	\$36,326,555

Continued

Cumulative Expenditures by Activity and Country FY88-FY93

Activity/Country	Core Expenses	Add-on Expenses	Total
CORE SUPPORT			
Management/Support Services	3,512,142	0	3,512,142
AIDS Report	330,396	0	330,396
Washington Office	982,818	0	982,818
General/Regional Conferences	804,885	0	804,885
International AIDS Conference	612,723	0	612,723
African Conference	8,324	30,000	38,324
Mini/STD Conferences	163,349	0	163,349
Task Force	207,222	0	207,222
International Training Program	146,168	0	146,168
Project Close-Out	287,116	0	287,116
SUBTOTAL	7,055,143	30,000	7,085,143
PROGRAM DEVELOPMENT			
Sexual Transmission	648,582	0	648,582
Blood	559,154	0	559,154
Surveillance	396,046	0	396,046
Health Care Finance	329,264	0	329,264
Condom Logistics	36,325	0	36,325
Information, Education, & Communication	66,981	0	66,981
Training	247,425	0	247,425
Operations Research	262,646	0	262,646
Research Fellows	344,132	0	344,132
Behavior Research Grants Awards	398,135	0	398,135
Information Dissemination	898,096	0	898,096
WHO Condom Program	63,904	0	63,904
SUBTOTAL	4,250,690	0	4,250,690
ASIA/NEAR EAST EXPENDITURES			
Regional	19,861	48,571	68,432
Bangladesh	10,806	0	10,806
Egypt	7,756	0	7,756
India	23,455	0	23,455
Indonesia	311,439	0	311,439
Jordan	9,505	0	9,505
Morocco	88,180	0	88,180
Oman	3,664	0	3,664
Pakistan	8,819	0	8,819
Philippines	247,124	1,260,781	1,507,905
South Pacific	50,147	0	50,147
Sri Lanka	45,574	0	45,574
Thailand	1,072,656	51,429	1,124,085
Tunisia	9,855	0	9,855
Yemen	5,582	0	5,582
SUBTOTAL	1,914,423	1,360,781	3,275,204
AFRICA EXPENDITURES			
Regional	516,623	136,212	652,835
Botswana	104,715	6,539	111,254
Burkina Faso	534,016	1,095,360	1,629,376
Burundi	168,716	310,723	479,439
Cameroon	803,717	1,214,912	2,018,629

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Continued

Activity/Country	Core Expenses	Add-on Expenses	Total
Cape Verde	4,261	0	4,261
Central African Republic	14,914	6,781	21,695
Chad	1,096	0	1,096
Congo	0	6,386	6,386
Côte d'Ivoire	68,672	26,618	95,290
Gambia	5,301	0	5,301
Ghana	397,779	319,365	717,144
Guinea Bissau	3,698	10,809	14,507
Guinea	5,415	0	5,415
Kenya	698,639	815,903	1,514,542
Lesotho	5,455	6,876	12,331
Malawi	64,625	123,287	187,912
Mali	98,768	200,000	298,768
Mauritania	1,814	0	1,814
Mozambique	7,407	559	7,966
Niger	57,939	66,103	124,042
Nigeria	265,031	19,822	284,853
Rwanda	0	9,502	9,502
Senegal	7,113	178,501	185,614
Somalia	0	5,785	5,785
Sudan	5,046	6,070	11,116
Swaziland	17,340	6,550	23,890
Tanzania	134,449	577,093	711,542
Togo	4,586	6,240	10,826
Uganda	419,123	21,553	440,676
Zaire	498,147	151,647	649,794
Zambia	6,665	18,941	25,606
Zimbabwe	705,747	402,619	1,108,366
SUBTOTAL	5,626,817	5,750,756	11,377,573
LATIN AMERICA/CARIBBEAN EXPENDITURES			
Regional	6,433	20,000	26,433
Belize	7,621	0	7,621
Bolivia	63,705	60,888	124,593
Brazil	336,802	770,000	1,106,802
Chile	87,117	0	87,117
Colombia	14,622	0	14,622
Costa Rica	138,275	0	138,275
Dominican Republic	162,100	1,429,057	1,591,157
Eastern Caribbean	265,771	1,337,105	1,602,876
Ecuador	148,838	100,000	248,838
El Salvador	122,850	98,500	221,350
Guatemala	144,557	0	144,557
Haiti	539,934	2,199,464	2,739,398
Honduras	10,677	0	10,677
Jamaica	443,934	15,890	459,824
Mexico	833,472	50,000	883,472
Peru	114,089	50,000	164,089
SUBTOTAL	3,440,797	6,130,904	9,571,701
Modeling Projects	666,244	100,000	766,244
TOTAL	22,954,114	13,372,441	36,326,555

