AIDS epidemic update

December 2004

Joint United Nations Programme on HIV/AIDS
UNAIDS
UNHCR • UNICEF • WFP • UNDP • UNFPA
UNODC • ILO • UNESCO • WHO • WORLD BANK

World Health Organization

UNAIDS/WHO – 2004
Joint United Nations Programme on HIV/AIDS (UNAIDS)
World Health Organization (WHO)

UNAIDS/04.45E
(English original, December 2004)

© Joint United Nations Programme on HIV/AIDS (UNAIDS) and World Health Organization (WHO) 2004

All rights reserved. Publications jointly produced by UNAIDS and WHO can be obtained from the UNAIDS Information Centre. Requests for permission to reproduce or translate UNAIDS publications—whether for sale or for noncommercial distribution—should also be addressed to the Information Centre at the address below, or by fax, at +41 22 791 4187, or e-mail: publicationpermissions@unaids.org.

The designations employed and the presentation of the material in this publication do not imply the expression of any opinion whatsoever on the part of UNAIDS or WHO concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries.

The mention of specific companies or of certain manufacturers' products does not imply that they are endorsed or recommended by UNAIDS or WHO in preference to others of a similar nature that are not mentioned. Errors and omissions excepted, the names of proprietary products are distinguished by initial capital letters.

UNAIDS and WHO do not warrant that the information contained in this publication is complete and correct and shall not be liable for any damages incurred as a result of its use.

WHO Library Cataloguing-in-Publication Data

UNAIDS.
AIDS epidemic update : 2004.

1.HIV infections – epidemiology 2.Acquired immunodeficiency syndrome – epidemiology
3.Disease outbreaks I.Title.

ISBN 92 9173390 3 (NLM classification: WC 503.41)

UNAIDS – 20 avenue Appia – 1211 Geneva 27 – Switzerland
Telephone: (+41) 22 791 36 66 – Fax: (+41) 22 791 41 87
E-mail: unaids@unaids.org – Internet: http:/www.unaids.org

CONTENTS

Acknowledgements

Global summary of the AIDS epidemic, December 2004 1

Introduction 2

Women and AIDS 7

Sub-Saharan Africa 19

Caribbean 31

Asia 36

Eastern Europe 47

Latin America 57

Oceania 62

Middle east and North Africa 65

North America, Western and Central Europe 69

MAPS 75

Global estimates for adults and children, end 2004 76
Adults and children estimated to be living with HIV as of end 2004 77
Estimated number of adults and children newly infected with HIV during 2004 78
Estimated adult and child deaths from AIDS during 2004 79

BIBLIOGRAPHY 80

ACKNOWLEDGEMENTS

This publication was prepared by Hein Marais, with Karen Stanecki and a support team comprised of Jesus-Maria Garcia Calleja, Peter Ghys, Catherine Hankins, Annemarie Hou, Judith Polsky and Elizabeth Zaniewski, under the guidance of Purnima Mane and Achmat Dangor.

The publication would not have been possible without the contributions of Lidia Andrushchak, Maha Aon, Reeta Bhatia, Asya Bidordinova, Ma.Elena Borromeo, Yves Bourney, Raul Boyle, Michel Cayemittes, Paloma Cuchi, Ruben Del Prado, Monica Djupvik, Sun Gang, Claudia Garcia-Moreno, Eleanor Gouws, Francoise Hamers, Samia Hashim, Gillian Holmes, Henrica Jansen, Setou Kaba, Aziz Khudoberdiev, Alexander Kossukhin, Aldo Landi, David Lawson, Bertil Lindblad, Tiwonge Loga, Samia Lounnas, Rob Lyerla, Mahesh Mahalingam, Mary Mahy, Bunmi Makinwa, Valerie Manda, Dominique Mathiot, Aurorita Mendoza, Henning Mikkelsen, Rosemeire Munhoz, Cesar Nunez, Elizabeth Pisani, Nii-K Plange, Lisa Regis, Joel Rehnstrom, Irina Savtchenko, Smolskaya Tatiana, Angela Trenton-Mbonde, Neff Walker, Enrique Zelaya, Laurent Zessler.

The production team included Sandy Beeman, Alistair Craik, Efren Fadriquela, Nathalie Gouiran, Marie-Laure Granchamp, Lon Rahn, Elena Sannikova and Andrea Verwohlt.

GLOBAL SUMMARY OF THE AIDS EPIDEMIC DECEMBER 2004

Number of people living with HIV in 2004	**Total**	**39.4 million (35.9–44.3 million)**
	Adults	37.2 million (33.8–41.7 million)
	Women	17.6 million (16.3–19.5 million)
	Children under 15 years	2.2 million (2.0–2.6 million)
People newly infected with HIV in 2004	**Total**	**4.9 million (4.3–6.4 million)**
	Adults	4.3 million (3.7–5.7 million)
	Children under 15 years	640 000 (570 000–750 000)
AIDS deaths in 2004	**Total**	**3.1 million (2.8–3.5 million)**
	Adults	2.6 million (2.3–2.9 million)
	Children under 15 years	510 000 (460 000–600 000)

The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information.

INTRODUCTION

The total number of people living with the human immunodeficiency virus (HIV) rose in 2004 to reach its highest level ever: an estimated 39.4 million [35.9 million–44.3 million] people are living with the virus (Figure 1). This figure includes the 4.9 million [4.3 million–6.4 million] people who acquired HIV in 2004. The global AIDS epidemic killed 3.1 million [2.8 million–3.5 million] people in the past year.

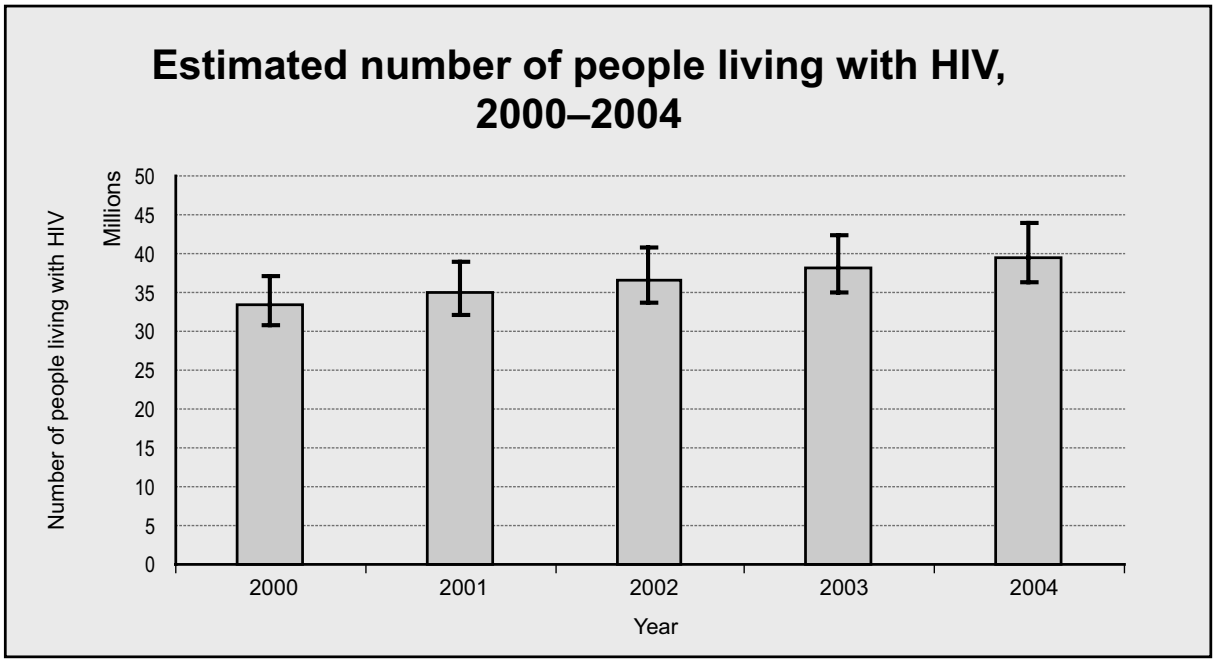


Figure 1

The number of people living with HIV has been rising in every region, compared with two years ago, with the steepest increases occurring in East Asia, and in Eastern Europe and Central Asia (see Table, page 3). The number of people living with HIV in East Asia rose by almost 50% between 2002 and 2004, an increase that is attributable largely to China's swiftly growing epidemic. In Eastern Europe and Central Asia, there were 40% more people living with HIV in 2004 than in 2002. Accounting for much of that trend is Ukraine's resurgent epidemic and the ever-growing number of people living with HIV in the Russian Federation.

Sub-Saharan Africa remains by far the worst-affected region, with 25.4 million [23.4 million–28.4 million] people living with HIV at the end of 2004, compared to 24.4 million [22.5 million–27.3 million] in 2002. Just under two thirds (64%) of all people living with HIV are in sub-Saharan Africa, as are more than three quarters (76%) of all women living with HIV.

The epidemics in sub-Saharan Africa appear to be stabilizing generally, with HIV prevalence at around 7.4% for the entire region. But such a summary perspective hides important aspects. First, roughly stable HIV prevalence means more or less equal numbers of people are being newly

Regional HIV and AIDS statistics and features, end 2002 and 2004

	Adults and children living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)*	Adult and child deaths due to AIDS
Sub-Saharan Africa				
2004	25.4 million [23.4–28.4 million]	3.1 million [2.7–3.8 million]	7.4 [6.9–8.3]	2.3 million [2.1–2.6 million]
2002	24.4 million [22.5–27.3 million]	2.9 million [2.6–3.6 million]	7.5 [7.0–8.4]	2.1 million [1.9–2.3 million]
North Africa and Middle East				
2004	540 000 [230 000–1.5 million]	92 000 [34 000–350 000]	0.3 [0.1–0.7]	28 000 [12 000–72 000]
2002	430 000 [180 000–1.2 million]	73 000 [21 000–300 000]	0.2 [0.1–0.6]	20 000 [8300–53 000]
South and South-East Asia				
2004	7.1 million [4.4–10.6 million]	890 000 [480 000–2.0 million]	0.6 [0.4–0.9]	490 000 [300 000–750 000]
2002	6.4 million [3.9–9.7 million]	820 000 [430 000–2.0 million]	0.6 [0.4–0.9]	430 000 [260 000–650 000]
East Asia				
2004	1.1 million [560 000–1.8 million]	290 000 [84 000–830 000]	0.1 [0.1–0.2]	51 000 [25 000–86 000]
2002	760 000 [380 000–1.2 million]	120 000 [36 000–360 000]	0.1 [0.1–0.2]	37 000 [18 000–63 000]
Oceania				
2004	35 000 [25 000–48 000]	5000 [2100–13 000]	0.2 [0.1–0.3]	700 [<1700]
2002	28 000 [22 000–38 000]	3200 [1000–9600]	0.2 [0.1–0.3]	500 [<1000]
Latin America				
2004	1.7 million [1.3–2.2 million]	240 000 [170 000–430 000]	0.6 [0.5–0.8]	95 000 [73 000–120 000]
2002	1.5 million [1.1–2.0 million]	190 000 [140 000–320 000]	0.6 [0.4–0.7]	74 000 [58 000–96 000]
Caribbean				
2004	440 000 [270 000–780 000]	53 000 [27 000–140 000]	2.3 [1.5–4.1]	36 000 [24 000–61 000]
2002	420 000 [260 000–740 000]	52 000 [26 000–140 000]	2.3 [1.4–4.0]	33 000 [22 000–57 000]
Eastern Europe and Central Asia				
2004	1.4 million [920 000–2.1 million]	210 000 [110 000–480 000]	0.8 [0.5–1.2]	60 000 [39 000–87 000]
2002	1.0 million [670 000–1.5 million]	190 000 [94 000–440 000]	0.6 [0.4–0.8]	40 000 [27 000–58 000]
Western and Central Europe				
2004	610 000 [480 000–760 000]	21 000 [14 000–38 000]	0.3 [0.2–0.3]	6500 [<8500]
2002	600 000 [470 000–750 000]	18 000 [13 000–35 000]	0.3 [0.2–0.3]	6000 [<8000]
North America				
2004	1.0 million [540 000–1.6 million]	44 000 [16 000–120 000]	0.6 [0.3–1.0]	16 000 [8400–25 000]
2002	970 000 [500 000–1.6 million]	44 000 [16 000–120 000]	0.6 [0.3–1.0]	16 000 [8400–25 000]
TOTAL				
2004	39.4 million [35.9–44.3 million]	4.9 million [4.3–6.4 million]	1.1 [1.0–1.3]	3.1 million [2.8–3.5 million]
2002	36.6 million [33.3–41.1 million]	4.5 million [3.9–6.2 million]	1.1 [1.0–1.2]	2.7 million [2.5–3.1 million]

* The proportion of adults (15 to 49 years of age) living with HIV/AIDS in 2004, using 2004 population numbers.

The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information.

infected with HIV and are dying of AIDS. Beneath the apparent constancy of steady prevalence levels lie devastating realities—especially in southern Africa, which accounts for one third of all AIDS deaths globally. Second, the epidemics in Africa are diverse, both in terms of their scale and the pace at which they are evolving. There is no single "African" epidemic. Some urban parts of East Africa display modest declines in HIV prevalence among pregnant women, while in West and Central Africa prevalence levels have stayed roughly steady at lower levels than in the rest of sub-Saharan Africa. National HIV data, though, hide much higher levels of infection in parts of countries, as Nigeria illustrates. Southern Africa, unfortunately, offers only slight hints of possible future declines in HIV prevalence (see pages 19-30).

HIV prevalence in the Caribbean is the second-highest in the world, exceeding 2% in five countries, and AIDS has become the leading cause of death among adults aged 15–44 years in this region. Yet, a growing number of Caribbean countries are showing that the epidemic does yield to appropriate and resolute responses (see pages 31-35).

Many prevention opportunities

Virtually every region, including sub-Saharan Africa, has several countries where the epidemic is still at a low level or at an early enough stage to be held in check by effective action. This calls for programmes that can thwart the spread of HIV among the most vulnerable population groups. But in many countries, inadequate resources and a failure of political will and leadership still bars the way—especially where HIV has established footholds among marginalized and stigmatized population groups such as women who sell sex, drug injectors and men who have sex with men. Unless reticence is rapidly replaced with pragmatic and forward-looking approaches, HIV will spread more extensively in many countries which until now have escaped with only minor epidemics.

Also blocking the way forward is the lack of coherent, nationally-led AIDS responses in many heavily-affected countries. Given the rising numbers of implementing structures and increased funding, it is essential to pre-empt the risk of duplication and fragmentation in AIDS responses. To that end, major donors in April 2004 endorsed three key principles that would underpin their support for nationally-led action against AIDS. Known as the "Three Ones"*, those principles are geared to strengthen the coordination and coherence of AIDS responses. The principles are intended to underpin a simple system that can enable various approaches for fighting AIDS to converge effectively.

Women are increasingly affected

The AIDS epidemic is affecting women and girls in increasing numbers (see pages 7-18). Globally, just under half of all people living with HIV are female. Women and girls make up almost 57% of all people infected with HIV in sub-Saharan Africa, where a striking 76% of young people (aged 15–24 years) living with HIV are female. In most other regions, women and girls represent an increasing proportion of people living with HIV, compared with five years ago.

These trends point to serious gaps in the AIDS response. Services that can protect women against HIV must be expanded. Women and girls need more information about AIDS. A recent UNICEF survey found that up to 50% of young women in high-prevalence countries did not know the basic facts about AIDS. Yet the vulnerability of women and girls to HIV infection stems not simply from ignorance, but from their pervasive disempowerment. Most women around the world become HIV-infected through their partner's high-risk behaviour, over which they wield little if any control. The plight of women and children in the face of AIDS underlines the need for realistic strategies that address the interplay between inequality—particularly gender inequality—and HIV.

* The "Three Ones" principles refer to one agreed national action framework to provide the basis for coordinating the work of all partners, one national AIDS coordinating authority with a broad-based multisectoral mandate, and one country-level monitoring and evaluation system.

Regional HIV statistics and features for women, end 2002 and 2004

		Number of women (15–49) living with HIV	Percent of adults (15–49) living with HIV who are women (%)
Sub-Saharan Africa	2004 2002	13.3 million [12.4–14.9 million] 12.8 million [11.9–14.3 million]	57 57
North Africa and Middle East	2004 2002	250 000 [80 000–770 000] 200 000 [62 000–620 000]	48 48
South and South-East Asia	2004 2002	2.1 million [1.3–3.1 million] 1.8 million [1.1–2.7 million]	30 28
East Asia	2004 2002	250 000 [120 000–400 000] 160 000 [79 000–250 000]	22 21
Oceania	2004 2002	7100 [4100–11 000] 5000 [3000–7500]	21 18
Latin America	2004 2002	610 000 [470 000–790 000] 520 000 [390 000–690 000]	36 35
Caribbean	2004 2002	210 000 [120 000–380 000] 190 000 [110 000–360 000]	49 49
Eastern Europe and Central Asia	2004 2002	490 000 [310 000–710 000] 330 000 [220 000–480 000]	34 33
Western and Central Europe	2004 2002	160 000 [120 000–200 000] 150 000 [110 000–190 000]	25 25
North America	2004 2002	260 000 [140 000–410 000] 240 000 [120 000–390 000]	25 25
TOTAL	2004 2002	17.6 million [16.3–19.5 million] 16.4 million [15.2–18.2 million]	47 48

AIDS RESPONSE NEEDS TO KEEP GROWING

There has been a sea-change in the global AIDS response since 2001. Global funding has increased from roughly US$ 2.1 billion to an estimated US$ 6.1 billion in 2004[†], and access to key prevention and care services has improved markedly (UNAIDS, 2004). The number of secondary-school students receiving AIDS education has nearly tripled, the annual number of voluntary counselling and testing clients has doubled, the number of women offered services to prevent mother-to-child transmission has increased by 70%, and the number of people receiving antiretroviral therapy has increased by 56%, according to a recent survey in 73 low- and middle-income countries which represent almost 90% of the global burden of HIV (Policy Project et al., 2004). Most people who need antiretroviral treatment in South America and some Caribbean countries now can access it. Efforts to expand treatment and care, including the "3 by 5" initiative of the World Health Organization, UNAIDS and their partners, hold the promise of further increases in coverage.

Despite the improvements, however, coverage remains uneven and, in several respects, highly unsatisfactory. Approximately 440 000 people in low- and middle-income countries were receiving antiretroviral treatment as of June 2004 (WHO, 2004). This means that nine out of every ten people who need antiretroviral treatment—the majority of them in sub-Saharan Africa—are not receiving it. If this low level of coverage

[†] Sources of funding include domestic spending (including public sector funds and spending by individuals and families affected by AIDS), bilateral donors (including, since 2003, the United States of America President's Emergency Plan for AIDS Relief), multilateral agencies (including the United Nations system, World Bank and Global Fund to Fight AIDS, TB and Malaria), and the private sector (including foundations, international non-governmental organizations and the business community).

continues five to six million people will die of AIDS in the next two years (UNAIDS, 2004).

Ultimately, AIDS treatment will only be affordable and sustainable if HIV prevention is effective. And only then can the global spread of AIDS be halted. Enough is known about effective, cheap and relatively simple HIV programmes. Yet, in too many places such programmes are not being implemented. Less than 1% of adults aged 15–49 years are accessing voluntary counselling and testing services in the 73 low- and middle-income countries most affected by AIDS. Fewer than 10% of pregnant women are currently offered services of proven effectiveness to prevent HIV transmission during pregnancy and childbirth. Fewer than 3% of orphans and vulnerable children are receiving public support for most services (except in the Eastern European region where coverage is higher).

Countries in some regions still display a mismatch between AIDS spending priorities and the main epidemiological features of their epidemics. As a result, population groups such as injecting drug users and men who have sex with men are often neglected in AIDS activities, even in places where they are heavily affected by the epidemic. Overall, coverage of prevention programmes is very low for injecting drug users (fewer than 5% can access essential prevention services) and only 10% to 20% for sex workers, men who have sex with men, and street children (Policy Project et al., 2004). This stems largely from social discrimination and political indifference. Part of the problem, however, lies also with still-inadequate HIV surveillance systems—a shortcoming which is evident in every region and which is undermining countries' abilities to tailor their responses to an ever-evolving epidemic.

Business as usual spells disaster. A massive effort is needed to achieve a response on a scale that matches that of the global AIDS epidemic. Without invigorated HIV prevention strategies that deal boldly with the epidemic, and that also address the wider imperatives of social justice and equality, the world is unlikely to gain the upper-hand over AIDS in the long run.

WOMEN AND AIDS

INTRODUCTION

The AIDS epidemic is affecting women and girls in increasing numbers. Globally, just under half of all people living with HIV are female. In most regions, an increasing proportion of people living with HIV are women and girls, and that proportion is continuing to grow, particularly in Eastern Europe, Asia and Latin America, as shown in Figure 2.

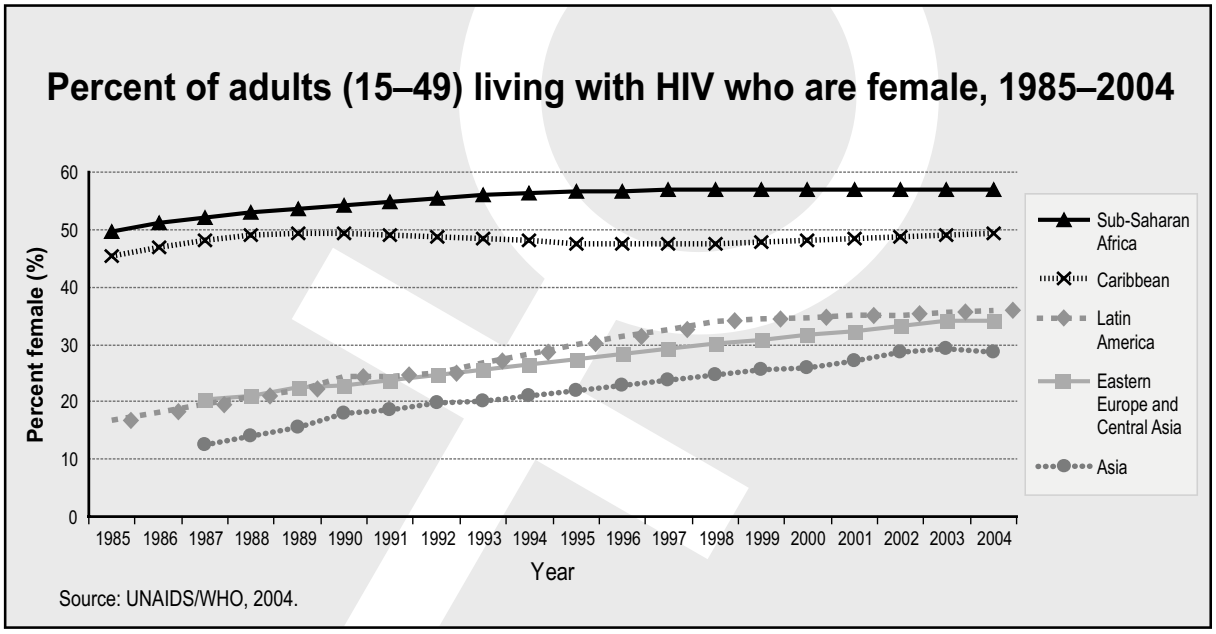
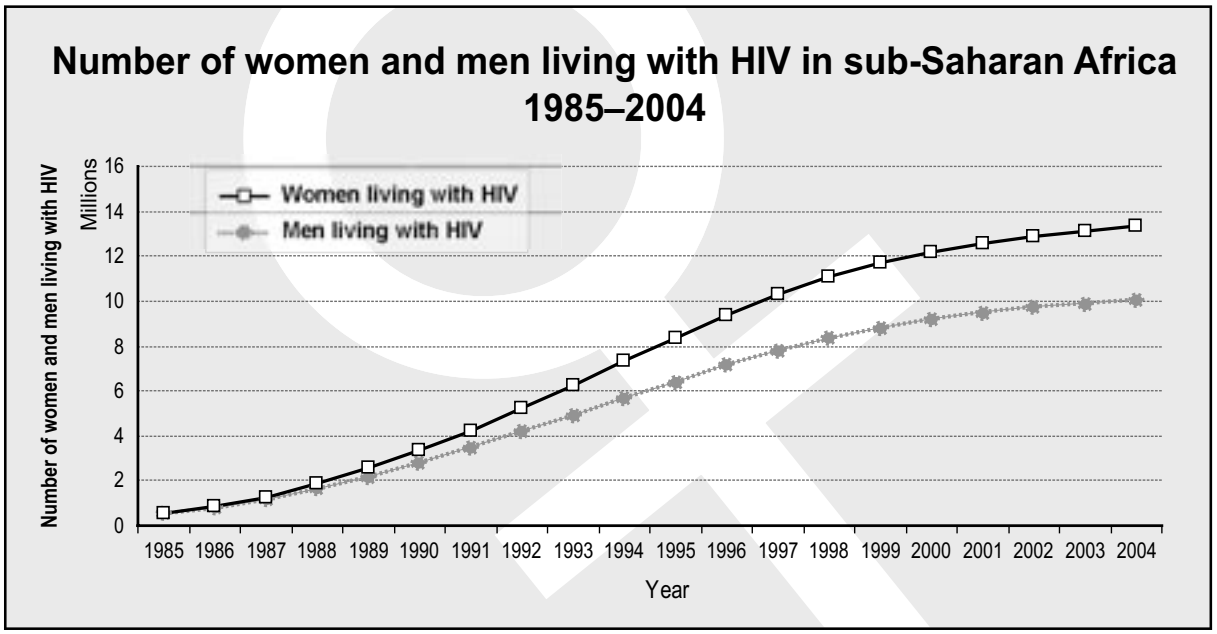


Figure 2

AIDS is affecting women most severely in places where heterosexual sex is a dominant mode of HIV transmission, as is the case in sub-Saharan Africa and the Caribbean. Women and girls make up almost 57% of adults living with HIV in sub-Saharan Africa (see pages 19-30). Overall, three quarters of all women with HIV worldwide live in that region. According to recent population-based household surveys, adult women in sub-Saharan Africa are up to 1.3 times more likely to be infected with HIV than their male counterparts (UNAIDS, 2004). This unevenness is greatest among young women aged 15–24 years, who are about three times more likely to be infected than young men of the same age.

The picture is particularly disturbing when viewed close-up. In **South Africa**, **Zambia** and **Zimbabwe**, for example, young women (aged 15–24 years) are three to six times more likely to be infected than young men (Zambia Central Statistical Office, 2003; Zimbabwe Young Adult Survey 2001-2002). More than three quarters

Figure 3



of all young people living with HIV in those countries are women (WHO Regional Office for Africa, 2003; Reproductive Health Research Unit and Medical Research Council, 2004). Women constitute nearly half of the 420 000 [260 000–740 000] adults living with HIV in the Caribbean, where young women 15–24 years of age are almost twice as likely to be infected than are young men (UNAIDS, UNIFEM, UNFPA, 2004) (see pages 31-35).

In other parts of the world, most HIV infections occur through injecting drugs with contaminated equipment, unprotected sex between men and unsafe commercial sex. The notion that those epidemics are confined to specific populations is fanciful, however. Most injecting drug users are young and many are sexually active, risking double exposure to the virus. In some countries, particularly in Asia and Eastern Europe, a significant share of sex workers also inject drugs. Most male clients of sex workers have other sexual partners, including wives and steady girlfriends. In every region, a sizeable proportion of men who have sex with men, also have sex with women. No aspect of the AIDS pandemic is an island unto itself. As AIDS epidemics become more firmly established, more and more women are becoming infected.

