

D Department of Health
Republic of South Africa

HIV/Aids Training

Module 1

Epidemiology
June 2008



SOUTH AFRICANS AND AMERICANS
IN PARTNERSHIP TO FIGHT HIV/AIDS



USAID
FROM THE AMERICAN PEOPLE

Adapted from and thanks to:

Foundation for Professional Development; Ashraf Grimwood; GF Jooste meetings; Prof Gary Maartens lectures; PATA conference; MIC and Department of Pharmacology UCT



= Absolute Return for Kids



Department of Health
Republic of South Africa

- 5.7 million people in SA who are HIV infected
- AIDS kills more than 380 mothers every day
- 20% of children are expected to lose a parent by 2010 despite treatment being available



- ARK prevents children from being prematurely orphaned by providing ARV's to HIV+ mothers and other caregivers
- ARK works in partnership with DoH*
- 10 000 lives have already been saved, and next target is to reach 22 000 HIV+ carers preventing 40 000 children from becoming orphaned
- began in December 2003 in WC with 17 sites in the first year in PHC's or hospitals



ARK

- ARK has assisted in the provision of ARV's to more than 26 000 patients in four provinces (EC,WC,KZN,MPL) in SA since 2003
- expanded to KZN in March 2005 (highest prevalence rate in SA)
- EC and MPL in 2006
- ARK was operating in 40 sites by 2006



Programme – Modules 1 to 5

- Brief review of Epidemiology
 - Introduction and history of AIDS
 - Stats – global, National and provinces
 - Prevention progs
- Diagnosing HIV; Clinical Staging and Opportunistic Infections
- Antiretroviral therapy
- Principles of therapy; adherence and resistance and new drugs
- Prevention of HIV transmission: PEP



From the diary of "Dr Pierre", a GP at a rural hospital in Kenya, 1982.....

Steve is not going to make it. He fails to respond to the broad spectrum antibiotics I have prescribed. This is already his third admission this year and every time he seems weaker. He has lost more than 10 kg of weight, has swollen lymph nodes and recurrent episodes of diarrhoea. Previously, Steve has been a brilliant athlete and the favourite teacher at the school.



From the diary of "Dr Pierre" (cont.)

His first born baby died 18 months ago, also of a mysterious pneumonia and shortly thereafter, his wife started wasting away and we wondered about the power of grief, but now this terrible tragedy is involving Steve. This is not depression, this is much, much worse and seems to affect others as well.



From the diary of "Dr Pierre" (cont.)

I have heard of other cases in Nairobi.
What on earth could this be? Is this a
new plague? How is this terrible
condition spread?

I have send samples to the CDC in
Florida, but will they be able to
diagnose this killer disease?

I don't think so, but I hope and I pray.

What else can I do?



In the USA in 1982

- doctors were noting that a number of young men who were not previously known with any immunodeficiency presented with a rare lung disease called *Pneumocystis pneumonia*
- they were all men having sex with men
- in the same year a cluster of *Kaposi's sarcoma*, a rare malignancy, occurred in other homosexual men



In the USA in 1982 (cont.)

- usually only seen in individuals with severe immunodeficiency i.e. renal transplant patients on immunosuppressive therapy
- they called this new phenomenon:

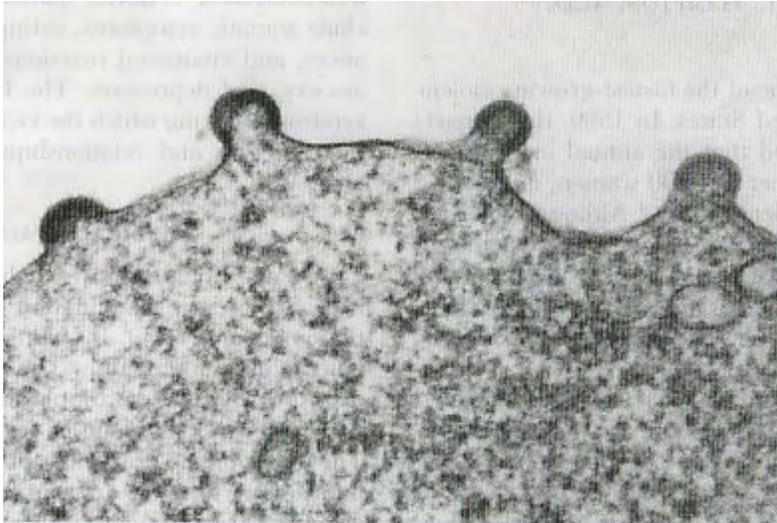
Acquired Immunodeficiency Syndrome

or for short

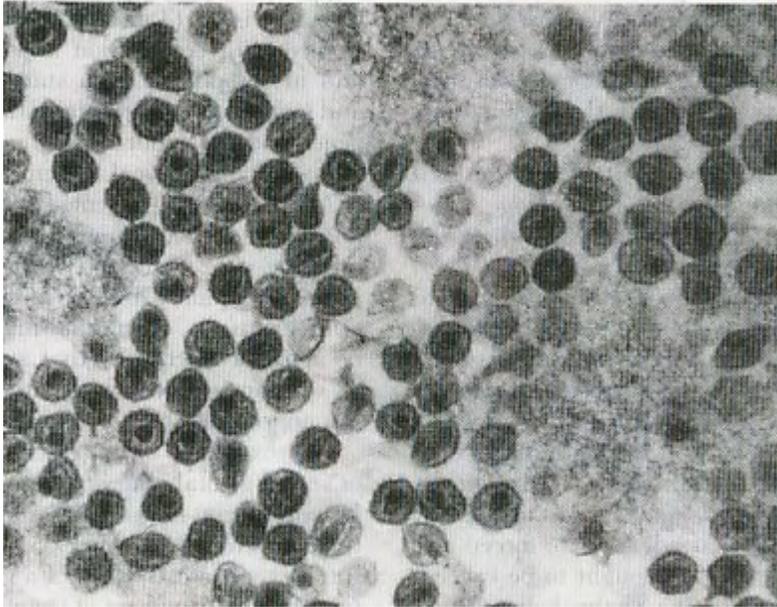


AIDS





A



What is a virus?

An infinitely small micro-organism, an “obligate” intracellular parasite

HIV-1 and HIV-2 belong to the family of Lentiviruses. The Simian Immunodeficiency Viruses (SIV) are it's closest cousins.

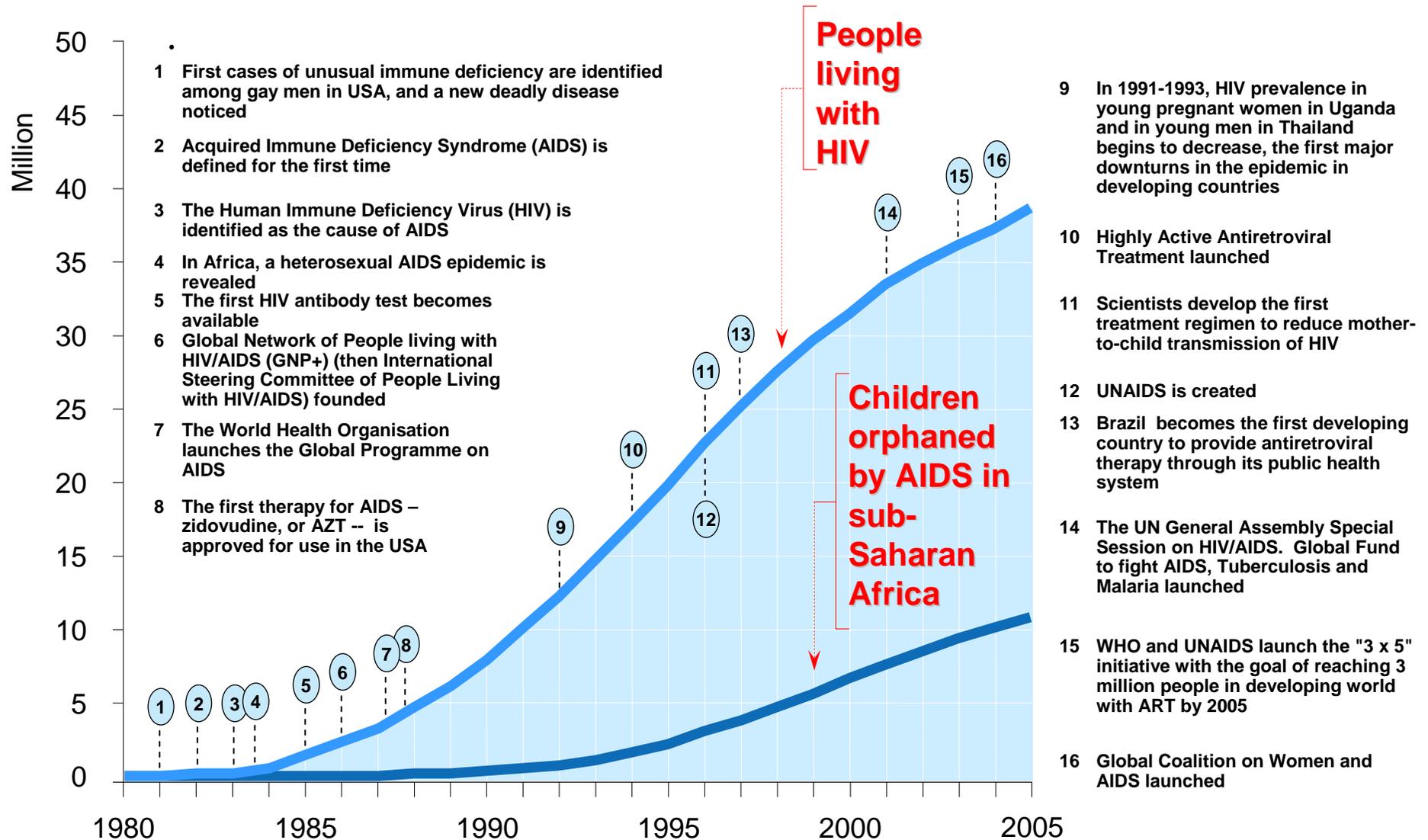
The Virus emerging from a human cell. Electron micrograph photographs



20 May 1983

- a paper published in a US journal “ *Science*” a team from France (Luc Montagnier) describe a suspect virus found in a patient’s who had died of AIDS
- a researcher Robert Gallo in US confirms the virus is the cause of AIDS

25 years of AIDS – in the 3rd decade of the Epidemic



- 1 First cases of unusual immune deficiency are identified among gay men in USA, and a new deadly disease noticed
- 2 Acquired Immune Deficiency Syndrome (AIDS) is defined for the first time
- 3 The Human Immune Deficiency Virus (HIV) is identified as the cause of AIDS
- 4 In Africa, a heterosexual AIDS epidemic is revealed
- 5 The first HIV antibody test becomes available
- 6 Global Network of People living with HIV/AIDS (GNP+) (then International Steering Committee of People Living with HIV/AIDS) founded
- 7 The World Health Organisation launches the Global Programme on AIDS
- 8 The first therapy for AIDS – zidovudine, or AZT -- is approved for use in the USA

- 9 In 1991-1993, HIV prevalence in young pregnant women in Uganda and in young men in Thailand begins to decrease, the first major downturns in the epidemic in developing countries
- 10 Highly Active Antiretroviral Treatment launched
- 11 Scientists develop the first treatment regimen to reduce mother-to-child transmission of HIV
- 12 UNAIDS is created
- 13 Brazil becomes the first developing country to provide antiretroviral therapy through its public health system
- 14 The UN General Assembly Special Session on HIV/AIDS. Global Fund to fight AIDS, Tuberculosis and Malaria launched
- 15 WHO and UNAIDS launch the "3 x 5" initiative with the goal of reaching 3 million people in developing world with ART by 2005
- 16 Global Coalition on Women and AIDS launched

Prevalence and incidence of HIV / AIDS

- we aim to get prevalence to go *up* which means that more people are staying *alive* (due to HAART) and
- incidence to go *down* which means *less* people are getting infected
- if prevalence goes *down*, then more people are *dying* from AIDS





History of AIDS

1982 - first patient diagnosed with AIDS in South Africa (first cases notified in USA in 1981)

1985 - ELISA test first becomes available

1987 - AZT drug approved

1990 - first ANC sero-prevalence survey in South Africa (0.8%)

1994 - iv AZT to pregnant mothers

1996 - era of HAART

1997 – Brazil first developing country to use ARVs



History of AIDS

2001 – Botswana starts ARVs and PMTCT programme, sdNVP starts in SA

2002/3 – CD₄ test widely available in South Africa

2004 April – National rollout of public ARV programme

2006 – 25 million died world wide of AIDS

2008 – dual therapy for PMTCT across South Africa

FIGURE 29b

Percent Coverage of Antiretroviral Therapy for Adults and Children with Advanced HIV Breakdown by Quartiles (N=136)

Less than 25% Coverage
(55 Countries)

25% to 49% Coverage
(45 Countries)

50% to 75% Coverage
(20 Countries)

Greater than 75% Coverage
(16 Countries)



**TOTAL of
136
countries**

FIGURE 29b

Percent Coverage of Antiretroviral Therapy for Adults and Children with Advanced HIV Breakdown by Quartiles (N=136)

Less than 25% Coverage (55 Countries)	25% to 49% Coverage (45 Countries)	50% to 75% Coverage (20 Countries)	Greater than 75% Coverage (16 Countries)
Algeria	Bahamas	Argentina	Bhutan
Angola	Belize	Barbados	Botswana ←
Armenia	Benin	Belgium	Chile
Azerbaijan	Burkina Faso	Brazil	Costa Rica
Bangladesh	Cameroon	Cambodia	Cuba
Belarus	Cape Verde*	Czech Republic	Cyprus*
Bolivia	Colombia	Dominican Republic	Denmark
Burundi	Dominican Republic	Ecuador	Georgia
Central African Republic	Ecuador	Equatorial Guinea	Germany
Chad	Equatorial Guinea	Estonia	Israel
China	Ethiopia	Fiji	Lao People's Democratic Republic
Comoros	Finland	Gabon	Namibia
Congo, Republic of the	Guatemala	Guyana	Palau*
Cote d'Ivoire	Haiti	Honduras	Portugal
Democratic Republic of the Congo			Tuvalu*
Djibouti			United Kingdom of Great Britain and Northern Ireland
Egypt			
Eritrea			
Gambia			

FIGURE 29b

Percent Coverage of Antiretroviral Therapy for Adults and Children with Advanced HIV Breakdown by Quartiles (N=136)

Less than 25% Coverage (55 Countries)	25% to 49% Coverage (45 Countries)	50% to 75% Coverage (20 Countries)	Greater than 75% Coverage (16 Countries)
Ghana Guinea-Bissau Hungary India Indonesia Iran, Islamic Republic of Kazakhstan Kyrgyzstan Liberia Lithuania Madagascar Malta Mauritania Mauritius Mongolia Mozambique ← Myanmar Nepal	Iceland Jamaica Kenya ← Lebanon Lesotho ← Malawi ← Malaysia Maldives Mali Morocco Nicaragua Norway Papua New Guinea Peru Philippines Poland Sao Tome and Principe* Suriname		

FIGURE 29b

Percent Coverage of Antiretroviral Therapy for Adults and Children with Advanced HIV Breakdown by Quartiles (N=136)

Less than 25% Coverage (55 Countries)	25% to 49% Coverage (45 Countries)	50% to 75% Coverage (20 Countries)	Greater than 75% Coverage (16 Countries)
Niger Nigeria Pakistan Paraguay Russian Federation Saint Lucia* Serbia Sierra Leone Somalia South Africa Sri Lanka Sudan Tajikistan Togo Ukraine Uzbekistan Viet Nam Zimbabwe	Swaziland Tunisia Uganda United Republic of Tanzania United States of America Venezuela Zambia		

AIM : To extend these scattered successes to more countries in the world.



In South Africa, to put as many patients on ARVS with good adherence.