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Expenditures by Fiscal Year, Activity and Country

Appendix 2

Expenditures by Fiscal Year, Activity and Country, FY88-FY93

Activity/Country	FY88 Expenses		FY89 Expenses		FY90 Expenses		FY91 Expenses		FY92 Expenses		FY93 Expenses	
	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In
CORE SUPPORT												
Management/Support Services	527,826	0	550,456	0	649,098	0	1,022,282	0	716,226	0	46,254	0
AIDS Report	0	0	37,691	0	11,437	0	140,918	0	138,079	0	2,271	0
Washington Office	31,224	0	215,154	0	191,565	0	325,717	0	219,158	0	0	0
Gen./Regional Conferences	45,823	0	100,452	0	97,667	0	328,093	0	232,850	0	0	0
Intl. AIDS Conference	155,079	0	78,754	0	153,831	0	120,101	0	104,705	0	253	0
African Conference	0	0	8,324	30,000	0	0	0	0	0	0	0	0
Mini/STD Conferences	0	0	0	0	163,349	0	0	0	0	0	0	0
Task Force	0	0	0	0	0	0	107,299	0	99,923	0	0	0
Intl. Training Program	0	0	0	0	59,371	0	83,293	0	3,504	0	0	0
Project Close-Out	0	0	0	0	0	0	0	0	0	0	287,116	0
SUBTOTAL	759,952	0	990,831	30,000	1,326,318	0	2,127,703	0	1,514,445	0	335,894	0
PROGRAM DEVELOPMENT												
Sexual Transmission	57,166	0	199,133	0	78,656	0	170,030	0	142,744	0	853	0
Blood	74,592	0	145,558	0	112,892	0	150,474	0	75,507	0	131	0
Surveillance	75,617	0	127,207	0	68,731	0	113,365	0	11,126	0	0	0
HCF	25,331	0	45,041	0	65,683	0	100,054	0	92,881	0	274	0
Condom Logistics	0	0	0	0	0	0	20,503	0	15,822	0	0	0
IEC	0	0	0	0	0	0	988	0	63,389	0	2,604	0
Training	0	0	0	0	0	0	92,910	0	154,515	0	0	0
Operations Research	5,910	0	2,067	0	26,245	0	98,127	0	130,806	0	(509)	0
Research Fellows	0	0	2,190	0	23,384	0	133,252	0	185,766	0	(460)	0
Behavior Research Grants Awards	0	0	0	0	20,947	0	178,841	0	137,418	0	60,929	0
Information Dissemination	81,228	0	95,481	0	141,358	0	308,218	0	270,826	0	985	0
WHO Condom Program	38,206	0	24,934	0	764	0	0	0	0	0	0	0
SUBTOTAL	358,050	0	641,611	0	538,660	0	1,366,762	0	1,280,800	0	64,807	0
SPRT/DVLPMT TOTAL	1,118,002	0	1,632,422	30,000	1,968,613	0	3,526,964	0	2,795,245	0	400,701	0

Continued

Activity/Country	FY88 Expenses		FY89 Expenses		FY90 Expenses		FY91 Expenses		FY92 Expenses		FY93 Expenses	
	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In
AFRICA												
Regional Programs	0	0	14,998	0	43,107	76,481	353,228	12,691	105,290	47,040	0	0
Botswana	3,836	6,539	5,342	0	0	0	73,408	0	22,129	0	0	0
Burkina Faso	54,107	25,921	44,823	151,897	156,247	29,542	108,283	400,363	164,556	487,637	6,000	0
Burundi	9,502	10,645	4,764	53,259	19,788	66,554	60,628	43,691	58,355	136,574	15,679	0
Cameroon	10,001	12,696	71,737	233,630	85,410	310,321	210,811	277,858	411,335	380,407	14,423	0
Central African Republic	0	6,781	0	0	0	0	13,766	0	1,148	0	0	0
Cape Verde	0	0	4,261	0	0	0	0	0	0	0	0	0
Chad	1,096	0	0	0	0	0	0	0	0	0	0	0
Congo	0	6,386	0	0	0	0	0	0	0	0	0	0
Côte d'Ivoire	4,032	26,618	4,556	0	0	0	192	0	59,635	0	257	0
Gambia	0	0	5,301	0	0	0	0	0	0	0	0	0
Ghana	8,967	33,363	60,939	78,326	129,009	18,565	138,110	72,818	60,718	116,293	36	0
Guinea Bissau	0	10,809	3,698	0	0	0	0	0	0	0	0	0
Guinea	0	0	5,415	0	0	0	0	0	0	0	0	0
Kenya	21,016	42,127	70,738	166,524	168,031	84,418	115,699	245,342	231,917	277,492	91,238	0
Lesotho	0	6,876	5,455	0	0	0	0	0	0	0	0	0
Malawi	0	23,287	19,729	0	1,390	7,187	28,106	39,756	14,018	45,229	1,382	7,828
Mali	0	0	0	2,907	7,168	49,817	29,169	54,813	58,501	92,463	3,930	0
Mozambique	1,096	559	6,311	0	0	0	0	0	0	0	0	0
Mauritania	0	0	0	0	1,814	0	0	0	0	0	0	0
Niger	0	6,103	4,631	0	5,376	0	1,477	60,000	45,331	0	1,124	0
Nigeria	1,281	19,822	10,449	0	55,446	0	105,818	0	92,040	0	(3)	0
Rwanda	0	9,502	0	0	0	0	0	0	0	0	0	0
Senegal	1,990	92,108	5,123	76,573	0	6,748	0	3,072	0	0	0	0
Somalia	0	5,785	0	0	0	0	0	0	0	0	0	0
Sudan	0	6,070	5,046	0	0	0	0	0	0	0	0	0
Swaziland	1,096	6,550	16,244	0	0	0	0	0	0	0	0	0
Tanzania	2,500	23,111	43,257	0	46,666	34,528	42,026	138,909	0	380,130	0	415