Women now represent 36% of the 1.7 million [1.3 million–2.2 million] adults living with HIV in Latin America, where the epidemic has been centred largely among men who have sex with men and injecting drug users (see pages 57-61). As more women in Eastern Europe and Central Asia acquire the virus through the use of contaminated equipment when injecting drugs and from male partners who are either injecting drug users and/or clients of sex workers, the overall proportion of women living with HIV in the region is also inching higher (see pages 47-56). There, women account for 34% of people with HIV, compared with 33% two years ago. In **Russia**, which has the biggest epidemic in this region, the proportion of women among people diagnosed with HIV increased to 38% in 2003, compared with 24% in 2001 (Russian Federal AIDS Center, 2004).

As in Eastern Europe, parts of Asia are experiencing AIDS epidemics that are spreading within and between particular population groups—such as sex workers or injecting drug users—and then into the general population, with women and girls increasingly affected. In East Asia women comprise 22% of all adults living with HIV, and 28% of young people (aged 15–24 years) living with HIV. In South and South-East Asia, 30% of adults (up from 28% two years ago) and 40% of young people living with HIV are women and girls. Women now account for more than one quarter of new HIV infections in India, according to estimates, and 90% of those who test positive at antenatal clinics say they are in single, long-term relationships (Cohen, 2004). HIV transmission between spouses has become a more prominent cause of new infections in countries such as **Cambodia**, **Myanmar** and **Thailand**—countries which, like parts of India, are already

Widespread ignorance about HIV and sex

Social norms impose a dangerous ignorance on girls and young women, who often are expected to know little about sex and sexuality. That lack of knowledge magnifies their risk of HIV infection. In many countries, most young women do not know how to protect themselves against HIV infection, as Figure 4 illustrates. In countries such as **Cameroon**, **Lesotho**, **Mali**, **Senegal** and **Viet Nam**, two thirds or more of young women (aged 15 to 24 years) did not know three HIV prevention methods when surveyed. In **Moldova**, **Ukraine** and **Uzbekistan** more than 80% of young women lacked that knowledge. Knowledge about sex in general is also surprisingly low in many places. A recent study among rural married women in Uttar Pradesh, **India**, for example, found that 71% of the women (all of whom had married before puberty) knew nothing about how sex occurs when they began cohabiting with their husbands, and 83% did not know how a woman could become pregnant (Khan et al., 2004).

contending with serious epidemics. Twelve years ago, approximately 90% of HIV transmission in Thailand was occurring between sex workers and their clients. Projections show that by 2002, an estimated 50% of new infections were between spouses, as current or former male clients of sex workers transmitted the virus to their wives (Thai Working Group on HIV/AIDS Projections, 2001).

Around the world, the epidemic's escalating impact on women is occurring in the context of profound gender, class and other inequalities. This is also evident in industrialized countries in Western Europe and North America, where about one quarter of people living with HIV are women and where HIV has become increasingly lodged among women who belong to marginalized sections of populations, including minorities, immigrants and refugees (see pages 69-73). African American and Hispanic women, for example, represent less than one quarter of all women in the **United States of America**, but accounted for 80% of AIDS cases reported among women at the turn of this century (US Centers for Disease Control and Prevention, 2002).

Inequality, gender and HIV

In many places, HIV-prevention efforts do not take into account the gender and other inequalities that shape people's behaviours and limit their choices. Many HIV strategies assume an idealized world in which everyone is equal and

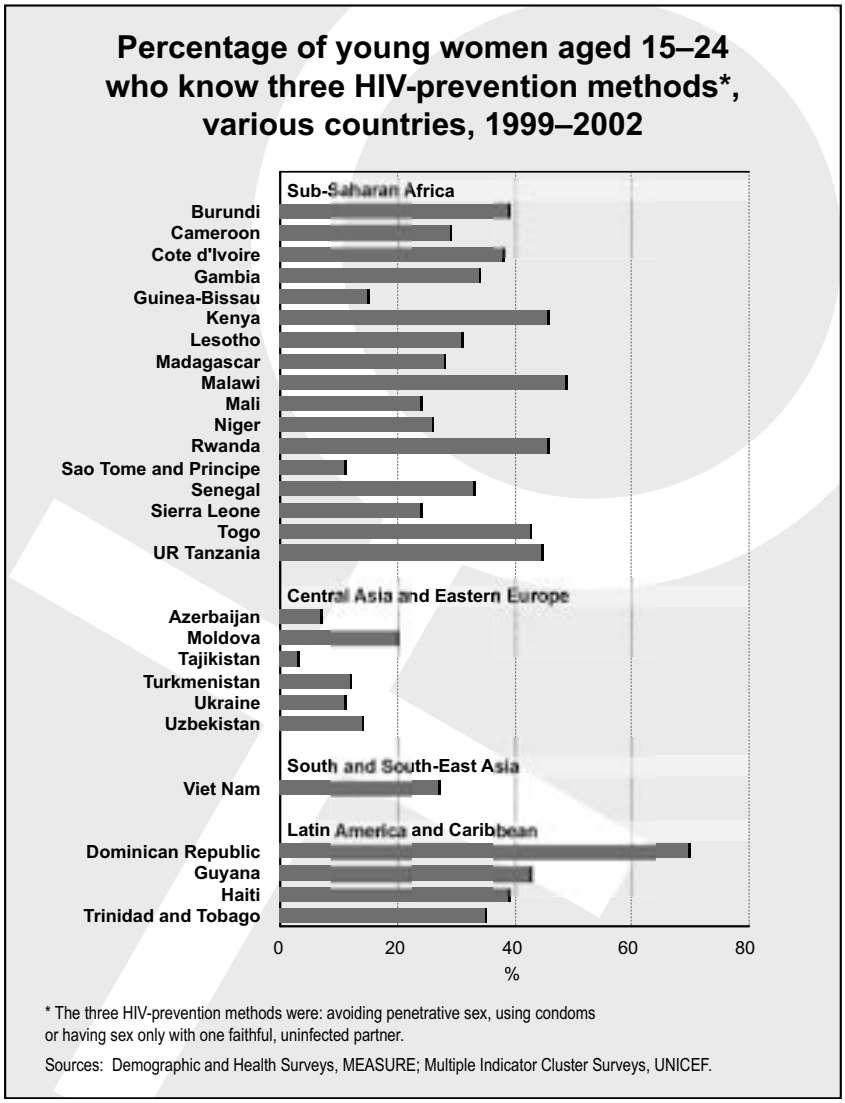


Figure 4

free to make empowered choices, and can opt to abstain from sex, stay faithful to one's partner or use condoms consistently. In reality, women and girls face a range of HIV-related risk factors and vulnerabilities that men and boys do not—many of which are embedded in the social relations and economic realities of their societies. These factors are not easily dislodged or altered, but until they are, efforts to contain and reverse the AIDS epidemic are unlikely to achieve sustained success.

Multiple partner relationships, underscored by "gifts", can be a key survival strategy for many poor women. Driven by poverty and the desire for a better life, many women and girls find themselves using sex as a commodity in exchange for goods, services, money, accommodation, or other basic necessities—often with older men (Halperin and Epstein, 2004). Such "transactional sex" involves non-marital sexual relationships, often with multiple and older male partners, that reflect men's superior economic position and access to resources, women's difficulties in meeting basic needs, and the cultural value placed on men having multiple sexual partners (Jewkes and Wood, 2001).

One of the defining features in southern Africa, the worst-hit part of the world, is its social and economic inequality, not just between rich and poor but also among the poor. The relationship between HIV prevalence and socioeconomic indicators is highly complex. Nevertheless, social inequalities, layered atop widespread impoverishment and the social distortions wrought by migrant labour systems, and coupled with a burgeoning culture of consumerism, provide fertile ground for exploitative transactional, "survival" and intergenerational sex in southern Africa (UN Secretary-General's taskforce on women, girls and AIDS in southern Africa, 2004). Migrant labour systems have aggravated women's economic dependence on their male partners to a much greater extent than in other parts of the continent where women are more prominent in market trading and other forms of commercial activity. Across this subregion, income-earning opportunities for women with low educational attainment are particularly poor, and industrial sectors in which female workers predominate (such as garment manufacturing) have been hard-hit by job losses related to changes in tariffs and

Until death do us part

Focusing programmes on persuading girls to abstain from sex until marriage is of little help to many young women. In some places, the main HIV risk factor for a woman is the fact that she is faithful to a husband with previous or current other sex partners. Among sexually active girls aged 15–19 years in the cities of Kisumu (**Kenya**) and Ndola (**Zambia**), a multicentre study reported that HIV-infection levels were 10% higher for married than for sexually active unmarried girls (Glynn et al., 2001). In rural **Uganda**, among HIV-infected women aged 15–19 years, 88% of the girls were married (Kelly et al., 2003). This is because young women, particularly teenagers, often marry men significantly older than they are, and these men are more likely to have had other partners and therefore are more likely to have been exposed to HIV.

The fact that the balance of power in many relationships is tilted in favour of men can have life-or-death implications. Women and girls often lack the power to abstain from sex or to insist on condom use—even when they suspect that the man has had other sexual partners and might be infected with HIV. In a study in Zambia, for example, only 11% of women believed that they had the right to ask their husbands to use a condom—even if he had proven himself to be unfaithful and was HIV-positive. In Mumbai, **India**, many women felt that the economic consequences of leaving a long-term relationship they saw as risky far outweighed the health hazards of staying in the relationship (Gupta, 2002). A recent study among women attending antenatal-care clinics in Soweto, **South Africa**, found that women were more likely to be HIV-positive in relationships where men wield considerably more power and control than they do (Dunkle et al., 2004). Special attention must be paid to preventing HIV infection within marriages. Women the world over need greater power and skills to help decide the terms of sexual relationships, and, at the same time, the HIV risk of their male partners must be reduced (Stephenson and Obasi, 2004).

subsidies. This has further weakened women's economic status, aggravating gender inequalities and possibly heightening women's vulnerability to HIV (Hunter, 2002).

It is important to recognize that sex plays other social functions, too, and is entangled in people's need to seek and express trust, in their search for status and self-esteem, and in their efforts to escape loneliness and relieve boredom. Research in **South Africa**, for example, indicates that in the context of widespread impoverishment and high unemployment (as well as the absence of affordable recreation), sexual relationships often serve as opportunities for enhancing self-esteem and peer status, and relieving boredom (Jewkes, Vundule and Maforah, 2001). What makes these quests dangerous for so many women is that they are played out not only in areas where HIV has firm footholds but in circumstances marked by glaring gender inequality—where men tend to hold the upper hand, and where social norms and legal frameworks often brace that hand.

Information and awareness is not enough. If prevention efforts are to succeed in the long-run, they need to address the interplay between gender and socioeconomic inequality and vulnerability to HIV. Prevention activities need to take into account the unequal terms on which most women have to conduct their lives. Strategies need to address the fact that, for millions of people, sex can be one of the few valorized forms of capital at their disposal (Stephenson and Obasi, 2004; Cates, 2004). Much sexual risk-taking by girls and young women is marked by unequal gender relations, and unequal access to resources, assets, income opportunities and social power. Far more must be done to ensure sustainable livelihoods for women and girls, particularly those living in female-headed households, if they are to be able to protect themselves against HIV infection and deal with its impact. Boosting women's economic opportunities and social power should be seen as part and parcel of potentially successful and sustainable AIDS strategies.

Mind the gap

Sex between young women and considerably older men is common in many countries, including in Asia, the Caribbean and sub-Saharan Africa. Whereas in Asia, for example, this often occurs within (arranged) marriages, in many African countries the phenomenon can be more diffuse and is often tied to the prestige of families that bond for mutual benefit, or to economies of need. Intergenerational and transactional sex are frequently intertwined. Research in parts of Africa, for example, has found that older men often help girls' families meet essential needs such as school fees, transport costs and groceries (Buve, Bishikwabo-Nzarhaza and Mutangadura, 2002; Gregson et al., 2002; Hallman, 2004; Luke and Kurz, 2002). Nevertheless, the hidden costs can be high. Men in their late twenties and thirties are more likely to be HIV-infected, while the dependencies built into these relationships limit women's abilities to protect themselves from HIV infection, especially when the perception of younger women as "pure" encourages men to avoid using condoms (Gregson et al., 2002; Preston-Whyte et al., 2000). In addition, the risk of becoming infected during unprotected vaginal intercourse is greater for women than men, and the risk for young girls is greatest because the lining of the neck of the womb is not fully developed.

Reducing infection rates in women and girls is essential if AIDS is to be brought under control. Current prevention programmes are not achieving this.

In southern Africa, for example, women and girls often get infected with HIV almost as soon as they start having sex. In a study in **Zambia**, 18% of women who said they had been virgins a year before being tested for HIV were found to be HIV-positive, while in **South Africa**, 21% of sexually active girls 16–18 years of age tested HIV-positive. There is evidence that the age gap between partners affects the chances that young women will become infected (Kelly et al., 2003). HIV prevalence was approximately 16% among teenage girls (15–19 years) in rural **Zimbabwe** whose last partner was less than five years older

than themselves, but among girls with partners 10 or more years older, HIV prevalence was twice as high (Gregson et al., 2002). In Kisumu, **Kenya**, among women three years or less the junior of their husbands, none was found to be infected with HIV, but half the women with husbands 10 years or more their senior were HIV-positive.

Relationships with older men are more likely to be premised on unequal power relations, leaving girls vulnerable to abuse and exploitation.

For many girls, violence or coercion marks their first experience of sex. According to surveys, in rural **Peru** 24% of young women said their first sex had been forced, while in **Jamaica** a significant percentage of girls (12% in a 2001 study) who had sex before they were 20 years of age had been raped. In **South Africa**, 10% of sexually experienced young women said they had been forced to have sex, according to a recent national survey (Reproductive Health Research Unit and Medical Research Council, 2003). One in six teenage girls in a **Zambian** study said that they had been forced to have sex with a man at some stage (Measure DHS, Central Statistical Office, Central Board of Health Zambia, 2002).

HIV AND VIOLENCE AGAINST WOMEN

Violence against women is a worldwide scourge, and a massive human rights and public health challenge.* It also increases women's vulnerability to HIV infection. Research has confirmed a strong correlation between sexual and other forms of abuse against women and women's chances of being HIV-infected (Garcia-Moreno and Watts, 2000; Maman et al., 2000). In addition, the fear of violence—not just from partners but from the wider community—prevents many women from accessing HIV information, from getting tested and seeking treatment, even when they strongly suspect they have been infected.

The most common form of violence perpetrated against women is violence at the hands of their intimate partners. When surveyed, between one third and one half of women in **Namibia**, **Peru** and **Thailand**, for example, said they had been physically and/or sexually assaulted by their partners (WHO, forthcoming 2005). Women often have no legal recourse in countries where laws to prevent domestic abuse are absent or poorly enforced.

Research has uncovered strong links between intimate partner violence and increased likelihood of HIV infection (Heise, Ellsberg, Gottemoeller, 1999). A study in Kigali, **Rwanda**, among women in stable relationships showed that HIV-positive women were more likely to have experienced a history of physical and sexual violence at the hand of male partners than were women without HIV (Van der Straten et al., 1998). Among women younger than 30 years in a **Tanzanian** city, HIV-positive women were more likely to have experienced physical or sexual violence at the hands of their current partner than were HIV-negative women (although, in women older than 30 years HIV status was not associated with violence) (Maman, et al., 2002). At antenatal clinics in Soweto, **South Africa**, HIV infection was found to be more common in women who had been physically abused by their partners than in those who were not (Dunkle et al., 2004).

If HIV-prevention activities are to succeed, they need to occur alongside other efforts that address and reduce violence against women and girls. Violence against women and girls is not a private matter, but a violation of basic human rights with significant economic and social consequences for families, communities and nations. Laws against such violence must be formulated and adopted, and law enforcement structures need to be adapted and officials trained to ensure such laws are implemented.

* Violence against women refers to a range of behaviours, including sexual violence (rape and forced sex), physical assault, emotional abuse (for example, prohibiting a woman from seeing family and friends), ongoing belittlement, humiliation or intimidation, and economic restrictions (such as preventing a woman from working, or confiscating her earnings).

Stunted education and health care

The imbalances of power women experience within relationships mirror wider, societal inequalities that limit women's autonomy and opportunities. Most African and Asian countries made strong strides in expanding education opportunities—especially for girls—after colonialism ended. Despite such progress, there remains a wide gap in school attendance between boys and girls in many regions, particularly Asia. Alongside other factors, including deepening poverty and unaffordable schooling expenses, AIDS is threatening those gains in the hardest-hit countries.

Disturbing in their own right, downward trends in education also hold implications for the epidemic's growth. Education is a key defence against the spread of HIV. Studies in **Zambia**, for example, have found lower levels of HIV infection among better educated people (UNICEF, 2003b), while in **Kenya** research has linked higher education levels with increased AIDS awareness and knowledge, higher rates of condom use, and greater communication on HIV prevention among partners.

Nigeria's latest round of HIV surveillance has found infection levels to be highest among pregnant women with only primary education (5.6%) and lowest among those with tertiary education and no formal education (4% and 3.8%, respectively) (Federal Ministry of Health Nigeria, 2003). The link between no formal education and lower HIV levels may be related to geographical and other factors. However, it is clear that completing secondary school can boost women's social power, employment opportunities, economic autonomy, and reduce their risks of HIV infection.

While secondary education can be a protective factor for girls, it is also a sad fact that in too many places, going to school may also place girls at risk. A **Zimbabwean** study has found that girls face sexual harassment and violence both from male students and teachers. Other studies, including in **Botswana**, **South Africa**, **Swaziland** and **Zambia**, have reported similar findings (Human Rights Watch, 2001).

Access to education—for girls and boys equally—must be expanded. Abolition of school fees would eliminate at least one barrier to universal education. Schemes to enable girls to complete secondary school are particularly vital. Evidence shows that secondary education can significantly reduce girls' vulnerability to HIV, since those years of schooling boost the skills and opportunities they need to achieve greater economic independence. Experience in many countries confirms that school subsidies increase girls' access to education and offer other benefits for girls and their families. They are also easier to monitor than other forms of direct subsidies. Steps must also be taken to ensure that schools provide a safe environment for girls. Concerted efforts are needed to expand mainstream life skills, as well as sexual and reproductive health education in primary and secondary school curricula, and to upgrade teacher training so that these topics can be taught effectively.

Choosing to abstain or have safer sex is not an option for the millions of women around the world who endure rape and sexual violence.

The relationship between education and HIV is complex, though. In **Burkina Faso**, HIV levels among pregnant women were highest among women who only attended primary school or who failed to complete secondary school (at 2.9% and 2.6%, respectively). Prevalence was lowest among women who completed secondary school (1.6%) or who never attended school (1.9%) (Ministère de la Santé, Burkina Faso, 2003). In **Ghana**, HIV prevalence among pregnant women with only primary school education was almost two times higher (2.8%) than among those with no formal schooling (1.5%) and one third higher (2.1%) than among those who finished secondary school (Ghana Statistical Service et al., 2003). Meanwhile,

Not enough access to prevention and treatment options

Women are much more likely than men to contract HIV from a single act of unprotected sex with an HIV-infected partner. But whether women have sex and whether that sex is protected often depend on the decisions and behaviour of their male partners. Unfortunately, a female-controlled prevention method is not yet widely available. Female condoms offer protection to increasing numbers of women, but they still require some degree of negotiation and male cooperation. They are also significantly more expensive than male condoms and, despite indications of increased uptake, they remain neither widely available nor socially accepted. Microbicides, which have anti-HIV activity and can come in the form of gels, creams, suppositories and rings, hold out much promise for female-controlled prevention. Several countries are now involved in trials of candidate microbicides. Microbicides (see box) can allow women to take control of their reproductive health (while efforts should continue to address underlying inequalities).

The overwhelming majority of children with HIV contract the infection from their mothers, during pregnancy, delivery, or through breastfeeding. In sub-Saharan Africa, about 1.9 million [1.7 million–2.3 million] children (younger than 15 years) were living with HIV at the end of 2004—almost 8% of the total number of people living with HIV in the region (UNAIDS, 2004). Many of these infections can be avoided if women do not become infected in the first place and if those who do become infected can access HIV testing accompanied by antiretroviral drug prophylaxis for them and their newborns. In too many places, though, voluntary counselling and testing services to learn HIV serostatus outside of pregnancy are still absent; and currently a mere 1% of pregnant women in heavily-affected countries are offered services aimed at preventing mother-to-child HIV transmission. Such programmes are being expanded in most of the heavily-affected countries, particularly in sub-Saharan Africa, but few also include provision of antiretroviral treatment to the mothers in need of ongoing treatment.

Internationally, men tend to have better access to AIDS care and treatment in places where AIDS treatment is provided mainly within the private sector, and through drug trials. Again, this is a marker of the many other advantages that men enjoy. In sub-Saharan Africa, overall access to treatment for both men and women remains distressingly low at about 150 000 as of June 2004 (WHO, 2004). Access to voluntary counselling and testing still poses a significant challenge for girls and women who do not seek reproductive-health services, as well as for men, who generally are less likely to use public health facilities than women. As treatment programmes are expanded globally, there is a justifiable concern that many women may miss out on opportunities to learn their serostatus and receive treatment because they fear that if they discover they are HIV-positive their partners will become aware of their HIV status.

The obstacles barring women's access to treatment and care must be identified and overcome. Part

Develop and provide microbicides to women

Microbicides hold the promise of a prevention tool women can control. Modelling indicates that even a 60%-efficacious microbicide could have substantial impact. If such a product were used by only 20% of women in 73 low-income countries, 2.5 million new infections could be averted over three years among women, men and children.

A first-generation microbicide could be ready for distribution in five to seven years. But for that to happen, investment in microbicide research and development needs to expand rapidly and dramatically so that highly potent, cheap microbicides with novel mechanisms of action can be tested in experienced, high incidence sites. Currently, the incentive structure of the private market is not funnelling sufficient investment towards microbicides, despite the fact that estimates point to a potential US$ 1.8 billion market for a successful product by 2020 (Access Working Group, 2002). Substantially increased resources are required to ensure that testing of the most promising candidate microbicides proceeds without delay and that the groundwork is laid now for efficient distribution of successful products.

of the answer lies in strengthening sexual and reproductive health services, and improving the entry points for women's access to treatment and care services through improved referral systems. By integrating sexually transmitted infection treatment services with family planning activities, women's fear of social censure could be reduced and their uptake of services increased. Wider efforts to reduce HIV-related stigma are vital, too. Also needed are steps to ensure that girls younger than 18 are not barred from voluntary counselling, testing and treatment because they lack guardians' consent or proper identification. Stronger participation of women in clinical trials of new drug treatments is also needed.

As the epidemic's toll grows, more grandmothers are now caring for orphans than they did a decade ago

A GROWING BURDEN OF CARE

AIDS underscores and exacerbates the unequal divisions of labour and responsibility within households. Already, southern Africa has the highest average proportion of female-headed households on the continent—approximately 34% of households with children in that subregion are female-headed, compared with 18% in West and Central Africa, and 21% in East Africa (UNICEF and UNAIDS, 2003). With most AIDS care occurring within households (in sub-Saharan Africa, an estimated 90% of AIDS care happens at home), women bear a disproportionate burden of those responsibilities (Ogden and Esim, 2003).

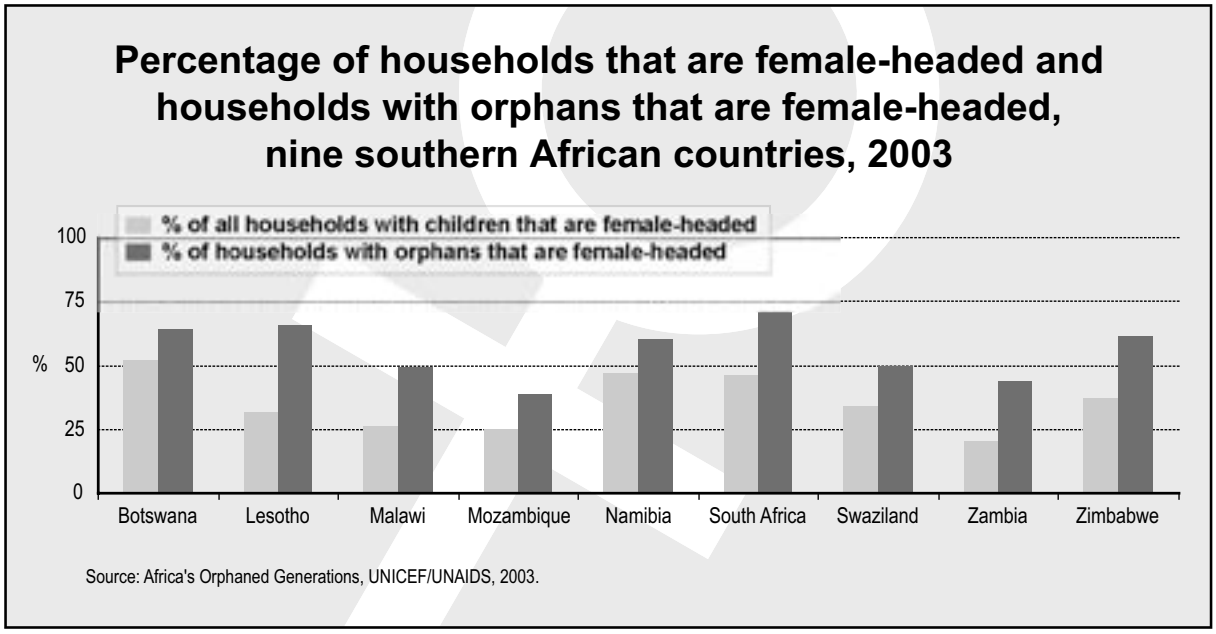
Generally, women and girls provide the bulk of home-based care (in **Viet Nam**, for example, women make up 75% of all caregivers for persons living with HIV), and are more likely to take in orphans, cultivate crops and seek other forms of income to sustain households (Ogden and Esim, 2003). In **South Africa**, a three-province survey found that almost three quarters of AIDS-affected households were female-headed, a significant proportion of whom were also battling AIDS-related illnesses themselves (Steinberg et al., 2002). Poverty and faltering public services in many areas are combining with AIDS to turn the care burden for women into a crisis that has far-reaching social, health and economic consequences.

Women pay a price beyond the immediate toil and distress. As their time and energy are increasingly absorbed by care duties, their opportunities to advance their education, achieve some financial independence through income-generation, or build skills fade. In South Africa, more than 40% of affected households reported that the main caregiver had taken time off work or school to care for an AIDS patient. Entire families are affected when women are diverted from other productive tasks. Most of the surveyed households in South Africa were already poor—some extremely poor—before AIDS appeared. The epidemic has compounded their predicament. They reported an average two thirds loss in household income as a result of having to cope with AIDS-related illness (Steinberg et al., 2002). Research in **Tanzania** has shown that women spend up to 50% less time doing farm work when their husbands are seriously ill (Rugalema, 1999). Meanwhile, access to productive resources such as land, credit, knowledge and skills, training and technology is very often decided along gender lines, with women typically discriminated against.

Households often dissolve when an adult female dies—as happened in the case of two-thirds of households surveyed in Manicaland (**Zimbabwe**) (Mutangadura, 2000). Much of the burden generated by the death of an adult woman then tends to shift onto other, usually older, women who step in to foster the children, as several studies have found (Steinberg et al., 2002; UNICEF and UNAIDS, 2003).

In many countries, female-headed households—including those run by elderly women—are much more likely to take in orphans and to take in a greater number of orphans than male headed households, as Figure 5 shows. As the epidemic's toll grows, more grandmothers are now caring for

Figure 5



orphans than they did a decade ago. It is estimated that grandmothers in **Botswana**, for example, care for roughly half the children who have lost a mother or father (UNICEF and Ministry of Local Government Botswana, 2003).