40%

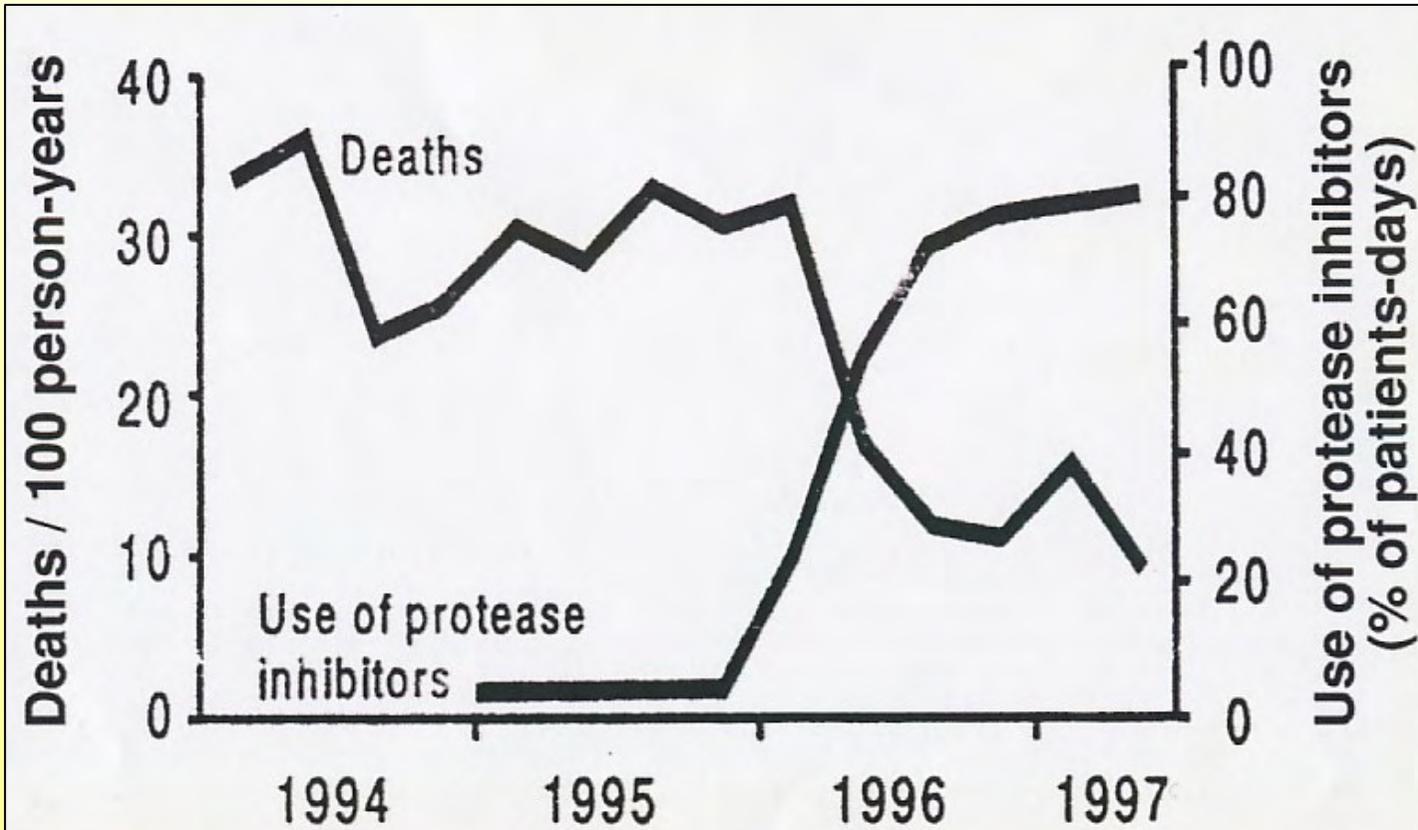
33%

15%

12%

Pharmacology of the Antiretroviral Drugs

Dave Spencer Kimera Consultants 2007



Palella FJ Jr et al N Engl J Med 1998; 338: 853-60

The problem of HIV in a nutshell

- **Emerging infectious disease**
 - Acquired immunodeficiency syndrome (AIDS) recognised in 1982
- **Etiology**
 - linked to infection with the human immunodeficiency virus (HIV) in 1983/84
- **Pathophysiology**
 - HIV specifically invades and destroys CD4+ lymphocytes
 - results in destruction and dysregulation of the host immune system
- **Clinical manifestations**
 - recurrence or worse presentation of “normal” infections
 - opportunistic infections and neoplasms



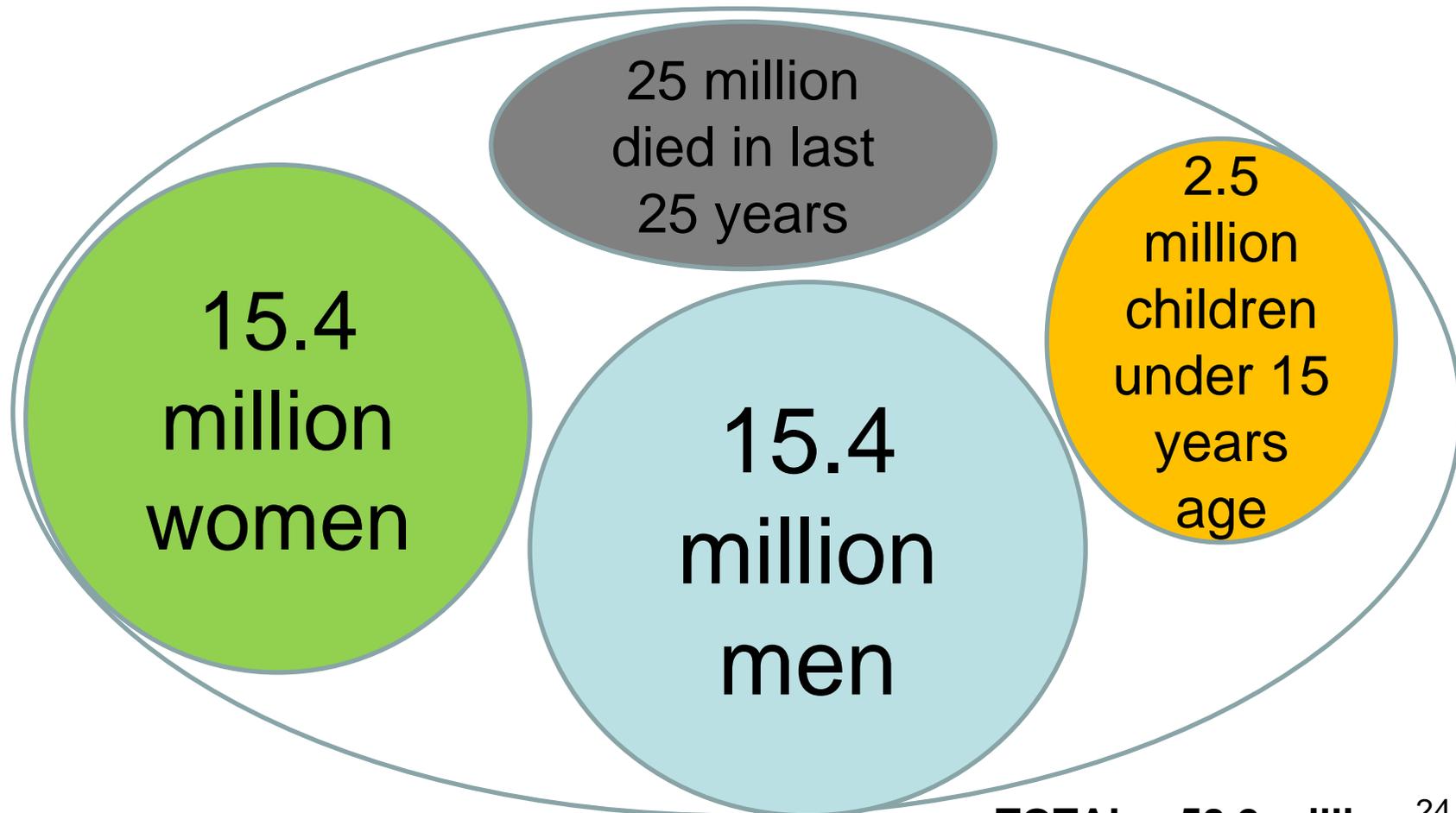
Global population

Year	Earth Population (in billions)	Comments
1800	1	
1930	2	took 130 years to add 1 billion
1999	6	
2008	6.7	China 1 st India 2 nd USA 3 rd 304 million population growing at 1.2% per year
2012	7	will take only 13 years to add 1 billion
2050		India 1 st growth rate decline to 0.5%

750 million people live in SSA and 50% earn < \$1 (R7.70) a day – *Economist/Cape Times* 1/9/2008