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Continued

Activity/Country	FY88 Expenses		FY89 Expenses		FY90 Expenses		FY91 Expenses		FY92 Expenses		FY93 Expenses	
	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In
Togo	0	6,240	4,586	0	0	0	0	0	0	0	0	0
Uganda	6,344	21,553	63,632	0	73,643	0	78,534	0	196,970	0	0	0
Zaire	30,298	25,272	96,042	88,289	53,039	25,540	318,768	12,546	0	0	0	0
Zambia	1,096	18,941	5,569	0	0	0	0	0	0	0	0	0
Zimbabwe	6,508	31,881	25,886	144,038	6,116	102,158	158,409	105,940	504,902	18,602	3,926	0
AFRICA REGION TOTAL	164,766	485,545	608,532	995,443	852,250	811,859	1,836,432	1,467,799	2,026,845	1,981,867	137,992	8,243
LATIN AMER./CARIBBEAN												
Regional Programs	0	0	0	0	3,018	320	3,415	2,720	0	16,960	0	0
Belize	5,056	0	2,565	0	0	0	0	0	0	0	0	0
Bolivia	15,453	0	11,862	0	4,268	42,928	7,135	4,701	24,987	13,259	0	0
Brazil	13,700	0	30,649	33,226	76,495	107,186	31,662	245,680	165,512	383,908	18,784	0
Chile	2,632	0	3,691	0	0	0	78,145	0	2,649	0	0	0
Colombia	11,215	0	3,407	0	0	0	0	0	0	0	0	0
Costa Rica	5,377	0	2,893	0	30,532	0	29,712	0	69,761	0	0	0
Dominican Republic	31,977	9,779	8,409	132,907	42,898	317,402	25,161	323,234	38,057	645,735	15,598	0
Eastern Caribbean	29,542	0	43,838	44,117	55,321	317,053	60,946	355,537	69,210	613,683	6,914	6,715
Ecuador	21,344	0	24,218	44,392	91,824	43,113	11,409	12,495	0	0	43	0
El Salvador	35,934	0	1,118	7,418	13,535	56,630	59,133	18,241	14,420	16,211	(1,290)	0
Guatemala	26,015	0	5,465	0	12,800	0	26,523	0	71,952	0	1,802	0
Haiti	9,521	0	86,786	16,996	80,400	289,254	143,429	792,856	156,023	904,274	63,775	196,084
Honduras	0	0	10,493	0	184	0	0	0	0	0	0	0
Jamaica	30,062	15,890	2,684	0	0	0	87,721	0	323,467	0	0	0
Mexico	164,003	0	75,665	0	34,217	0	297,364	0	248,208	50,000	14,015	0
Peru	22,060	0	18,165	32,904	2,920	17,096	14,721	0	56,223	0	0	0
LA/C REGION TOTAL	423,891	25,669	331,908	311,960	448,412	1,190,982	876,476	1,755,464	1,240,469	2,644,030	119,641	202,799