Social welfare systems in most of the hardest-hit countries are too flimsy to relieve these burdens. As a result poor households—and particularly the women and girls in them—have very little possibility of accessing external support that could shield them against the brunt of the epidemic's impact. Families, communities and governments cannot rely on women's fortitude and resilience alone to provide sustainable safety nets. Whether tending the sick, tilling fields, earning income or volunteering help, women's work is an essential part of household and national economies. The burdens added by AIDS entail costs not just to women and their households but to economies at large—and those burdens have to be relieved. AIDS home care programmes need to be extended beyond medical and nursing care to include counselling, food assistance, welfare support, schooling subsidies and income opportunities that benefit households. Needed, too, are social protection and economic support for older people and those caring for orphans—as well, as smoother administrative procedures for accessing pensions and child support grants, which often sustain entire families (HelpAge International, 2004).

Denial of women's inheritance and property rights

Women's vulnerability to HIV is further exacerbated by unequal property and inheritance rights. The status of those rights varies greatly around the world. Among developing regions, most of Latin America has relatively egalitarian gender inheritance norms, though some land reform and post-war resettlement initiatives have neglected gender concerns. Striking gender inequalities in control over property and other assets persist in South Asia, despite efforts to extend women's rights. In much of sub-Saharan Africa, property is usually owned by men, with women occasionally acquiring rights mainly by virtue of marriage. Multiple legal regimes overlap in many African countries, incorporating old colonial laws, more recent constitutional law, and ongoing customary law (and, in some places, Shariat). Shifts in customary law during colonial rule in southern Africa, for example,

have meant that the law is often interpreted to the detriment of women. Colonial administrations superimposed concepts of private property and a rigidly patriarchal system on traditional property dispensations. This helped transform the principle that men administer and inherit property to the benefit of the clan into claims of individual property ownership without corresponding obligations (Women and Law in Southern Africa Research Trust, 1998).

The payment of bride-price upon marriage tightens men's control over women and property; in some countries women remain legal minors even after marriage (Human Rights Watch, 2003a). The outcome is a status quo that often fails to recognize or uphold women's property rights, that reduces women's economic security and can lead to women having to endure abusive relationships or resort to sex for economic survival. In some countries, women whose male partners die of AIDS are subjected to property stripping by their spouses' relatives, which casts them into deeper economic insecurity (Human Rights Watch, 2003a; Drimie, 2002).

Lacking the enforceable right to own or inherit land and property, women and girls risk possible destitution after the death of their partners or parents, while poverty and economic dependence leave them exposed to increased sexual exploitation and violence (Strickland, 2004). One FAO study in **Namibia** found that 44% of widows lost cattle, 28% lost small livestock, and 41% lost farm equipment in disputes with in-laws after the death of a husband (Kaori, 2004). Even though legal protections exist in some countries, the reality is that most women are left without recourse. Recalcitrant or disinterested officials, women's own lack of awareness of their rights, and fear of violence, along with the social stigma attached to pursuing a claim mean that many relent to dispossession (Human Rights Watch, 2003a and 2003b).

Legal systems must be adapted to establish and uphold women's property and inheritance rights, and legal precedents need to be established through test cases. This could help cushion the economic impact of AIDS in households. In addition, boosting women's economic independence can reduce their vulnerability to intimate partner violence, intergenerational and transactional sex—and other HIV-related risk factors. But legislation alone is not enough. Public awareness of these issues must be raised. Women's land and housing rights and tenure security should be documented, particularly in high HIV prevalence areas. It is vitally important that traditional authorities and leaders become partners in these efforts, not least because they hold the powers to interpret and adapt customary laws in ways that favour women's rights.

Dealing with the big picture

Strategies are needed to address the structural dynamics of the AIDS epidemic—particularly the wide-ranging gender inequalities that help power the spread of HIV. One of the first steps required is to understand the problem better. National programmes should ensure that data on the epidemic are disaggregated by sex. This will enable a clearer analysis of how gender relations feature in the epidemic, and will highlight the varied demands that AIDS places on women and girls, and men and boys—knowledge that is vital for more effective AIDS programming.

It is equally important that women are more closely involved in designing and guiding programmes that are meant to serve them. This applies particularly to women living with HIV, who can contribute in unique ways to strengthening responses to the epidemic. In addition, the nurturing of strong civil society organizations, particularly women's and youth groups, can improve the reach, accountability and effectiveness of AIDS programmes.

In all these efforts, men and boys must play a greater role. Men currently shape much of the world in which women live; as such, they must be partners in social change. Programmes targeting women must also learn to embrace men as partners in order to help nurture social structures that are more supportive to women. Men's participation in home-based care and other support programmes would be one way of heeding their responsibilities for the health and welfare of their communities and societies. Men and boys are best-placed

to challenge and recast harmful stereotypes of masculinity, to confront the scourge of violence against women, and to assume their share of responsibility for HIV prevention and protection, especially within intimate relationships.

All this marks a huge challenge. Interim, crisis-driven efforts alone might achieve temporary relief but they will prove inadequate in the long run if the conditions that enable HIV to spread are left untouched. This does not mean that the epidemic can only be vanquished once gender equality is achieved. But progress on that front almost certainly will help reduce the scale, severity and duration of the global AIDS epidemic.

The Global Coalition on Women and AIDS

The Global Coalition on Women and AIDS was launched by UNAIDS in early 2004 to highlight the effects of AIDS on women and girls and to stimulate effective action to reduce that impact. The Global Coalition on Women and AIDS is not a new organization but a movement of people, networks and organizations supported by activists, leaders, government representatives, community workers and celebrities. Its work is focused on seven areas:

- preventing HIV infection among adolescent girls;
- reducing violence against women;
- protecting the property and inheritance rights of women and girls;
- ensuring equal access by women and girls to care and treatment;
- supporting improved community-based care, with a special focus on women and girls;
- promoting access to new prevention options, including female condoms and microbicides; and
- supporting on-going efforts towards universal education for girls.

For more information, contact UNAIDS or visit http://womenandaids.unaids.org

SUB-SAHARAN AFRICA

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	25.4 million [23.4–28.4 million]	13.3 million [12.4–14.9 million]	3.1 million [2.7–3.8 million]	7.4 [6.9–8.3]	2.3 million [2.1–2.6 million]
2002	24.4 million [22.5–27.3 million]	12.8 million [11.9–14.3 million]	2.9 million [2.6–3.6 million]	7.5 [7.0–8.4]	2.1 million [1.9–2.3 million]

The AIDS epidemics coursing through this region are highly varied. There is no single, "African" epidemic.

Sub-Saharan Africa has just over 10% of the world's population, but is home to more than 60% of all people living with HIV—some 25.4 million [23.4 million–28.4 million]. In 2004, an estimated 3.1 million [2.7 million–3.8 million] people in the region became newly infected, while 2.3 million [2.1 million–2.6 million] died of AIDS. Among young people aged 15–24 years, an estimated 6.9% [6.3–8.3%] of women and 2.2% [2.0–2.7%] of men were living with HIV at the end of 2004.

Adult HIV prevalence has been roughly stable in recent years. But stabilization does not necessarily mean the epidemic is slowing. On the contrary, it can disguise the worst phases of an epidemic—when roughly equally large numbers of people are being newly infected with HIV and are dying of AIDS.

Not one epidemic, but many

While a bird's-eye view might discern overall stabilizing trends in HIV prevalence, the AIDS epidemics coursing through this region are highly varied—both between and within sub-regions. It is therefore inaccurate to speak of a single, "African" epidemic and misleading to apply insights about the epidemic gleaned from specific parts or subregions, to the entire sub-Saharan Africa region. Because the epidemics are heterogeneous in terms of their intensity, pace and impact, locally-appropriate prevention, treatment and care, and impact-cushioning strategies need to be developed (Asamoah-Odei, Garcia-Calleja and Boerma, 2004).

East Africa now boasts several examples of gradual, modest declines in median HIV prevalence among pregnant women in urban areas. These are still early days, though. Even **Uganda**, which has shown consistent declines in HIV prevalence levels since the mid-1990s, remains burdened with a serious epidemic. In West and Central Africa there is little evidence of changes in prevalence levels, which have stayed steady at 5% or lower (with the significant exceptions of **Cameroon** and **Côte d'Ivoire**, where median HIV-prevalence levels have reached and then remained at roughly the 10% mark among pregnant women at some sites in recent years) (Asamoah-Odei, Garcia-Calleja and Boerma, 2004). National prevalence statistics, though, can hide much higher levels of infection in particular provinces, states or districts.

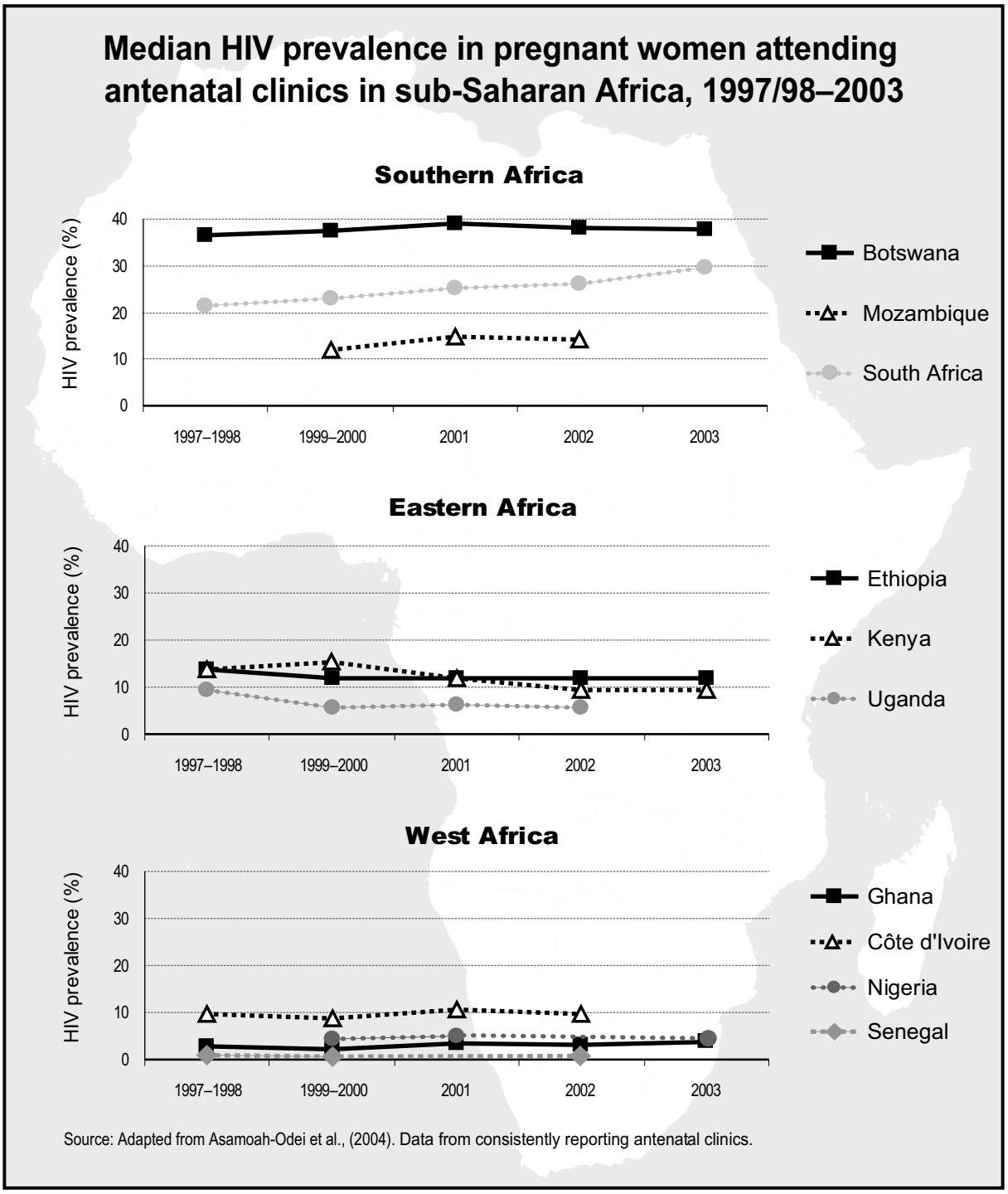


Figure 6

Unfortunately, southern Africa offers only faint hints of impending declines in HIV prevalence. With the exception of **Angola** (where the epidemic's progression may have been retarded during the country's long civil war with the result that national HIV prevalence has not exceeded 5%), each country in this subregion is experiencing national HIV prevalence of at least 10%. This means that an estimated 11.4 million (10.5 million–12.6 million) people are living with HIV in these nine countries—almost 30% of the global number of people living with HIV in an area where only 2% of the world's total population resides.

While HIV prevalence measured at antenatal clinics has edged lower in parts of some countries and in specific age groups (for example, Lilongwe, **Malawi**), there is no sign yet of an overall, national decline in any southern

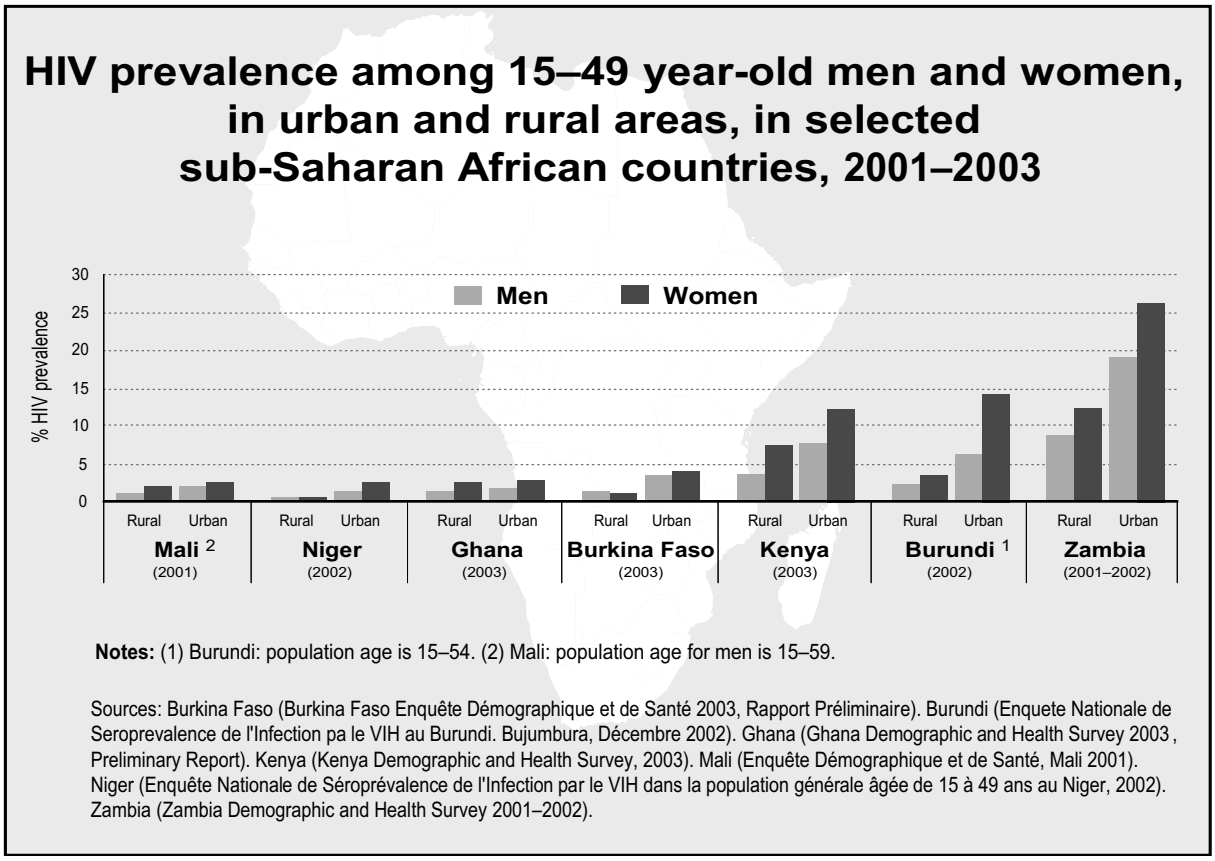


Figure 7

African country. It is vital, however, to bear in mind that prevalence levels present a delayed picture of the epidemic, since they reflect HIV incidence patterns of several years previously. HIV prevalence describes the total number of people living with HIV, irrespective of when they have been infected; incidence, on the other hand, refers to the number of people who became infected over a specific period, usually the previous year. Across the subregion, prevention and treatment efforts have grown manifold in the past five years—in both scope and scale. There is no simple and reliable method to assess HIV incidence in sub-Saharan Africa. The closest proxy would be HIV prevalence in 15–24 year-old pregnant women. In South Africa, infection levels continue to rise in that age group of women, while in the other countries in southern Africa, the indicator reveals little sign of change.

HIV infection is becoming endemic in sub-Saharan Africa. Current high prevalence levels mean that even those countries that do eventually reverse the epidemic's course will have to contend with serious AIDS epidemics for many subsequent years. The havoc wrought by AIDS will shape the lives of several generations of Africans.

"Stabilization" can disguise the worst phases of an epidemic—when roughly equally large numbers of people are being newly infected with HIV and are dying of AIDS.

But underlying this diversity are some striking consistencies. Across the region, women are disproportionately affected by HIV. On average, there are 13 women living with HIV for every 10 infected men and the gap continues to grow. In most countries, women are being infected with HIV at earlier ages than men. The differences in infection levels between women and men are most pronounced among young people (aged 15–24 years). Recent population-based studies suggest that there are on average 36 young women living with HIV for every 10 young men

in sub-Saharan Africa. In **Ghana** the ratio widens to more than nine to one. In a study among women in Harare (**Zimbabwe**), Durban and Soweto (**South Africa**), 66% reported having one lifetime partner, 79% had abstained from sex until at least their 17th birthday (roughly the average age of first sex in most countries in the world), and 79% said they used a condom.

Which are the more accurate: antenatal clinic- or national population-based data?

In countries with generalized epidemics, estimates of HIV prevalence have primarily been based on blood samples left over from syphilis tests of pregnant women in antenatal clinics (or "sentinel surveillance"). Until very recently, these have provided the best available estimates of HIV prevalence in the population.

However, national population-based or household surveys are increasingly becoming available. Such surveys have the potential to improve the accuracy of estimates of HIV because they can provide countrywide data on HIV prevalence for both sexes including samples from remote rural areas rarely covered by sentinel surveillance systems. Population survey data have been used to help refine the estimates for several countries in the UNAIDS/WHO 2003 estimates (including the Dominican Republic, Kenya, Niger, South Africa, Zambia and Zimbabwe). They have also enabled the improvement of assumptions about urban-rural and sex differences in HIV prevalence that are used to determine HIV estimates in other countries in the same region.

Both antenatal clinic and population-based survey data, though, have advantages and disadvantages.

National population-based surveys, on the one hand, capture a much wider representation of the general population than do antenatal clinics. They can yield information on HIV prevalence among men and non-pregnant women, and they can provide better coverage of rural populations than antenatal clinic-based surveillance.

On the other hand, the fact that some respondents refuse to participate or are absent from the household adds considerable uncertainty to survey-based HIV estimates (non-response rates ranged from 24% to 42% in recent surveys carried out in some African countries.) The estimates can be adjusted if the basic characteristics of the non-responders can be discerned. The problem is that the survey itself cannot measure the possible association between a person's absence or refusal to participate, and that person's HIV status. It might be that a person's refusal to participate or absence from the household is correlated with a stronger likelihood of HIV infection. (For example, mobile men, who generally have higher levels of HIV infection, are less likely to be found at home for these surveys.)

Meanwhile, antenatal clinic data form the basis for HIV estimates that rest on a set of assumptions that may not apply equally well to all countries and at all stages of the epidemic. (It is assumed, for example, that HIV prevalence among pregnant women is roughly the same as in the adult population overall, that the ratio of women with HIV to men with HIV is 1.3:1, and that adult survival time is roughly nine years. Assumptions about age distribution of HIV infections are also factored in.) In addition, most antenatal clinic-based surveillance systems have limited geographical coverage, which can lead to significant variations in the quality of the national estimate of HIV prevalence across countries.

With the exception of South Africa, such surveillance systems often select clinics located in urban or peri-urban areas, both for ease of access and because those clinics serve a larger number of pregnant women and can yield sufficient sample sizes during data collection. Often this leads to few data being available from pregnant women in rural areas. This bias can be corrected, but it introduces a further layer of uncertainty (the extent of the differences between HIV prevalence levels in urban and in rural areas).

Nevertheless, antenatal clinic-based data are especially useful for gauging HIV trends over the years. National household surveys help fill out our picture of the epidemic. Conducted at three-to-five-year intervals, such surveys can serve as valuable components of surveillance systems and can help improve estimates of the levels and trends in HIV prevalence.

All in all, there is no gold standard for HIV surveillance. All HIV estimates need to be assessed critically—whether they are based on a national survey or on sentinel surveillance data. Using all available data to arrive at HIV estimates ensures the best possible quality.

Yet, 40% of the young women were HIV-positive (Meehan et al., 2004). Many are being infected despite staying loyal to one partner.

Sexual abuse and violence—much, but not all of it directed against females—are serious problems that transcend economic, social, ethnic and geographical lines. Adolescents, children and young women and girls in particular experience increased abuse in the form of domestic violence, rape and sexual assault, and sexual exploitation or undergo female genital mutilation. In some **Ugandan** surveys, 46% of women said they have endured regular physical abuse, while in **Kenyan** and **Zambian** studies more than 40% of women have reported abuse. For some young women, their first sexual encounter occurs under coercion or force, which can be associated with an increase in HIV transmission.

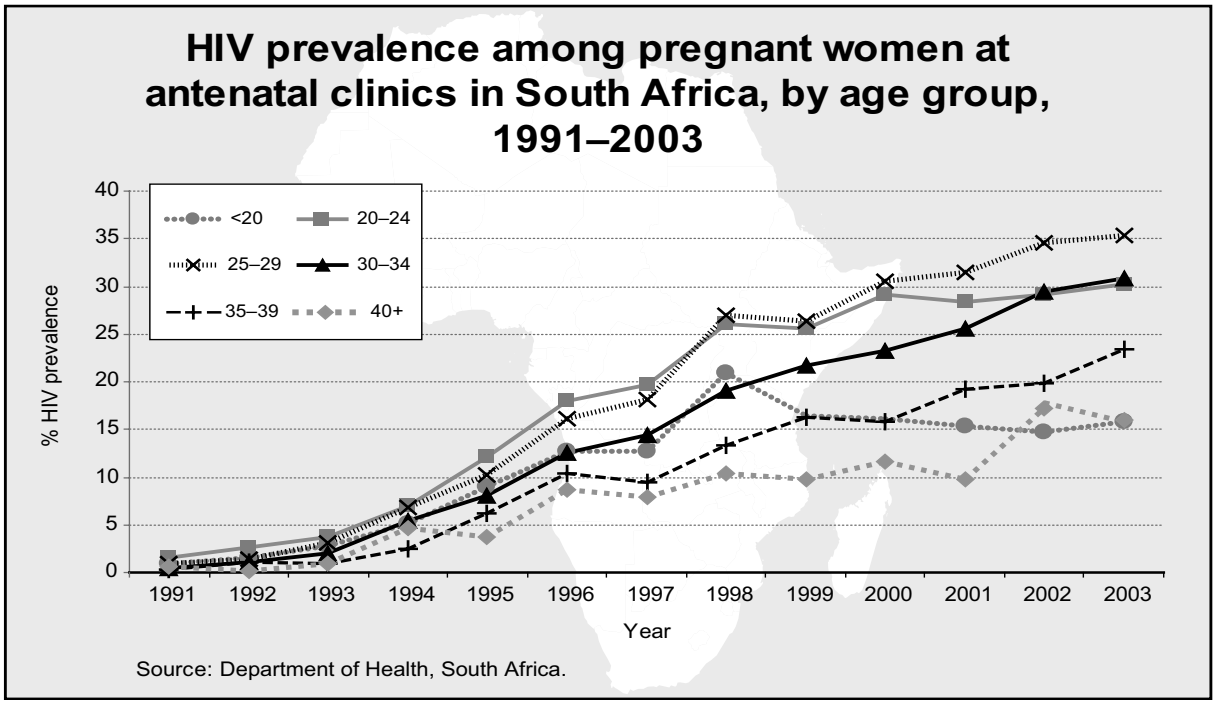
Southern Africa

Southern Africa remains the worst affected subregion in the world, with data from selected antenatal clinics in urban areas showing HIV prevalence surpassing 25%, having risen sharply from around 5% in 1990.

South Africa continues to have the highest number of people living with HIV in the world. An estimated 5.3 million [4.5 million–6.2 million] people were living with HIV end-2003 in South Africa—2.9 million [2.5 million–3.3 million] of them women. Unfortunately, there is no sign yet of a decline in the epidemic. Overall HIV prevalence among pregnant women was 27.9% in 2003, compared with 26.5% in 2002 and 25% the year before that. Latest data suggest prevalence levels are still increasing in all age groups, except for pregnant women older than 40 years of age, as Figure 8 shows. One recent population-based survey has indicated possible shifts towards safer sex among young South Africans (Reproductive Health Research Unit, Medical Research Council, 2004). However, prevalence levels among pregnant women aged 15–24 years have continued to rise—from 23.1% in 2001 to 24.3% in 2003. The survey reveals significant regional variation, with prevalence among pregnant women exceeding 30% in three provinces (Free State, Mpumalanga and KwaZulu-Natal, reaching 37.5% in the latter) while ranging between 13% and 17.5% in Western Cape, Northern Cape and Limpopo. Since 2001, HIV prevalence has risen in all but two provinces (Free State and Gauteng) (Ministry of Health South Africa, 2004).

Very high HIV prevalence—often exceeding 30% among pregnant women—is still being recorded in four other countries in the region, all with small populations: **Botswana, Lesotho,**

Figure 8



Namibia and **Swaziland.** There, comparisons of prevalence levels at selected antenatal clinics have shown no evidence of a decline. In Swaziland, for example, HIV prevalence among pregnant women was 39% in 2002, up from 34% in 2000 and only 4% in 1992. Elsewhere in the subregion, HIV infections in pregnant women appear to be stabilizing at lower levels—around 18% in **Malawi** (2003), 16% in **Zambia** (2003), and 25% in **Zimbabwe** (2003)—but there is little evidence of an impending decline. In Zimbabwe's case, it is estimated that new HIV infections have stayed roughly steady since 1996-1997. As in the other countries in the region, women are disproportionately bearing the brunt. An earlier population-based survey in Zimbabwe found that twice as many of the surveyed women aged 15–24 years as men in this age group were living with HIV (prevalence was 22% and 10%, respectively). Overall, almost 57% of people with HIV in 2003 were women and an equal proportion of AIDS deaths were among women (Ministry for Health and Child Welfare Zimbabwe, 2004). It is worth noting, though, that the epidemic's severity can vary considerably within countries—even in a small country such as Malawi, for example, where a recent review of HIV data found district-level prevalence among adult women ranged from 4% to 18%, with the highest prevalence found in the south (Montana et al., 2004).

Across the region, women are disproportionately affected by HIV. On average, there are 13 women living with HIV for every 10 infected men.