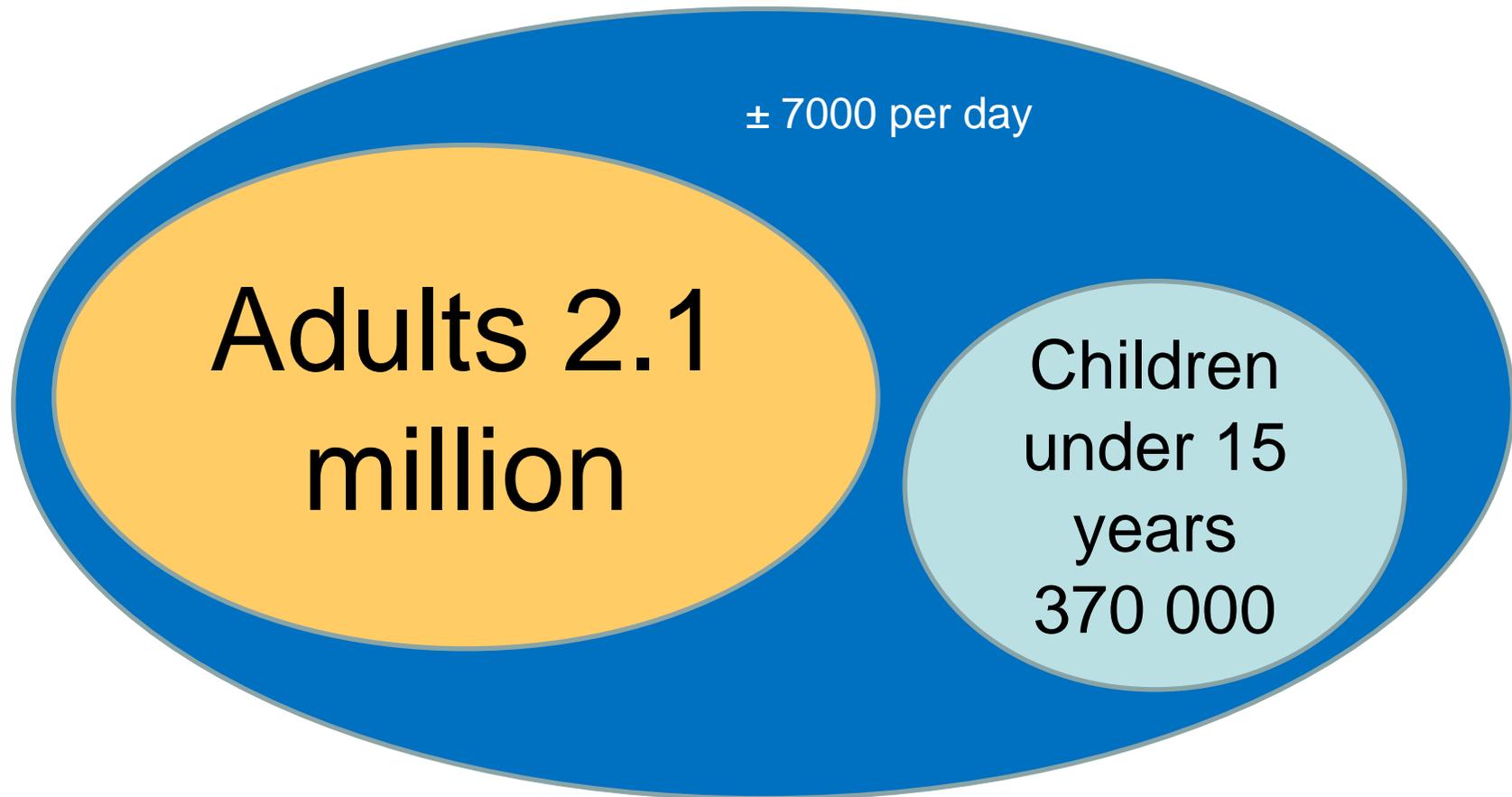
Global summary of the AIDS epidemic

33.2 million = number of people *living* with HIV in 2007



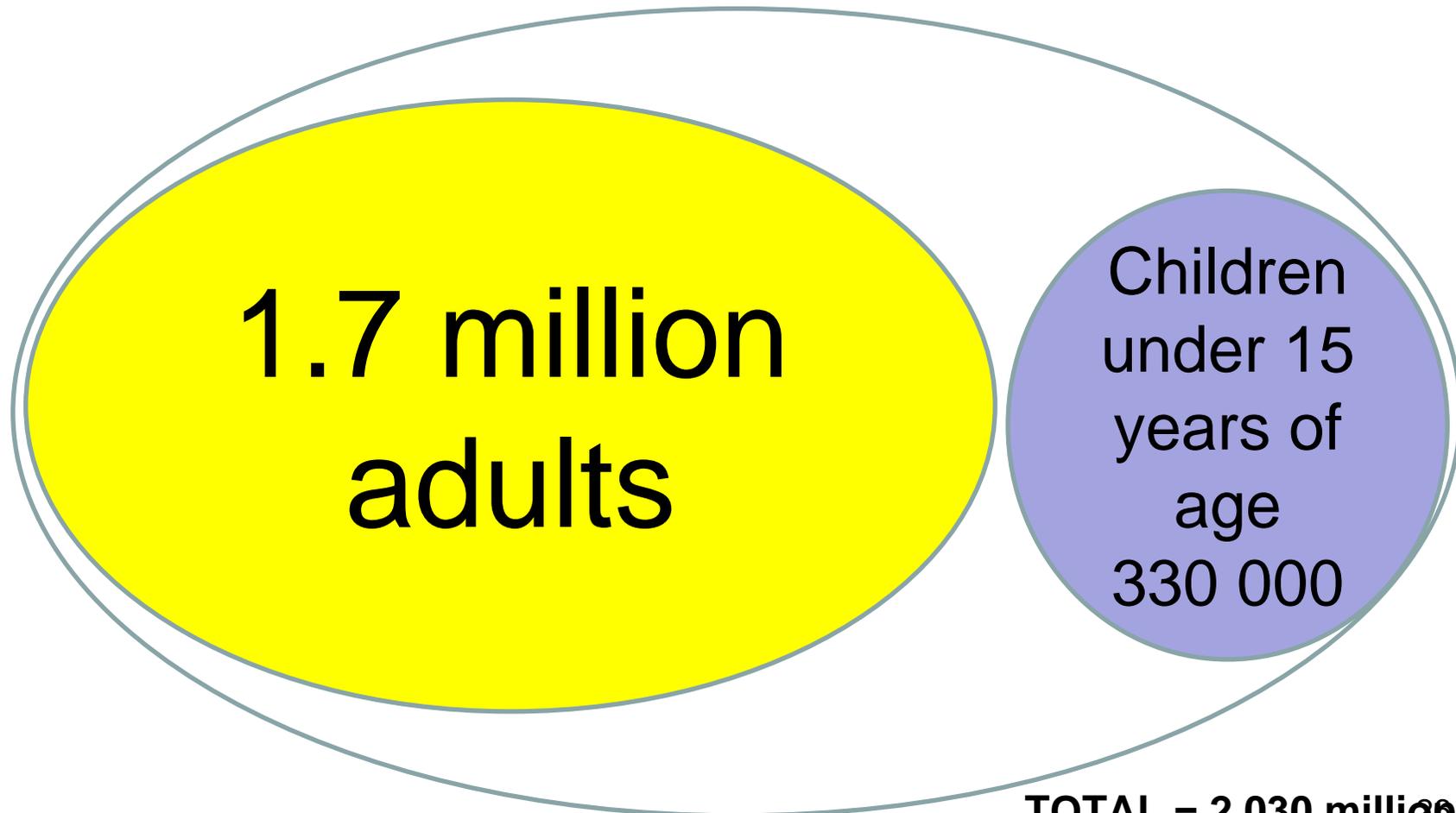
Global summary of the AIDS epidemic

People *newly* infected with HIV in 2007

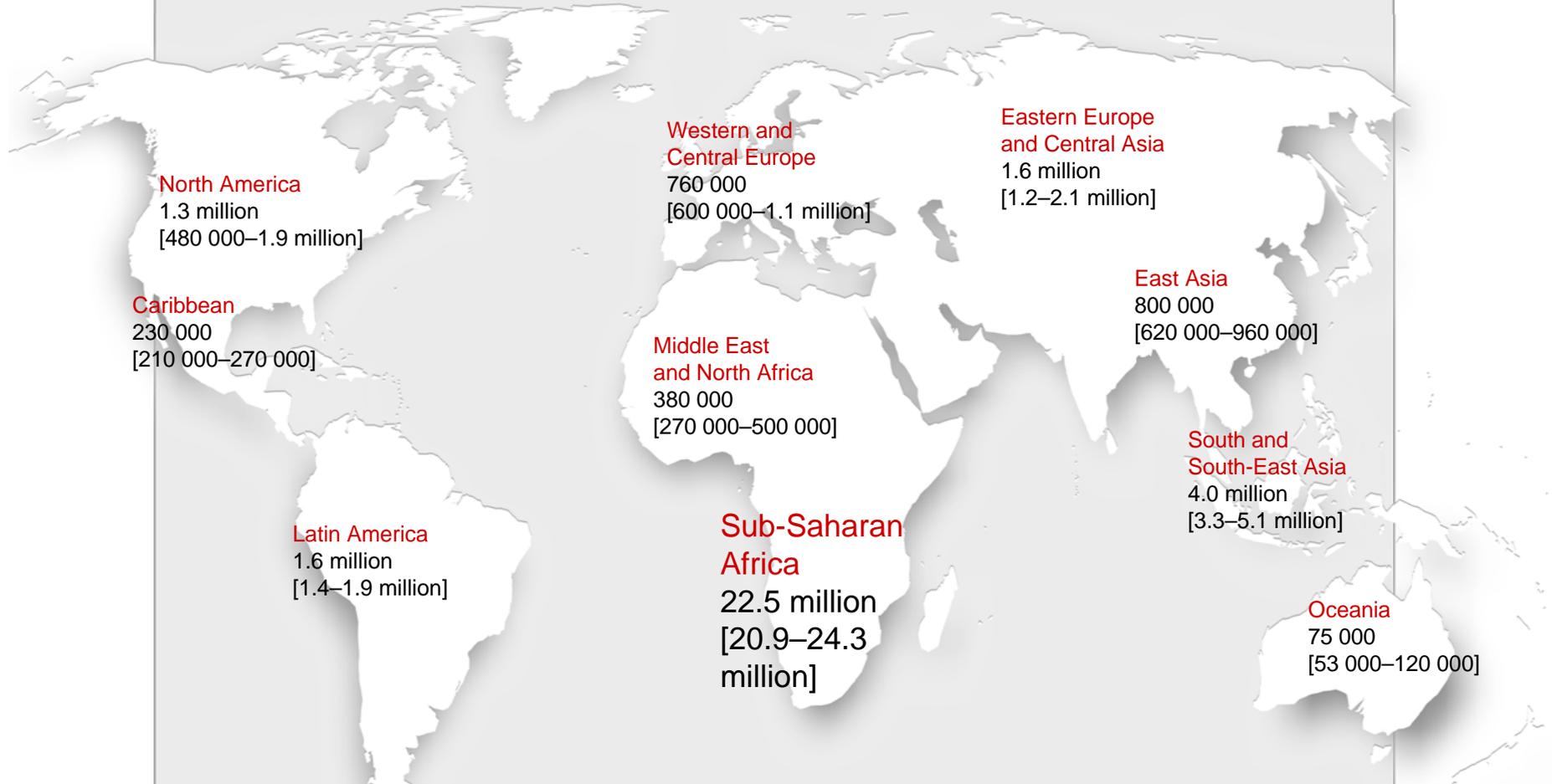


Global summary of the AIDS epidemic

AIDS deaths in 2007



Adults and children estimated to be *living* with HIV in 2007



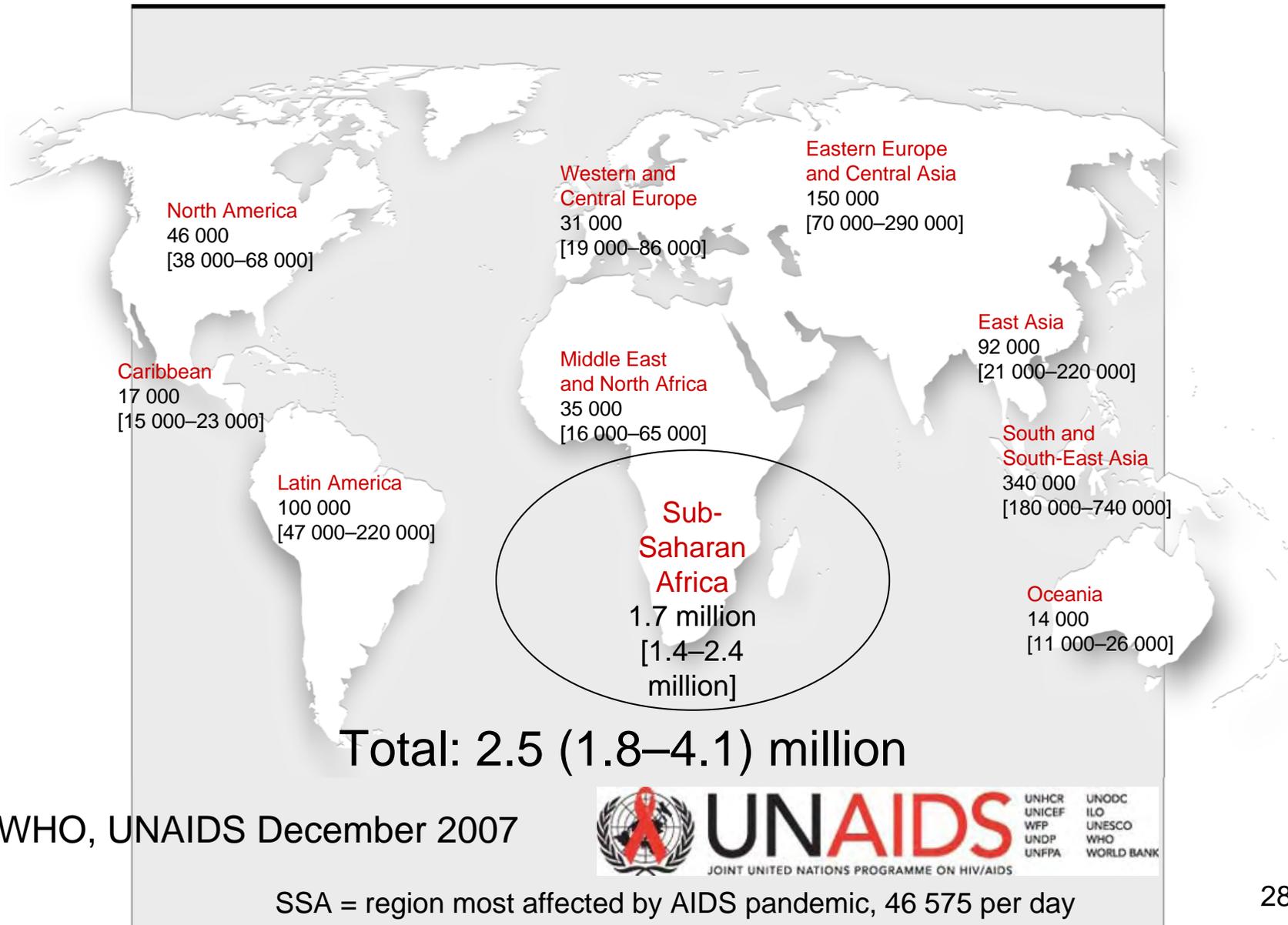
Total: 33.2 (30.6–36.1) million



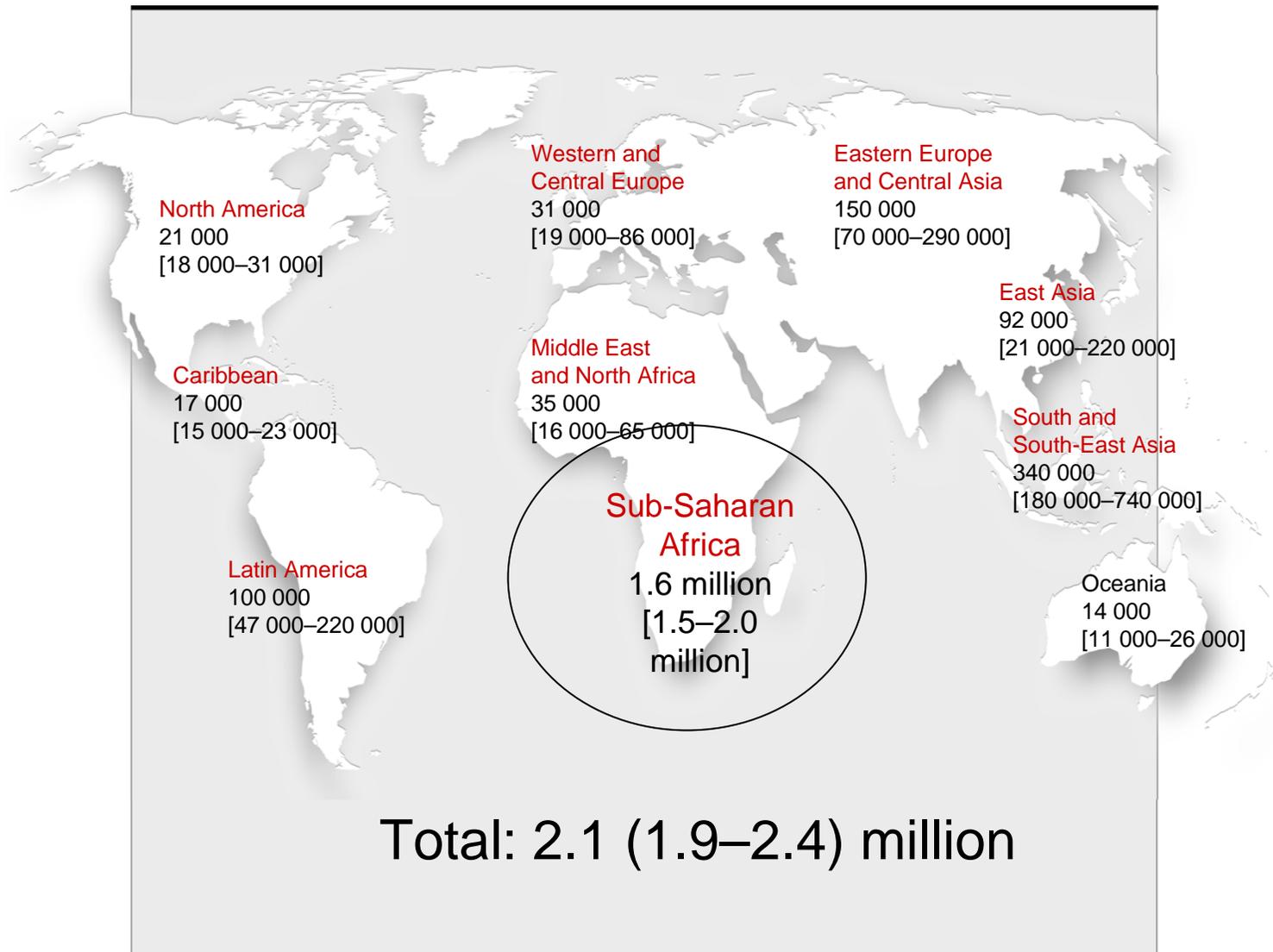
UNAIDS
JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS

UNHCR
UNICEF
WFP
UNDP
UNFPA
UNODC
ILO
UNESCO
WHO
WORLD BANK

Estimated number of adults and children *newly* infected with HIV during 2007



Estimated adult and child *deaths* from AIDS during 2007



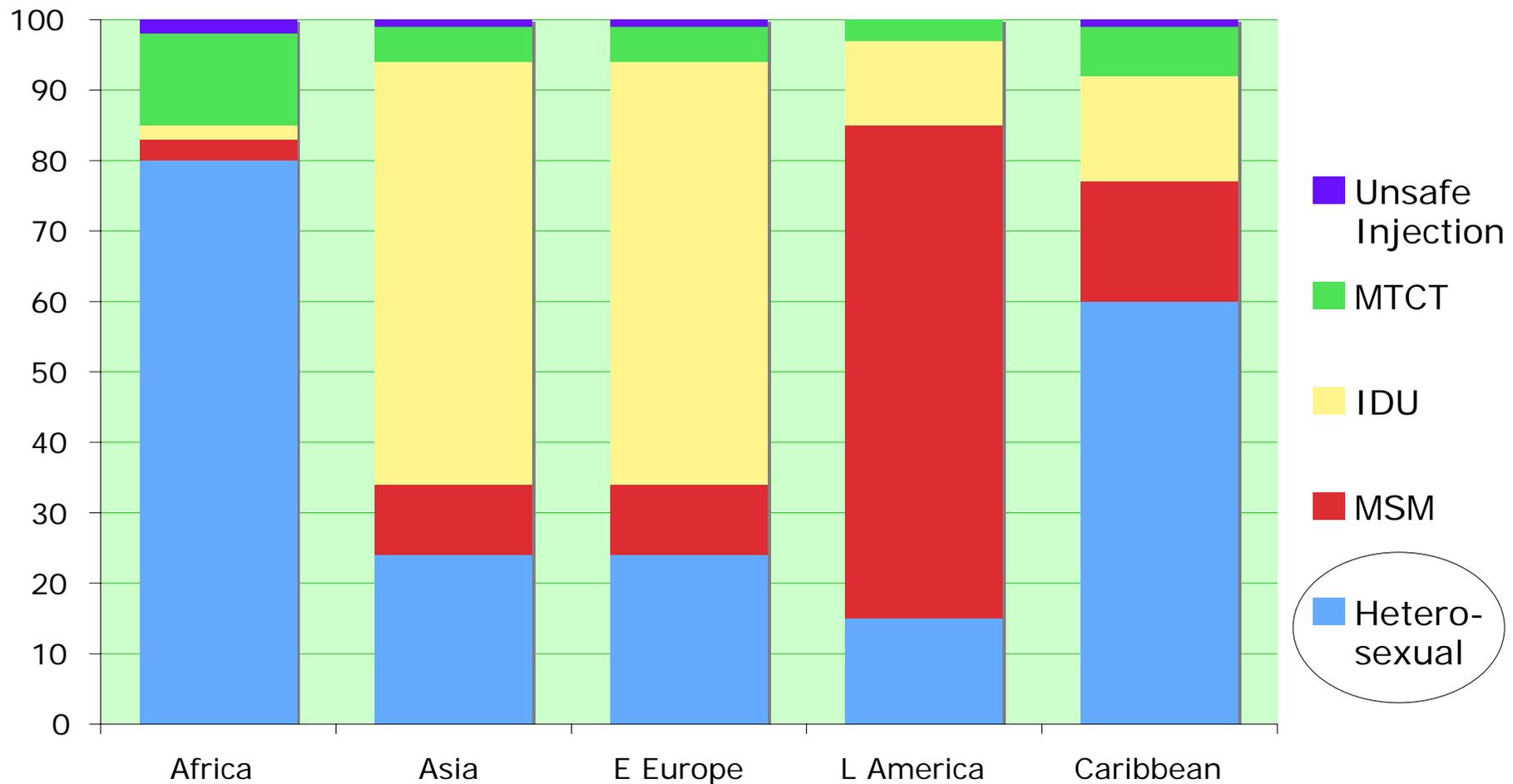
WHO, UNAIDS December 2007



UNAIDS
JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS

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WORLD BANK

Source of New HIV Infections by Region



**Lancet - HIV Prevention Series XVII International AIDS Conference
Mexico City, August 2008**

Comparison with other countries

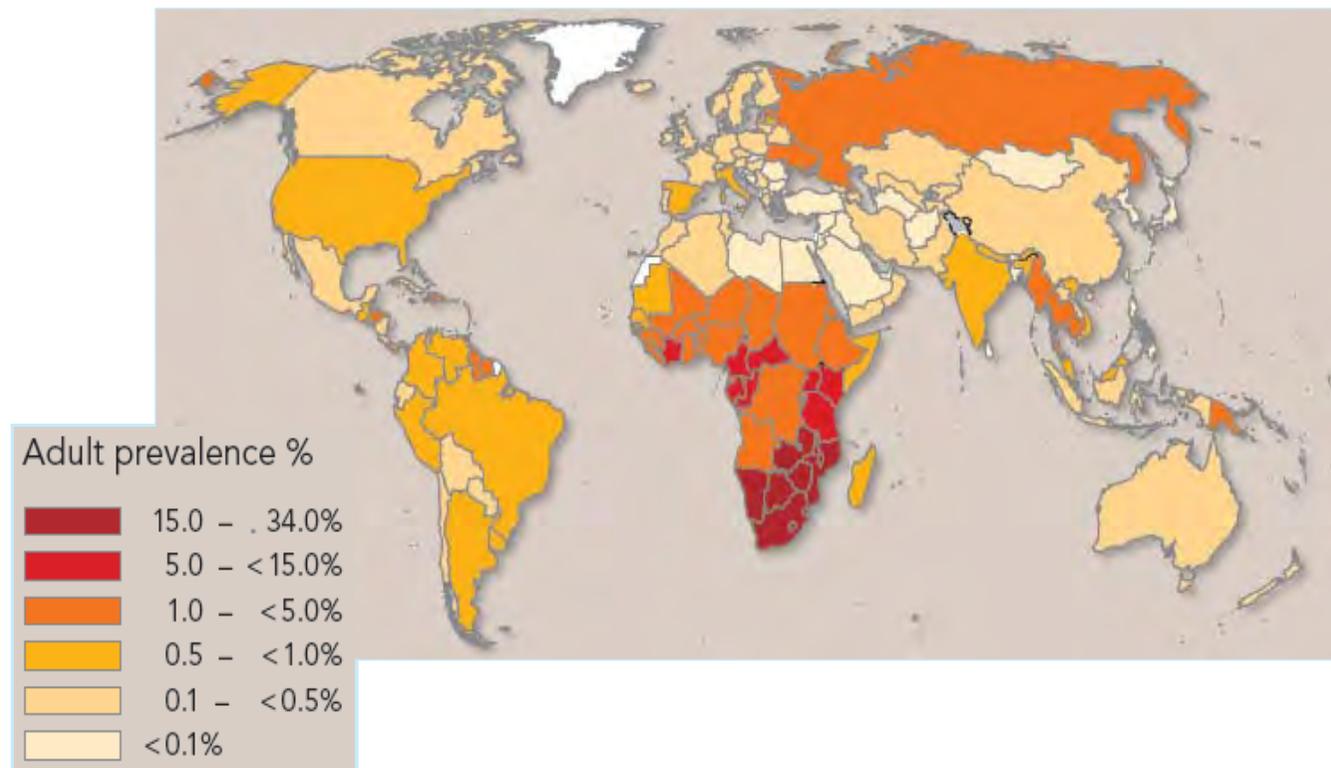
Year	Total number infected in UK#	Number new cases per annum
2004	58 300	-
2005	63 500	5200
2006	73 000	9500
2007	77 400	4400

***7 450 new diagnoses Jan to Dec 2005 [2 400 MSM – 32%]* and 7800 in 2006 in UK**

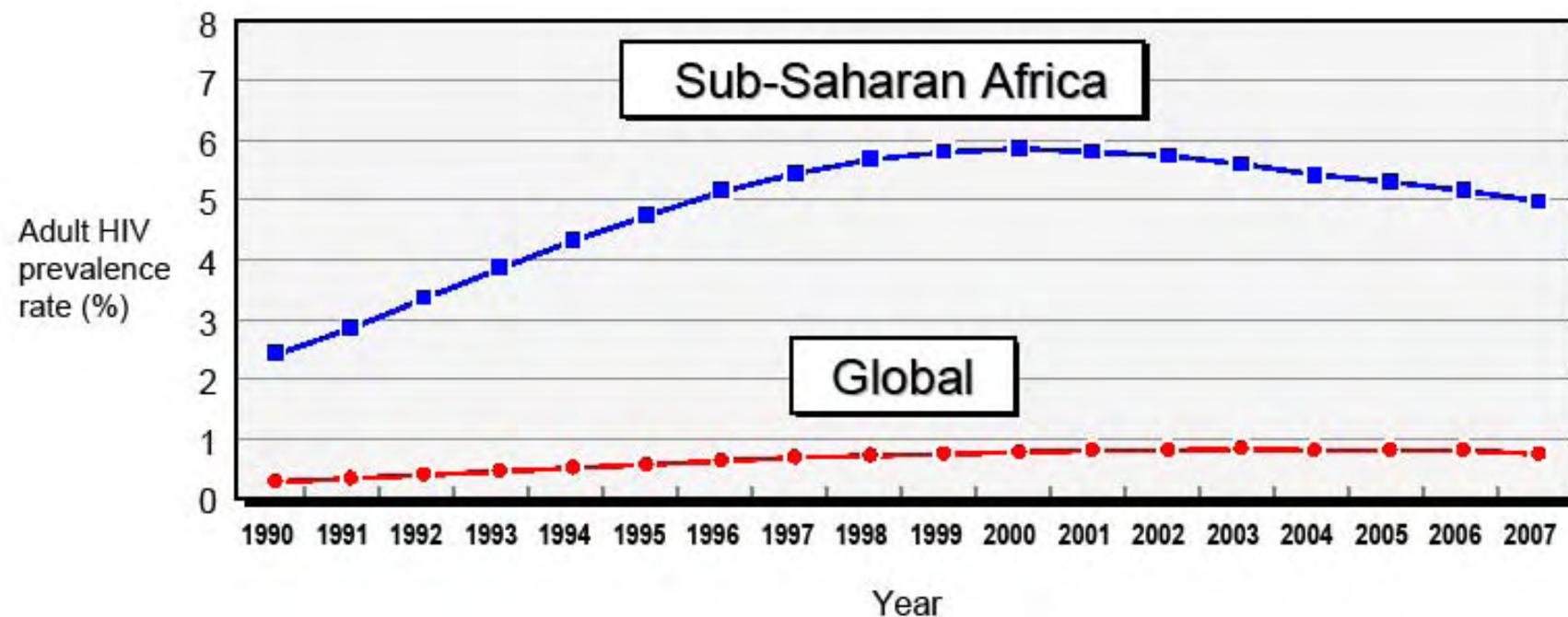
***since the start of the epidemic, there were 6685 deaths due to AIDS in Australia by December 2006**