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Continued

Activity/Country	FY88 Expenses		FY89 Expenses		FY90 Expenses		FY91 Expenses		FY92 Expenses		FY93 Expenses	
	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In	Core	Buy-In
ASIA/NEAR EAST												
Regional Programs	0	0	0	0	0	0	19,861	0	0	48,571	0	0
Bangladesh	5,186	0	5,620	0	0	0	0	0	0	0	0	0
Egypt	4,397	0	3,359	0	0	0	0	0	0	0	0	0
India	9,340	0	8,819	0	0	0	5,296	0	0	0	0	0
Indonesia	21,467	0	4,905	0	0	0	70,833	0	161,587	0	52,647	0
Jordan	5,184	0	4,321	0	0	0	0	0	0	0	0	0
Morocco	18,512	0	4,055	0	26,224	0	23,074	0	16,315	0	0	0
Pakistan	0	0	8,819	0	0	0	0	0	0	0	0	0
Oman	0	0	3,664	0	0	0	0	0	0	0	0	0
Philippines	46,961	65,805	7,899	471,021	73,684	504,536	33,507	149,163	84,453	70,256	620	0
South Pacific	10,448	0	24,200	0	15,499	0	0	0	0	0	0	0
Sri Lanka	6,382	0	12,910	0	21,090	0	5,192	0	0	0	0	0
Thailand	34,499	0	103,402	2,504	208,262	0	364,503	48,925	324,401	0	37,589	0
Tunisia	6,641	0	3,214	0	0	0	0	0	0	0	0	0
Yemen	0	0	5,582	0	0	0	0	0	0	0	0	0
A/NE REGION TOTAL	169,017	65,805	200,769	473,525	344,759	504,536	522,266	198,088	586,756	118,827	90,856	0
Modeling Projects	23,255	70,475	121,261	29,525	66,289	0	287,934	0	167,505	0	0	0
YEARLY GRAND TOTAL	1,898,931	647,494	2,894,912	1,840,453	3,576,688	2,507,377	7,017,573	3,421,351	6,816,820	4,744,724	749,190	211,042

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Appendix 3

Cumulative Expenditures by Project

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
AFRICA				
Regional	ADRA: AIDS Prevention Workshops	62,538	0	62,538
	Policy Development	0	99,808	99,808
	AIDS Video	330,679	0	330,679
	Regional Modeling Workshops	69,245	0	69,245
	Quality Assurance Workshops	54,161	36,404	90,565
Botswana	National Plan Review	1,096	0	1,096
	Population Association of America	2,740	0	2,740
	International AIDS Conference	5,342	6,539	11,881
	Peer Education for AIDS Prevention	95,537	0	95,537
Burkina Faso	Needs Assessment/Project Development	14,377	9,502	23,879
	Equipment/Supplies/Procurement/Training	78,484	78,991	157,475
	International AIDS Conference	22,438	7,217	29,655
	Intervention with High Risk Groups	48,657	61,650	110,307
	Social Marketing Program	100,610	888,000	988,610
	Pilot AIDS Social Marketing Program	53,044	50,000	103,044
	Technical Assistance in Surveillance	8,000	0	8,000
	STD Surveillance and Control	208,406	0	208,406
	Needs Assessment	9,502	4,631	14,133
Burundi	International AIDS Conference	23,240	6,014	29,254
	Intervention with High Risk Groups	8,116	93,888	102,004
	Community-based Intervention in Kibuye	51,682	0	51,682
	Cohort Surveillance	53,384	124,719	178,103
	Health Provider Training	4,761	52,060	56,821
	Computer Modeling	18,031	29,411	47,442

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Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Cameroon	National Plan Review	1,096	0	1,096
	Project Development	14,775	0	14,775
	International AIDS Conference	20,000	12,696	32,696
	Tanzania Conference	4,110	0	4,110
	Resident Coordinator	22,623	58,216	80,839
	Program Support	5,878	0	5,878
	Intervention with High Risk Groups	33,547	375,116	408,663
	HIV Sentinel Surveillance	23,200	238,769	261,969
	Comparative Assessment of Condom Social Marketing in Cameroon and Zaire	5,196	0	5,196
	Improving Blood Transfusions	0	30,527	30,527
	Strengthening AIDS Counseling	13,977	98,087	112,064
	Quality Assurance in HIV Testing	(816)	239,047	238,231
	Evaluating Barrier Contraceptive Use	124,543	100,000	224,543
	Developing an AIDS Diagnostic Test	90,081	0	90,081
	Social Marketing of STD Treatments	445,507	0	445,507
Computer Modeling	0	62,454	62,454	
Cape Verde	International AIDS Conference	4,261	0	4,261
Central African Rep.	International AIDS Conference	0	6,781	6,781
	Intervention Targeting Young Women	14,914	0	14,914
Chad	National Plan Review	1,096	0	1,096
Congo	International AIDS Conference	0	6,386	6,386
Côte d'Ivoire	Needs Assessment/Project Development	4,032	14,375	18,407
	International AIDS Conference	4,556	12,243	16,799
	Condom Social Marketing	60,084	0	60,084
Gambia	International AIDS Conference	5,301	0	5,301