Angola is an exception in the region. During nearly two generations of war, civilians' movements were restricted, transport links severed, and parts of the country were intermittently cut off from the outside world. Available data suggest that those conditions probably slowed the spread of HIV. Median HIV prevalence of approximately 3% has been measured at antenatal clinics in the capital, Luanda (HIV-surveillance systems elsewhere are still being assembled). However, high levels of HIV—roughly 33%—have been detected among sex workers in the capital, a clear sign that the virus could take hold in networks where the risk of HIV transmission is particularly high. After two years of relative peace and with normal life resuming for

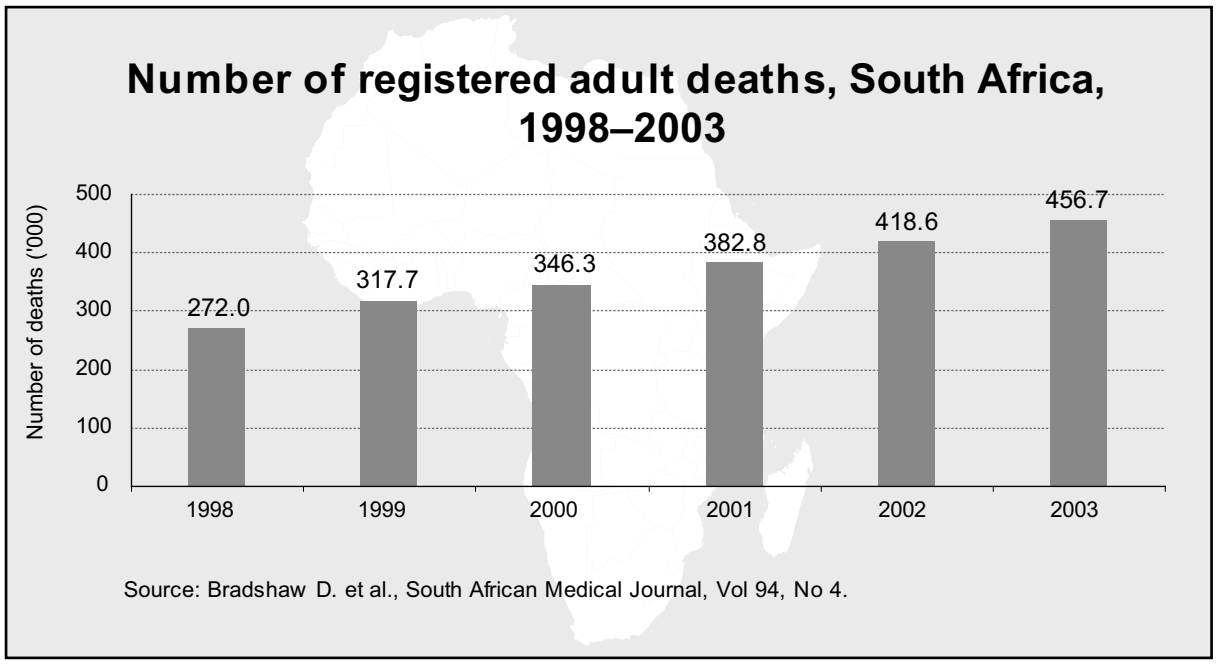
Youth, sex and HIV in South Africa

Effective prevention among young people is essential. Throughout southern Africa, HIV prevalence sharply increases once people reach their twenties. The trend is vividly captured in a new, comprehensive study on HIV and sexual behaviour among young South Africans (conducted by the Reproductive Health Research Unit and Medical Research Council).

The study shows HIV prevalence to be comparatively low among 15–19 year-olds, at 4.8%. This is not that surprising, given that the mean age of first sex reported by respondents was 16.4 years for young men and 17 years for young women. It's in the next age group—among 20–24 year-olds—that HIV prevalence soars, reaching 16.5%. In this age group, HIV infections are massively concentrated among women. About one-in-four (24.5%) women surveyed was HIV-positive, compared to one-in-thirteen (7.6%) men. Indeed, more than three quarters (77%) of young South Africans living with HIV are female, a discrepancy that only begins to fade among South Africans 30 years and older. Similar to young people around the world, many young South Africans (62%) who learn they are HIV-positive believed they had faced little or no risk of contracting the virus.

Young women were found to be disproportionately at risk of HIV infection. Sexual aggression is common, with more than one quarter (28%) of the women saying their first sexual experience was unwanted, and one in ten (10%) saying they had been forced to have sex. Almost half (49%) the young women who'd had sex said they had been pregnant at some point—suggesting that condom use was not the norm. Indeed, fully one third of those youth who had had sex in the previous 12 months never used a condom, and two thirds had not used one with their most recent sexual partner (Reproductive Health Research Unit, Medical Research Council, 2004).

Figure 9



millions of Angolans, there is every reason to fear much more widespread and rapid HIV transmission in this country.

Newly published study findings show southern Africa to be firmly in the grip of the AIDS epidemic, as more people succumb to HIV-related illnesses and die. Life expectancy at birth has dropped below 40 years in nine African countries—**Botswana, Central African Republic, Lesotho, Malawi, Mozambique, Rwanda, Swaziland, Zambia** and **Zimbabwe**. All are severely affected by AIDS (UNDP, 2004). By 2000, adult mortality among women in northern **Namibia** was 3.5 times and among men 2.5 times the 1993 level. For men, the probability of dying between the ages of 15 and 60 years increased from 220 per 1000 to 550 per 1000, while for women it rose from 95 per 1000 to 335 per 1000. With the increases concentrated among young adults (there were no mortality increases among adolescents and older men and women), AIDS is the major factor causing this trend (Notkola, Timaeus and Siiskonen, 2004). In Zimbabwe, meanwhile, life expectancy at birth was 34 years in 2003, compared with 52 years in 1990 (Chitate and Muvandi, 2004). Analysis of **South Africa's** death registration data shows a rise in the total number of adult deaths in the past six years (see Figure 9)—an increase of more than 40% and, in the case of women aged 20–49 years, an increase of more than 150% once population growth and possible improvement in death registrations are taken into account (Bradshaw, 2004).

Detailed demographic surveillance is providing further evidence of steep rises in mortality. One such survey, conducted in a rural area of KwaZulu-Natal province, which has high HIV prevalence among pregnant women, has confirmed a sudden and massive rise in adult mortality starting in the late 1990s, with AIDS (with or without TB) constituting the leading cause of adult death (48%) by 2000. The risk of dying from AIDS for women peaks among women aged 25–39 years and among men aged 30–44 years. These AIDS mortality rates will almost certainly worsen in the coming years, since HIV-prevalence levels in this particular district rose steeply in the late 1990s. AIDS mortality reflects HIV incidence roughly a decade or so earlier (Hosegood, Vanneste and Timaeus, 2004).

East Africa

Some countries in East Africa do display signs of real declines in HIV infection levels. **Uganda**, where national prevalence fell from 13% in the early 1990s to 4.1% (2.8–6.6%) by end-2003, is the most notable, but by no means the only example. Comparisons of HIV prevalence among antenatal clinic attendees across the subregion show an overall significant decline from a median of 12.9% (7.0–16.9%) in 1997-1998 to 8.5% (5.3–14.0%) in 2002 (Asamoah-Odei, Garcia-Calleja and Boerma, 2004). There

Inside the factory gates

Antenatal clinic-based surveillance captures relatively few demographic details. Population-based surveys, though, can help fill out the picture of the epidemic. Findings from 34 such surveys among mining and manufacturing workers in southern Africa were recently published and offer a suggestive picture of HIV spread among wage-income workers. Conducted in 2000-2001, the surveys found HIV prevalence of 24.6% (23.6–25.7%), 14.5% (14.1–14.9%) and 17.9% (17.1–18.7%) among 44 000 workers in **Botswana, South Africa** and **Zambia**, respectively. Workers in the mining sector had the highest levels of infection. Within workforces, infection levels varied significantly—with contract (23%, 21.9–24.1%), unskilled (18.3%, [17.5–19.1%]) and semi-skilled workers (18.7%, [18.1–19.4%]) much more likely to be HIV-positive than skilled workers (10.5%, [9.5-11.4%]) and managers (4.5%, [3.4-5.6%]). Research has suggested that less skilled workers (including contract workers) in the mining sector are more likely to be migrants (living away from home for extensive periods) and more likely to frequent sex workers. Zambia's mining sector, though, was an exception. There, skilled workers had very high infection prevalence of 26.4% (11.4–41.3%). Also striking was the high HIV level among workers older than 49 years: just over 10% in South Africa and Zambia, and 18% in Botswana (Evian et al., 2004).

Other recently published research ascribes the increase in TB infections among both HIV-positive and HIV-negative gold miners in South Africa to the HIV epidemic. Conducted at four mines during the 1990s, the study found TB incidence rose from 0.5% in 1991 to 1% in 1997 and 2% in 2000. Incidence among HIV-negative miners more than doubled between 1991-1992 and 1995–1997 (from 0.5% to 1.3%), an increase that was likely caused by the onward transmission of TB from the larger numbers of HIV-positive miners with TB (Sonnenberg et al., 2004).

are exceptions, such as Madagascar, where an apparent rise in HIV prevalence among pregnant women has been detected—reaching 1.1% in 2003 compared with 0.3% just two years earlier (Ministère de la santé Madagascar, 2003). However, it is too early to know whether this heralds a trend, since other HIV indicators (such as prevalence among sex workers) have remained low.

2004). **Ethiopia**'s epidemic is most severe in urban areas, including in the capital Addis Ababa. However, there are encouraging signs that the declining HIV trend among pregnant women in the capital (first detected in 1997) is continuing. By 2003, HIV prevalence in the city had fallen to 11%, less than half the level (24%) it had reached in the mid-1990s. Overall, in 10 antenatal clinics in Ethiopia, median prevalence dropped from

East Africa boasts several examples of gradual, modest declines in HIV prevalence among pregnant women in urban areas. Unfortunately, there is no sign yet of an overall, national decline in any southern African country.

The downward trend is most firmly established in **Uganda**, which saw HIV prevalence decline steeply during the mid- and late-1990s, remaining subsequently at 5% to 6%. Recent data suggest **Kenya** could be on a similar path. There, data from antenatal clinics show median HIV prevalence falling from 13.6% (12.2–27.1%) in 1997-1998 to 9.4% (6.6–14.3%) in 2002 and then staying largely unchanged in 2003. Figures for **Burundi** also suggest a decline in HIV prevalence, but this is based on limited data from only six clinics (Asamoah-Odei, Garcia-Calleja and Boerma,

13.7% in 1997-1998 to 11.8% in 1999-2000, and has remained at about 12% since then (Asamoah-Odei, Garcia-Calleja and Boerma, 2004).

These are heartening developments but still-high HIV-prevalence levels underscore the need to redouble and extend prevention efforts throughout these countries. It is much too early to claim that these recent declines herald a definitive reversal in these countries' epidemics and, furthermore, the need for treatment, care and support will continue to increase for years to come.

Meanwhile, a clearer picture is emerging of the epidemic in **Eritrea**, where the most detailed round of HIV sentinel surveillance to date has fixed prevalence at 2.4% in 2003. Overall HIV prevalence in the country appears to be stabilizing. However, infection levels vary considerably—highlighting a need to intensify and to refine the focus of prevention efforts. Prevalence reached 7.2% along the country's southern coastal strip, and was more than three times as high in urban than in rural areas. Prevalence was highest overall among young unmarried women in urban areas (7.5%), most of whom had partners in the military. Women working in bars, hotels and teashops or as housemaids appeared to be particularly susceptible to infection (Ministry of Health Eritrea, 2004).

Overall, there is no evidence of nationwide HIV prevalence decline in **Tanzania**. However, in Mbeya region, which has been the focus of intense prevention efforts over the past 13 years, HIV prevalence among 15–24 year-old women fell from 20.5% in 1994-1995 to 14.6% in 2000, while condom use rose and treatment for other sexually transmitted infections increased, and a significant delay in age at first sex was noted over the same period. In contrast, in the urban parts of neighbouring Rukwa region, where only sporadic prevention efforts were mounted, prevalence in this age group rose from 22.5% in 1994 to 30.2% in 1999 (Jordan-Harder et al., 2004). This suggests that the specific interventions mounted in Mbeya probably helped drive down HIV prevalence there. Other research in Tanzania has encountered a marked lack of behaviour change in areas where low-intensity HIV-prevention programmes have been introduced. A district HIV-prevention programme launched in the mid-1990s in Mwanza, for example, appears to have made little headway against the epidemic. A recently published study found that HIV prevalence increased gradually from 5.9% in 1994-1995, to 6.6% in 1996-1997 and 8.1% in 1999-2000. There was a small increase in condom use and in knowledge about the epidemic, but sexual risk behaviour was unchanged and most people felt they were not at risk of HIV infection (Mwaluko et al., 2003). Low-cost, standard district and community-level prevention programmes are clearly not sufficient to change the course of the epidemic.

West Africa

Although varying in scale and intensity, the epidemics in **West Africa** appear to have stabilized in most countries. Median HIV prevalence measured among women in 112 antenatal clinics in the subregion remained at an average 3% to 4% between 1997 and 2002 (Asamoah-Odei, Garcia-Calleja and Boerma, 2004). Overall, HIV prevalence is lowest in the Sahel countries and highest in **Burkina Faso, Côte d'Ivoire** and **Nigeria**—the latter having

Commercial Sex and HIV in West Africa

Commercial sex remains the main driver of West Africa's epidemics. Very high prevalence rates are being found among women who sell sex, even in countries where infection levels remain generally low among adults. **Ghana**, where adult national HIV prevalence was estimated at just over 3% in 2003, is a case in point. In the capital, Accra, approximately 80% of HIV infections among men have been acquired from women who sell sex. Prevalence ranged from 15% among men buying sex from mobile sex workers to 32% among the boyfriends of sex workers. At least one study has suggested that a successful 100% condom-use programme could turn the country's epidemic around (Cote et al., 2004). In **Niger**, meanwhile, adult national HIV prevalence was just over 1% in 2003, yet a survey among sex workers in three regions the year before found that between 9% and 38% of them had tested HIV-positive. The lowest levels were in Komabangou, and the highest in Maradi, while in Arlit 30% of the surveyed sex workers were infected (Sanda et al., 2004). **Senegal**, long-feted as an HIV success story, has been seeing slowly-rising HIV levels among women who sell sex. In the capital, Dakar, prevalence stood at 14% in 2002, while among sex workers in other areas (such as Kaolack and Ziguinchor) it had risen to over 20% by the same year, as Figure 10 shows—underscoring the need to intensify prevention work both among sex workers and their clients (UNAIDS/WHO, 2004).

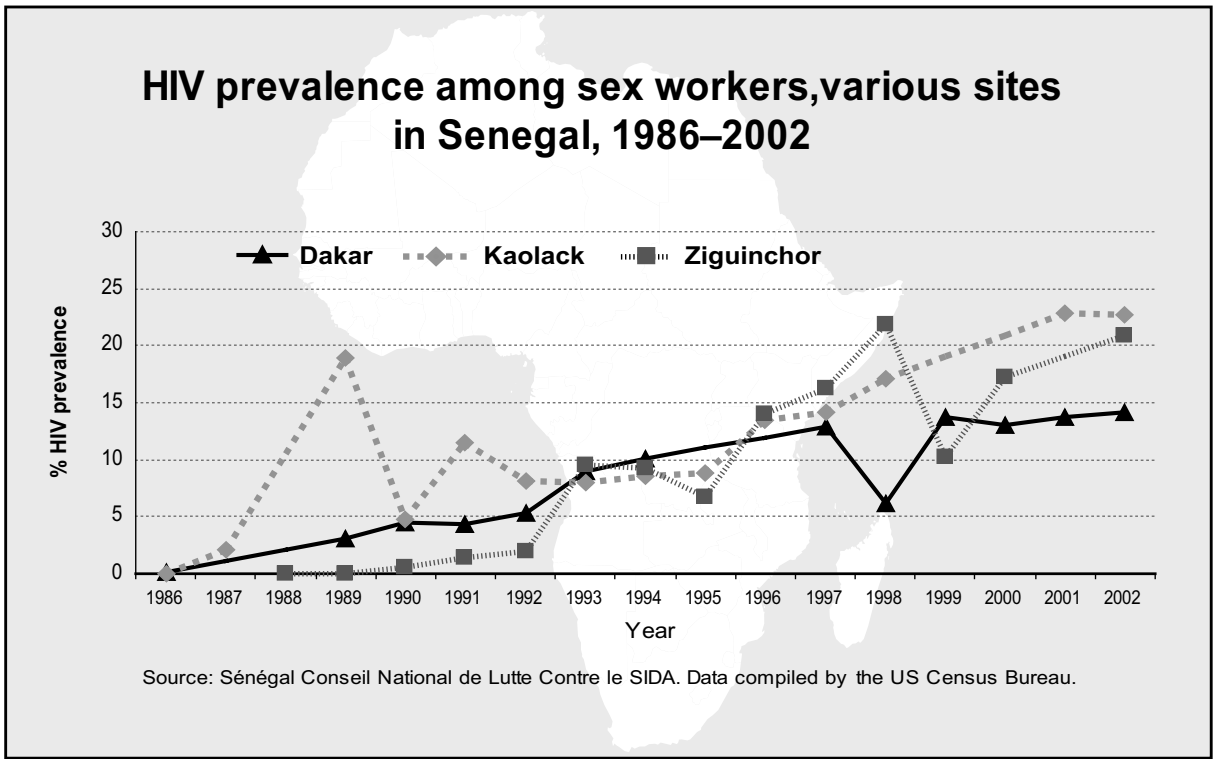


Figure 10

the third-largest number of people living with HIV in the world (after South Africa and India).

Nigeria's 2003 HIV sentinel survey put national HIV prevalence at 5%, a rise from the 1.8% found in 1991 but roughly level with the 5.4% recorded in 1999. Prevalence levels are highest among young people, particularly women aged 20–29 years. However, the apparent stabilization at national level hides strong regional differences in this vast and socioeconomically diverse country, where prevalence ranges from a low of 2.3% in the South West to a high of 7% in the North Central parts. At state level, the variations are even greater. In Osun and Ogun, for example, prevalence among pregnant women was 1.2% and 1.5%, respectively, while in Benue it was 9.3% and in Cross River 12% (Federal Ministry of Health Nigeria, 2003). This suggests that several, more or less distinct, epidemics are underway in Nigeria. If prevention efforts are to succeed, they will need to be informed by improved data and analysis in order to address the specific dynamics of these various epidemics.

Côte d'Ivoire has continued to report the highest level of HIV prevalence in West Africa since the beginning of the epidemic—although prevalence in the capital Abidjan in 2002 was the lowest it had been in five years, at 6.4% compared with 13% in 1999. National adult HIV prevalence in **Togo** has stayed roughly steady at around 4%. The most recent sentinel surveillance, though, shows an epidemic that is largely concentrated

Changing behaviour?

Comparisons of the most recent data concerning sexual behaviour among young people paint a mixed picture. Gathered from Demographic and Health Surveys over a five-year period, the data show young men in **Uganda** and **Zambia** and young women in **Malawi**, **Uganda** and Zambia were most likely to use condoms (see Figure 11). But in **Tanzania** there was no change in the proportion using a condom at last sex. And, while the proportion of women engaging in sex with a non-marital, non-cohabitating partner declined in Zambia, it declined only for men in Uganda and increased for both men and women in Tanzania (see Figure 12). These data (like the Tanzanian study, discussed earlier) indicate that additional efforts achieving high coverage levels are needed to achieve the behavioural change needed to lower prevalence levels. Interventions that are piecemeal and that do not address the contexts in which people live their lives are unlikely to significantly alter behaviour or influence the course of the epidemic. In addition, for many women, remaining faithful to a single partner does not protect them against infection; they run the risk of being infected by that very partner.

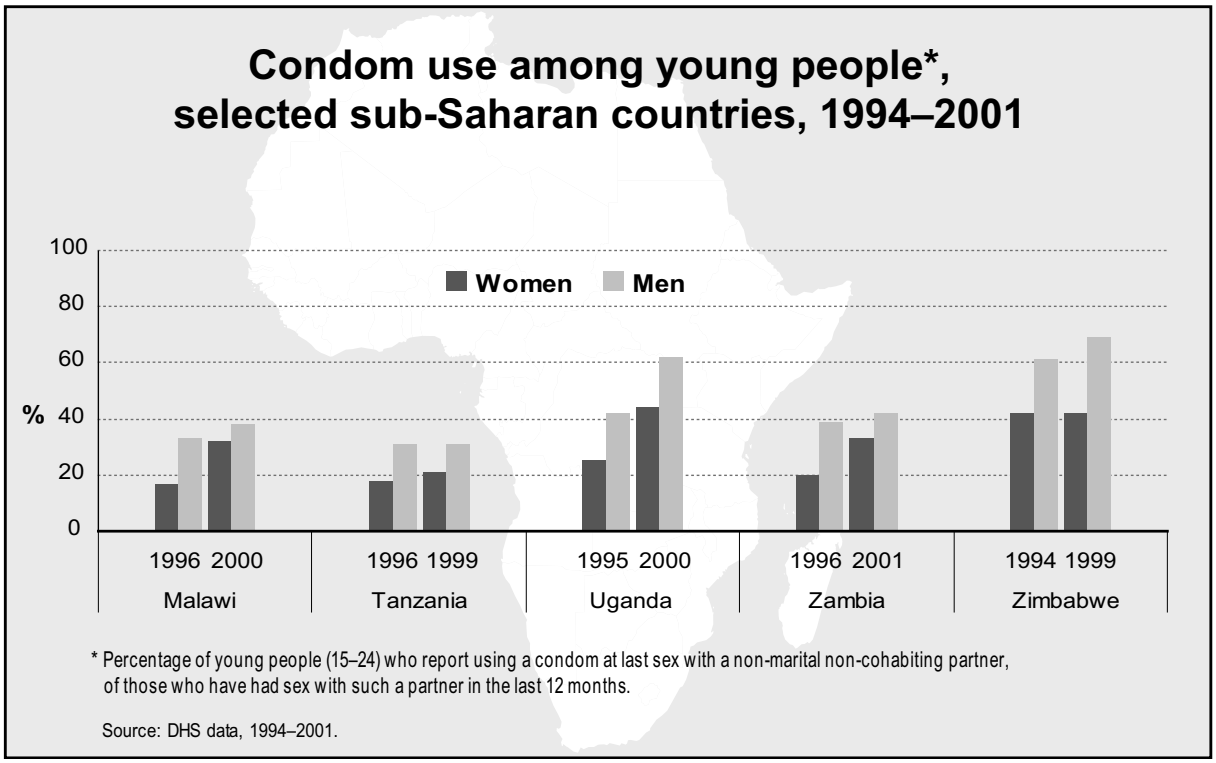
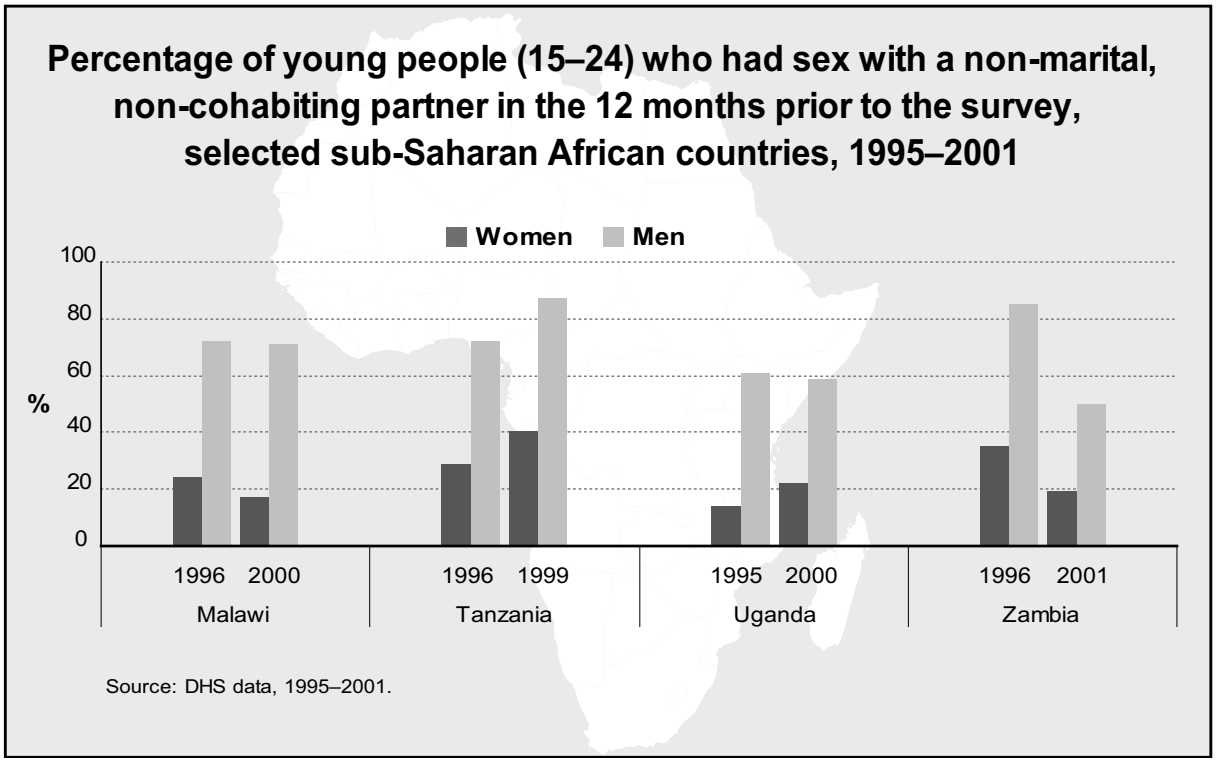


Figure 11

in urban areas, in some of which HIV prevalence among pregnant women exceeded 8% in 2003 (Ministère de la Santé Togo, 2004). In the two countries flanking it—**Ghana** and **Benin**—HIV prevalence is in the 2% to 4% range with little change noted over time (Cote et al., 2004).

Serious epidemics are underway in **Central Africa**, with **Cameroon** and the **Central African Republic** worst-affected. Here, too, HIV prevalence among pregnant women appears to have stabilized—albeit at high levels (of roughly 10%). In the **Congo**, meanwhile,

Figure 12



national adult prevalence has edged below 5%—with new estimates putting it at 4.2% (3.5–4.8%) with parts of the south of the country remaining the worst-affected. Unusually, HIV prevalence peaks in older age groups (reaching 10% among men aged 35–49 years and 7% among women aged 25–39 years). But younger women remain disproportionately affected: those younger than 35 years are twice as likely to be HIV infected than are men in that age group—once again highlighting the need to ensure that effective prevention efforts are tailored to reach and benefit younger women. (Ministère de la Santé du Congo, 2004). Median HIV prevalence in **Chad** has remained at about 5% since the late 1990s to the early 2000s (the most recent available data) (Asamoah-Odei, Garcia-Calleja and Boerma, 2004). In the **Democratic Republic of Congo**, two recent rounds of HIV testing among pregnant women attending antenatal clinics showed overall prevalence ranging between 4.1% and 4.9%. However, HIV levels varied considerably in different parts of the country—from as low as 1.8% in rural Mikalayi and roughly 3% in urban Bukavu and Bunia, to 6.3% and 7%, respectively, in the cities of Kisangani and Lubumbashi. Striking, too, were the high HIV levels recorded in some rural areas, such as Lodja and Neisu, where prevalence was 6.5% and 6.7% (Ministère de la Santé République Démocratique du Congo, 2004).

CARIBBEAN

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	440 000 [270 000–780 000]	210 000 [120 000–380 000]	53 000 [27 000–140 000]	2.3 [1.5–4.1]	36 000 [24 000–61 000]
2002	420 000 [260 000–740 000]	190 000 [110 000–360 000]	52 000 [26 000–140 000]	2.3 [1.4–4.0]	33 000 [22 000–57 000]

The Caribbean is the second-most affected region in the world. Among adults aged 15–44, AIDS has become the leading cause of death.

More than 440 000 [270 000–780 000] people are living with HIV in the Caribbean, including the 53 000 [27 000–140 000] people who acquired the virus in 2004. An estimated 36 000 [24 000–61 000] people died of AIDS in the same year. Among young people 15–24 years of age, an estimated 3.1% [1.6–8.3%] of women and 1.7% [0.9–4.6%] of men were living with HIV at the end of 2004. In the Caribbean Community (CARICOM) region 370 000 [210 000–710 000] people are living with HIV, including the 48 000 [22 000–140 000] people who acquired the virus in 2004. More than 29 000 [17 000–54 000] people died of AIDS in the past year*.