A global view of HIV infection

38.6 million people [33.4–46.0 million] living with HIV, 2005



Estimated adult (15–49 years) HIV prevalence rate (%) globally and in Sub-Saharan Africa, 1990–2007



Global estimates for adults and children - 2006

- **People living with HIV** ----- **39.5** million [34.1 – 47.1 million]

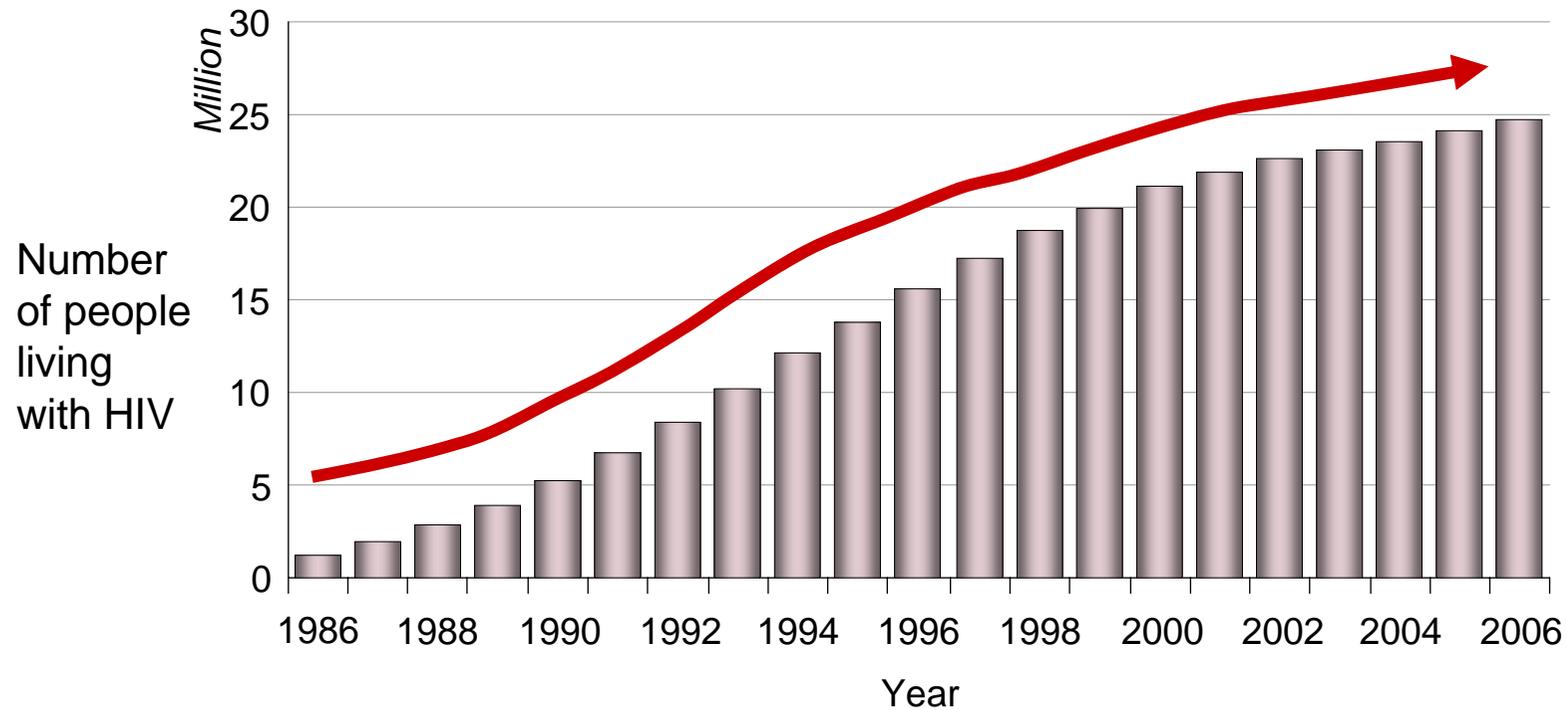
- **New HIV infections in 2006** ---- **4.3** million [3.6 – 6.6 million]

- **Deaths due to AIDS in 2006** ----- **2.9** million [2.5 – 3.5 million]





Estimated number of people living with HIV in sub-Saharan Africa, 1986–2006



Adult (aged 15–49 years) HIV prevalence (%) in countries in sub-Saharan Africa which have conducted population-based HIV surveys in recent years

	Median HIV prevalence (%) among women attending antenatal clinics 2003–2004*	Population-based survey prevalence (%) (year)	2003 HIV prevalence (%) reported in 2004 Report on the global epidemic	Adjusted 2003 HIV prevalence (%) in current report	2005 HIV prevalence (%) in current report	Trend in prevalence
Botswana	38.5	25.2 (2004)	38.0	24.0	24.1	Stable
Burkina Faso	2.5	1.8 (2003)	4.2	2.1	2.0	Decline in urban areas
Burundi	4.8	3.6 (2002)	6.0	3.3	3.3	Decline in capital city
Cameroon	7.3†	5.5 (2004)	7.0	5.5	5.4	Stable
Ethiopia	8.5	1.6 (2005)§	4.4	(1.0–3.5)	(0.9–3.5)	Decline in urban areas
Ghana	3.1	2.2 (2003)	3.1	2.3	2.3	Stable
Guinea	4.2	1.5 (2005)	2.8	1.6	1.5	Stable
Lesotho	28.4	23.5 (2004)	29.3	23.7	23.2	Stable
Rwanda	4.6	3.0 (2005)	5.1	3.8	3.1	Decline in urban areas
Senegal	1.9	0.7 (2005)	0.8	0.9	0.9	Stable
Sierra Leone	3.0	1.5 (2005)	-	1.6	1.6	Stable
South Africa	29.5	16.2 (2005)	20.9	18.6	18.8	Increasing
UR Tanzania	7.0	7.0 (2004)	9.0	6.6	6.5	Stable
Uganda	6.2‡	7.1 (2004–5)	4.1	6.8	6.7	Stable

* WHO Africa (2005). HIV/AIDS epidemiological surveillance report for the WHO African region, 2005 Update. Harare

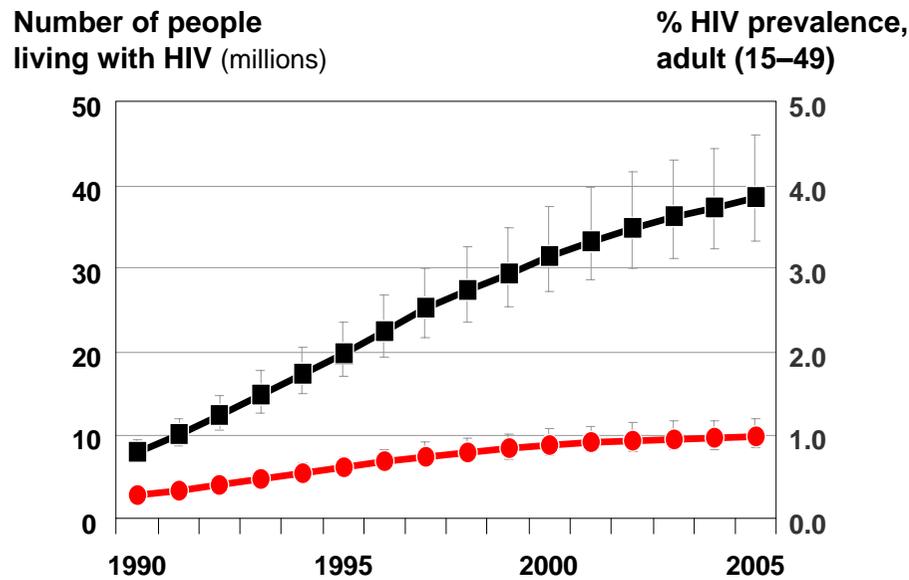
† Estimate based on country report for 2002 (2003). Ministry of Public Health Cameroon. National HIV sentinel surveillance report 2002.

‡ Estimate based on country report for 2002 (2003). Ministry of Health Uganda. STD/HIV/AIDS surveillance report. STD/AIDS control programme. Kampala

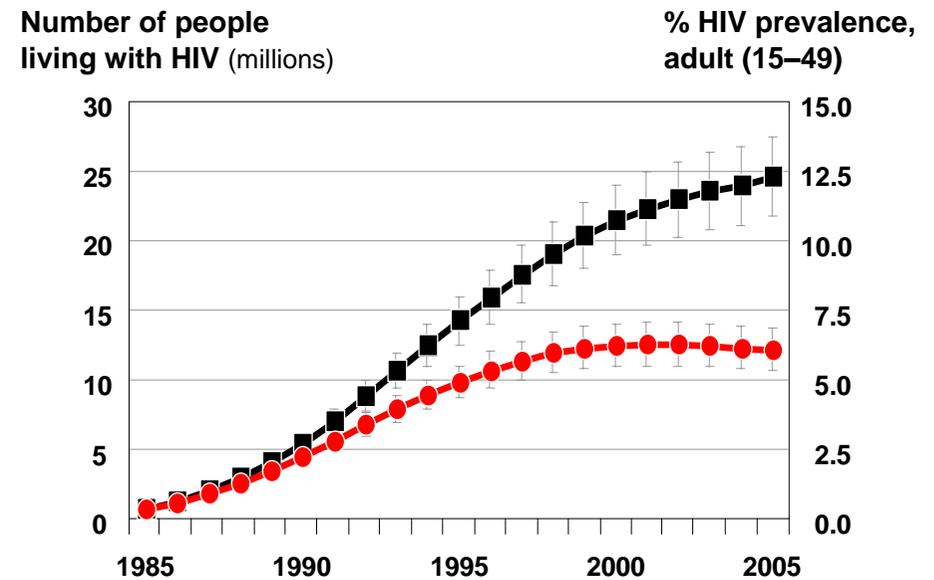
§ Preliminary result. Additional analysis is ongoing.

Estimated number of people living with HIV and adult HIV prevalence

Global HIV epidemic, 1990–2005*



HIV epidemic in sub-Saharan Africa, 1985–2005*



- Number of people living with HIV
- % HIV prevalence, adult (15–49)
- ┆ This bar indicates the range around the estimate

*Even though the HIV prevalence rates have stabilized in sub-Saharan Africa, the actual number of people infected continues to grow because of population growth. Applying the same prevalence rate to a growing population will result in increasing numbers of people living with HIV.

HIV prevalence (%) in adults in Africa, 2005

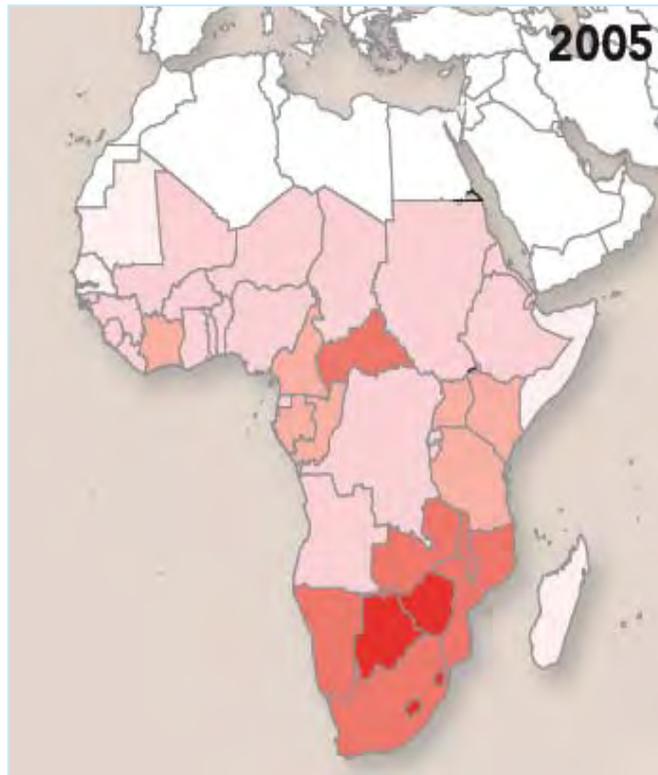
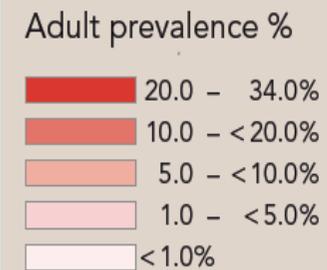
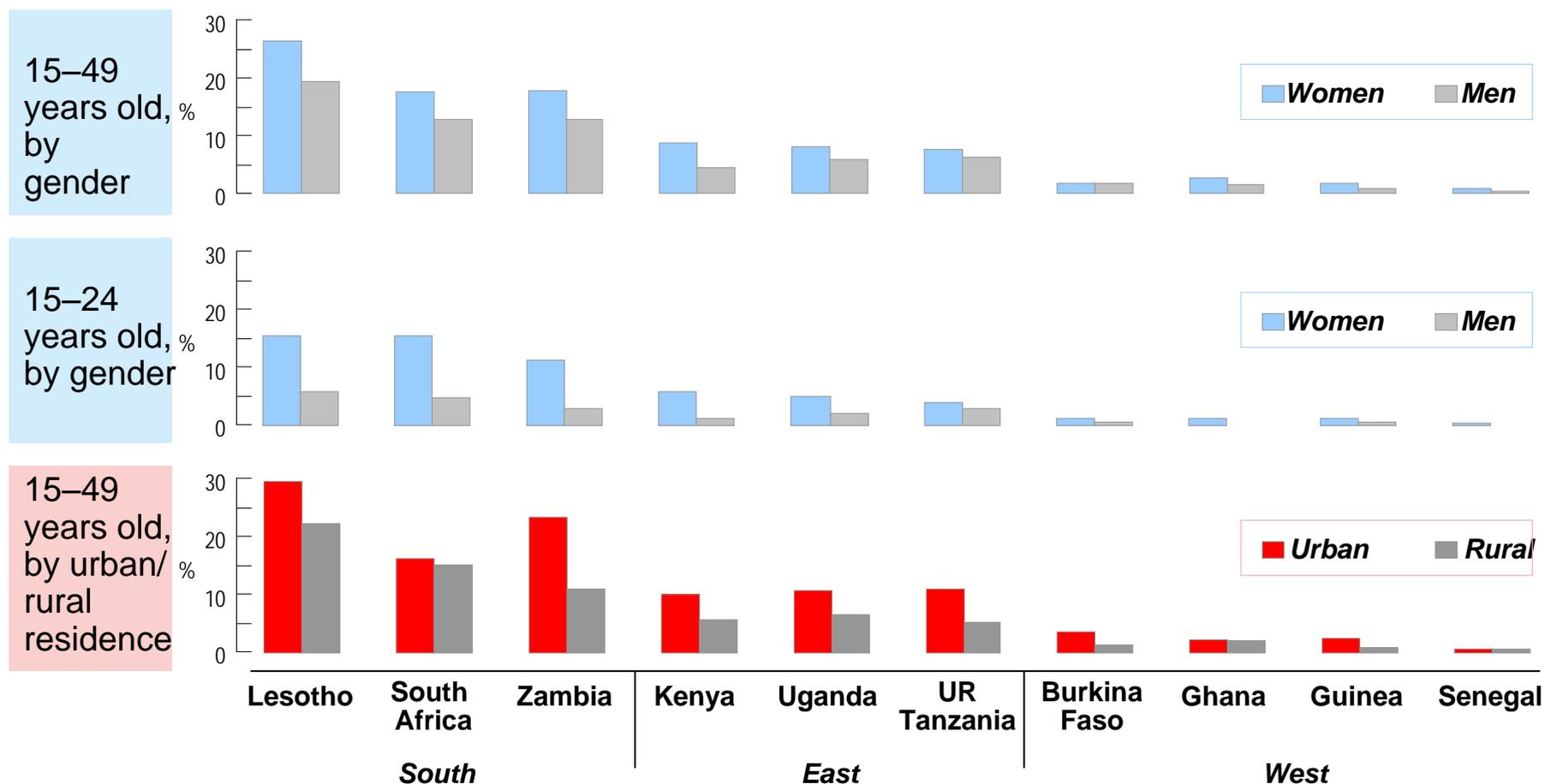