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Ghana	Needs Assessment/Project Development	11,215	9,502	20,717
	International AIDS Conference	19,460	559	20,019
	Program Support	5,959	0	5,959
	Intervention with CSWs	33,858	135,587	169,445
	Intervention with Military	327,287	62,882	390,169
	Rapid Assays Evaluation	0	105,215	105,215
	Sentinel Surveillance	0	5,620	5,620
Guinea	International AIDS Conference	5,415	0	5,415
Guinea- Bisseau	International AIDS Conference	3,698	10,809	14,507
Kenya	Needs Assessment/Project Development	19,119	8,608	27,727
	Anthropologic Perspectives Meeting	5,480	0	5,480
	International AIDS Conference	12,742	10,287	23,029
	Intervention with High Risk Groups	35,684	113,896	149,580
	Intervention with Truck Drivers	0	123,709	123,709
	Family Planning Services	21,338	0	21,338
	KAP Survey of Adolescents	71,919	0	71,919
	Community-based Education and Counseling	39,276	0	39,276
	Strengthening STD Services	11,274	55,963	67,237
	Promoting Condom Use	83,752	1,124	84,876
	Condom Assessment	11,807	0	11,807
	CEDPA/FLPS: Education and Counseling Training	39,408	0	39,408
	Counseling Training Program	33,042	0	33,042
	Assessment of Trucker Interventions	4,065	0	4,065
	Rapid Assay Evaluation	0	105,215	105,215
	Technical Assistance: Modeling	4,723	13,759	18,482

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Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Kenya	Technical Assistance: Quality Assurance and Training	1,963	44,020	45,983
	Technical Assistance: Surveillance	12,252	389	12,641
	Blood Bank Data Management	50,951	0	50,951
	Evaluation of Rapid Assays	43,979	0	43,979
	Program Support	2,944	0	2,944
	Resident Coordinator	88,645	227,184	315,829
	AIDS Prevention Materials	44,213	87,508	131,721
	Training Field Workers	49,401	0	49,401
	MIS Development	10,438	0	10,438
	Economic Assessment	224	24,241	24,465
Lesotho	International AIDS Conference	5,455	6,876	12,331
Malawi	Training Lab Technicians in HIV Testing	0	10,275	10,275
	International AIDS Conference	10,854	13,012	23,866
	Needs Assessment	5,710	0	5,710
	Economic Impact of AIDS	13,423	10,674	24,097
	Technical Assistance: Epidemiology	1,382	89,326	90,708
	Attitudes Toward Blood Donation	33,256	0	33,256
Mali	Intervention with CSWs in Bamako	91,600	200,000	291,600
	International AIDS Conference	7,168	0	7,168
Mauritania	International AIDS Conference	1,814	0	1,814
Mozambique	National Plan Review	1,096	0	1,096
	International AIDS Conference	6,311	559	6,870
Niger	International AIDS Conference	4,631	6,103	10,734
	AIDS Prevention Workshop	9,139	0	9,139
	Multi-targeted Intervention in Niamey	44,169	60,000	104,169

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Nigeria	Needs Assessment	9,955	5,480	15,435
	Workshop Technical Assistance	0	7,508	7,508
	International AIDS Conference	13,614	6,834	20,448
	Expanded Intervention with CSWs in Cross River State	195,220	0	195,220
	Expanded Intervention	14,745	0	14,745
	Interventions Workshop	31,497	0	31,497
Rwanda	Needs Assessment	0	9,502	9,502
Senegal	Retrovirus Conference	0	30,332	30,332
	Needs Assessment/Project Development	0	9,502	9,502
	International AIDS Conference	4,783	11,469	16,252
	Equipment/Supplies Procurement	1,990	21,983	23,973
	KAP Survey	88	0	88
	Rapid Assays Evaluation	0	105,215	105,215
	World Vision	252	0	252
Somalia	International AIDS Conference	0	5,785	5,785
Sudan	International AIDS Conference	5,046	6,070	11,116
Swaziland	National Plan Review	1,096	0	1,096
	International AIDS Conference	5,453	6,550	12,003
	Needs Assessment	10,791	0	10,791
Tanzania	Needs Assessment	5,710	9,502	15,212
	International AIDS Conference	4,631	13,609	18,240
	Intervention with Truck Drivers	86,235	332,204	418,439
	Comparative Assessment of Trucker Interventions	2,775	0	2,775
	Strengthening STD Services for High Risk Groups	0	33,693	33,693
	Ethnographic Study of Truck Stops	35,098	0	35,098