With average adult HIV prevalence of 2.3%, the Caribbean is the second-most affected region in the world. In five countries (the **Bahamas**, **Belize**, **Guyana**, **Haiti** and **Trinidad and Tobago**), national prevalence exceeds 2%. Overall, the highest HIV-infection levels among women in the Americas are in Caribbean countries and AIDS has become the leading cause of death in the Caribbean among adults aged 15–44 years (Caribbean Epidemiology Centre, PAHO, WHO, 2004). Life expectancy at birth in 2010 is projected to be 10 years less in Haiti and in Trinidad and Tobago nine years less than it would have been without AIDS (see Figure 13) (Stanecki, 2004). Several countries and territories with economies that are dependent on tourism rank among those most heavily affected by the epidemic in this region, including the Bahamas, **Barbados**, **Bermuda**, **Dominican Republic**, **Jamaica**, and Trinidad and Tobago. Yet most countries in the region have limited capacity to track the evolution of their epidemics, and are relying on data and systems that do not necessarily match the realities they are facing.

Unlike in Latin America, HIV transmission in the Caribbean is occurring largely through heterosexual intercourse (almost two thirds of all AIDS cases to date are attributed to this mode of transmission), although sex between men, which is heavily stigmatized, and in some places illegal, remains a significant—but still neglected—aspect of the epidemics. HIV transmission through injecting drug use remains rare, with the significant exception of **Bermuda**, where it accounts for a

* CARICOM comprises: Antigua and Barbuda, the Bahamas, Barbados, Belize, Dominica, Grenada, Guyana, Haiti, Jamaica, Montserrat, Saint Lucia, St. Kitts and Nevis, St. Vincent and the Grenadines, Suriname, Trinidad and Tobago.

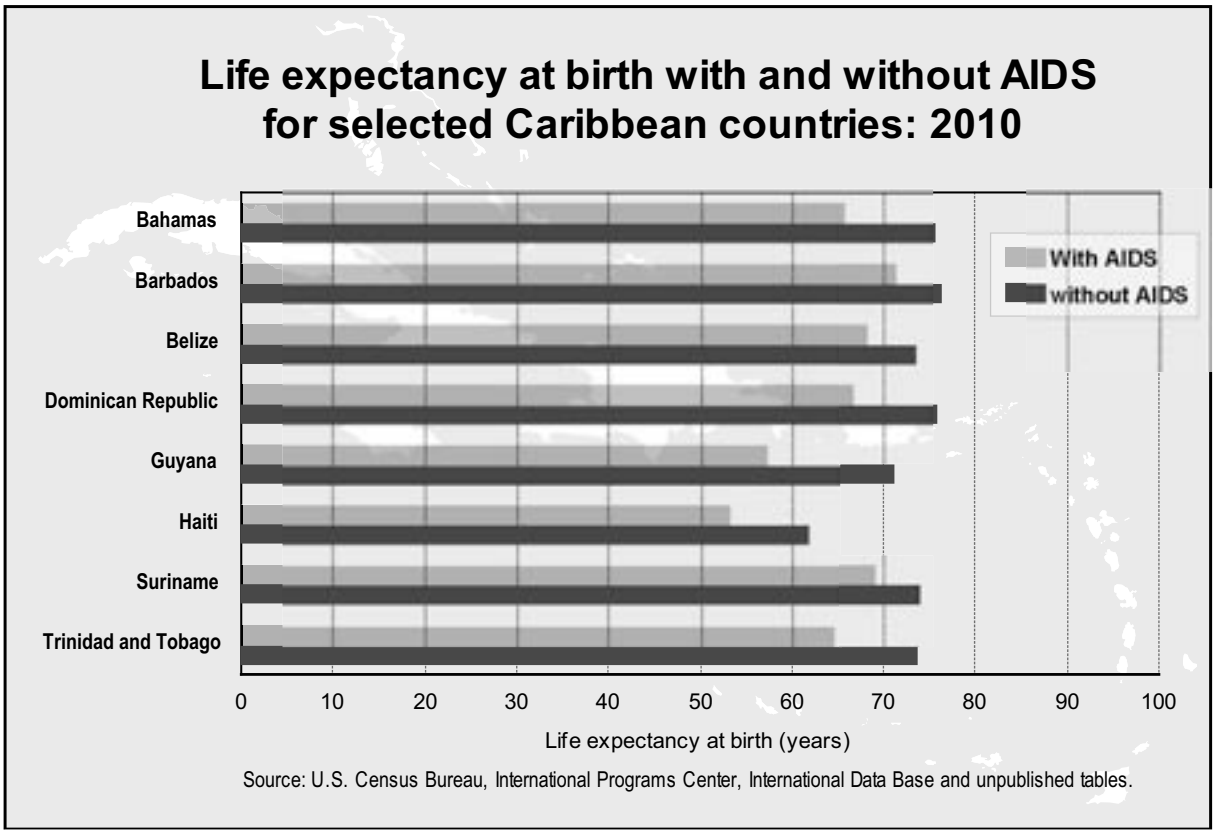


Figure 13

large share (43%) of AIDS cases, and **Puerto Rico**, where more than half of all infections in 2002 were associated with injecting drug use and about one quarter were heterosexually transmitted (Caribbean Epidemiology Centre, 2003; UNAIDS, 2004). As the epidemics in this region evolve, more women are being affected, and the number of new HIV infections among them now outstrips that among men. Latest estimates suggest that roughly as many women as men are now living with HIV in this region. According to a population-based survey carried out in 2002, women younger than 24 years in the **Dominican Republic** were almost twice as likely to be HIV-infected compared with their male peers (MAP, 2003). In **Jamaica** teenage girls are 2.5 times more likely than boys in the same age group (10–19 years) to be infected—due partly to the fact that some girls have sexual relationships with older men who are more likely to be HIV-infected, a trend that has also been documented in several other countries.

Haiti continues to have the largest number of people living with HIV in the Caribbean: some 280 000 [120 000–600 000] at the end of 2003 (UNAIDS, 2004). The most recent sentinel surveillance studies suggest a decline in HIV prevalence. The latest data suggest that median HIV prevalence among women (15–49 years) attending antenatal clinics has fallen from 4.5% in 1996 to 2.8% in 2003-2004 in consistently reporting sites (Ministère de la Santé publique et de la population Haiti et al., 2004). HIV prevalence among pregnant women aged 15–24 years appears to have declined by a similar magnitude as among women of all ages in the same period—from 3.6% to 2.8%. The decline in the youngest age group is usually considered to indicate a decline in incidence. The decline in the older age group of similar magnitude is not easily explained. Increased donor support of HIV surveillance in Haiti in 2003-2004 may have enhanced the quality of surveillance data, making it difficult to compare the latest information with that obtained in earlier surveillance rounds. Further investigation combining trends in prevalence data with trends in behavioural data is needed to examine the reasons for the observed decline in Haiti's HIV prevalence .

The latest round of HIV surveillance among pregnant women shows HIV prevalence varying between 1.8% and almost 7% in different parts of Haiti. Poorer, less educated women are more

likely to be HIV-infected than their better-off counterparts. Recent behavioural surveillance has shown that a significant proportion of the country's largely young population (about 60% of which is under 24 years) is sexually active and having unprotected sex. In a 2001 survey, almost half the young women (and more than half the men) said they had become sexually active before their 18th birthday and 18% of urban women in their late teens (15–19 years) had been pregnant at least once. Although general AIDS knowledge is widespread, misconceptions about the virus continue to circulate, particularly among women—an indication that there is still considerable room to expand and improve prevention efforts.

Jamaica, where an estimated 22 000 [11 000–41 000] people were living with HIV at the end of 2003, has the second-highest annual number of AIDS cases and deaths in the region, after Haiti (UNAIDS, 2004). While a handful of other islands in the region appear to be making incremental inroads against the epidemic by expanding access to antiretroviral treatment (see below), in Jamaica at least 900 AIDS cases have been reported there each year since 1999 and the disease has been claiming between 590 and 690 lives annually over the same period—more than double the numbers just four years earlier (Caribbean Epidemiology Centre, 2004). The most recent round of HIV surveillance indicates that the HIV epidemic is not abating either. HIV prevalence among pregnant women attending antenatal clinics stood at 1.4% nationally in 2002, but was as high as 2.7% and 1.9% in the parishes of St. James and of Kingston and St. Andrews, respectively. High HIV prevalence found among patients at sexually transmitted infection clinics in 2002 seemed to confirm earlier warnings of widespread unprotected sex; almost 8% of men attending these clinics were HIV-positive, as were almost 5% of women (Ministry of Health Jamaica, 2003). In the late 1990s, a study among male adolescents and young adults in Jamaica found that fully 9% had reported symptoms of sexually transmitted infections in the previous year, a clear indication of unprotected sex (Norman and Uche, 2002). There is no evidence to date that these patterns have altered significantly.

Meanwhile, in both the **Bahamas** and **Barbados**, there are indications that stronger prevention efforts since the late 1990s could be forcing HIV-infection levels lower. In the Bahamas (see Figure 14), where an estimated 5000 people were living with HIV at the end of 2003, HIV prevalence among pregnant women fell from 4.8% in 1993 and 3.6% in 1996 to 3% in the latest round of HIV surveillance in 2002. A similar downward trend in HIV levels has been observed among patients at sexually transmitted infection clinics (Department of Public Health Bahamas, 2004). The decline in the annual number of reported AIDS cases (from 320 in 2000 to 164 in 2003) and AIDS deaths (from 272 in 2000 to 185 in 2003) probably reflects this steady drop in prevalence, along with the expansion of antiretroviral treatment access since the turn of the century (Caribbean Epidemiology Centre, PAHO, WHO, 2003).

Several countries with economies that are dependent on tourism rank among those most heavily affected by the epidemic in this region.

Barbados has a smaller epidemic but there, too, a decline in HIV levels is being observed, with new HIV diagnoses among pregnant women dropping substantially between 1999 and 2003, from 0.7% to 0.3% (Kumar and Singh, 2004). Mother-to-child transmission of HIV has also been reduced since the expansion of voluntary counselling and testing services, and the provision of antiretroviral prevention regimens. The rate of mother-to-child transmission declined by 69% between September 2000 and December 2002 (St John et al., 2003). In addition, the introduction in 2001 of antiretroviral treatment for people living with HIV has reversed the trend of AIDS mortality in the island nation. The annual number of AIDS deaths decreased from 114 in 1998 to 50 in 2003, while hospital admissions for treatment of opportunistic infections fell by 42% in the same period. In **Bermuda**, meanwhile, the number of AIDS cases decreased by almost half (19 to 11) between

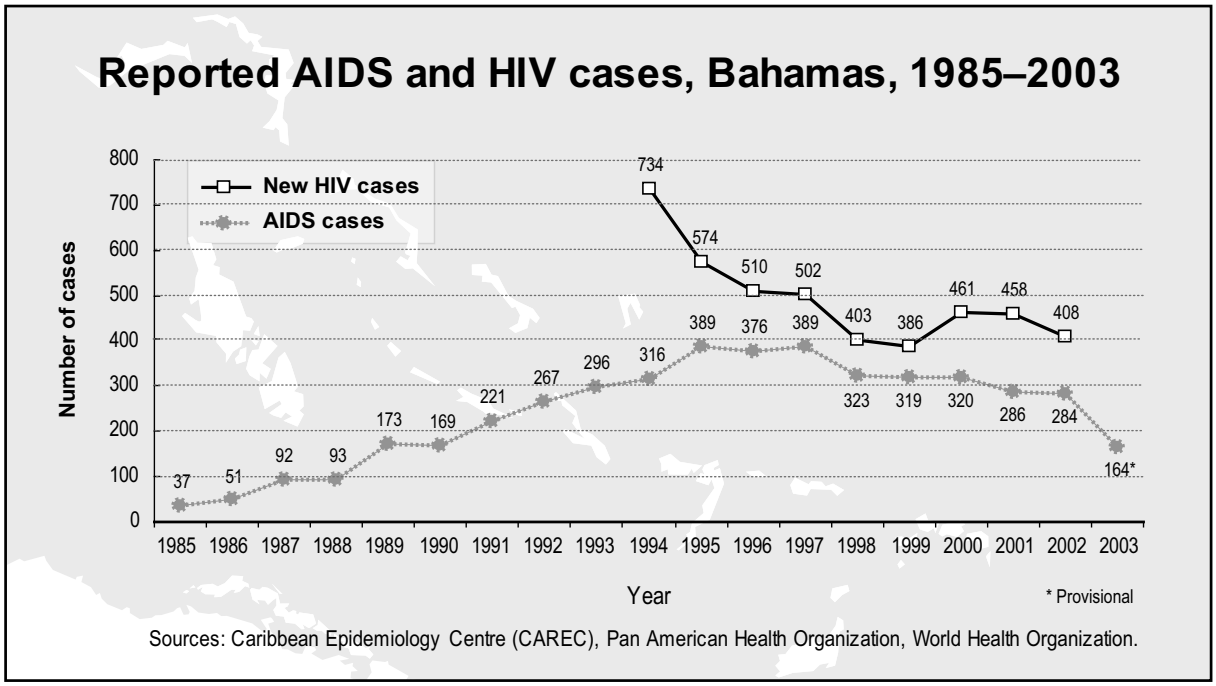


Figure 14

2000 and 2002 (Caribbean Epidemiology Centre, 2004; Caribbean Epidemiology Centre, PAHO, WHO, 2003).

At an estimated 2.5% at the end of 2003, HIV prevalence in **Guyana** was the second-highest in the region. There has been a steep rise in the numbers of HIV cases reported since the mid-1990s. According to the Ministry of Health, officially reported cases probably represent less than one third of the actual number of people living with HIV. Meanwhile, fewer than one fifth of people infected with HIV—the majority of them aged between 20 and 34 years— are aware of their serostatus. Most infections are occurring through heterosexual intercourse. One recent study among miners in the country's Amazon region has revealed an exceptionally high HIV prevalence of 6.5%. The miners, all young men, divide their lives between six to eight week work shifts and two weeks of rest at their homes near the coast. The danger of infected miners transmitting HIV to their regular partners at home or to casual partners near the mine seems substantial (Palmer et al., 2002).

The **Dominican Republic**, which shares Hispaniola Island with Haiti, still faces a serious epidemic with HIV prevalence among pregnant women higher than 2% nationally. In the capital Santo Domingo, HIV prevalence among 15–24 year-old pregnant women—which can offer a hint of recent infection rates—has declined from around 3% in 1995 to below 1% in 2003 (UNAIDS, 2004). This might be due to prevention efforts aimed at encouraging people to adopt safer sexual behaviours. However, the same trend is not apparent elsewhere in the country. Of particular concern is the unusually high HIV prevalence (4.9%) that has been detected among sugar cane plantation workers (MAP, 2003).

In the Bahamas and Barbados, there are signs that stronger prevention efforts could be nudging HIV-infection levels lower.

Cuba has been an exception in this region, with very low HIV prevalence, possibly due, in part, to a policy of quarantining HIV-infected people as a preventive measure during the 1980s. Cuba subsequently abandoned that policy. Meanwhile, universal free access to antiretroviral therapy has kept the number of AIDS cases and deaths very

low. Though still small in scale, the country's HIV epidemic is now growing, however. A sharp increase in newly reported HIV cases has occurred since the late 1990s, with the annual number of reported new cases growing almost five-fold between 1995 and 2000. However, Cuba's epidemic remains small, in contrast to much of the Caribbean. Most new HIV transmission is occurring during sex between men (Caribbean Epidemiology Centre, 2003).

The lack of good quality HIV-surveillance data in most Caribbean countries is hampering the ability to design and run potentially effective prevention programmes, and will almost certainly undermine efforts to expand access to antiretroviral treatment. But social, not just technical, challenges will need to be confronted if the countries of this region are to bring their epidemics under control. Widespread homophobia is providing an ideal climate for the spread of HIV by driving men who have sex with men further away from the information, services, and security they need if they are to protect themselves against HIV. Meanwhile, the unequal social and economic status of women and men is acting as a powerful dynamic in epidemics that are growing amid ongoing stigma, misconceptions and denial.

ASIA

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	8.2 million [5.4–11.8 million]	2.3 million [1.5–3.3 million]	1.2 million [720 000–2.4 million]	0.4 [0.3–0.6]	540 000 [350 000–810 000]
2002	7.2 million [4.6–10.5 million]	1.9 million [1.2–2.8 million]	1.1 million [540 000–2.5 million]	0.4 [0.2–0.5]	470 000 [300 000–690 000]

A handful of countries are still seeing very low levels of HIV prevalence, even among people at high risk of exposure to HIV. These countries have golden opportunities to pre-empt serious outbreaks.

National HIV infection levels in Asia are low compared with some other continents, notably Africa. But the populations of many Asian nations are so large that even low national HIV prevalence means large numbers of people are living with HIV. Latest estimates show some 8.2 million [5.4 million–11.8 million] people (2.3 million [1.5 million–3.3 million] adult women) were living with HIV at the end of 2004, including the 1.2 million [720 000–2.4 million] people who became newly infected in the past year. AIDS claimed some 540 000 [350 000–810 000] lives in 2004. Among young people 15–24 years of age, 0.3% of women [0.2–0.6%] and 0.4% of men [0.3–0.8%] were living with HIV by the end of 2004.

Asia is not just vast but diverse, and HIV epidemics in the region share that diversity, with the nature, pace and severity of epidemics differing across the region. Overall, Asian countries can be divided into several categories, according to the epidemics they are experiencing. While some countries were hit early (for example, **Cambodia**, **Myanmar** and **Thailand**), others are only now starting to experience rapidly expanding epidemics and need to mount swift, effective responses. They include **Indonesia**, **Nepal**, **Viet Nam**, and several provinces in **China**. In Myanmar and in parts of **India** and China, HIV has become well-entrenched in some sections of society, despite modest efforts to halt the virus' spread. Other countries are still seeing extremely low levels of HIV prevalence, even among people at high risk of exposure to HIV, and have golden opportunities to pre-empt serious outbreaks. These countries include **Bangladesh**, **East Timor**, **Laos**, **Pakistan**, and **the Philippines** (MAP, 2004).

Some countries, by sheer virtue of size, simultaneously fit several of those descriptions: China and India are examples. These two countries, home to some 2.35 billion people, are experiencing several distinct epidemics, some already very serious.

CHINA

Although moving at a varied pace, HIV has spread to all of China's 31 provinces, autonomous regions and municipalities. In some, such as Henan, Anhui, and Shandong, HIV was already spreading a decade ago among rural people who sold blood plasma to supplement their incomes. Elsewhere, the virus has established a more recent

but firm presence among injecting drug users and, to a lesser extent, sex workers and their clients (Zang, Ma and Xia, 2004). Much of the current spread of HIV in China is also attributable to injecting drug use and paid sex. HIV prevalence among drug injectors was measured at between 18% and 56% in six cities in the southern provinces of Guangdong and Guangxi in 2002, while in Yunnan province some 21% of injectors tested positive for HIV in 2003 (China National Center for AIDS/STD Control and Prevention, 2003). Sexual transmission of HIV from injecting drug users to their sex partners looks certain to feature more prominently in China's fast-evolving epidemic. Some 47% of surveyed female drug injectors in Sichuan province and 21% in neighbouring Yunnan province reported selling sex for money or drugs in the previous month, according to recent studies. Condom use was reportedly quite high but it was hardly the norm. Once HIV becomes well-established in commercial sex circuits, onward spread of the virus could be quite rapid if current behaviour trends persist. In 2003, almost one quarter of surveyed sex workers in Guangxi never used condoms and about one half used them only occasionally (China National Center for AIDS/STD Control and Prevention, 2003). In Sichuan, only around 40% of sex workers reported using condoms with all their clients in the previous month, according to a 2002 study. Little is known about the possible role of sex between men in China's epidemic. A rare survey of men who have sex with men in Beijing, conducted in 2001-2002, found that approximately 3% of the men were HIV-infected (almost all of whom had been unaware of their serostatus) (Choi et al., 2003).

There are signs that efforts to boost public knowledge about HIV are bearing fruit but there remains much room for improvement. A 2003 survey found that two-in-five Chinese men and women could not name a single way to protect themselves against infection (Shengli, Shikun and Westley, 2004). In Sichuan province, more than one third of sex workers (and a similar proportion of clients) did not know that condoms offer good protection against HIV. Research suggests that few brothels in China have condom policies of the sort that helped Cambodia and Thailand bring their epidemics under control, and even fewer are keeping condoms on the premises (MAP, 2004). China can still shape the course of its epidemic. But it needs to move swiftly and with great resolve.

India

India's epidemics are even more diverse than China's. Latest estimates show that about 5.1 million [2.5–8.5 million] people were living with HIV in India in 2003. Serious epidemics are underway in several states. In Tamil Nadu, HIV prevalence of 50% has been found among sex workers, while in each of Andhra Pradesh, Karnataka, Maharashtra and Nagaland, HIV prevalence has crossed the 1% mark among pregnant women. In Manipur, meanwhile, an epidemic driven by injecting drug use has been in full swing for more than a decade and has acquired a firm presence in the wider population (UNAIDS/WHO, 2003). HIV prevalence measured at antenatal clinics in the Manipur cities of Imphal and Churachand has risen from below 1% to over 5%, with many of the women testing positive appearing to be the sex partners of male drug injectors. Several factors look set to sustain Manipur's epidemic, including the large proportion (about 20%) of female sex workers who inject drugs and the young ages of many injectors (40% of male injectors surveyed in 2002 were under 25 years of age) (MAP, 2004).

If China is to shape the course of its epidemic, it needs to move swiftly and with great resolve.

There are signs that injecting drug use is playing a bigger role in India's epidemics than previously thought. Most surveillance sites for injecting drug users are in the northern states where injecting is common behaviour, but other parts of the country have yielded equally troubling evidence. In the southern city of Chennai, for example, 26% of drug injectors were already infected with HIV when a sentinel site was established there in 2000; by 2003, 64% were infected. In most cities where injecting drug users have been surveyed, at least one quarter of them—and, in Chennai, 46%—

said they lived with a wife or regular sex partner (MAP, 2004). This has probably contributed to the fact that Chennai also has among the highest HIV-prevalence rates among pregnant women in the country. It is likely that many of those women were infected by partners who injected drugs.

Like Manipur, the states of Maharashtra, Tamil Nadu and Andhra Pradesh have long-established HIV epidemics, but theirs are driven mainly by commercial sex. Available evidence suggests that prevention efforts in some of those states have done little to alter the epidemics' advance. Sentinel surveillance has revealed no significant drop in HIV prevalence among female sex workers in Mumbai, for example, despite decade-old safer-sex programmes for sex workers. It appears the programmes have been either too scattered or short-term to reach a large enough proportion of sex workers to make a difference. In some of these states, HIV has been rising steadily among pregnant women, most likely because clients have transmitted the virus to their regular partners. Fortunately, India does boast some significant prevention successes, such as the drop

Reducing risk works

All the scientific evidence points to the fact that programmes which provide opiate substitution treatment, increase access to sterile needles and provide other prevention services reduce new HIV infections among people who inject drugs. A recent review of over 400 surveillance reports and scientific papers found no evidence that HIV prevention services for drug injectors—including the provision of clean needles—are associated with an increase in the number of people injecting drugs (MAP, 2004). The review found that countries that promote safer injecting practices (including sterile needle access) are successful in encouraging lower-risk behaviour. These programmes often reach out to socially disadvantaged groups of drug users and offer a range of HIV prevention and primary health care services. Such HIV prevention programmes for drug injectors complement a range of other efforts aimed at preventing drug use among young people in the first place, known as demand reduction programmes. Thus, these programmes pursue a range of goals—including discouraging people from using drugs at all, from injecting drugs, or from using non-sterile needles and syringes.

The clearest evidence that large-scale needle-exchange programmes can reduce harm for injectors comes from a city in **Bangladesh**, where it has been shown that needle-exchange programmes can promote healthy sexual behaviour as well as safer injection—thus reducing the risks of HIV transmission. There was a striking association between participation in needle-exchange programmes and reduced use of non-sterile injecting equipment. In addition, injectors who used the needle-exchange were far less likely to report symptoms of a sexual infection in the previous 12 months than people who did not participate in the programme. This clearly shows that safer-injecting programmes can bring people into contact with a range of HIV prevention services that can reduce their sexual as well as their injecting risk. The key is to achieve wide enough coverage with effective programmes. A similar project in another Bangladesh city, where the services reached just under half of the injectors, had less impact.

Because AIDS epidemics criss-cross national boundaries, joint efforts like the border area needle exchange programme run by **China** and **Viet Nam** since 2002 make sense. Outreach workers collect used syringes from users for safe disposal, and provide vouchers which can be used to acquire new needles from participating pharmacies. The programme grew from the realization that the epidemics among injectors in China's Guangxi province and Viet Nam's Quang Ninh and Langson provinces were closely linked (they share a unique variant of HIV-1 subtype CRF01_AE), due to the fact that the areas straddle a drug trafficking route through the Golden Triangle (Yu et al., 1999; Kato et al., 2001). The programme is based on a successful trial which showed a drop in the use of non-sterile injecting equipment in the previous month from 61% to 30% among all injectors in Guangxi (China National Center for AIDS/STD Control and Prevention, 2004). Harm-reduction programmes have also helped trigger a dramatic fall in reported non-sterile needle use among injectors in China's Sichuan province. Reported re-use of non-sterile needles at last injection fell from 30% to 17% among male injectors in 2002-2003, while in the same year it fell from 24% to 15% among female injecting drug users (MAP, 2004).

in unprotected casual sex reported in the southern state of Tamil Nadu. In 1996, 14% of truck drivers reported recent unprotected sex with a sex worker. By 2002, after concerted prevention programmes were introduced, that had fallen to just 2% (AIDS Prevention and Control Project, 2003).

In parts of India, Myanmar and China, inadequate prevention efforts have allowed HIV to filter from people with the highest-risk behaviours to their regular sex partners.

As elsewhere in the region, the role of sex between men in India's epidemics remains poorly understood. What is clear is that a considerable number of men in India do have sex with other men. In a household-based survey in a low-income area of Chennai, India, 6% of men reported sex with other men. These men were over eight times more likely to be infected with HIV than other men in the survey, and 60% more likely to be infected with other sexually transmitted infections. A high proportion of men who have sex with men also reported sex with women (Go et al., 2004). For example, in a household study in India, 57% of men reporting sex with other males were married (NACO, 2002).