Figure 1: Street scene, eastern Cape, South Africa



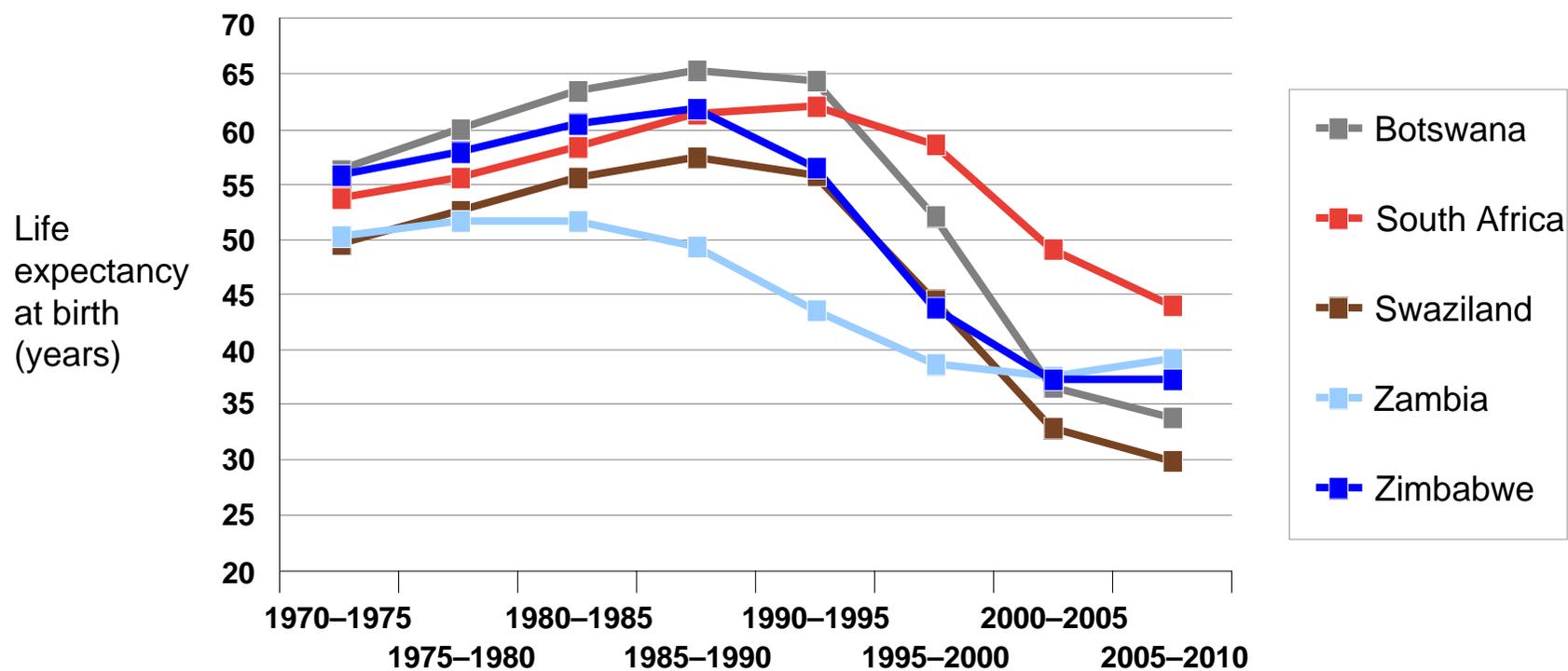
HIV prevalence (%) by gender and urban/rural residence, selected sub-Saharan African countries, 2001–2005



Sources: Demographic and Health Survey reports (Lesotho, Zambia, Kenya, Burkina Faso, Ghana, Guinea and Senegal) (2001–2005). Nelson Mandela Foundation (South Africa) (2005). Ministry of Health (Uganda). Tanzania Commission for AIDS (UR Tanzania) (2005).



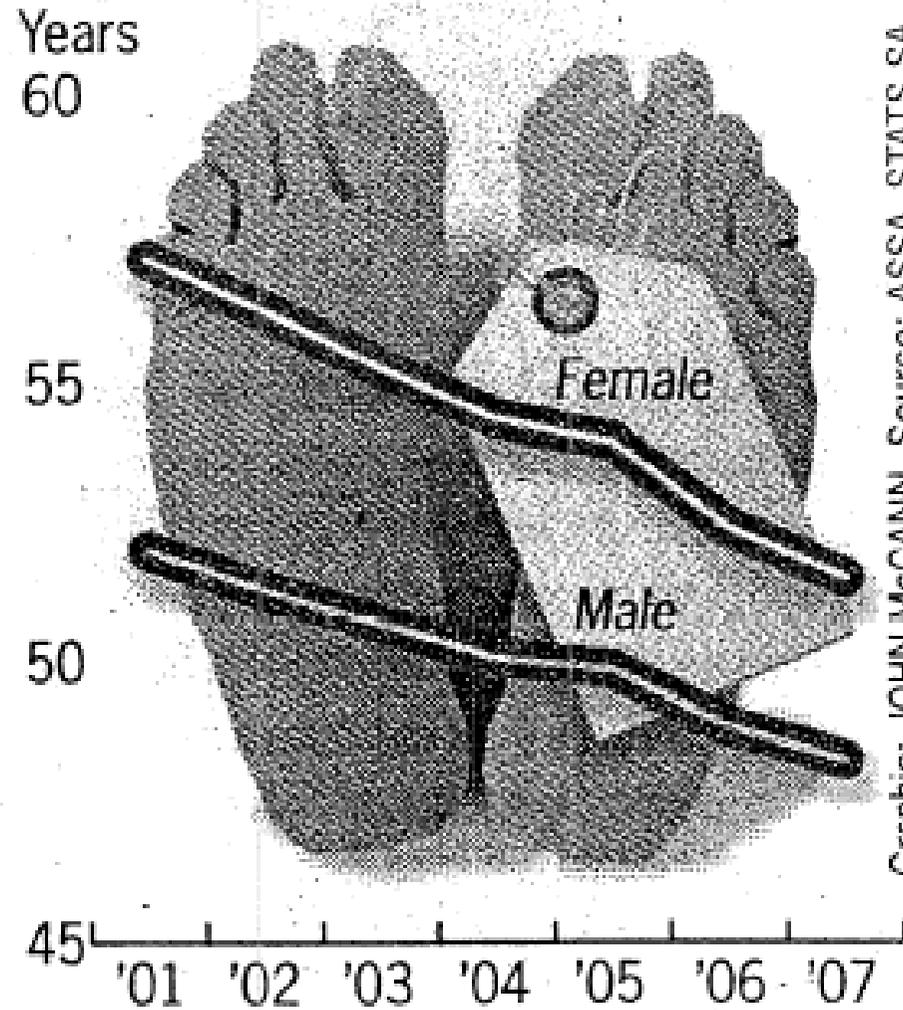
Impact of AIDS on life expectancy in five African countries, 1970–2010



Source: United Nations Population Division (2004). World Population Prospects: The 2004 Revision, database.

Dying younger

Life expectancy in SA



Graphic: JOHN McCANN Source: ASSA STATS SA



Mail and Guardian 21 November 2008



Japan vs. Swaziland

- **86** - years of expectancy for Japanese women in 2005

☺ **the longest in the world**

- **43** – years of expectancy for women in Swaziland

SA ♀ = 53 years

☹ **the lowest in the world**

- one in three adults in Swaziland was living with HIV in 2005 (33% - 40%), the most intense epidemic in the world

World
Health
Statistics

WHO
2008

First Demographic survey in Swaziland in 2007 found 26% of sexually active Swazis HIV infected

M&G 29 Aug 2008 UN Development Programme 26% of Swaziland adults are HIV + (highest prevalence in the world)

Swazis lead circumcision rush to reduce risk of HIV

CLARE NULLIS

Sapa-AP

MBABANE: Nelson Ndlovu strides out of the small clinic here with a spring in his step and a smile on his face just minutes after being circumcised.

He had swallowed his fears with nine other equally nervous men for the 30-minute operation. They joined the ranks of hundreds of Swazi men who had opted for circumcision after the United Nations said last year that the procedure could cut the risk of contracting HIV by as much as 60%.

With the help of training from Israeli surgeons, Swazi-

land now leads the African rush to embrace an ancient surgical intervention against a modern scourge.

Its zeal is born of desperation. Swaziland has the world's highest HIV rates – nearly 40% of pregnant women and 19% of its 1.1 million people are infected. Life expectancy has halved to 31 years in just 10 years.

Ndlovu said he thought circumcision “will change my life”. But there are fears that the “kindest cut” may be a double-edged sword if men fool themselves that circumcision gives them immunity and indulge in risky sexual behaviour.

“It doesn't mean you are

100% protected,” nurse Prudence Mkhathshwashe told the men. “You are just 60% protected. Use a condom always. Don't compromise.”

The Aids epidemic has reversed Swaziland's economic and social gains.

Mass male circumcision will place extra demands on overstretched facilities in a country that has only 170 doctors. But the government and the Family Life Association are determined to press ahead, saying the benefits of the operation far outweigh the costs.

Despite all the difficulties, the association says it is pleased with the progress.

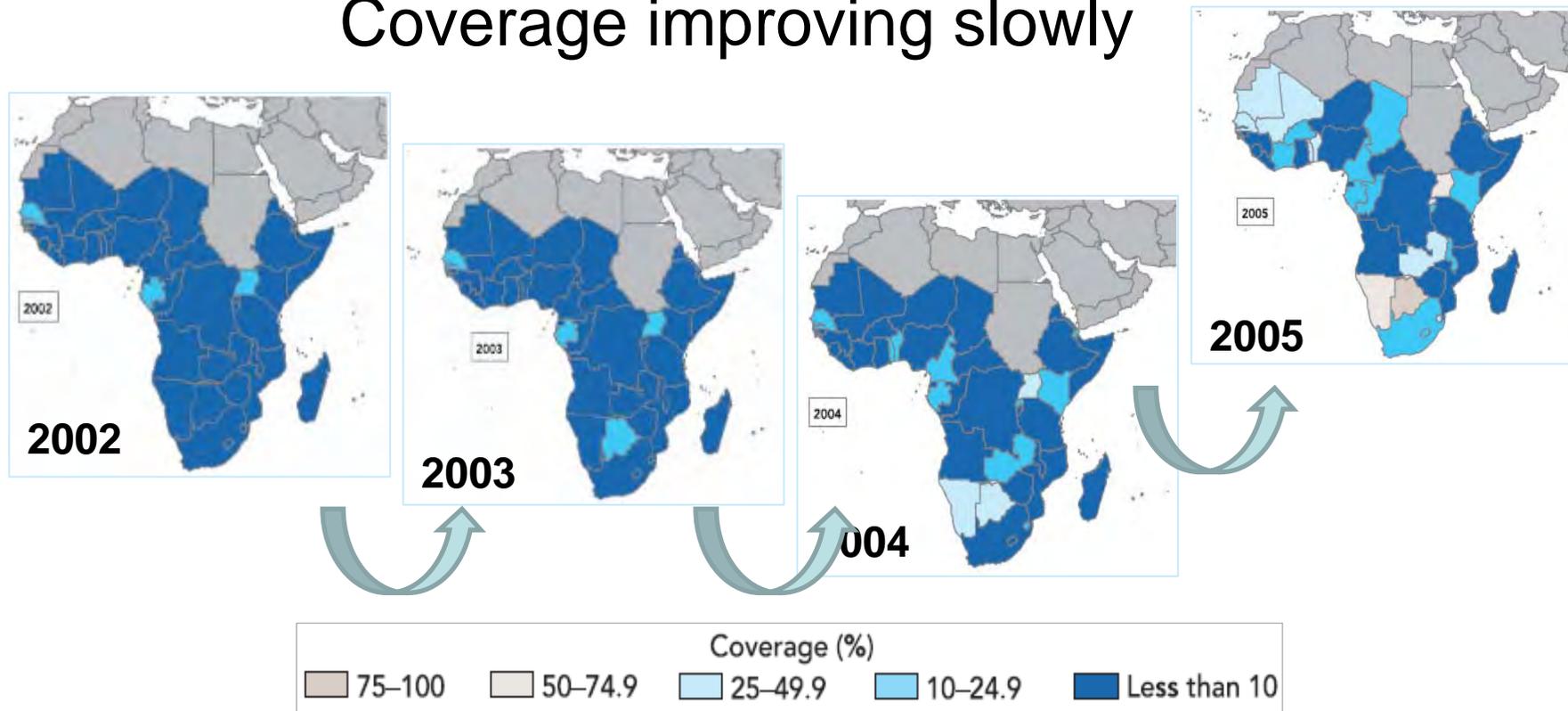
SWAZILAND

“HIV/AIDS is permanently altering the structure of Swazi society. By 2025 there will be a thinning of the older groups and the very young. Deaths among productive age groups are increasing the dependency ratio, constraining coping mechanisms and economic growth. Life expectancy fell from 60 years in 1997 to 31.3 years in 2004 – the world’s lowest.”

Whiteside et al. 2007 pg iv

People in sub-Saharan Africa on antiretroviral treatment as percentage of those in need, 2002–2005

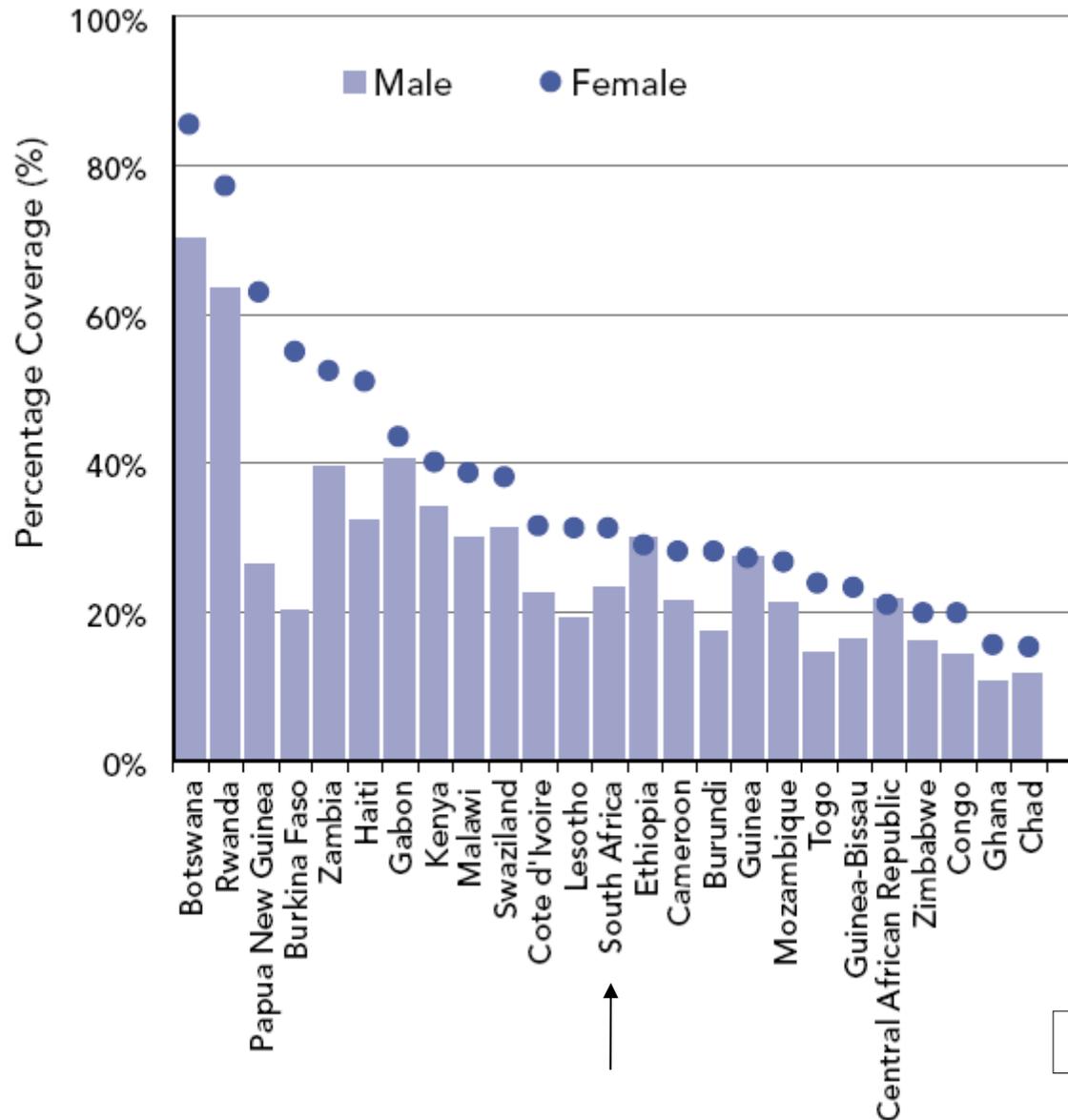
Coverage improving slowly



Source: WHO/UNAIDS (2005). Progress on global access to HIV antiretroviral therapy: An update on “3 by 5.”