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Tanzania	STD Prevention for Women	0	3,013	3,013
	Resident Coordinator	0	142,863	142,863
	Pharmacists and STDs	0	42,209	42,209
Togo	International AIDS Conference	4,586	6,240	10,826
Uganda	Needs Assessment	5,319	9,502	14,821
	Anthropologic Perspectives Meeting	6,344	0	6,344
	International AIDS Conference	4,882	12,051	16,933
	Computer Modeling	88,643	0	88,643
	AIDS/STD Study Support	58,750	0	58,750
	Community-based AIDS Prevention	26,200	0	26,200
	Sociocultural Context of AIDS	169,073	0	169,073
	Review of HAPA	59,912	0	59,912
Zaire	National Plan Review	1,096	0	1,096
	Needs Assessment/Project Development	29,208	0	29,208
	International AIDS Conference	14,669	24,432	39,101
	AIDS Education and Condom Social Marketing	420,004	0	420,004
	Rapid Assays Evaluation	3,904	99,325	103,230
	Comparative Assessment of Condom Social Marketing	5,309	0	5,309
	Intervention for High Risk Groups	7,494	0	7,494
	Vaginal Dryness	16,081	0	16,081
	AIDS Module Development	381	15,344	15,725
	Computer Modeling	0	12,546	12,546
Zambia	National Plan Review	1,096	0	1,096
	International AIDS Conference	5,569	18,941	24,510

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Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Zimbabwe	International AIDS Conference	21,609	7,649	29,258
	Tanzania AIDS Conference	2,055	0	2,055
	Needs Assessment/Project Development	4,453	0	4,453
	KAP Module	0	23,290	23,290
	Multi-targeted Intervention	96,868	150,977	247,845
	Equipment/Supply-Five Hospitals	0	122,035	122,035
	Intervention with Commercial Farms	50,008	55,153	105,161
	Strengthening Laboratory Technician's Skills	948	32,687	33,635
	Supply Blood Transfusion Service	18,225	0	18,225
	Understanding Condom Use	275,834	0	275,834
	Intervention with High Risk Groups in Masvingo	87,367	0	87,367
	Intervention with High Risk Groups in Kariba	84,642	0	84,642
	Evaluation of Targeted Intervention	60,794	0	60,794
	GUD Supply Blood Transfusion	0	10,828	10,828
	Program Support	2,944	0	2,944
LATIN AMERICA/CARIBBEAN				
Regional	Economic Cost of AIDS Training	3,018	20,000	23,018
	IFA Regional Workshop	3,415	0	3,415
Belize	International AIDS Conference	7,621	0	7,621
Bolivia	Needs Assessment	19,091	0	19,091
	National Plan Review	1,096	0	1,096
	International AIDS Conference	12,888	0	12,888
	Technical Assistance: Surveillance	0	4,095	4,095
	Technical Assistance: STD Control	0	4,285	4,285
	Strengthening Lab Technicians' Skills	1,501	0	1,501

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Bolivia	Intervention with CSWs in La Paz	24,987	13,259	38,246
	Technical Assistance: HIV Test	4,142	39,249	43,391
Brazil	International AIDS Conference	62,236	0	62,236
	Needs Assessment	17,668	0	17,668
	General Training	0	87,855	87,855
	Intervention with CSWs and MSM	50,334	66,075	116,409
	Involving HIV-positive Individuals	20,749	75,000	95,749
	Strengthening Institutional Capabilities	28,142	96,549	124,691
	Developing Educational Materials	4,404	83,950	88,354
	Training Health Professionals in AIDS Prevention	42,162	119,864	162,026
	Resident Coordinator	40,032	119,122	159,154
	Condom Social Marketing	23,537	43,716	67,253
	Assessing HIV Risk	21,927	21,998	43,925
	Umbanda Religious Leaders	25,611	55,871	81,482
Chile	International AIDS Conference	6,323	0	6,323
	Study of HIV-positive Individuals	80,794	0	80,794
Colombia	International AIDS Conference	14,622	0	14,622
Costa Rica	International AIDS Conference	11,272	0	11,272
	Hotline	63,819	0	63,819
	Assessment of Educational Strategies	63,184	0	63,184
Dominican Republic	Needs Assessment/Project Development	19,794	0	19,794
	Global Impact of AIDS Conference Participation	6,144	0	6,144
	International AIDS Conference	26,709	0	26,709
	National Plan Review	1,096	0	1,096
	Program Support	10,431	6,692	17,123
	Economics of Sex	3,701	0	3,701