High risk behaviour and sharp rises in HIV

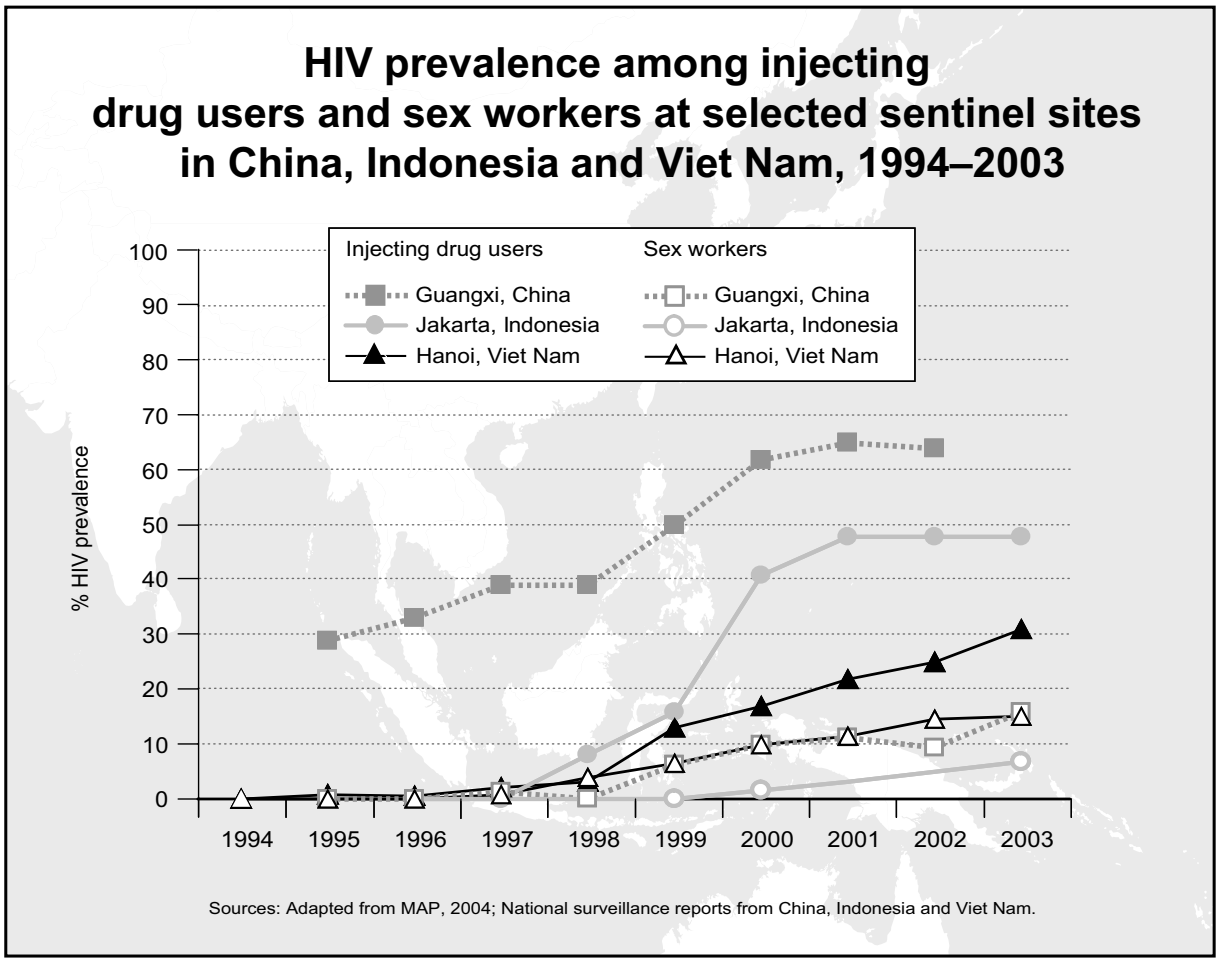
HIV prevalence is rising sharply in several places where it stayed low for many years. These rises are most dramatic among people whose behaviours carry a high risk of exposure to HIV—drug injectors, sex workers and their clients, and men who have sex with men. In **Indonesia**, **Nepal**, **Viet Nam** and parts of **China**, rapid, recent rises in HIV infection among drug injectors appear to have spurred subsequent rises in HIV infection among non-injectors who have sexual risk behaviours, "kick-starting" wider epidemics, as Figure 15 illustrates. Given the very large population numbers in these countries, continued HIV spread among those with risk behaviours and their sex partners will give rise to several million new infections. These countries stand at a cross-road; they dare not delay introducing effective responses.

On a vast archipelago such as **Indonesia**, where research has revealed ample opportunities for wider HIV transmission, the epidemic will assume diverse patterns. Risk behaviour among injecting drug users in Indonesia is very common. A recent survey in three cities found 88% of the injectors had used non-sterile needles or syringes in the preceding week, yet fewer than one third said they felt at high risk of HIV infection (Pisani et al., 2003). When injecting drug users are tested for HIV, very high infection levels are found. One in two injecting drug users in Indonesia's capital, Jakarta, now test positive for HIV, while in far-flung cities such as Pontianak (in West Kalimantan province on the island of Borneo) more than 70% of drug injectors who request HIV tests are discovering that they are HIV-positive (MAP, 2004).

Conditions also favour HIV spread through sex work. In seven Indonesian cities, an average 42% of sex workers had either or both gonorrhoea or chlamydia in 2003. Condom use ranges from irregular to rare. In 2002, fewer than one in five sex workers operating out of massage parlours and discotheques in Jakarta said they used condoms consistently (MAP, 2004). Among sex workers in brothel areas (a group that ought to be easier to reach with interventions), rates of condom use with all clients in the previous week stood at a meagre 4% (MAP, 2004). The situation is even more troubling in parts of Indonesia's easternmost province of Papua, where HIV prevalence among sex workers in Sorong, for example, had reached 17% by 2003, over five times the national average for sex workers.

One in two injecting drug users in Jakarta now test positive for HIV, while in cities such as Pontianak more than 70% of drug injectors are being found to be HIV-positive.

Figure 15



There are strong signs that the virus is spreading beyond sex workers and their clients. One recent serosurvey among adults in five villages found that close to 1% were HIV-positive (MAP, 2004). Household surveys of young men and women in Jayapura and Merauke show that both young men and women in Papua report far less drug use and far more sexual activity than those in other parts of Indonesia. The data are inconclusive, but they suggest patterns of sexual networking that

HIV behind bars

Prisons are playing a growing role in **Indonesia's** emerging epidemic. In Jakarta's jails, HIV prevalence started to rise in 1999, two years after it had taken off among drug injectors, reaching 25% in 2002. Some of the rise reflected the fact that injecting drug users were more likely to have been infected by the time they entered prison. But there is evidence that HIV transmission is occurring inside jails. Surveillance data from a West Java prison has shown HIV prevalence soaring from 1% in 1999 to 21%, then "falling" sharply to 5% in 2002. The 2002 "drop" was an illusion, though, reflecting a change in sampling: only newly-registered inmates were tested for HIV. When a random sample was used again in 2003, HIV prevalence was found to be 21%. This discrepancy suggests that HIV is being transmitted inside the prison, either through drug injection with contaminated needles or through unprotected anal sex between prisoners (MAP, 2004; data from Indonesian national surveillance).

A huge prevention opportunity beckons. Unlike their counterparts outside the prison walls, jailed drug injectors are not a "hard-to-reach population". HIV-prevention programmes are needed inside prisons, with reinforcement in preparation for prisoners' release. Jails can provide an entry point for treatment for both antiretroviral and drug substitution treatment. Referral systems between jail and services outside can help introduce essential health, prevention and care services to people who might otherwise potentially be hard to track down in the community after release.

could favour dynamic HIV spread in the general population on Papua (Indonesia Central Bureau of Statistics and MACRO International, 2004).

Unsafe injecting drug use is the wellspring of **Nepal**'s epidemic, too. Use of non-sterile injecting equipment is widespread and accounts for the high HIV prevalence—22% to 68% across the country in 2002—among male injectors, many of them younger than 25. Younger injectors appear more likely to report risky practices in parts of Nepal; in the east, for example, injectors under 25 were three times as likely to report using non-sterile equipment at last injection compared with older injectors (MAP, 2004). Nepal's epidemic also highlights the potential links between HIV infection and mobility. Injecting drug users from cities with low prevalence, but who had injected drugs elsewhere, have been found to be two to four times more likely to have acquired HIV than

Risky business

Most new HIV infections in Asia occur when men buy sex—and large numbers of men do so. Household-based surveys in a number of Asian countries suggest that between 5% and 10% of men buy sex, which makes commercial sex a large and lucrative industry in Asia. Many sex workers—especially very young women from rural areas—are either coerced into the industry or join it under duress, because they lack other employment opportunities. Studies among sex workers in **China**, for example, have found that young and ill-educated women from rural areas sell sex because they could not find other work. However, others sometimes opt for the profession instead of arduous, low-paying jobs. In **Viet Nam** for example, sex workers have reported earning up to seven times the average income of other workers in the areas where they plied their trade. Their counterparts in **Nepal** have reported earning around 2200 rupees or US$ 30 a week, six times the average wage income (MAP, 2004).

The majority of the women who did not use condoms with their last client in places where condoms were easily available said it was because their clients refused to use them. Because many men are willing to pay more for sex without a condom, many women find it especially difficult to negotiate condom use. In **India**, one quarter of street-based sex workers said that if a client refused to use a condom they simply charged more money and went ahead with sex. Sex workers in China's Yunnan province have reported that they earn about 60% more for sex without a condom, while non-brothel-based sex workers in **Indonesia** charged around 20% more. In addition, some clients threaten or use violence when sex workers try to insist on condom use.

Who's doing the buying? In southern Viet Nam, sex workers reported that more than one third of their clients were businessmen or white-collar workers, while over half in five northern provinces were said to be government officials. Women selling sex in Indonesia, **Laos** and **Pakistan** also said that civil servants and businessmen were among their most frequent clients, while in **India**, over one-quarter were businessmen or service sector employees. Many of these men are married or in steady relationships. Those who have unprotected sex with sex workers are at risk therefore not just of contracting HIV but of passing it on to their wives and girlfriends. Indeed, in a study in the southern Chinese city of Guangzhou, some 72% of women with sexually transmitted infections said they had only had sex with their husband or regular partner in the previous six months—a clear sign that they were put at risk by their partners' behaviour rather than their own. Expressed in these ways are deeper social inequalities, not least the imbalances in men and women's social power, and women's stunted earning and career opportunities in most countries of Asia (and, indeed, the world). Prevention efforts that neglect these wider dynamics are likely to achieve just short-lived success, if any.

It's easy to forget, though, that not all sex workers are women. Asian men also buy sex from male and from transgender sex workers. For example, 48% of men who have sex with men in Lahore, Pakistan, and 20% in Sichuan, China, said they had paid for sex in the previous six months. Over one third of men in five cities in India who have sex with men, reported in 2002 having bought or sold sex in the previous month, while a 2001 study in the city of Chennai found that one in five men who have sex with men had exchanged money for sex at some point (Go et al., 2004). The high rates of commercial sex between men reported in surveys do not represent the habits of all men who have sex with men, but they highlight the forgotten population of male sex workers and the high risks of HIV infection they have. In one Bangkok study, for example, 32% of men who have sex with men who reported selling sex were infected with HIV.

those who had remained in their home cities. Half of the sex workers surveyed in central Nepal and who said they had worked in Mumbai (India) were HIV-infected, compared with 1.2% of those who had never been to India.

Viet Nam's cities, where the virus now appears to be spreading freely among groups that are at high risk of exposure to HIV. HIV prevalence of 8% was detected in a 2003 Ho Chi Minh city survey among men who have sex with men.

Most new HIV infections in Asia occur when men buy sex—and large numbers of men appear to do so.

Widespread injecting drug use by sex workers makes **Viet Nam**'s epidemic particularly explosive. In Ho Chi Minh City, 38% of almost 1000 sex workers included in one survey injected drugs—and fully 49% of those injecting sex workers were infected with HIV (compared with 8% of those who didn't use any drugs). In the northern port city of Haiphong, nearly 40% of all sex workers said they injected drugs, compared to one in six sex workers who did likewise in the capital, Hanoi. Drug-using sex workers are about half as likely to use condoms as those who do not use drugs, according to another study in Ho Chi Minh City. These trends probably explain a good deal of the steep rises in HIV prevalence detected in some of

High prevalence and HIV spreading among wider population

In some areas, including parts of **India**, **Myanmar** and south-western **China**, HIV has acquired a strong foothold among people who have been exposed to a high risk of infection for several years. Inadequate prevention efforts have allowed the virus to filter from people with the highest-risk behaviours (such as non-sterile drug injection and unprotected commercial sex) to their regular sex partners, which accounts for rising HIV- infection levels among women who report having only one sexual partner. **Myanmar**, which has one of the most serious epidemics in Asia, is an example.

What's in a name?

From the perspective of HIV prevention, the definition of "sex work" or "commercial sex" or "prostitution" carries important implications for policy and programme development. To date, no single term adequately captures the range of transactions that involve the commoditisation of sex worldwide. "Sex work" or "commercial sex" appears to thrive where a demand for sexual services occurs in settings marked by socioeconomic disparities. Even then, "sex work" or "commercial sex" takes on various forms. It can be "formal or direct" and based in establishments such as brothels, saunas and massage parlours, or it can be "informal or indirect" and based in bars, restaurants, truck stops and taxi ranks and on the streets. The transactions can be overtly commercial—the exchange of sex for a set fee—or they can be much more opaque—sex rewarded with gifts or favours, for example. In addition, numerous paths lead women and girls (as well as men and boys) into selling or exchanging sex. Many, especially the very young, are trafficked and forcibly enslaved in the sex industry. It is estimated that hundreds of thousands of people, including women and children, are trafficked every year. Economic necessity—their own and often that of their families—compels many others to sell or exchange sex temporarily or on an ongoing basis. In some places, still others temporarily opt for selling sex seasonally, when income is low, for example in farming economies, instead of arduous, low-income employment. Not all these women (and boys) regard themselves as "prostitutes" or "sex workers" either, particularly when sex is exchanged for "gifts" and favours. Moreover, there are not always clear distinctions between these varieties of "commercial sex", making it difficult to accurately attach particular terms to specific instances. The term "sex work" may suggest the sale or exchange of sex by people who act with a certain degree of volition, however circumscribed it is by socioeconomic pressures. It does not, however, refer to trafficking, situations of enslavement or naked coercion.

The situation varies across the country, but HIV has already become entrenched in lower-risk populations in several parts of Myanmar. By 2003, 12 out of 29 sentinel sites for pregnant women were recording HIV prevalence above 2%. At Pyay and Hpa-an, respectively, 5% and 7.5% of pregnant women tested HIV-positive. About 2% of new military recruits tested HIV-positive at two sites in 2003 (Ministry of Health Myanmar, 2003). Exceptionally large proportions of injecting drug users have acquired HIV: in some places, 78% of drug injectors tested positive in 2003. Between 45% and 80% of drug injectors have tested positive for HIV infection in sentinel surveillance each year between 1992 and 2003. HIV among sex workers rose significantly from around 5% to 31% over the same period. Meanwhile, the proportion of male and female patients at sexually transmitted infection clinics who tested positive for HIV rose to 6% and 9%, respectively, in 2003 (Ministry of Health Myanmar, 2003; MAP, 2004).

Strong prevention efforts that have shown results

Asian countries that have introduced large-scale prevention programmes addressing sexual transmission of HIV—notably **Cambodia** and **Thailand**—have seen significant reductions in risk behaviour, and have recorded declining levels of new HIV and other sexually transmitted infections. In Cambodia, fewer men are now visiting sex workers and there has been a significant rise in condom use in commercial sex. The combined effect has been a steep drop in sexually transmitted infections and a steady decline in HIV prevalence. New testing technologies that allow researchers to estimate what proportion of infections were recently acquired show a significant drop in new HIV infections (or incidence), as Figure 16 shows.

A 2003 survey of men aged 15–24 years in a low-income area of the capital, Phnom Penh, found that only 8% of them had ever bought sex from a sex worker (Douthwaite, 2003). (Although not directly comparable, 19% of adult men of all ages in the city in a study conducted three years earlier said they had bought sex in the previous year.) (MAP, 2004). And new studies show that men in their teens are about nine times more likely to use condoms than older men. A strategy that centres on reducing the risk of HIV transmission in commercial sex, while also tackling other risk behaviours such as unprotected sex between men and unsafe drug injection will enable Cambodia to sustain the inroads against the epidemic.

Thailand has also shown that a well-funded, politically-supported and pragmatic response can change the course of the epidemic. National adult HIV prevalence continues to edge lower, with

Out of sight, out of mind?

Generalized stigma towards men who have sex with men has meant that few surveillance systems in Asia capture HIV-related information on sex between men. As is the case with female sex workers and injecting drug users, if reliable data are limited, access to prevention will probably be limited, too.

Recent research has begun to lift this veil of secrecy. In a number of countries (including **Bangladesh**, **India** and the **Philippines**), the proportion of men in household studies reporting recent male-male sex has been found to range between 5% and 10%. Ad hoc surveys have been finding very high levels of HIV infection: 14% at an area popular with men seeking casual sexual partners in Phnom Penh, **Cambodia**; 17% in a community sample in Bangkok, **Thailand**; and 22% in a study of men who have sex with men in Jakarta, **Indonesia** (MAP, 2004; Van Griensven et al., 2004). The findings represent the high-end of the risk spectrum, and should not be generalized to all men who have sex with men. However, they serve as a warning to Asian countries that they dare not neglect male-male sex in their prevention programming. Not only do men who have unprotected sex with other men risk infecting each other, but many of them also have sex with women (who often are unaware of the other liaison). In a survey in central Thailand, one in three of the men who reported sex with other men also bought sex from women, and almost half had non-regular female partners. Behavioural surveillance in five Indian cities found 27% of men who had sex with men were married or living with a female sex partner (NACO, 2002).

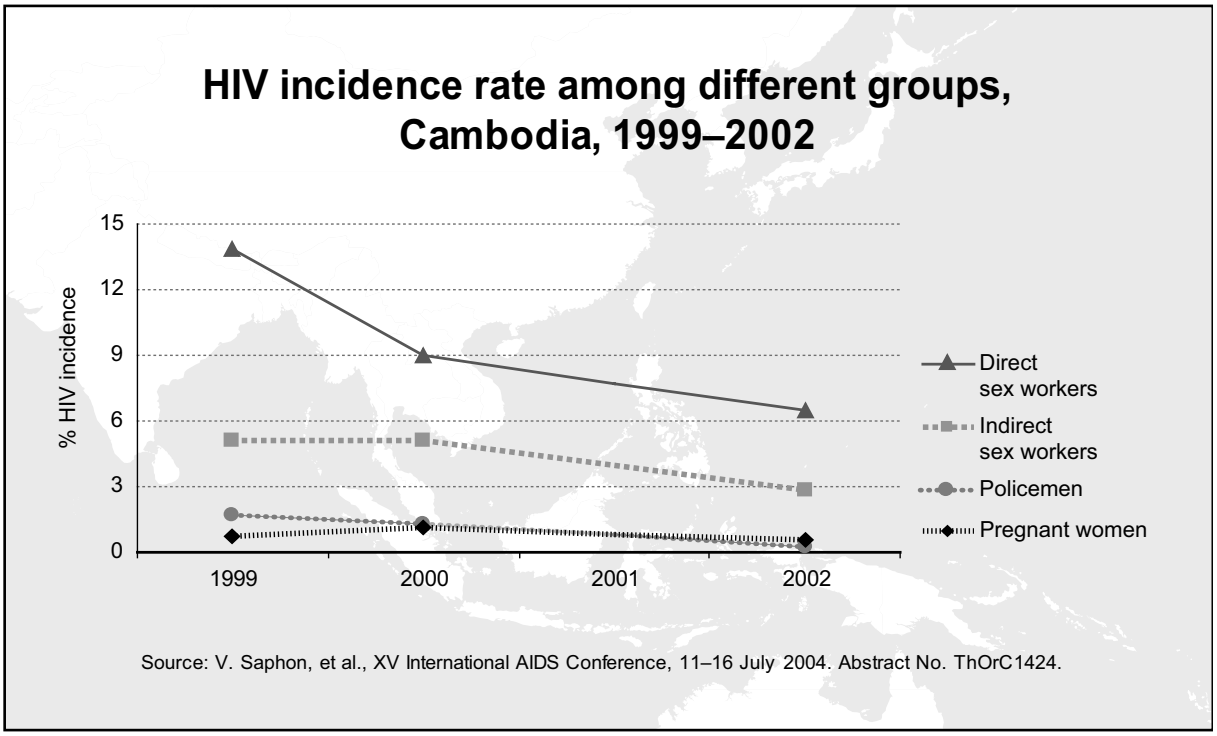


Figure 16

the latest estimates putting it at 1.5% [0.8–2.8%] at the end of 2003 (UNAIDS, 2004). Recharged commitment and revised strategies are now needed, however, to confront an epidemic that has entered a new phase. As many as half of annual, new HIV infections have been occurring among cohabiting couples, as more women are infected by husbands who are (or were) clients of sex workers. While still an important factor in HIV spread, brothel-based sex work has been overtaken by other patterns of risky behaviour. An estimated one fifth of all new HIV infections are occurring through unsafe injecting drug use, compared with about one twentieth a decade ago (Thai Working Group on HIV/AIDS Projections, 2001). Exceptionally high levels of HIV infection are being detected in parts of the country. In northern Thailand, 30% of drug injectors are infected with HIV, while median HIV prevalence as high as 51% has been found in other parts of the country. Yet, scant prevention resources are deployed on this front. The fact that injecting drug use is illegal should not block the path of effective action. A pragmatic approach—such as that adopted toward sex work in the 1990s—is much more likely to bring success. The same holds for men who have sex with men, among whom HIV prevalence as high as 17% has been detected (UNDP, 2004).

In Cambodia, fewer men are now visiting sex workers and there has been a significant rise in condom use in commercial sex. Thailand, too, has shown that a well-funded, politically-supported and pragmatic response can change the course of the epidemic

At the same time, infection levels among pregnant women remain high in parts of the country, including the South, where they exceeded 2% in eight provinces in 2002. It is likely that many of these women have been infected by male partners who either inject drugs or frequent sex workers. While keeping up the pressure to reduce brothel-based HIV transmission, prevention efforts must now also reach the increasing numbers of sex workers who operate in settings that are less easily regulated. Meanwhile, it is estimated that less than 5% of young people are being reached by adequate prevention services, while public

HIV prevalence in populations at risk in various Asian countries, 2001–2003

	Bangladesh 2002	East Timor 2003	Mongolia 2003	PDR Lao 2001	Pakistan 2003	Philippines 2003	Sri Lanka 2003
Female sex workers	0–0.7%	3%	0	0–1.1%	0	<1%	0–0.2%
Men who have sex with men	0–0.2%	0.9%	—	—	—	0	—
High-risk men*	0	0	0	0	—	0	0
STI clinic clients	0	—	0	—	—	—	0–1%
Drug injectors	0–4%	—	—	—	0	0	—

* Bangladesh: Truck drivers, launch workers, boyfriends of sex workers. East Timor: Taxi drivers and soldiers. Laos: Truck drivers. Philippines: Military recruits. Sri Lanka: Transport workers and male military.

Sources: Lao People's Democratic Republic National Committee for the Control of AIDS Bureau 2001; Philippines Department of Health 2002 and national surveillance reports; Bangladesh National AIDS/STD programme 2003; Pisani and Dili STI survey team 2004.

Figure 17

awareness campaigns have dimmed. Just 20% to 30% of sexually active young people are using condoms consistently (UNDP, 2004).

Very low HIV prevalence, big prevention opportunities

Several countries still have a rare opportunity to prevent a significant epidemic from taking hold at all. There, very-low rates of HIV infection are being recorded, even in populations whose behaviours put them at great risk of HIV infection, as Figure 17 shows. These countries still have an opportunity to deny the virus a firm foothold, by providing prevention services to those most at risk of HIV infection.

As other countries have discovered, where risky behaviours are occurring, HIV will follow—unless prevention efforts are effective. **Bangladesh** and the **Philippines** have taken such lessons to heart and are trying to reduce risky behaviours before the virus acquires a firm presence. The efforts have had partial success to date, particularly among the clients of sex workers. In 2003, for example, over one half of registered sex workers in the Philippines's Angeles City said they used condoms with all clients last week; however just 6% of hostesses in karaoke bars and night clubs consistently used condoms. But if sustained and expanded, prevention efforts could enable these countries to avoid the sorts of epidemics recorded elsewhere. The AIDS picture in **Malaysia** is far from clear, mainly because it is derived largely from HIV and AIDS case reports that focus on injecting drug users. Such reports indicate that 55% of people detected with HIV between 1998 and 2001 were drug injectors. A study carried out in Penang has found that 17% of drug injectors who agreed to testing were HIV-positive (Navaratnam et al., 2003). It is possible, though, that other significant factors in the epidemic are being missed. For example, when surveillance

Asia's successful HIV efforts were pragmatic. They zeroed in on behaviours that were causing the most infections. They mounted large-scale programmes. And they tried to improve the social and legal environments in which people most at risk live and work.

was last conducted among sex workers, in 1996, HIV prevalence was 6.3% in Kuala Lumpur and 10.2% in Selangor.

Some countries, including **East Timor** and **Pakistan**, could be poised for HIV outbreaks. Until very recently the majority of HIV infections and AIDS cases reported in Pakistan were among migrant Pakistani workers who had been deported from the Gulf States. However, there has been a recent report of an HIV outbreak among injecting drug users in a small town in Pakistan's Sindh province. Just under 10% of the drug injectors in the town of Larkana reportedly tested HIV-positive (Shah et al., 2004.) Studies among Pakistani truck drivers have found that one in three has never heard of condoms, and 19 out of 20 who bought sex from women did not use condoms. Meanwhile, nearly six out of 10 sex workers in East Timor have never heard of AIDS, four out of 10 do not recognize a condom when shown one, and zero out of 10 consistently use condoms with their clients (Pisani and Dili STI survey team, 2004).

Data from **Japan** show that HIV prevalence has risen steadily among male blood donors in that country, while staying relatively stable among women. This suggests that HIV transmission is occurring mainly among men who have sex with men, some of whom might also be transmitting the virus to female sex partners. In 2003, there were some 340 newly-reported HIV cases among Japanese men who had contracted their infection through sex with other men, just over three times the number of reported infections among men who report acquiring the virus heterosexually. Indeed, since 1999 there has been a rapid increase in the annual number of HIV infections attributed to male-to-male sex (MAP, 2004).

Getting the balance right

Much as they need to be sustained and adapted to changing realities, the achievements made in **Cambodia** and **Thailand** show that countries that choose to provide prevention services on a large scale to those people most in need can bring their epidemics under control. In varying degrees, Asia's HIV-prevention successes have shared key features. They were pragmatic and zeroed in on behaviours that were causing the most infections, providing services to reduce the risk of HIV transmission. They mounted large-scale programmes to achieve adequate coverage. And they tried to improve the social, legal and political environments in which those most at risk live and work. Similar approaches can stem the epidemic's advance in other countries of the region (Brown, 2004).

With 8.2 million [5.4 million–11.8 million] people already living with HIV in Asia, treatment, care and support need to move higher up the agenda, too. In 2004, fewer than 6% of the estimated 170 000 people who needed antiretroviral treatment in Asia were receiving it. A few countries are taking up that challenge. Thailand appears on track to reach its target of providing 50 000 people with antiretroviral treatment, while others have committed themselves to drastically expand treatment access—including Cambodia, China (which has pledged free treatment), India (which has pledged free treatment in several states) and Indonesia.

EASTERN EUROPE AND CENTRAL ASIA

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	1.4 million [920 000–2.1 million]	490 000 [310 000–710 000]	210 000 [110 000–480 000]	0.8 [0.5–1.2]	60 000 [39 000–87 000]
2002	1.0 million [670 000–1.5 million]	330 000 [220 000–480 000]	190 000 [94 000–440 000]	0.6 [0.4–0.8]	40 000 [27 000–58 000]

Most of the epidemics in this region are still in their early stages—which means that timely, effective interventions can halt and reverse them.

In Eastern Europe and Central Asia the number of people living with HIV has risen dramatically in just a few years—reaching an estimated 1.4 million [920 000–2.1 million] at the end of 2004. This is an increase of more than nine-fold in less than ten years. Some 210 000 [110 000–480 000] people were newly infected with HIV in the past year, while an estimated 60 000 [39 000–87 000] died of AIDS. Among young people 15–24 years of age, an estimated 0.8% [0.4–1.6%] of women and 1.7% [0.8–3.7%] of men were living with HIV at the end of 2004.

Diverse HIV epidemics are underway in this region. The most serious and firmly-established epidemic is in **Ukraine**, which is experiencing a new surge of reported infections, while the **Russian Federation** is home to the largest epidemic in the entire region (indeed in all of Europe). However, HIV is unevenly distributed in Russia, with about 60% of all HIV infections to date having been reported in just 10 of the country's 89 regions. There is considerable scope for further expansion of the epidemic in this vast country—alongside great opportunities to prevent such an outcome. Several Central Asian and Caucasian republics have entered the early stages of the epidemic, while in south-eastern Europe, HIV has acquired a tenuous presence amid behaviour patterns that favour significant spread of the virus.