FIGURE 21

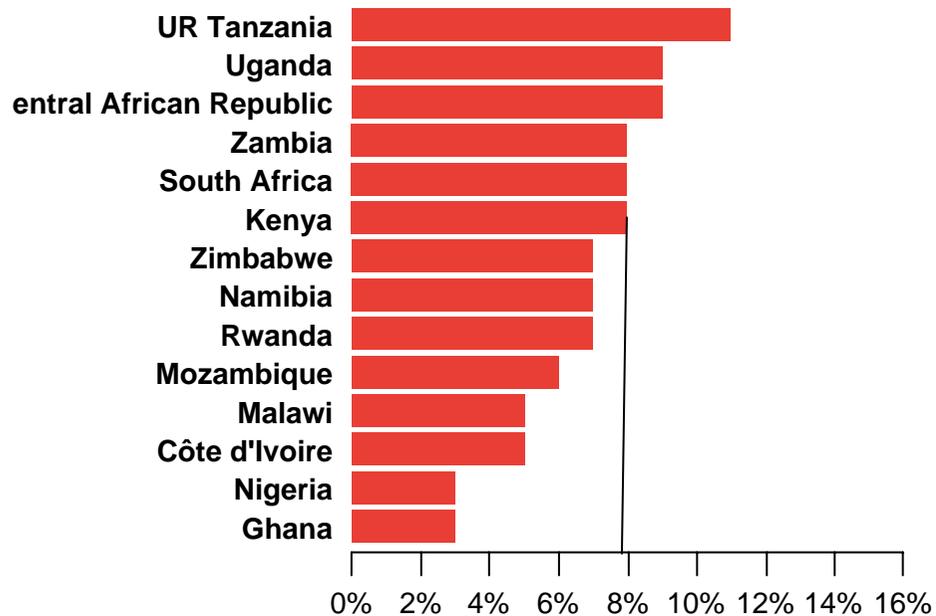
Comparison of antiretroviral therapy coverage in 2007 between males and females (for countries with reported data on the number of people on treatment for both sexes separately)



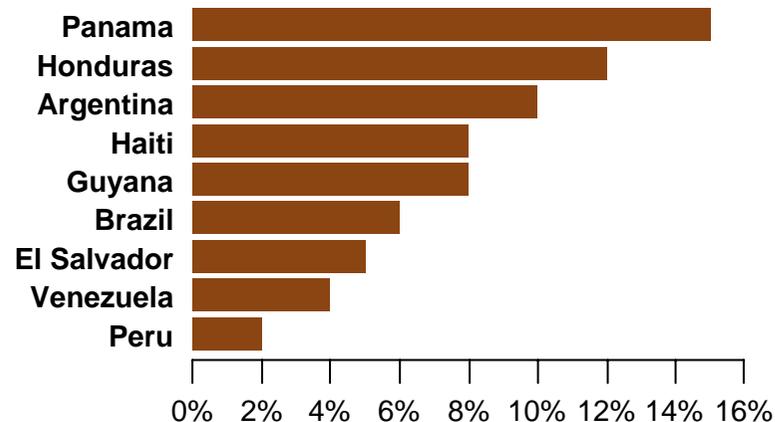
Countries with generalised epidemics

Percentage of people on treatment who are children, by country, 2005

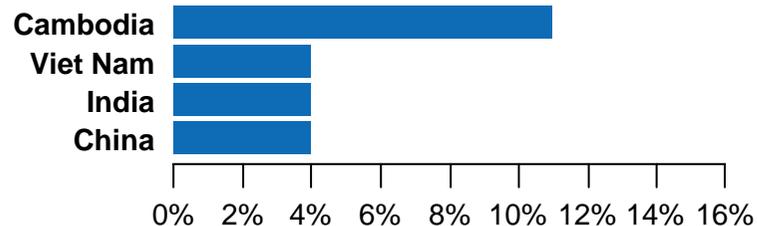
Africa [Median: 7%]



Latin America and Caribbean [Median: 8%]



Asia [Median: 4%]



Source: WHO/UNAIDS (2005). Progress on global access to HIV antiretroviral therapy: An update on "3 by 5."



Overview of WC Programme

- Patients on treatment:
 - Adults 22 178 (target 21 729)
 - Children 2 813 (target 2 915)
- Where:
 - 77% in Metro
 - 62% at primary care in Metro
- Sites:
 - 49 facilities which up from
 - 45 in 2005





Sites

- Very busy sites (>1200 patients) 39.3% of province
 - 3 in Khayelitsha (Michael M./Site B/Site C(Nolungile)
 - Guguletu
 - Mitchells Plain
 - Crossroads
- Busy sites (600-1200 patients) 26.5% of province
 - Hospitals (GSH, TBH, Eben Donges; TC Newman)
 - Langa
 - Du Noon
 - Kraaifontein
 - Robbie Nurock





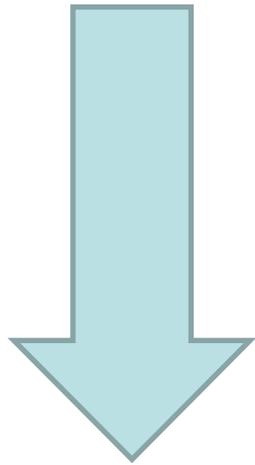
National Data

- **Numbers on treatment (end Sept 2006):**
 - people on treatment 213 828,
 - 10% of these were children
 - Enrollment of 11 000 per month
- **KZN 70 ARV sites by Feb 2008, another 25 planned in 2008**
- **Facilities**
 - up from 251 in June to 273 in September
 - 313 sites in October 2007

*Cape Times 29 Oct 2007



AFRICA



subSaharan
Africa
(SSA)



FNB soccer stadium 2010, Johannesburg

Capacity = 94 700 people (approximately 100 000)



XVII International AIDS
Conference, Mexico City, August
2008



5,7 million

$$\frac{5\,700\,000 \text{ infected people}}{48\,000\,000 \text{ population}} \times 100\% = 11.9\%$$

XVII International AIDS
Conference, Mexico City, August
2008

Swaziland pop. 1.1 million (% 16.8)
Lesotho pop. 1.9 million (% 14.4)

Number of people living with HIV

169 countries (no stats on 17)

absolute numbers

Country	Population (million)	Number of people living with HIV (million)	% population
South Africa	48	5.7	11.9

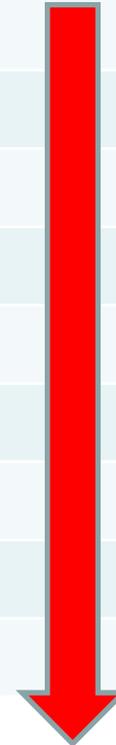
20% of 20 - 64 years (Oct 2008)

Number of people living with HIV

169 countries (no stats on 17)

absolute numbers

Country	Population (million)	Number of people living with HIV (million)	% population
South Africa	48	5.7	11.9
Nigeria	148	2.6	1.8
India	1130	2.4	0.2
Kenya	38	1.5	4
Mozambique	21	1.5	7.1
Tanzania	± 38	1.4	3.6
Zimbabwe	± 13	1.3	10
USA	303	1.2	0.4
Zambia	12	1.1	9.1
Russia	142	.94	0.7



XVII International AIDS Conference, Mexico City, August 2008

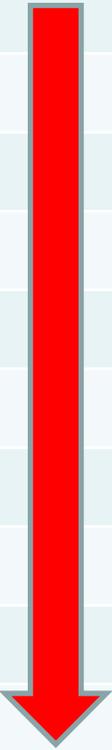
Lancet p.10 August 2008

Number of people living with HIV

169 countries (no stats on 17)

14 / 20

Country	Population (millions)	Number of people living with HIV (millions)	% population
Ethiopia	75	.98	0.13
Uganda	30	.94	3.1
Malawi	14	.93	0.66
Brazil	187	.73	0.4
China	1300	.70	0.054
Thailand	65	.61	0.94
Cameroon	18	.54	3
Cote d'Ivoire	18	.48	2.7
D.R.C.	66	.40	0.6
Ukraine	46	.44	0.96
Botswana	1.8	.30	16.7



Statistics – 2008

- 550 000 patients currently receiving ART, also more pts treated in private sector (76 217 in 2006) and by NGOs
- 143 434 adults in March 2006 → will rise to 600 000 in 2009 / 2010
- 55% are female
- 889 000 needed treatment in 2006
- 52 000 < 15 years needed ARVs in 2006, but 23 369 (45%) received

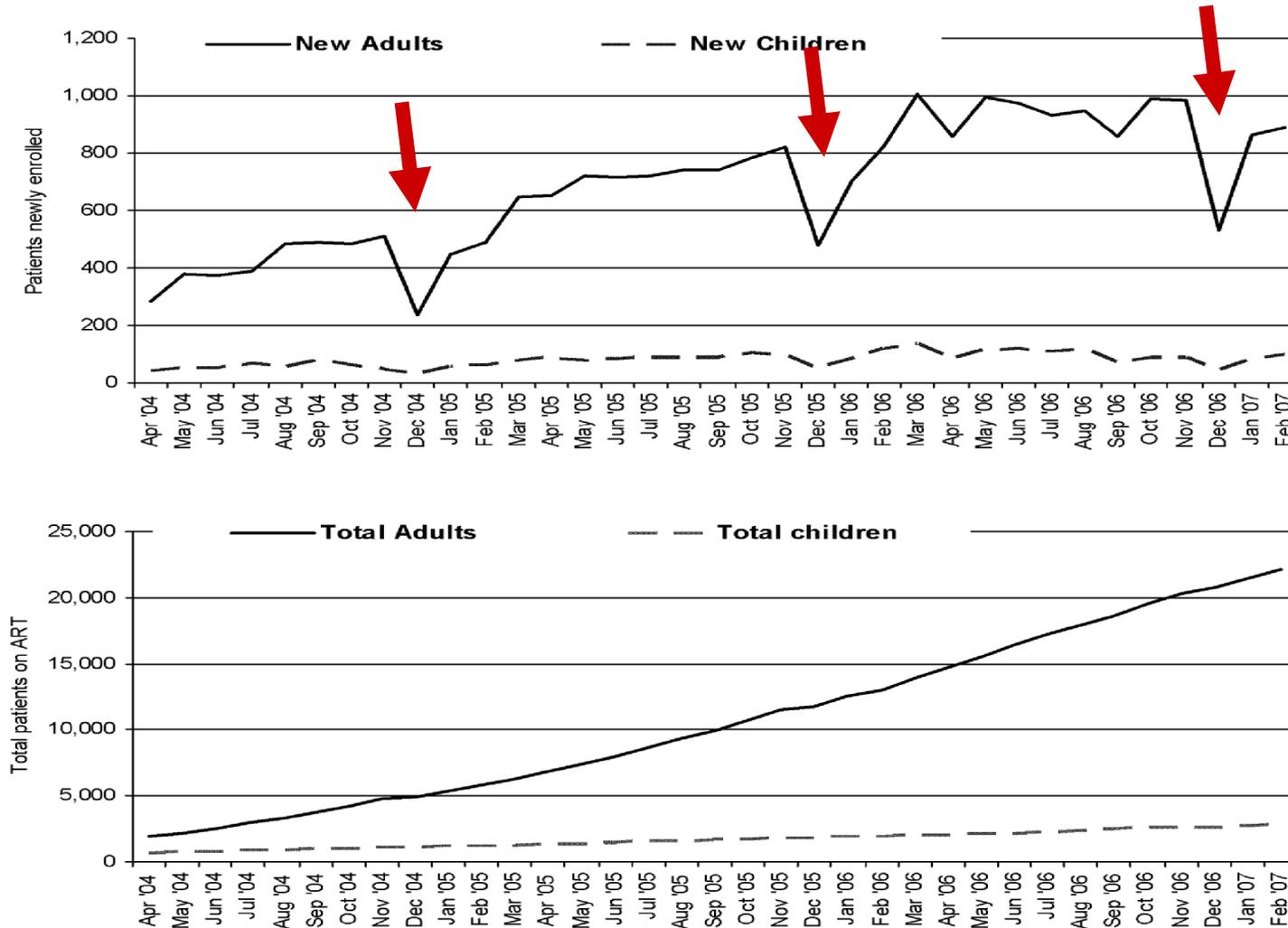


Enrollment - Feb 2007

Region: All regions

District: All districts

Facility: All facilities



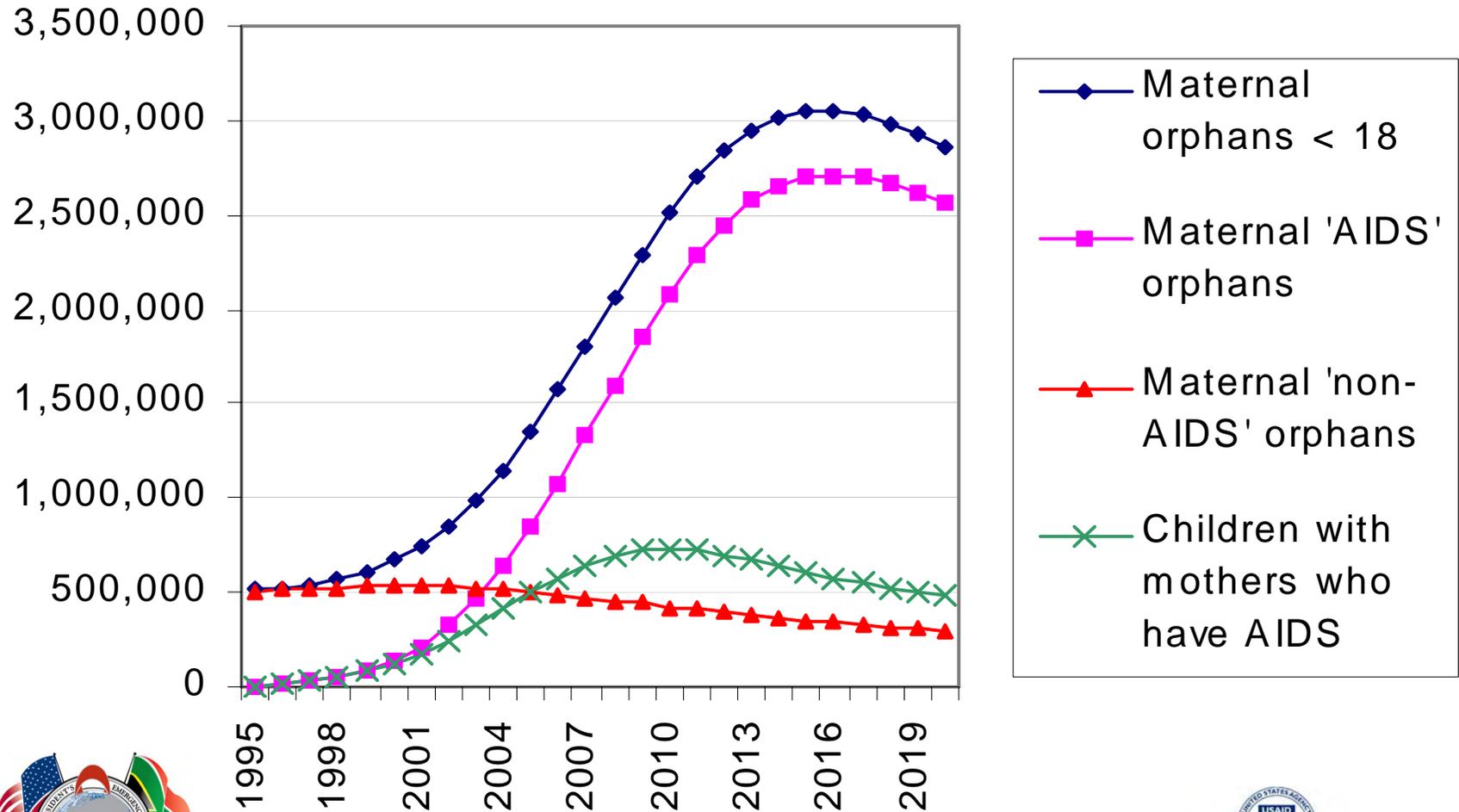
Orphans and Vulnerable Children

- South Africa currently has approximately 1 million children who have lost a mother
- just over 2 million children who have lost a father
- around 300 000 double orphans.
- an estimated 500 000 children currently have a mother who is sick with AIDS.
- 13 million (79%) children in South Africa live in poverty (using R430 per month per capita as a poverty line)
- 60% of these children resident in Kwazulu-Natal, Eastern Cape and Limpopo.

AIDS orphans – South Africa

- worldwide 15 million children under 18 years have been orphaned due to AIDS (total = 73 million)
 - 11.6 million live in SSA
 - 1.4 million orphans living in SA (2007
780 000 in 2003)
 - AIDS orphans constitute 49% of all orphans (2005)
 - 15% 0-4 years; 35% 5-9 years; 50% 10 to 14 years
- time lag – parents death in next decade

Figure 1: Children maternally orphaned by AIDS, children orphaned by other causes and children whose mothers have AIDS



AIDS orphans - challenges

Problems

- emotional impact
 - trauma, separation anxiety
- household impact
 - food, shelter, clothing, health,
- education
- stigmatisation by society
- family structures – grandparents and adult relatives

Solutions

- Support the carers
- Keep children in school
- Empower the children
- Protection for legal and human rights
- Meet emotional needs

UN photo by Eskinder Debebe



SA has the most AIDS orphans

- need to support and protect HIV *infected* and *affected* children
- 15 million children (< 18 years age) worldwide are AIDS orphans
- half themselves are HIV positive
- 15.2 million worldwide have lost at least one parent to AIDS, most in SSA and 1.2 million are in South Africa (total 1.5 million in SA)

WORLD HIV / AIDS

- 50% become infected before 25 years age
- majority die by age 35 years
- everyday 7000 young people become infected with HIV *worldwide*
- 1400 people die in South Africa daily while 900 become infected
- a 15 year old girl in South Africa today (2007) has a 50% lifetime risk of contracting AIDS, mostly within the 5 years after leaving school
- young women 15 – 24 years are 4 times more likely to be HIV infected than men

“.... let us not equivocate: a tragedy of unprecedented proportions is unfolding in Africa. AIDS today in Africa is claiming more lives than the sum total of all wars, famines and floods, and the ravages of such deadly diseases as malaria.”

Nelson Mandela

XIIIth International AIDS Conference



Surveillance

- helpful to establish morbidity and mortality
- *antenatal screening* and *National population surveys*
- mortality records

**South African National
HIV Prevalence, HIV Incidence,
Behaviour and Communication
Survey, 2005**

Commissioned by the Nelson Mandela Foundation

The 2005 Survey

The present survey is the second in a series of household surveys that allow for tracking of HIV and associated determinants over time using the same methodology. The present survey is also the first national-level repeat survey. The interval of three years allows for an exploration of shifts over time against a complex of demographic and other variables, as well as allowing for investigation of new areas. The findings are intended to inform the national Comprehensive Plan for Prevention, Treatment, Care and Management of HIV/AIDS.