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Dominican Republic	Puerto Plata: Intervention with CSWs and Hotel Employees	0	126,926	126,926
	Santo Domingo: Intervention with CSWs	0	163,781	163,781
	Expanded High Risk Groups Intervention	0	145,928	145,928
	Expanded High Risk Groups Intervention	0	81,397	81,397
	Sentinel Surveillance	27,069	38,636	65,705
	Developing QA Program	0	127,849	127,849
	Analyzing Recurrent Cost of Projects in Santo Domingo	42,245	27,159	69,404
	Private Sector Initiative	0	1,584	1,584
	Theatrical Presentations	12,638	38,050	50,688
	Training Health Care Providers	0	2,589	2,589
	Establishing Community Education Affiliation	0	52,735	52,735
	Serum Pooling	0	69,889	69,889
	Improving Quality of HIV Screening	3,728	55,860	59,588
	Provision of Other Equipment & Supplies	5,589	171,586	177,175
	Rental of Condom Storage	0	79,906	79,906
	Resident Coordinator	2,956	149,306	152,262
Free Trade Zone	0	42,275	42,275	
Intervention in Squatter Settlements	0	46,909	46,909	
Eastern Caribbean	Needs Assessment/Project Development	25,590	0	25,590
	International AIDS Conference	25,746	0	25,746
	Program Support	20,182	0	20,182
	Technical Assistance	0	334,986	334,986
	A Lifestyle Approach to Condom Promotion	0	62,445	62,445
	Analyzing Cost for Blood Screening Program: Trinidad	0	67,164	67,164

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Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Eastern Caribbean	General Population KABP Surveys	0	37,612	37,612
	HIV/STD Surveillance Workshops	11,039	0	11,039
	STD Services Upgrading	0	11,544	11,544
	Intervention with CSWs & STD Patients: Trinidad	0	146,968	146,968
	Serum Pooling: Trinidad	2	55,350	55,352
	Cost-effective Treatment: Barbados	0	52,232	52,232
	Multi-targeted Intervention: St. Lucia	0	153,417	153,417
	Intervention with CSWs & STD Patients: Antigua	0	67,978	67,978
	Ethnographic Study of CSWs: Barbados	0	36,466	36,466
	Counseling & Condom Promotion: Dominica	0	23,026	23,026
	Implementing AIDS Education Curriculum	98,703	0	98,703
	STD/HIV Small Grants Program	0	77,223	77,223
	STD/HIV Prevention Workshop	0	19,788	19,788
	Computer Modeling	0	85,948	85,948
	Management Technical Assistance	0	101,987	101,987
AIDS Handbook	84,509	0	84,509	
Intervention with CSWs: Dominica	0	2,971	2,971	
Ecuador	Needs Assessment	7,535	0	7,535
	International AIDS Conference	16,933	0	16,933
	Program Support	5,400	0	5,400
	Sentinel Surveillance Technical Assistance	6,850	7,139	13,989
	Mexico Observation Visits	15,117	10,000	25,117
	Intervention with High Risk Groups	0	20,861	20,861
	Assessing Needs for National QA Program	15,109	30,000	45,109

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Ecuador	Training Health Care Providers	15,792	10,000	25,792
	Serum Pooling	66,102	22,000	88,102
El Salvador	Needs Assessment	4,110	0	4,110
	Project Development	3,000	0	3,000
	International AIDS Conference	8,860	0	8,860
	Laboratory Technical Assistance and Training	10,960	0	10,960
	Diagnostic Workshops Provider Training	32,741	50,000	82,741
	Sentinel Surveillance/Technical Assistance	9,212	0	9,212
	Intervention Technical Assistance	3,500	0	3,500
	Epidemiology/Interventions with STD Clinic Patients	3,763	48,500	52,263
	Establishing an STD Clinic	46,704	0	46,704
	Guatemala	Needs Assessment	4,110	0
	International AIDS Conference	10,670	0	10,670
	Laboratory Technical Assistance	6,850	0	6,850
	Sentinel Surveillance/Technical Assistance	6,850	0	6,850
	Intervention Technical Assistance	3,000	0	3,000
	STD Technical Assistance	113,077	0	113,077
Haiti	International AIDS Conference	35,097	0	35,097
	Needs Assessment	38,065	0	38,065
	Technical Assistance	0	645,713	645,713
	Resident Coordinator	0	405,375	405,375
	Intervention with CSWs	0	68,178	68,178
	Community-based AIDS Education	42,041	25,885	67,926
	Intervention with High Risk Groups in 3 Cities	0	259,361	259,361
	Computer Modeling	11,252	79,061	90,313
	Strengthening STD Services	45,953	0	45,953