Amid such diversity, four features stand out. On the whole, most of the epidemics in this region are still in their early stages—which means that timely, effective interventions can halt and reverse them. Secondly, the vast majority of people living with HIV in this region are young; more than 80% of the reported infections are being found among people below the age of 30 years (by comparison, in Western Europe some 30% of people with HIV fall in that age group). Thirdly, sexual transmission of HIV is increasing in each of the most seriously-affected countries—an indication that the epidemic has gained a foothold in the wider population. Fourthly, ongoing, arduous social and economic transitions serve as the context in which extraordinarily large numbers of young people are injecting drugs. In countries with emerging epidemics demand-reduction programmes that discourage drug use and harm reduction programmes that reduce drug injecting and prevent HIV transmission through contaminated injecting equipment among young

Figure 18

people can prevent larger, more extensive HIV epidemics of the kind now taking hold in Russia and Ukraine. This would entail a comprehensive set of interventions to lessen the vulnerability of young people and reduce the numbers of people initiated into drug injecting, alongside large-scale harm reduction and safer-sex programmes.

The **Russian Federation** has the largest number of people living with HIV in the region, and accounts for some 70% of all HIV infections officially registered in Eastern Europe and Central Asia (Rhodes et al., 2002). An estimated 860 000 [420 000–1 400 000] people were living with HIV in Russia at the end of 2003, fully 80% of them aged 15–29 years and more than one third of them women (UNAIDS, 2004; Field, 2004). HIV prevalence is increasing steadily. Infection levels measured among pregnant women have risen from less than 0.01% in 1998 to 0.11% in 2003. In St. Petersburg, prevalence increased from 0.013% in 1998 to 1.3% in 2002—a hundred-fold increase.

It bears noting that the number of newly reported HIV infections in Russia has declined in the past few years. The 39 699 officially-reported new infections in 2003 were 24% fewer than the 52 349 reported in 2002, and 55% fewer than the 88 577 cases documented in 2001. It is unclear whether this possibly represents a slowing in the growth of Russia's epidemic and, if so, what might be causing it. One possibility is that, in some of the areas currently most-affected, a majority of injecting drug users have already been tested. It is also possible that HIV prevalence has reached saturation levels among some of the currently affected drug injector populations in those areas (EuroHIV, 2003). In some areas fewer people were tested for HIV (the total number of drug users tested for HIV shrank from 491 526 in 2001 to 279 509 in 2003). As well, the slower transmission route of sexual intercourse may be gaining in prominence. Although HIV infections have been recorded throughout the expanse of the Russian Federation, much of the epidemic is still concentrated in 10 regions (nine of them in the more densely populated west, see Figure 18) (AIDS Foundation East-West, 2004). In the absence of effective prevention efforts, serious HIV outbreaks could follow in the rest of the country.

The Russian Federation has the largest epidemic in all of Europe. There is considerable scope for further expansion of the epidemic—alongside great opportunities to prevent such an outcome.

At the heart of the country's epidemic are the extraordinarily large numbers of young people who inject drugs; and have active sex lives. Between 1.5 and 3 million Russians are believed to inject drugs (1% to 2% of the entire population), and an estimated 30% to 40% of injecting drug users use non-sterile needles or syringes, which massively boosts the chances of HIV transmission (Max Planck Institute for Foreign and International Law, 2000). HIV prevalence among injecting drug users is high in many parts of Russia. A recent multicentre study estimated that 65% of street injecting drug users in Irkutsk were HIV-positive (90% of them still in their teens); in Tver, 55% were infected, in Ekaterinburg the figure was 34% and in Samara 29% (Rhodes et al., 2004). Studies show that most drug injectors are young (under 25 years), male, unemployed and living in major cities (though there are signs that the practice is spreading into rural areas).

In early 2004, more than 80% of all officially reported HIV cases since the beginning of the epidemic had been among drug injectors (Russian Federal AIDS Centre, 2004). But the majority of drug injectors are sexually active—upwards of 70%, according to studies in several Russian cities. Many have regular sexual partners, some buy or sell sex (see box). Those infected with HIV are therefore liable to transmit the virus sexually unless they practice safer sex. And studies show that the majority of male drug injectors do not use condoms consistently. In Togliatti and Nizhny Novgorod, for example, 83% of male injecting drug users had not used condoms regularly in the last month, while in Mirny 23% said they never used a condom (Lowndes et al., 2002; Moshkovich et al., 2000; Filatov and Suharsky, 2002; Rhodes et al., 2004). As a result, the epidemic's pattern is shifting and the proportion of new, reported HIV infections acquired during heterosexual intercourse has grown dramatically—from 5.3% in 2001 to almost 15% in 2002 and just over 20% in 2003. This means that more women are being infected; indeed, the overall proportion of women among people living with the virus has increased to 38% in 2003, compared with 24% in 2001 (Russian Federal AIDS Center). And more children are being born to HIV-positive mothers, making prevention of mother-to-child transmission an added priority. Reported cases of pregnant women with HIV have increased manifold in the past six years—from just 125 in 1998 to 3531 in 2003 (Federal Service of the Russian Federation for Surveillance in Consumer Rights Protection and Human Welfare, 2003). Correspondingly, the total number of children born with the virus has risen to more than 9000. This trend is most pronounced where the epidemic is oldest and where HIV spread has "bridged" from drug injectors to their regular sexual partners, sex workers and their clients. Sexually-acquired HIV cases form an increasing proportion of new infections, notably in the cities of Kaliningrad, Mirny, Moscow and Vladivostok (Rhodes et al., 2004).

The vast majority of people living with HIV in this region are young; more than 80% of the reported infections are among people younger than 30 years of age.

Official estimates put HIV prevalence in the Russian prison system at 2% to 4%—at least four times higher than in the wider population. As injecting drug use has increased, so has the proportion of prisoners who have histories of injecting drug use, as well as the number of them who are HIV-positive. Russia is now developing a programme that will include prevention education for prisoners, access to condoms and to bleach (for cleaning injecting equipment) (UNAIDS, 2004).

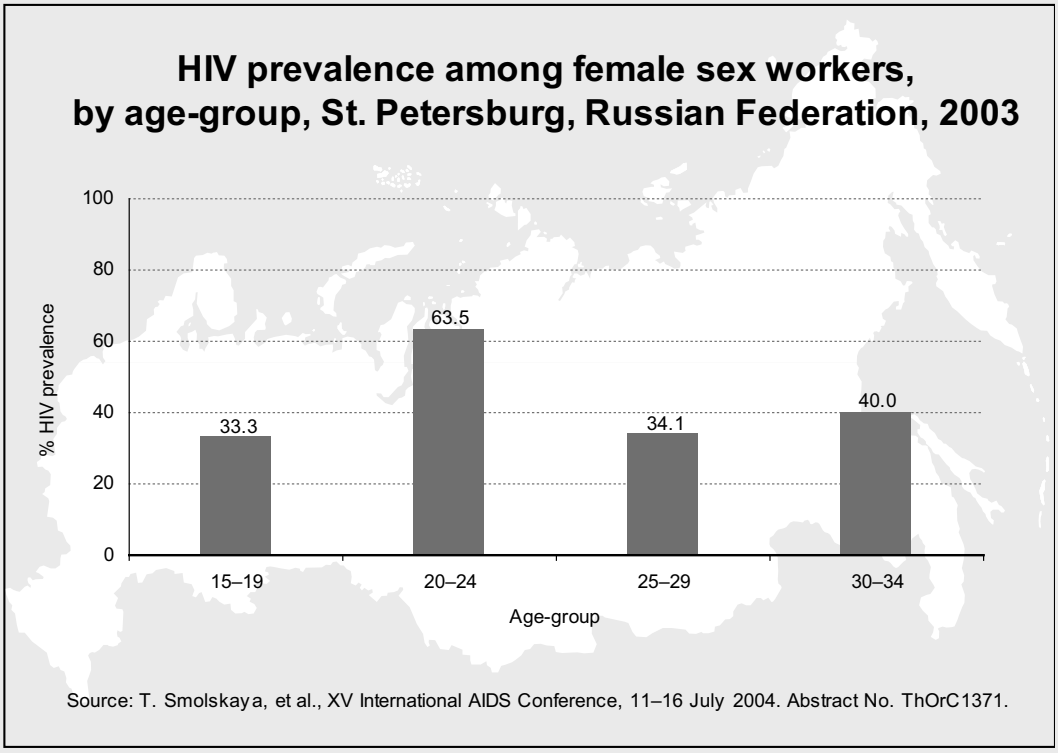
As in other countries in the region, Russia's HIV surveillance system captures very little information about HIV transmission between men who have sex with men. It is likely that sex between men is a more prominent factor in Russia's epidemic than is currently evident, and that this mode of transmission could be linked to onward heterosexual transmission of the virus. Research in St Petersburg has cast some light on the issue, by showing that over one third of surveyed men who had sex with men also had sex with women in the previous three months, and most of these men had multiple male and female partners in that period. Bisexual men were more likely to have sold sexual services, and displayed the least amount of knowledge about HIV.

Commercial Sex and injecting drug use

Commercial sex has become an increasingly important factor in several countries' epidemics, with the exchange of sex for drugs, or the use of sex to support drug habits, linking the two pathways of HIV transmission. Not only has the number of injecting drug users exploded in the past decade, but after the economic crisis of the late 1990s, the numbers of people selling sex also ballooned in some cities (by some accounts, doubling in Moscow alone). When these two routes of transmission—commercial sex and injecting drug use—connect, and when effective HIV-prevention services are absent, the effects can be dramatic.

Research among sex workers in **the Russian Federation** remains rare. HIV prevalence of approximately 15% has been detected among sex workers in Ekatarinaburg and 14% in Moscow (WHO Regional Office for Europe, 2004). However, one of the most detailed studies to date was conducted in St Petersburg, where 81% of surveyed sex workers said they injected drugs (mostly heroin) at least once a day and, of them, 65% had used non-sterile injecting equipment. Almost all the women (96%) said they used a condom the last time they sold sex and their HIV awareness ranked high—seemingly very good news. But when tested, 48% of them were HIV-positive; among those aged 20–24 years, 64% were infected (see Figure 19). Clearly, injecting drug use was the major risk factor: nine-in-ten of the women who said they "usually" injected with non-sterile injecting equipment were HIV-positive. But four-in-ten of those who said they had never reused injecting equipment were also infected (most likely through sex with a client or regular partner) (Smolskaya et al., 2004a).

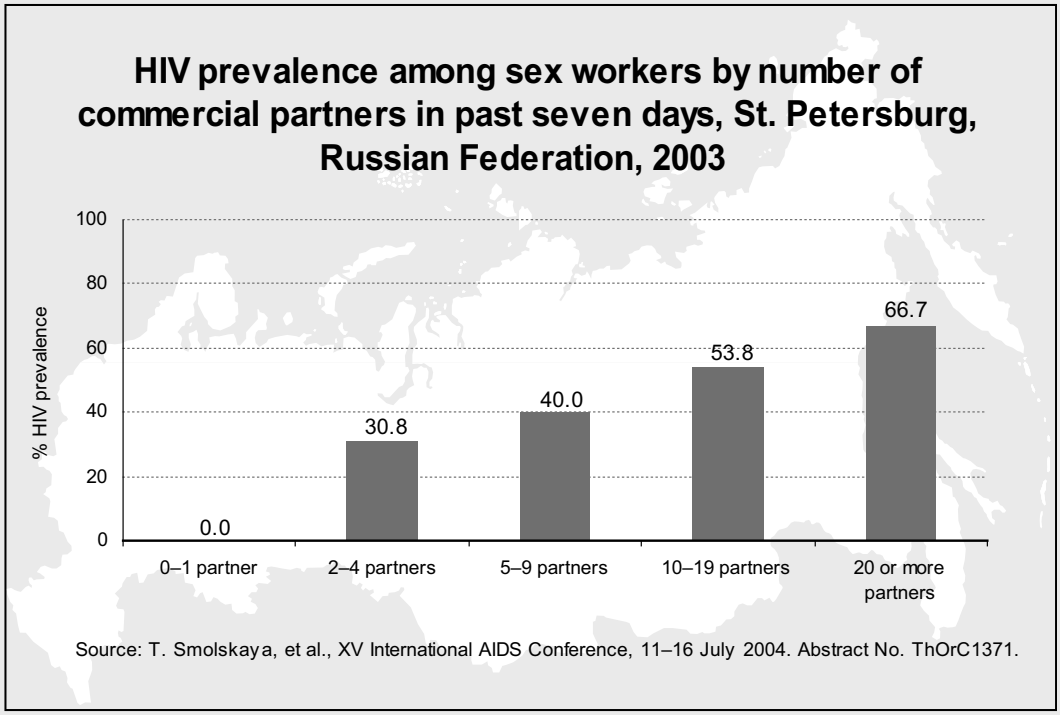
Figure 19



Source: T. Smolskaya, et al., XV International AIDS Conference, 11–16 July 2004. Abstract No. ThOrC1371.

Other findings catch the eye. The study suggests, for example, that the chances of being infected with HIV were highest for those women who had the largest number of commercial sex partners, as Figure 20 shows. This could mean that a substantial number of the sex workers were being infected by their clients. It could also mean that the women most likely to be infected were those with heavier injecting drug habits—they therefore tended to sell more sex in order to subsidize their drug needs. A combination of these factors probably put women who sold sex most at highest risk of becoming HIV-infected.

Figure 20



The linkages between injecting drug use and sex work are vivid, too, in **Kazakhstan**. According to one study done in the nine largest Kazakh cities, as many as 42% of drug-injecting women and 6% of their male counterparts also sell sex (Republican AIDS Centre, 2001). Studies among sex workers in the cities of Karaganda, Pavlodar, Shymkent and Uralsk have found that overall 14% injected drugs and 42% said they sold sex for drugs (Republican AIDS Centre, 2004). Sexual transmission accounts for a growing share of HIV infections in Kazakhstan, where more than 25% of newly-registered infections in 2004 have been attributed to unprotected sex. This seems in line with the low levels of condom use reported in that country—just 58% of 15–24 year-olds said they used condoms with casual partners, according to one recent study.

Available research therefore highlights a potentially volatile mix of behaviours that could sustain the region's epidemics—unless addressed now with effective prevention efforts that reach drug injectors, sex workers, their clients and regular partners.

Men who have sex with men—like injecting drug users and sex workers—endure stigma and discrimination, both at the hands of officialdom and society at large. This should not stand in the way of setting up reliable sentinel surveillance among these men (including those who also have sex with women) and implementing appropriate prevention services that can help limit the epidemic's spread through and beyond their ranks. These programmes will need to focus on the risks of HIV infection associated both with sex between men and heterosexual intercourse (Kelly et al., 2002).

Tackling the epidemic need not be as daunting as it appears. At the moment, the epidemic still has an uneven presence across Russia. Even though HIV infections have been recorded in each of Russia's 89 administrative territories, reported HIV prevalence is extremely low (1–150 cases per 100 000 population) in 66 of them (with almost 60% of the country's population) (AIDS Foundation East-West, 2004). While moving toward much wider coverage of HIV programmes ultimately, particular effort needs to be focused on the 10 territories responsible for over half of the total reported cases. With around 90 harm-reduction projects operating in the entire Russian

Treatment access in Russia

Russian law assures free, universal access to antiretroviral drugs for all citizens. However, current estimates suggest that fewer than 3000 people living with HIV are currently receiving antiretroviral medication, less than 5% of them injecting drug users in remission. There are several reasons for this, including high antiretroviral drug costs, despite ongoing efforts to negotiate lower prices. Depending on the specific regimen, antiretroviral treatment costs US$ 5000 to US$ 12 000 per-person per-year in Russia where annual Gross National Income per capita was approximately US$ 8900 (purchasing power parity) in 2003 (World Bank, 2004). Most Russians in need of antiretroviral treatment belong to a group of citizens who are routinely discriminated against and marginalized: injecting drug users. Those AIDS programmes that do reach out to drug injectors focus on prevention; few provide any access to care and support. Currently, there are no mechanisms in place to provide access to care and treatment for drug injectors. Knowledge about possible interactions between illicit narcotics and antiretroviral drugs is poor. And substitution treatment, which can boost adherence to antiretroviral treatment as well as enhance the health and social stability of drug injectors, is not used in Russia's drug treatment facilities. This is partly because many Russian narcotic treatment specialists are opposed to replacing one drug with another, and because substitute medications such as methadone, which is used widely and successfully in many other countries, are listed as illegal drugs and are banned by law from use in drug treatment practice.

Federation, there is a huge room for improvement (Rhodes et al., 2004).

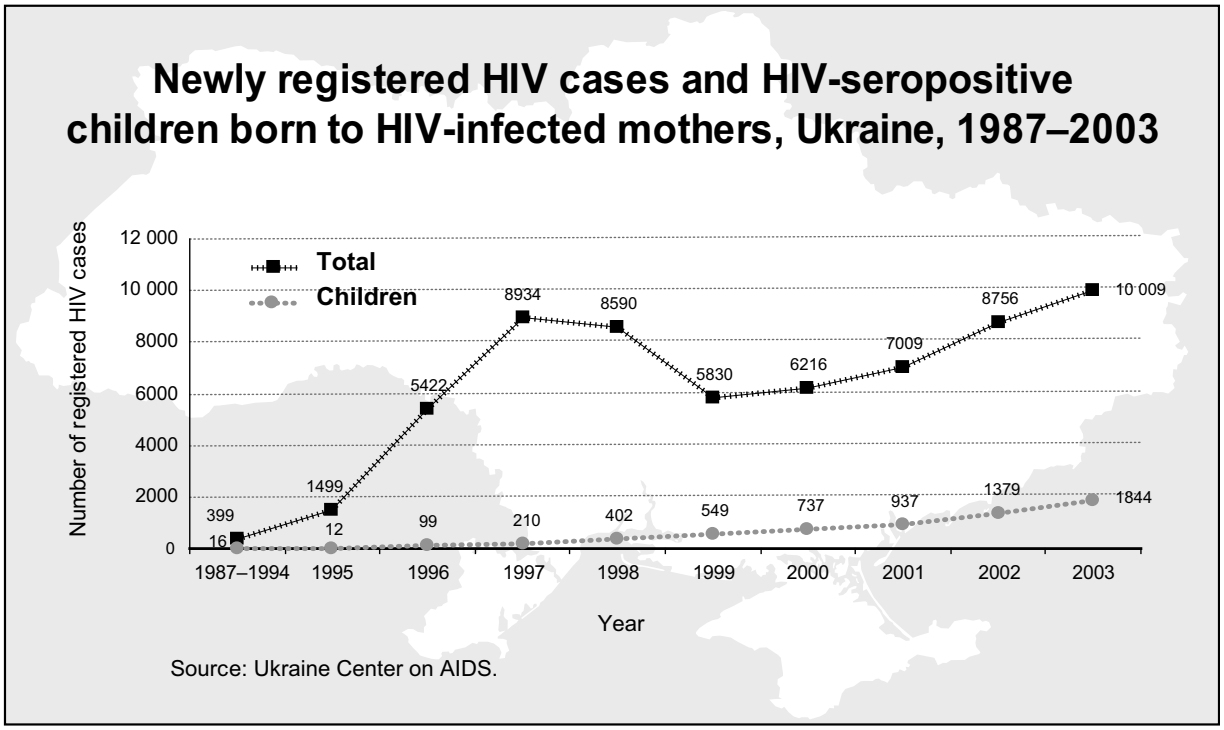
Erupting with astounding speed over the past decade, **Ukraine**'s firmly-rooted epidemic continues to expand, as figure 21 shows. Newly registered HIV infections have been increasing annually since the turn of the century—by 7% in 2000, 13% in 2001 and 25% in 2002. Just 10 years ago, there were only 183 officially registered HIV cases in Ukraine, but by mid-2004 more than 68 000 cases of HIV infection had been officially registered (EuroHIV, 2003). These figures grossly understate the actual scale of the epidemic since they only measure infections among people who come in direct contact with the authorities and testing facilities.

Sexual transmission of HIV is increasing in the most seriously-affected countries—an indication that the epidemic has gained a foothold in the wider population.

More widespread sexual transmission of HIV has become an increasingly prominent factor in **Ukraine**'s epidemic, which has evolved to the point where a growing share of new infections are occurring during unsafe sex between people who have no direct relationships with injecting drug users. Some 30% of new HIV infections registered in 2003 occurred during heterosexual intercourse (almost three times higher than the 11% documented in 1997), and more than 40% of people with HIV infection are women, most of them in their peak reproductive years (EuroHIV, 2003). Indeed, data show that as much as 60% of HIV-infected women are under 25 years of age. In urban areas such as Odessa and Mikolyiv more than 1% of pregnant women attending antenatal clinics are HIV-positive. These trends have spurred considerable efforts to expand programmes to prevent mother-to-child transmission, and these are beginning to bear fruit, with the proportion of HIV-infected babies born to infected mothers diminishing from 27% in 2001 to 12% in 2003.

At the same time, injecting drug use remains an important facet of the epidemic, particularly in the eastern and southern parts of the country. As elsewhere in the region, the vast majority (about 80%) of HIV-infected drug injectors are young (under 30 years of age). A large proportion of them—some 28%, according to a recent study

Figure 21



in Kiev, Odessa and Donetsk—are female. The same study found widespread re-use of injecting equipment among users, more than half of whom were also sexually active. Condom use was low: just one third of the sexually active injectors had used a condom during sex in the previous month. A potent overlap between injecting drug use and commercial sex is found in places such as Donetsk, where 33% of female sex workers who inject drugs were found to be HIV-positive. Somewhat heartening was the finding that many injecting drug users who knew they were HIV-positive were either abstaining from sex (40% had not had intercourse in the previous month) or were using condoms (Booth et al., 2004).

credence to concerns that HIV might be spreading largely undetected among men who have sex with men (EuroHIV, 2003).

The deadly combination of HIV and tuberculosis (TB) is a serious concern in **Ukraine**, where 10–15% of TB cases are estimated to be multidrug resistant. Tuberculosis has become the leading cause of death among people living with HIV. This underlines the need for a significant scaling up of access to antiretroviral treatment in Ukraine. Currently, just over 500 of the estimated 45 000 people who need antiretroviral treatment in Ukraine are receiving it, despite the fact that treatment access for all is guaranteed by Ukranian law.

Ukraine's epidemic continues to expand.
More than 40% of people living with HIV are women.

In a country with a quickly maturing epidemic, it is disconcerting that so little is known about the role of sex between men as a contributory factor. **Ukraine**'s HIV-registration system requires that persons who test HIV-positive declare, if possible, how they likely acquired the virus. Since the first HIV case was detected in Ukraine in 1987, only 44 cases have been attributed to sex between men—a curiously low figure which lends

In the Baltic states, HIV transmission is occurring at a brisk rate, even if the overall numbers of infections remain low. At 2300 in 2002, the total number of HIV diagnoses in **Latvia** has risen five-fold since 1999. Just four years ago, **Estonia** reported 12 new HIV cases; in 2003, 840 people were newly diagnosed with the virus. In **Lithuania**, the 72 new HIV cases detected in 2001 increased more than five-fold the following

year. Injecting drug use still accounts for the largest proportion of newly reported infections in these countries but sexual transmission is slowly gaining ground. In **Belarus** (where more than 5000 people had been officially diagnosed with HIV by mid-2003) and **Moldova** (where the figure stood at just under 1800), most infections are occurring among young drug injectors and their sexual partners (EuroHIV, 2003). In Moldova, however, HIV prevalence of almost 5% has been found in street-based sex workers, one in ten of whom also reported a history of injecting drugs—suggesting a potentially strong link in HIV transmission among drug injectors, sex workers and their clients (WHO Regional Office for Europe, 2004).

Meanwhile HIV prevalence remains very low (less than 0.3%) in most of the Central Asian and Caucasian republics, though the overall number of registered infections continues to rise—formidably in **Uzbekistan**, which hosts one of the youngest epidemics in the world. Almost 91% of all reported infections were diagnosed between 2001 and mid-2003, bringing to more than 2500 the total number of reported HIV cases, as Figure 22 shows. **Uzbekistan**'s epidemic is now developing swiftly. Already, commercial sex appears to be playing a large role. The proportion of women among people living with the virus has grown annually from just over 12% in 2001 to almost 18% in 2003. HIV infections have been recorded in all regions of the country, though the epidemic is most heavily concentrated in the capital Tashkent (48% of all registered HIV cases) and surrounding areas (20%). In **Kazakhstan**, where a total of just over 3600 HIV cases had been reported by mid-2003, sentinel surveillance conducted in 2003 has shown prevalence levels of 3.8% in injecting drug users and 4.6% in sex workers but there are no data concerning men who have sex with men (EuroHIV, 2003). The proportion of people living with HIV in this region who are in Kazakhstan rose from 19% in 2001 to 24% in 2003. These epidemics are growing at a fearsome pace and are concentrated currently among young people who inject drugs and/or engage in commercial sex. **Kyrgyzstan**'s much smaller epidemic is being propelled mainly by injecting drug use and is concentrated largely still in Osh Oblast, two regions of Chui Oblast (Jaiyl and Yssykata) and Bishkek City. In a country where it is officially estimated that at least 2% of the adult population injects drugs, huge scope exists for rapid and extensive spread of HIV. In the Caucuses, new studies indicate that significant HIV outbreaks are underway in **Azerbaijan**, where one in four street drug injectors in the capital, Baku, have been found to be HIV-positive. Among street-based sex workers, HIV prevalence of 11% has been detected and among their counterparts working out of cafes and saunas, prevalence of 6% has been found (WHO Regional Office for Europe, 2004). Because the epidemics are still in their early stages, they can be halted with prevention strategies that concentrate on reaching those who are currently most at risk of exposure to HIV.

In the Baltic states, HIV transmission is occurring at a brisk rate, even if the overall numbers of infections remain low.

In parts of south-eastern Europe (notably countries emerging from conflict and difficult transitions) drug injecting and sexual risk behaviour appear to be on the increase, and rising numbers of HIV infections could soon follow. For example, the capital of **Romania**, Bucharest, has seen a swift rise in the number of injecting drug users during the past few years. By 2002 there were an estimated 30 000 injecting drug users in the capital (more than 1% of the city's population); four years earlier, another exercise had estimated their number at just 1000. More than 80% of the drug injectors are under 30 years of age and over 70% of them are unemployed. An estimated 60% of the drug injectors use non-sterile needles and syringes, and 40% to 60% are estimated to be infected with hepatitis C. As of yet, sentinel surveillance has revealed very few cases of HIV infection among injecting drug users.