(n = 23 275 individuals)

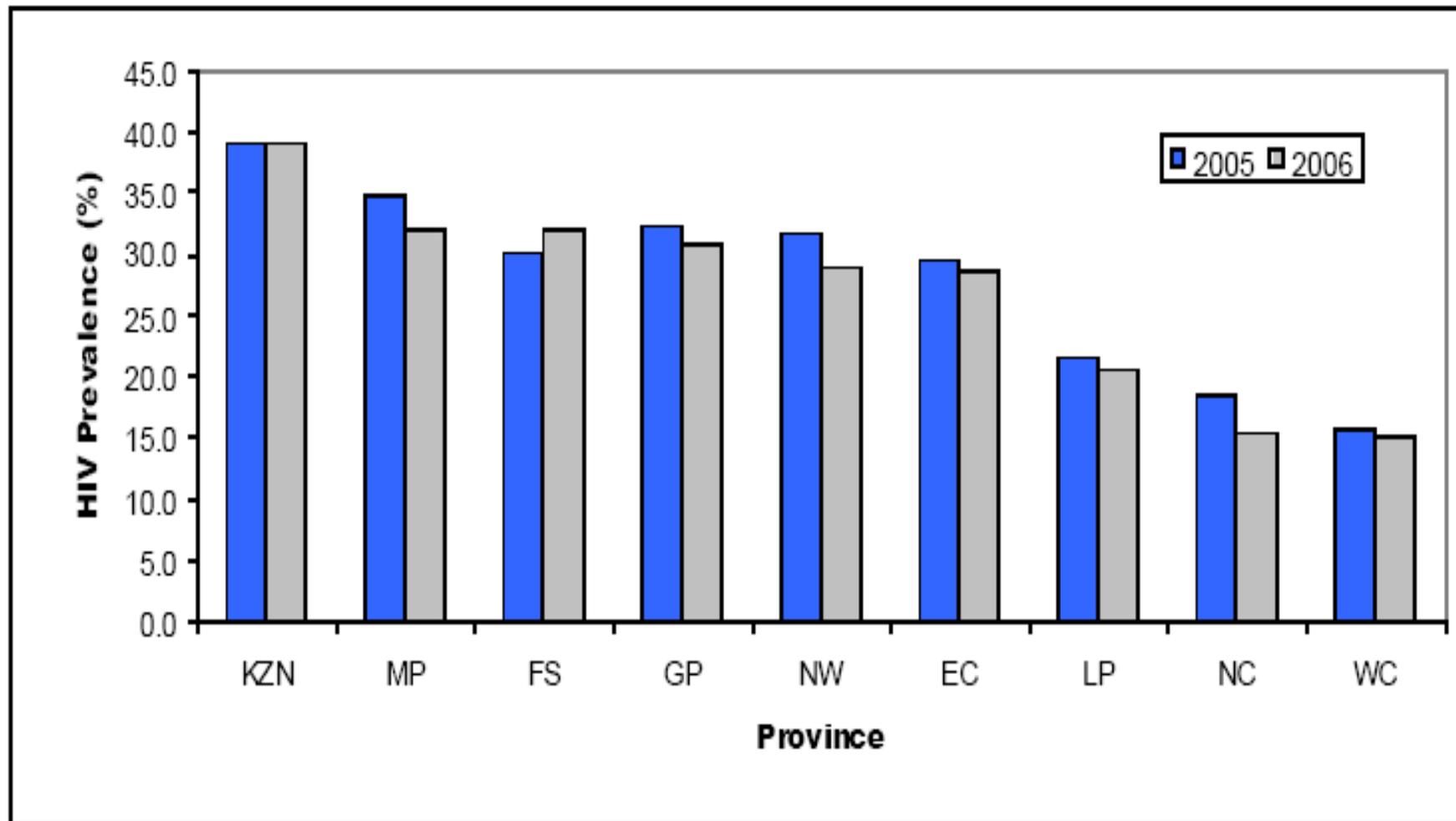


Figure 2: HIV prevalence by province among antenatal clinic attendees in South Africa, 2005-2006

Note: In 17th survey of 2006, subpopulations in WC have high HIV prevalence: **Khayelitsha 32.7%**, **Gugulethu 28.8%** and **Knysna / Plett 22.9%**

South Africa : 9 Provinces

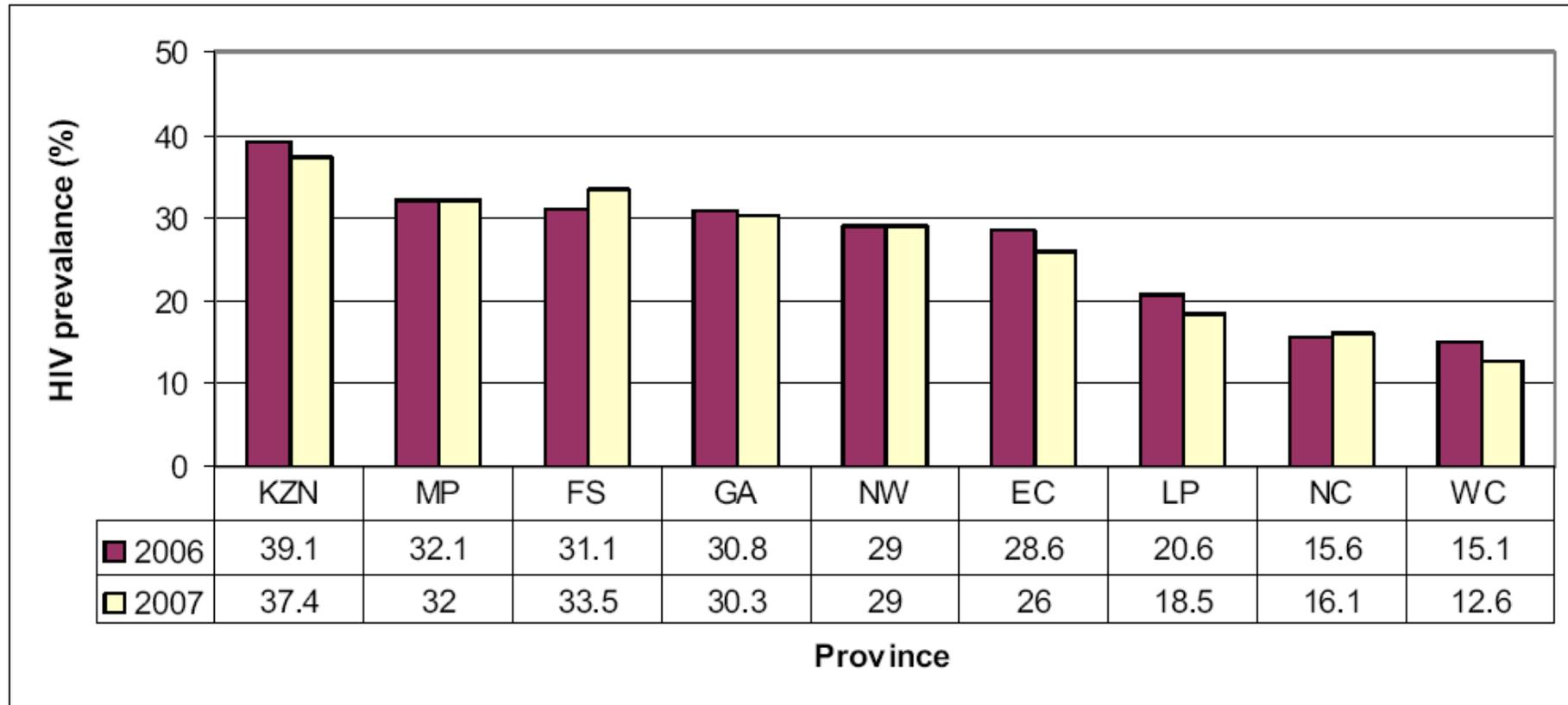


Figure 3: Provincial HIV prevalence estimates among antenatal clinic attendees, South Africa, 2006 – 2007.

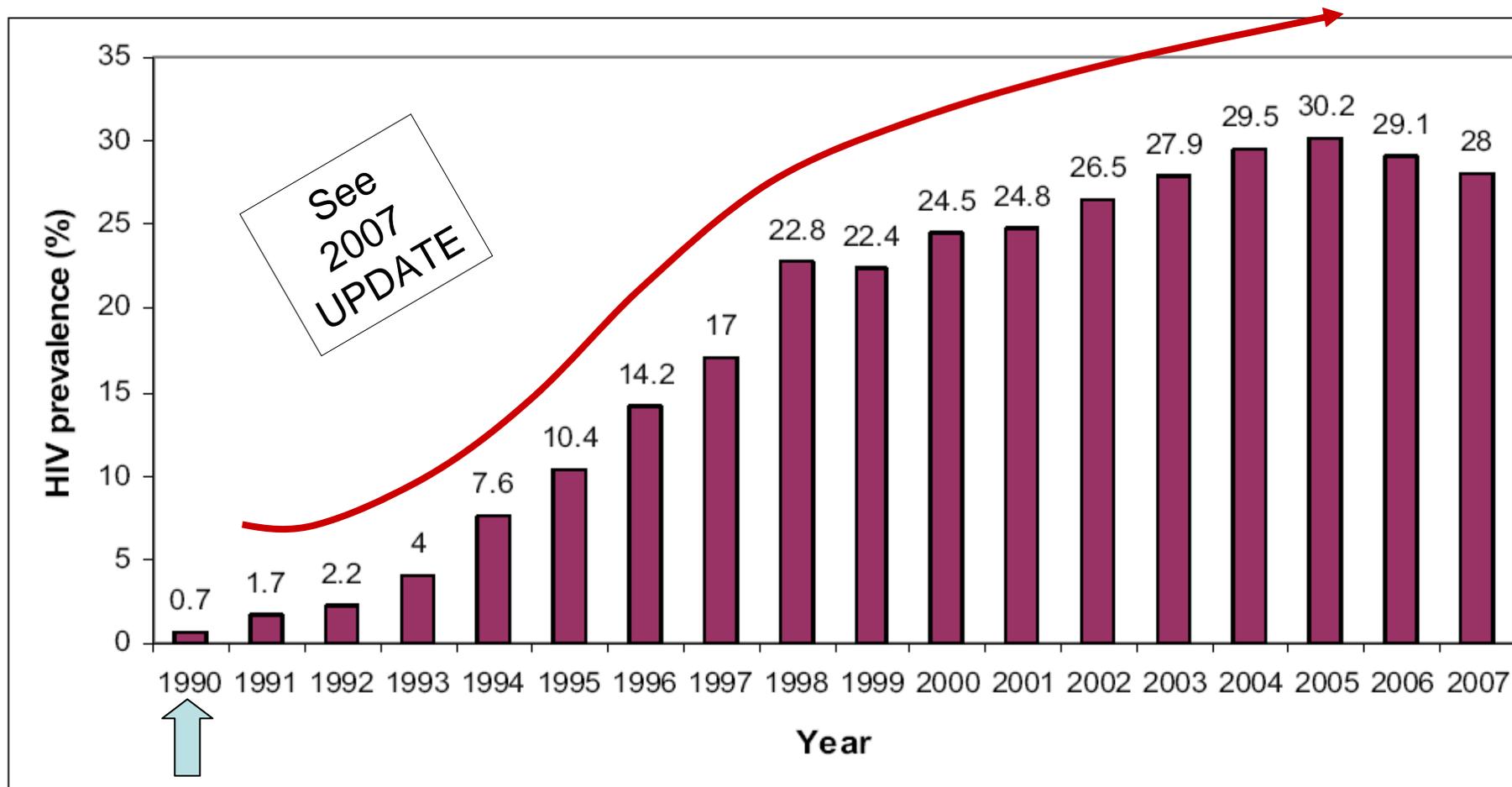


Figure 1: National HIV prevalence trends among antenatal clinic attendees, South Africa, 1990 to 2007.

1990 – First SA National antenatal survey – 0.8% of pregnant women HIV positive

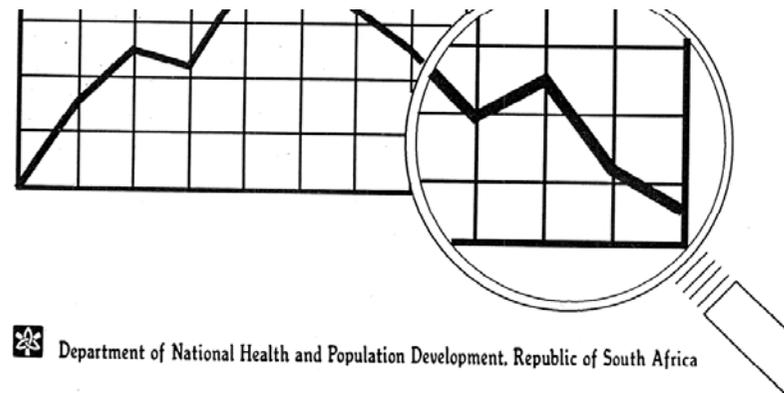
Epidemiological Comments

Volume 18 Number 12 December 1991

Editorial

All information available on the subject of AIDS was released last month. Since then the known/reported records of persons with full-blown AIDS have been up-dated. The cumulative total for the country now stands at 1 011.


Dr HGV Küstner
Editor



AIDS in South Africa since 1982 - as on 30 December 1991

AIDS cases by year of diagnosis

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
Total cases	2	4	8	8	24	40	91	175	314	345
Deaths	2	3	8	8	23	33	56	97	84	85



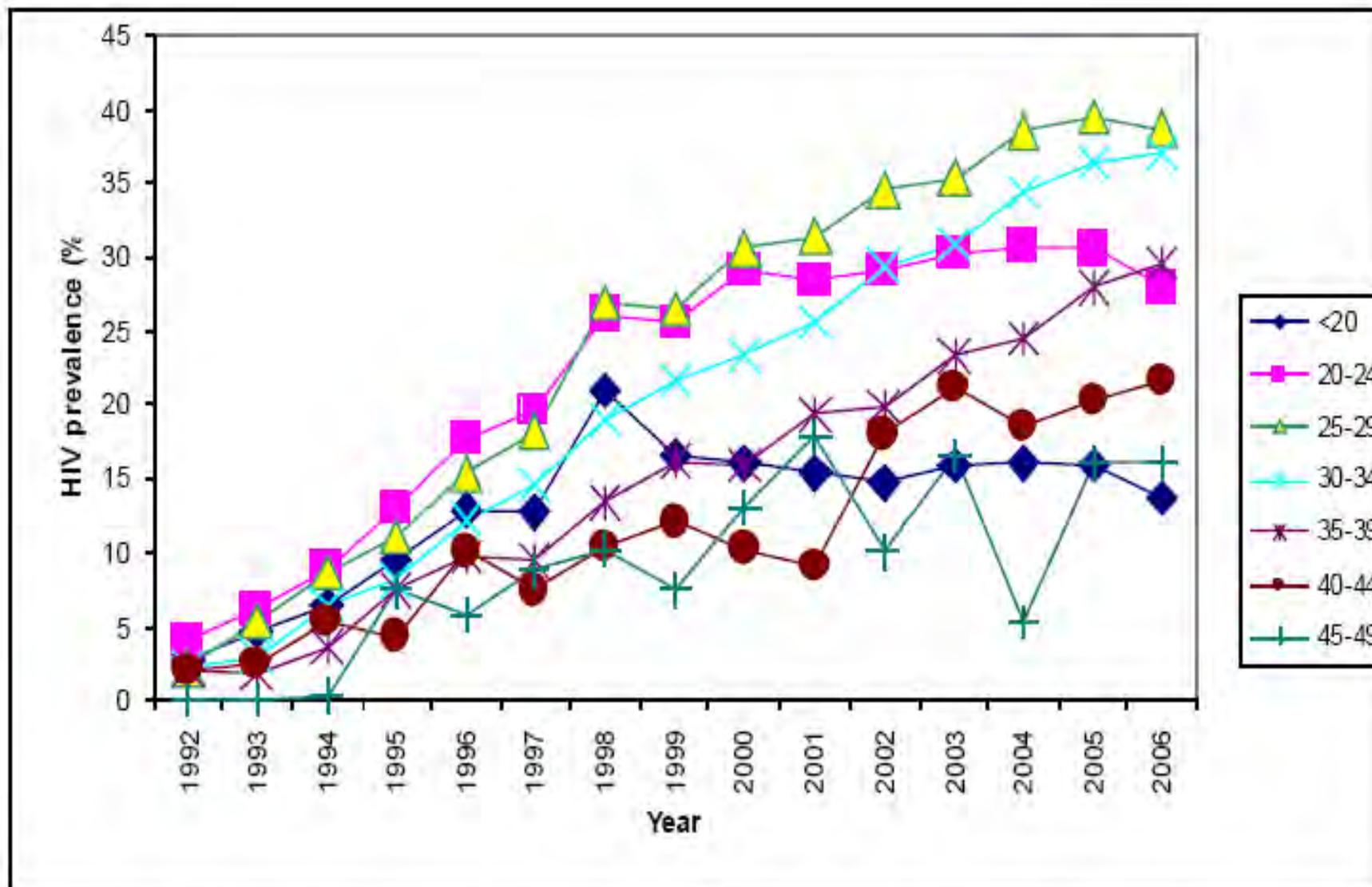


Figure 4: HIV prevalence by age group among antenatal clinic attendees in South Africa, 1992-2006

2006 HIV Antenatal Survey Prevalence by Districts: South Africa

16th Survey

46.0% Amajuba

44.4% uMgungundlovu

38.9% Ilembe

41.5%

KZN

Lesotho

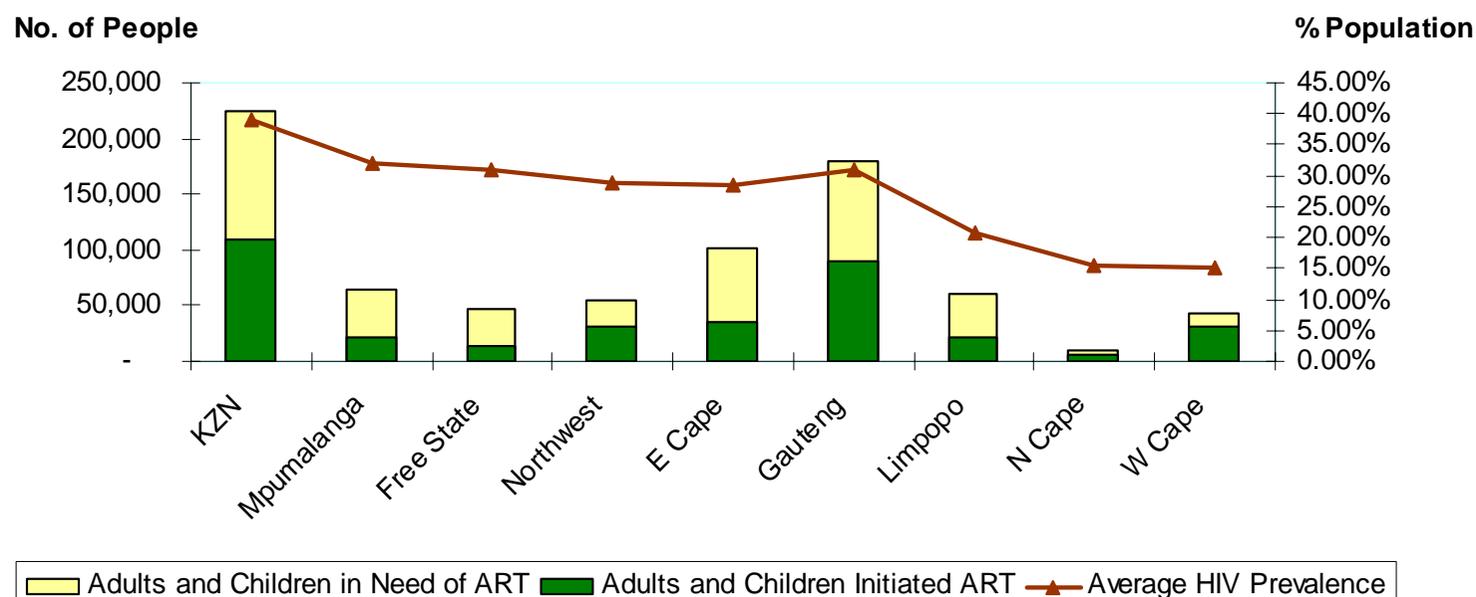


Figure 5: HIV Prevalence among antenatal clinic attendees in South Africa by District, 2006⁷⁴

Table 6: HIV prevalence estimates by districts among antenatal clinic attendees, KwaZulu-Natal, 2006 and 2007.