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Haiti	Sentinel Surveillance & Counseling	0	176,401	176,401
	Workplace Intervention	0	180,775	180,775
	Condom Storage/Distribution	0	18,214	18,214
	Study of Culture, Health and Sexuality	299,348	0	299,348
	Intervention in Factories	0	917	917
	Condom Social Marketing	0	407,762	407,762
Honduras	Needs Assessment	7,682	0	7,682
	International AIDS Conference	2,995	0	2,995
Jamaica	Needs Assessment/Project Development	18,495	0	18,495
	International AIDS Conference	7,984	0	7,984
	STD Equipment	6,267	15,110	21,377
	AIDS Related Sexual Decision Making	352,161	0	352,161
	Testing Indicators	59,027	0	59,027
	Intervention with High Risk Groups Technical Assistance	0	780	780
Mexico	Needs Assessment/Project Development	16,507	0	16,507
	International AIDS Conference	39,845	0	39,845
	Intervention with CSWs and MSM	228,071	0	228,071
	HIV Surveillance Survey	61,990	0	61,990
	Analyzing Direct Health Care Costs	112,349	0	112,349
	Training Pharmacy Workers	100,888	0	100,888
	Radio Soap Opera	78,407	0	78,407
	Intervention of Women Organizations	63,431	0	63,431
	Study of Risk Behaviors of Bisexual Males	70,816	0	70,816
	Institutional Development	7,063	50,000	57,063
	Involving HIV-positives in AIDS Education	52,027	0	52,027
	Health Care Finance Workshop	2,078	0	2,078

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Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Peru	Needs Assessment/Project Development	15,070	0	15,070
	Laboratory Technical Assistance	1,096	0	1,096
	International AIDS Conference	12,369	0	12,369
	Clinic-based Interventions with STD Patients	57	17,780	17,837
	Analyzing Blood Bank HIV Screening	14,610	32,220	46,830
	AIDS Prevention with Gay & Bisexual Men	70,887	0	70,887
ASIA/NEAR EAST				
Regional	AIDS Program Support	19,861	48,571	68,432
Bangladesh	International AIDS Conference	10,806	0	10,806
Egypt	International AIDS Conference	7,756	0	7,756
India	International AIDS Conference	14,636	0	14,636
	Needs Assessment	8,819	0	8,819
Indonesia	Needs Assessment	13,700	0	13,700
	International AIDS Conference	12,672	0	12,672
	Study of AIDS Risk Behavior Among CSWs and Clients	285,067	0	285,067
Jordan	International AIDS Conference	9,505	0	9,505
Morocco	International AIDS Conference	13,648	0	13,648
	Needs Assessment	7,700	0	7,700
	Technical Assistance: Surveillance	6,000	0	6,000
	Intervention with WMPs	60,832	0	60,832
Oman	International AIDS Conference	3,664	0	3,664
Pakistan	Needs Assessment	8,819	0	8,819
Philippines	Needs Assessment/Project Development	43,014	0	43,014
	International AIDS Conference	36,459	0	36,459
	Program Support	8,591	201,940	210,531

Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Philippines	Intervention with CSWs	14,307	258,660	272,967
	Intervention in Olongapo/Angeles City	102,411	274,335	376,746
	Upgrading STD Clinics	15,185	187,708	202,893
	Analyzing Condom Marketing	11,364	22,351	33,715
	Serum Pooling	5,461	81,785	87,246
	Analyzing Blood Banking	9,656	153,457	163,113
	Upgrading Blood Centers	0	78,037	78,037
	AIDS Information	676	2,508	3,184
South Pacific	International AIDS Conference	17,067	0	17,067
	Needs Assessment	17,581	0	17,581
	Finance Technical Assistance	15,499	0	15,499
Sri Lanka	National Plan Review	1,096	0	1,096
	International AIDS Conference	10,218	0	10,218
	Multi-targeted Education Program	34,260	0	34,260
Thailand	Needs Assessment/Program Development	39,511	0	39,511
	International AIDS Conference	21,610	0	21,610
	Resident Coordinator	60,755	0	60,755
	Intervention with High Risk Groups	17,810	0	17,810
	Intervention with Drug Abusers in Bangkok	130,204	0	130,204
	Intervention with Drug Abusers in Klong Toey	139,857	0	139,857
	Taxi-based Intervention	43,037	0	43,037
	AIDS Education in Workplace	48,277	0	48,277
	Counseling/Materials Development Training	135,513	0	135,513
	Condom Logistics	29,668	0	29,668
Study of CSWs in Chiang Mai	91,491	48,925	140,416	

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Continued

Region/ Country	Project	Core Funding	Add-On Funding	Total Expenses
Thailand	AIDS Flip Chart	26,677	0	26,677
	Study of Male Sexual Risk Taking	119,286	0	119,286
	Upgrade of STD Clinics	137,336	0	137,336
	Assessing Private STD Clinic	25,824	0	25,824
	Evaluation/Mass Media	5,800	0	5,800
	Mexico Meeting	0	2,504	2,504
Tunisia	International AIDS Conference	7,526	0	7,526
	Needs Assessment	2,329	0	2,329
Yemen	International AIDS Conference	5,582	0	5,582
Interregional	Population Council: Modeling	536,874	0	536,874
	The Futures Group: Modeling	109,580	100,000	209,580
	STD Annotated Bibliography	19,790	0	19,790