KwaZulu-Natal Province	2006			2007		
	N	Prev (%)	CI (95%)	N	Prev (%)	CI (95%)
KwaZulu-Natal	6,814	39.1	37.5 – 40.7	6918	37.4	35.0 - 39.8
Amajuba	400	46.0	41.1 – 50.9	404	39.4 ↓	34.6 – 44.3
Sisonke	229	31.9	25.8 – 37.9	328	34.1	29.1 – 39.6
Ugu	504	38.9	34.6 – 43.1	512	37.3 ↓	33.1 – 41.7
Umkhanyakude	410	36.3	31.7 – 41.0	407	39.8	35.0 - 44.8
Umzinyathi	319	27.9	23.0 – 32.8	338	31.7	26.8 – 37.0
Uthukela	459	35.1	30.7 – 39.4	452	36.3	31.0 – 40.9
Uthungulu	566	34.6	30.7 – 38.5	567	36.0	32.0 – 40.1
Zululand	582	36.9	33.0 – 40.9	580	34.7 ↓	30.8 – 38.7
Ethekwini	2,230	41.6	39.5 – 43.6	2 217	41.6	39.6 – 43.7
iLembe	419	39.1	34.5 – 43.8	417	41.5	36.7 – 46.4
UMgungundlovu	696	44.4	40.7 – 48.1	696	40.8 ↓	37.1 – 44.6

National Treatment Gap by Province

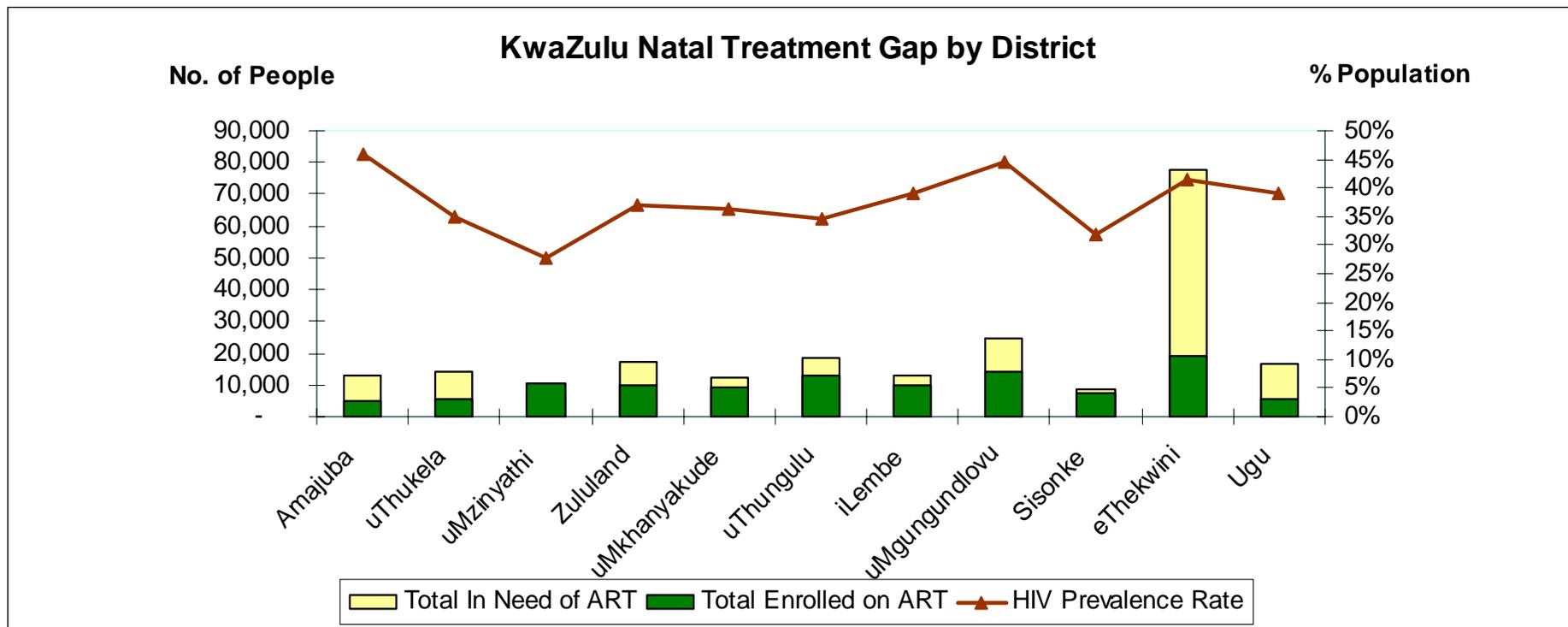


National Summary Data	KZN	MP	FS	NW	EC	GP	LP	NC	WC	Total
Adults and Children in Need of ART ¹	224,184	64,571	47,681	54,942	101,246	180,132	60,701	8,879	42,200	784,537
Adults and Children Initiated ART ²	110,307	20,561	14,493	31,904	35,782	88,955	21,142	7,026	30,438	360,608
Treatment Gap	113,877	44,010	33,188	23,038	65,464	91,177	39,559	1,853	11,762	423,929
Average HIV Prevalence ³	39.10%	32.10%	31.10%	29.00%	28.60%	30.80%	20.60%	15.60%	15.10%	
% In Need Not Yet Initiated	50.80%	68.16%	69.60%	41.93%	64.66%	50.62%	65.17%	20.87%	27.87%	54.04%

1) Estimation: Adults (Sum of district populations x 50% x district prevalence rate x 10%) + Children (10% of Adult Estimate)

2) National Department of Health, August 2007

3) Antenatal Prevalence Survey 2006



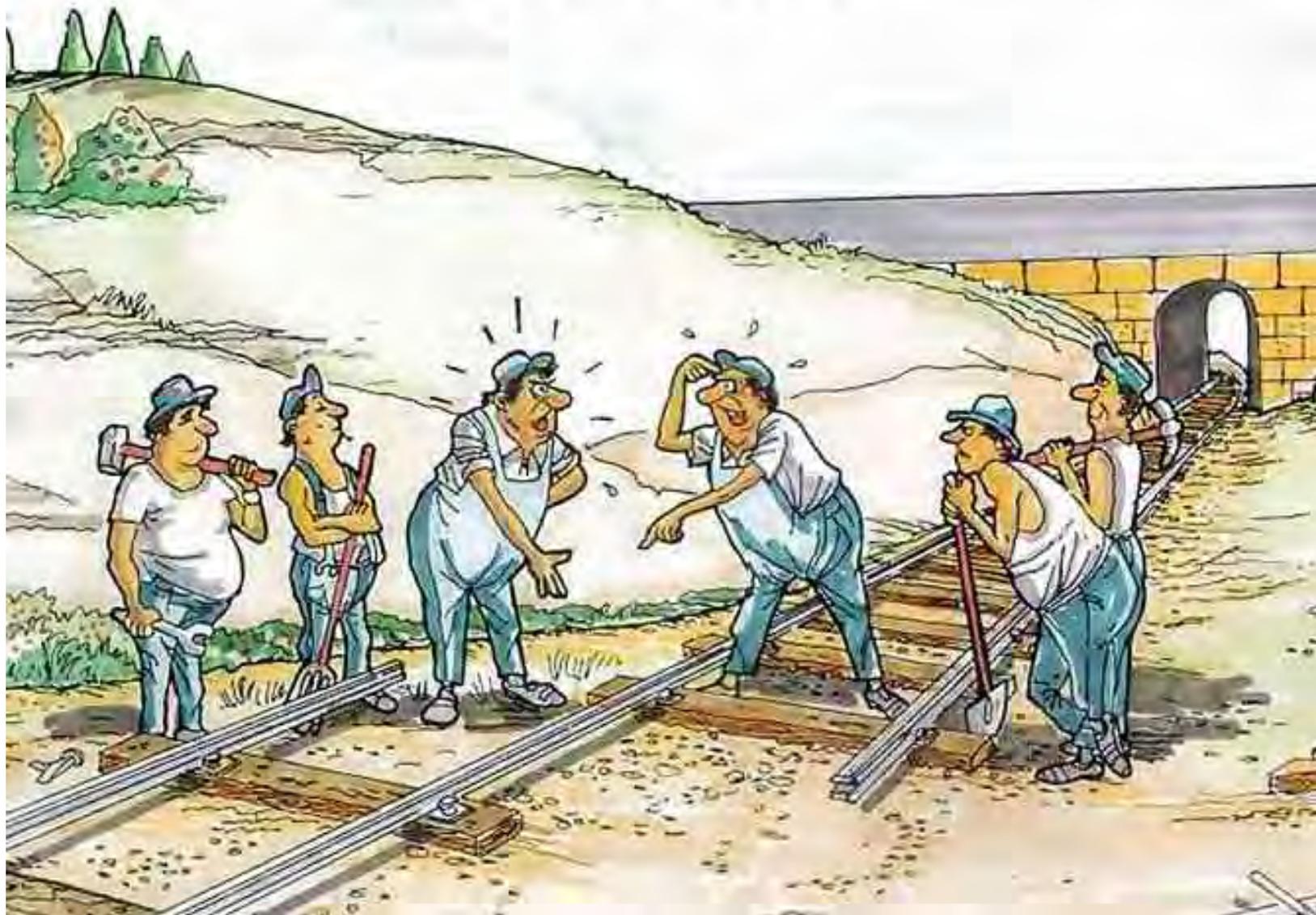
KZN Summary Data

Total Population	10,506,021	<i>Statistics SA Mid-Year 2007 Estimate</i>
Average HIV Prevalence	39.10%	<i>2006 Antenatal Survey, DoH</i>
Adults and Children in Need of ART*	224,184	
Adults and Children Initiated ART	110,307	<i>Differs slightly from site data total of 108222, Source: NDoH August 2007</i>
Treatment Gap	113,877	
% In Need Not Yet Initiated	50.80%	

* Estimation: Adults (Sum of district populations x 50% x district prevalence rate x 10%) + Children (10% of Adult Estimate)

Team Work

funnyinside.com



Health Services to combat AIDS in South Africa

- The Government boosted its expenditure for health services to R 75.5 billion
- bring better treatment for people living with AIDS
- R2.1 billion dedicated to putting more people onto ARVs
- aim to double the number of patients on ARVs to 900 000

TRANSMISSION OF HIV

- Sexual intercourse:
 - Vaginal or anal penetrative sex
- Blood-to-blood
 - Blood transfusion with infected blood
 - Needle stick injury or cut with infected surgical blade or assault
 - Needle sharing – IDU's
- Mother-to-child transmission:
 - Inside the uterus before birth
 - During the process of birth
 - By breastfeeding after birth

Blood transfusion in SA

- safety a priority (haemovigilance officer at SANBS)
- WHO global risk 5 – 10% of HIV from a blood transfusion
- risk in SA is extremely unlikely
- NAT reduced window period down to 6 – 11 days
- 1.8 per 1 million = 0.00018 %

SANBS = South African National Blood Service
NAT =nucleic acid amplification test for HIV-1

HIV IS NOT TRANSMITTED BY:

1. Casual contact (touching or hugging)
2. Sharing the same bathroom or toilet
3. Light kissing
4. Eating or drinking from the same utensils
5. Inanimate objects
6. Animals/Insects (Mosquito's)
7. Immunisations (if a new needle is used for each individual)
8. Via the air by coughing/sneezing

ASSESSING THE RISK OF HIV TRANSMISSION

• Blood transfusion	100 in 100
• MTCT	20-40 in 100
• Needle sharing	1 in 100
• Anal sex	1 in 100
• Vaginal sex	1 in 1000
• Needle stick injury	3 in 1000

The yardstick suggest that the transmission of the HIV virus occurs on average once every 1000 acts of heterosexual intercourse between someone who is infected and another who is not; risk factors – not circumcised, genital ulcers, early/late stage of the disease.

HOW CAN HIV BE PREVENTED?

- Safe sexual relationships
 - Abstaining from penetrative sex
 - If not possible, then use male and/or female condoms (always)
 - Treat sexually transmitted infections early and effectively (syndromic approach)
 - Knowing own and partner's status
 - Mutually faithful relationships
- Safe blood
- Prevention of needle stick injuries
- Prevention of mother-to-child transmission

Prevention issues

Trust

Suspicion

Fear

Denial and anger

“Invisible” – scepticism

Confusion – mixed messages



HIV PREVENTION STRATEGIES

- policy analysis at Harvard School of Public Health & University of California, Dept. of Population and International Health
 - promotion and provision of *condoms*
 - HIV *testing*
 - treatment of *STIs* that can ↑ risk of becoming infected
 - vaccine and microbicide research
 - abstinence
- have limited impact in heterosexual epidemics found in Africa

THREE
pillars
or
cornerstones

HIV PREVENTION STRATEGIES

- *poverty* and *war* (were regarded as major causes of AIDS in Africa) are unsupported
- male *circumcision*
- reducing multiple sexual partnerships
- concurrent (overlapping) longer-term sexual relationships

now assuming a MORE important role



NEW PREVENTION STRATEGIES

- new HIV / AIDS prevention approaches urged:
 - reduce *multiple concurrent* partners for ♂ and ♀
 - investigate circumcision while strengthening ♂ sexual and reproductive health (SRH) : STI treatment, condom use, VCT
 - address gender inequalities including ♂ involvement and responsibility SRH



HOW CAN MOTHER-TO-CHILD-TRANSMISSION BE PREVENTED

- prevent HIV in young women
- encourage open discussion with ARV team regarding pregnancies in HIV+ women
- use antiretroviral therapy to prevent *in-utero* transmission
- give antiretrovirals to newborn
- deliver baby by caesarean section (not always practical and/or possible)
- HIV+ women should not breastfeed or breastfeed exclusively (no mixed feeding)
- expressed breast milk may be sterilised

Botswana -1989





ert



A LoveLife billboard advertising protection against HIV

Table 3.72: Awareness of HIV/AIDS programmes and campaigns by age group, South Africa 2005

Campaign/programme	Age group			
	12–14 (n = 1 613) %	15–24 (n = 4 055) %	25–49 (n = 5 050) %	50+ (n = 2 757) %
Soul City	73.6	80.2	71.7	38.6
Soul Buddyz	64.7	69.1	50.8	23.5
Khomanani	33.8	46.7	41.7	25.9
loveLife	54.7	72.3	57.2	29.0
Gazlam	55.3	66.9	53.5	25.3
Tsha Tsha	54.6	64.6	49.9	23.0
Takalani Sesame	73.0	70.5	61.3	35.1

SA National Survey, 2005
(n = 23 275)

ABC OF HIV PREVENTION

- Botswana government adopted this slogan in late 1990's
- PEPFAR promotes
 - Abstinence
 - Being tested
 - Correct and Consistent use of condoms
- UNAIDS promotes
 - Abstinence (delay first sexual debut)
 - Being safer by being faithful
 - Correct and Consistent use of condoms



“In every country where HIV infection rates have sharply fallen, community mobilisation for HIV prevention has been a critical element of success”.

Report on the global AIDS Epidemic, UNAIDS, 2008

Madadeni Hospital 2006 – Newcastle KZN





KZN - 2006



Be inspired and take action





Department of Health
Republic of South Africa



SOUTH AFRICANS AND AMERICANS
IN PARTNERSHIP TO FIGHT HIV/AIDS

ark
absolute return for kids



USAID
FROM THE AMERICAN PEOPLE