Overall in Eastern Europe and Central Asia, current case reports reflect the situation only among those people and groups (chiefly injecting drug users) who come into contact with HIV testing programmes. Consequently, little is known about HIV spread among people who do not

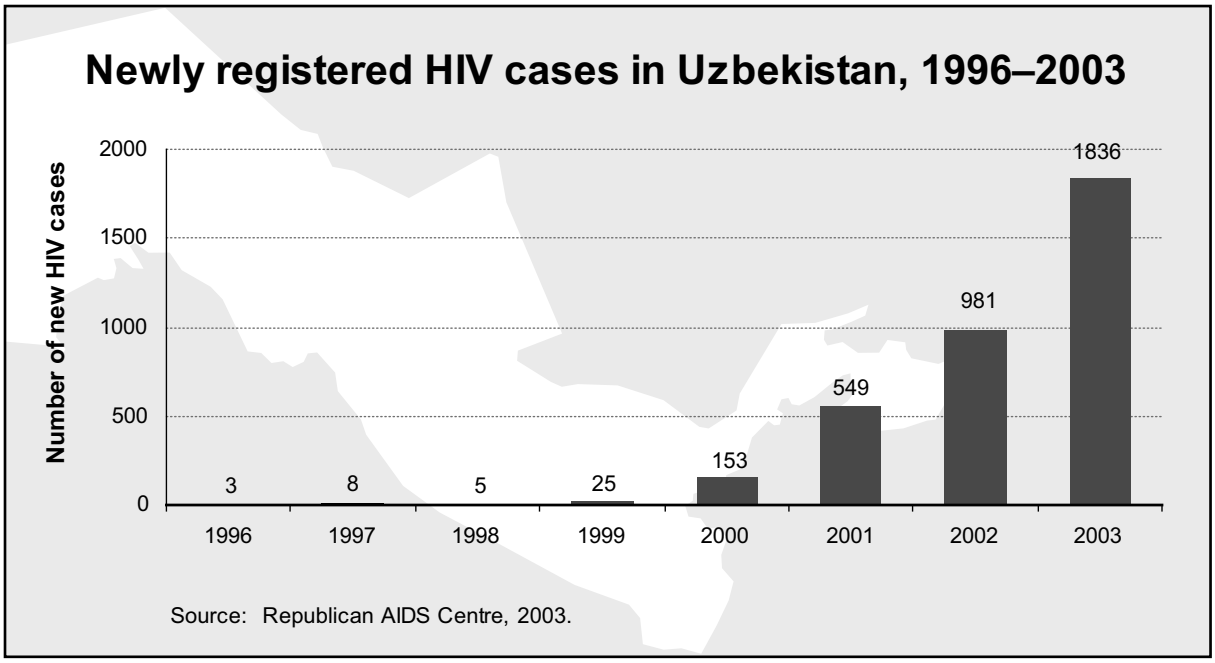


Figure 22

engage with the authorities and/or testing services. Among the rare studies of men who have sex with men is a recent, small investigation conducted in Ekatarinaburg, which found HIV prevalence of 5% among men who have sex with men, one third of whom also had sexual relations with women and half of whom never used a condom (WHO Regional Office for Europe, 2004). Networks of men who have sex with men have been documented in several countries and scattered surveys of sexual behaviour (for example, in the **Russian Federation** and **Ukraine**) have pointed to high levels of unprotected sex. Throughout the region, men who have sex with men are routinely stigmatized and discriminated against, and in many countries the likely role of sex between men in the epidemic is not being recognized.

New opportunities, ongoing challenges

While some leaders in the region have grown more voluble on AIDS, action still lags in most countries. Late in 2004, the countries of Europe pledged to ensure universal access to treatment and care by 2005 across the entire Europe and Central Asia, and to ensure that 80% of the persons at highest risk of HIV have adequate access to prevention services and commodities by 2010. However, surveys have shown that coverage of HIV-prevention programming is low across the region: just 10% of sex workers, less than 8% of injecting drug users and only 4% of men who have sex with men are being reached. Nevertheless, an emerging movement of civil society and people living with HIV is

Current estimates suggest that fewer than 3000 people living with HIV in the Russian Federation are receiving antiretroviral medication, less than 5% of them injecting drug users in remission.

gaining force (notably in **Romania** and **Ukraine**, for example) and requires urgent support through capacity building, networking and partnership development.

Just over 11% of people who need antiretroviral drugs currently are being treated, and for HIV-positive drug injectors, treatment access is rare to non-existent in the worst-affected countries. The exceptions are **Moldova** and **Romania**, where most people in need of antiretroviral treatment are believed to be receiving it. By contrast, in **Ukraine** an estimated 13% and in **Kazakhstan** fewer than 5% of people in need of antiretroviral therapy are getting it, and treatment for drug injectors is not yet supported by substitution therapy. Although prices of antiretroviral medicines in this region are still among the highest in the world there are significant opportunities for price reductions. International funding for AIDS in Eastern Europe and Central Asia has ballooned; approximately US$ 600 million has been made available by multilateral institutions and other donors. Financially at least, a massive expansion of prevention and treatment programmes is now feasible in the region. The challenge will be to achieve the efficient coordination and programme management that will be needed to put these funds to effective use, and to more fully involve the growing numbers of people living with HIV in these countries in order to reach marginalized populations.

LATIN AMERICA

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	1.7 million [1.3–2.2 million]	610 000 [470 000–790 000]	240 000 [170 000–430 000]	0.6 [0.5–0.8]	95 000 [73 000–120 000]
2002	1.5 million [1.1–2.0 million]	520 000 [390 000–690 000]	190 000 [140 000–320 000]	0.6 [0.4–0.7]	74 000 [58 000–96 000]

Only Guatemala and Honduras have national HIV prevalence of over 1%, but lower prevalence in other countries disguises serious, localized epidemics.

More than 1.7 million [1.3 million–2.2 million] million people are living with HIV in Latin America. In 2004, around 95 000 [73 000–120 000] people died of AIDS, and 240 000 [170 000–430 000] were newly infected. Among young people 15–24 years of age, an estimated 0.5% [0.4–0.9%] of women and 0.8% [0.6–1.3%] of men were living with HIV at the end of 2004.

Two countries in this region—**Guatemala** and **Honduras**—have national adult HIV prevalence of over 1%. But lower prevalence in other countries disguises the fact that serious, localized epidemics are also underway in several other countries—not least **Brazil**, which accounts for more than one third of the people living with HIV in Latin America.

Heterosexual transmission is now responsible for a growing share of HIV infections, with women increasingly affected (Marins et al., 2003). Lower socioeconomic status has been found to correlate strongly with higher prevalence among sex workers in Santos and Sao Paulo, according to one new study. Overall, 7% of the sex workers were HIV-positive, but among those living in urban slums, HIV levels were 18% and among illiterate women in their ranks they reached 23% (Gravato et al., 2004). Although national HIV prevalence among pregnant women has stayed stable at below 1% for the past five years, considerably higher levels have been found in some areas: 3% to 6% in a study conducted among pregnant women in Rio Grande do Sul state who did not regularly attend antenatal clinics. Most of these women had very-low incomes and were poorly educated (UNAIDS/WHO, 2003). The Brazilian government has introduced an initiative to recruit and offer testing to all pregnant women, provide

Brazil's epidemic has dispersed into all regions of the vast country and has become more varied, with women increasingly affected.

Brazil's epidemic has dispersed into all regions of this vast country, and displays some variation. At first affecting mainly men who have sex with men and then injecting drug users, the epidemic has grown more heterogeneous.

services to prevent mother-to-child transmission and, if applicable, treat the women and their infants.

The role of injecting drug use in **Brazil's** epidemic should not be underestimated. In some areas, injecting drug users constitute at least half of AIDS cases. Harm reduction programmes in some cities have been associated with steep drops in HIV prevalence among injecting drug users in recent years—notably in Salvador where prevalence fell from 50% in 1996 to 7% in 2001 (Ministerio da Saude do Brasil, 2001). In the south of the country, though, injecting drug users remain at high risk of HIV infection. Prevalence among users in Porto Alegre was 64% in 2003, while in Itajai it was 31%, indicating the need for more effective prevention programmes (Caiaffa et al., 2003).

HIV in **Argentina** remains concentrated largely in the urban areas of Buenos Aires, Cordoba and Santa Fe provinces, with an estimated 65% of HIV infections occurring in the capital Buenos Aires and its surrounding areas. However, the epidemic is changing. Throughout the 1980s and much of the 1990s, HIV transmission occurred mainly through injecting drug use, predominantly involving men. But sexual transmission of HIV—mainly from infected drug users to their female partners, as well as between men who have sex with men—has become more prominent, accounting for an estimated 80% of all reported AIDS cases. HIV prevalence in pregnant women was 0.4%, in 2002, and the male-to-female ratio among people living with HIV narrowed from 15:1 in 1988 to 3:1 in 2002. Most new infections appear to be occurring among the poorest and least-educated urban inhabitants (Ministerio de Salud Argentina, 2003; de los Pando et al., 2003). The paucity of prevention efforts in **Argentina** directed at men who have sex with men is a concern, given HIV prevalence of 14% detected among them in Buenos Aires and the fact that just one-in-seven of the men who tested positive had been aware of their serostatus (Avilla et al., 2004). In **Uruguay**, where about three quarters of all registered HIV cases have been in the capital, Montevideo, or its surrounding areas, there has been an alarming increase in the number of people living with HIV who are either injecting drug users or their sex partners. At least one quarter of HIV cases are injecting drug users and almost one half of them are younger than 25 (Osimani, 2003). A 2002 survey in Montevideo found almost 10% of injecting drug users were HIV-infected. Very high prevalence (21%) was measured a year earlier among men who have sex with men in the capital (US Bureau of the Census – HIV/AIDS Surveillance Database, 2003).

In the Andean area, HIV is spreading increasingly to the wives and girlfriends of men who buy sex and of men who have sex with other men.

Until recently, the epidemics in the Andean area have been lodged largely among sex workers, their clients and men who have sex with men. However, this is beginning to change as the virus spreads increasingly to the wives and girlfriends of these men. One recent study in Lima, **Peru**, for example, found that almost 90% of HIV-positive pregnant women had had just one or two sex partners in their lifetimes (Alarcon et al., 2003). The women's HIV risk depended almost exclusively on the sexual behaviour of their male partners, and those most at risk were young women (Johnson et al., 2003). In a general population study in 24 Peruvian cities, 44% of men aged 18 to 29 years said they paid for sex (45% of them did not consistently use condoms with sex workers) and 12% said they had sex with other men (68% of them did not use condoms consistently in those encounters). Other urban Peruvian studies have found that 87% of men who had sex with men also slept with women, confirmed very-low rates of condom use, irrespective of the partner's sex, and revealed high levels of sexually transmitted infections such as syphilis and herpes (Guanira et al., 2004). Given the consistently high HIV prevalence detected in recent years in groups of men who have sex with men in Peru—12% in Iquitos in 2002 and 22% in Lima in the same year—there is significant scope for wider HIV spread (MAP, 2003). Other research suggests that similar patterns of HIV transmission could be

significant factors in epidemics elsewhere in the region. With an estimated 110 000 [47 000–170 000] people living with HIV at the end of 2003, **Venezuela** has one of the largest epidemics in the region. There, HIV is spreading mainly through unsafe sex, much of it between men, a significant proportion of whom also have sex with women (Minsterio de Salud y Desarrollo Social de Venezuela, 2003).

Little information is available on **Ecuador**'s epidemic, but behavioural studies in rural and urban areas point to several factors that could aid the spread of HIV—including early sexual debut (one survey showed 43% of high-school students were sexually active) and low rates of condom use (almost half the students never used one). Indeed, two recent studies (in 2002 and 2003) revealed HIV prevalence of 12% to 14% and 21% among men who have sex with men in Quito and Guayaquil, respectively. Much lower prevalence (under 2%) was found among female sex workers (National AIDS Programme Ecuador, 2002). **Bolivia'**s epidemic is concentrated largely among sex workers and their clients, and men who have sex with men. Most HIV infections reported to date have been in the cities of Santa Cruz and La Paz (Khalsa, Francis and Mazin, 2003). HIV prevalence among registered sex workers is very low—around 0.5%—but the health authorities believe the rate could be much higher among non-registered sex workers. If so, this is a concern in a country where 7% to 8% of adult men are believed to frequent sex workers. Among men who have sex with men, HIV prevalence is an estimated 3% to 5%. Little information on **Colombia**'s epidemic is available. Most recent data show low HIV prevalence among female sex workers in Bogotá (0.7% in 2001-2002), but very high prevalence among men who have sex with men (18% in 2000) (Khalsa, Francis and Mazin, 2003).

In **Central America**, where the epidemic to a large extent is still concentrated in large urban areas, the numbers of HIV infections have been rising in several countries (including **El Salvador**, **Nicaragua** and **Panama**) since the late 1990s, but HIV prevalence remains highest in **Guatemala** and **Honduras**. Among people living with HIV, men outnumber women by roughly 3:1 in most countries.

Worst-affected is **Honduras**, where adult prevalence of almost 2% meant that an estimated 63 000 [35 000–110 000] people were living with HIV at the end of 2003 (UNAIDS, 2004). AIDS-related diseases are now estimated to be the second-leading cause of death in Honduras. The country's epidemic has matured considerably, spreading among the wider population in some parts (such as Valle de Sula), while concentrated in other parts among sex workers and men who have sex with men and other vulnerable groups. HIV prevalence of 13% was measured in a study among men who have sex with men in 2001. Earlier studies found HIV levels of 7% among a sample of prisoners and 8.4% among the Garifuna population (Secretaria de Salud de Honduras, 2004).

In this subregion, HIV is spread predominantly through sex, and the highest levels of HIV infection are found in men who have sex with men and in female sex workers. Among the latter, HIV rates have varied considerably from about 1% in **Nicaragua** and **Panama**, to above 10% in **Honduras** and **El Salvador**. In most Central American countries, street-based sex workers are at least twice as likely to be HIV-infected as their counterparts working out of brothels, bars and hotels (various Ministries of Health, 2003; MAP Report, 2003). In **Guatemala**, HIV prevalence of 3.6% and 15% has been measured among brothel-based and street-based sex workers, respectively, while similar HIV levels (4% and 14%, respectively) have been found in Honduras (Secretaria de Salud de Honduras, 2003; Ministerio de Salud Pública y Asistencia Social de Guatemala, 2003). In **El Salvador**, HIV prevalence of 16% was found among street-based sex workers (in San Salvador and Puerto de Acajutla) (Ministerio de Salud Pública y

In Central America, where the epidemic is largely concentrated in major urban areas, the numbers of HIV infections have been rising.

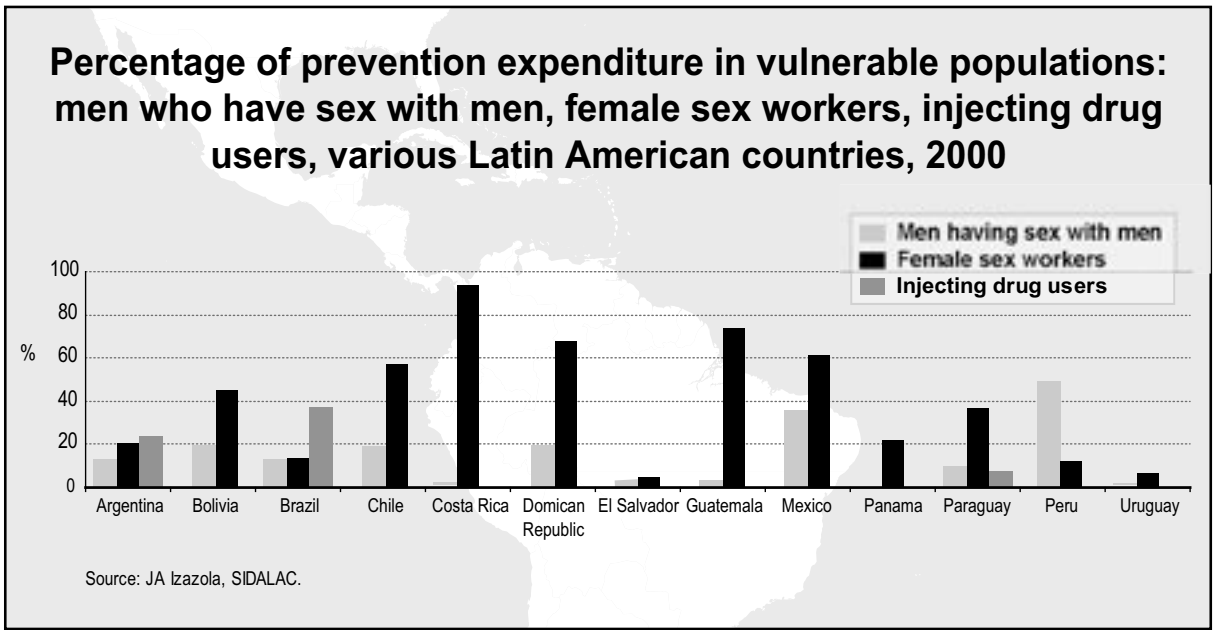


Figure 23

Asistencia Social de El Salvador, 2003). It bears noting that, on the few occasions where prisoners have been tested for HIV, high prevalence has been found (7% in Honduras in the late 1990s, for example).

Sex between men is a major factor in the epidemics throughout the region, dramatically so in **Costa Rica**. There, more than half of AIDS cases in 1998–2002 were among men who have sex with men, a significant percentage of whom also have sex with women (Ministerio de Salud de Costa Rica, 2003). Roughly one third of HIV infections in **Panama** and **Nicaragua** are attributable to unprotected sex between men; in Panama, a 2002 study among men who have sex with men found almost 11% were infected with HIV (Ministerio de Salud de Nicaragua, 2004; Ministerio de Salud de Panama, 2004). Meanwhile, various studies have shown HIV levels in groups of men who have sex to be uniformly high in other countries, ranging from 9% to 13% in Guatemala, Honduras, Nicaragua and **Panama** to almost 18% in **El Salvador**. In each of these Central American countries, large proportions of men who have sex with men also report having female sexual partners (various Ministries of Health, 2003). Bisexuality therefore constitutes a significant bridge for HIV transmission into the wider population. Similarly, the wives or regular partners of sex worker clients face an elevated risk of HIV infection, even when they themselves have only one sex partner.

To the north in **Mexico**, national prevalence in the adult population has remained well under 1%, but shows marked regional variance. In the Baja California, District Federal, Quintana Roo and Yucatan states, prevalence hovers at 0.5%, while in Hidalgo, San Luis Potosi and Zacatecas states it is much lower, at an average 0.1% (Bravo-Garcia and Magis, 2004). In the past few years, much higher rates of HIV have been found among injecting drug users (up to 6%) and men who have sex with men (up to 15%). According to the country's AIDS Registry, overall heterosexual transmission of HIV has increased in recent years. It is difficult to determine the extent to which high-risk behaviours such as injecting drug use or sex between men (which have been widely documented in Mexico)

There is still a mismatch between prevention spending priorities and the main features of several countries' epidemics.

are contributing to the transmission of HIV in the country (Minichielloa et al., 2002).

Shadowing the considerable variation in Latin America's epidemics, however, is a common and troubling pattern. In several countries, there is still a mismatch between prevention spending priorities and the main epidemiological features of countries' epidemics. Most countries direct the bulk of their prevention expenditure to sex worker programming. Prevention spending does not yet reflect the fact that sex between men is a driving force in the epidemic throughout the region—with **Peru** the notable exception. The disparity is most pronounced in Central America. Meanwhile, among those countries where injecting drug use features prominently in their epidemics, only **Argentina** and **Brazil** appear to have prioritized their prevention spending accordingly (see Figure 23). Much better use can be made of epidemiological and other pertinent data for designing tailored HIV prevention programming.

On the treatment front, Brazil remains a beacon among developing countries. It continues to offer all people living with HIV access to antiretroviral drugs via its national health system when they need it. As a result, the survival time of AIDS patients has increasingly dramatically. A recent study calculated that median survival was just under five years (58 months) for people diagnosed with AIDS in 1996 (Marins et al., 2003) while it was only 18 months for those diagnosed in 1995. AIDS cases and AIDS mortality have declined in several other countries, including Argentina, Costa Rica and Panama, after expansion of antiretroviral treatment access.

OCEANIA

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	35 000 [25 000–48 000]	7100 [4100–11 000]	5000 [2100–13 000]	0.2 [0.1–0.3]	700 [<1700]
2002	28 000 [22 000–38 000]	5000 [3000–7500]	3200 [1000–9600]	0.2 [0.1–0.3]	500 [<1000]

An estimated 35 000 people [25 000–48 000] in Oceania are living with HIV. Although less than 700 [<1700] people are believed to have died of AIDS in 2004, about 5000 [2100–13 000] are thought to have become newly infected with HIV. Among young people 15–24 years of age, an estimated 0.2% of women [0.1–0.4%] and 0.2% of men [0.1–0.3%] were living with HIV by the end of 2004.

A possible increase in sexual risk behaviour among men who have sex with men underlines the need to reinvigorate prevention efforts in Australia.

The annual number of new HIV diagnoses in **Australia** has gradually increased from 650 in 1998 to about 800 in 2002. A growing share of those diagnoses was in people who had become infected in the previous year—which suggests that the increase in new diagnoses could be linked to a revival of unsafe sex. The annual number of HIV diagnoses in women has stayed relatively stable, but more of those diagnosed infections occurred through heterosexual intercourse—either in a high-prevalence country or with a partner from a high-prevalence country. As is the case in **New Zealand**, transmission of HIV in Australia continues to be mainly through sexual intercourse between men, which accounted for more than 85% of new HIV diagnoses in the five years up to 2002. Injecting drug use was responsible for about 4% and heterosexual intercourse for 8.5% of newly acquired infections in that period. In a 2002 cross-sectional survey among men who have sex with men in Sydney, an increasing proportion of respondents reported unprotected anal sex with casual partners (25% compared with 18% in 1998-1999). Surveys in other cities have made similar findings. Recent gonorrhoea surveillance data, too, have pointed to a possible increase in sexual risk behaviour among men who have sex with men, underlining the need to reinvigorate prevention efforts aimed at men—especially young men—who have sex with other men (National Centre in HIV Epidemiology and Clinical Research, 2003).

The per capita rates of HIV diagnoses among Indigenous people in **Australia** since 1993 have been similar to those in non-Indigenous people. But higher proportions of diagnoses have been among women (36% in Indigenous compared to 11% in non-Indigenous people) and have been associated with injecting drug use (20% in Indigenous people compared to 4% in non-

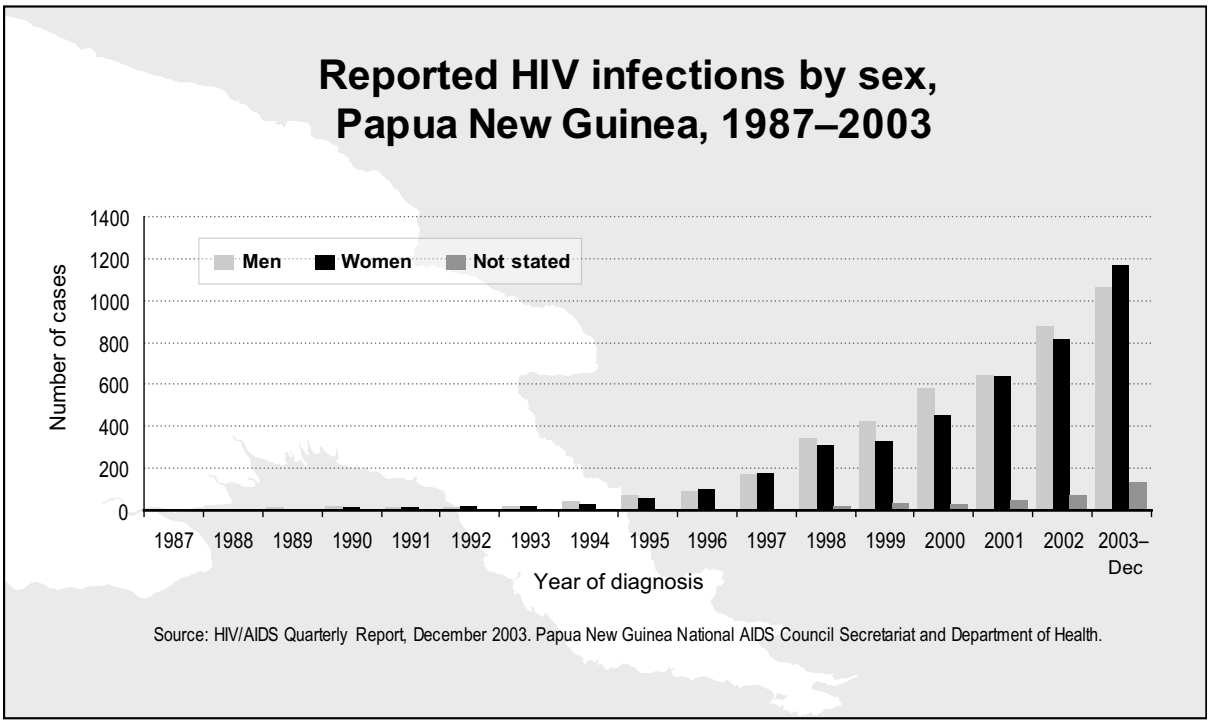


Figure 24

Indigenous people). At least half the estimated 14 000 people living with HIV in Australia are receiving antiretroviral therapy, reflecting both the age of the Australian epidemic and extensive treatment access.

A rapidly-growing epidemic

Papua New Guinea, which shares an island with one of Indonesia's worst-affected provinces, Papua, has the highest prevalence of HIV infection in the Pacific. An estimated 0.6% [0.3%–1.0%] of adults—roughly 16 000 [7800–28 000] people of the adult population of about 2.6 million—were living with HIV at the end of 2003 (UNAIDS, 2004). The annual number of new HIV infections detected in Papua New Guinea has been increasing progressively since the mid-1990s, exceeding 1000 in 2003, as Figure 24 illustrates (National AIDS Council Secretariat and Department of Health, 2003). In the same year, 1.4% of pregnant women at antenatal clinics in the capital Port Moresby tested HIV-positive, while in Lae, in the central highlands, 2.5% of pregnant women were HIV-infected (MAP, 2004). More than twice as many young women (aged 15–24 years) as men have been diagnosed with HIV. And in 2003 for the first time, overall, more HIV infections were detected in women than in men, as Figure 24 shows (National AIDS Council Secretariat and Department of Health, 2003).

Papua New Guinea's HIV and AIDS surveillance capacity is limited and needs to be enhanced urgently. Available data suggest the epidemic is centred on commercial and casual sex, most of it heterosexual. High HIV prevalence has been found among sex workers (above 10% in the capital, Port Moresby, for example) (National AIDS Council Secretariat and Department of Health, 2003).

Papua New Guinea has the highest HIV prevalence in the Pacific.

Recent household surveys of young men and women in Jayapura and Merauke, on the Indonesian side of the border, hint at some of the possible dynamics of HIV spread on the island overall. Unmarried women aged 15–24 in Papua

were almost 10 times and young men five times more likely to be sexually active compared with their counterparts elsewhere in Indonesia (Indonesia Central Beureau of Statistics and MACRO International, 2004). In addition, 29% of sexually active young Papuan women reported having sex with men at least 10 years older than they were themselves. Because older men are more likely to be infected with HIV, such age mixing serves as a passageway for the virus from older to younger generations (MAP, 2004).

Danger signs

HIV-infection levels appear to be very low in other parts of Oceania, but the data are extremely limited. On remote islands, seafarers and their partners appear to be most at risk; on **Kiribati**, for example, 9% of seafarers included in a recent study had chlamydia and 3% syphilis, although HIV prevalence was still low (at 0.3%) (Sullivan et al., 2004). High rates of other sexually transmitted infections are being detected on some other islands, including **Vanuatu**, where some 6% of pregnant women were found to be infected with gonorrhoea, and 13% with syphilis. Similarly, in **Samoa**, chlamydial infection and trichomoniasis are extremely common among pregnant women, at 31% and 21% respectively. Overall, 43% of pregnant women had at least one sexually transmitted infection—levels that compare with those recorded among sex workers in several Asian countries. For example, in **East Timor**, one quarter of sex workers had either or both gonorrhoea or chlamydia in 2003, a proportion similar to that recorded in **Cambodia** two years earlier. In six provinces of **Viet Nam** in 2002, between one quarter and one third of sex workers had at least one of those infections, as did 42% of sex workers in seven cities in **Indonesia** in 2003 (MAP, 2004). In such contexts, once HIV makes its way into the tiny populations of island nations in Oceania, diffuse epidemics are likely to follow. Prevention strategies that reduce and treat sexually transmitted infections and that quickly bolster AIDS knowledge among the population at-large are urgently needed.

Many questions remain unanswered about Papua New Guinea's epidemic but existing data highlight the need for urgent action if the country is to avert a rampant epidemic.

In an epidemic that centres mainly on commercial sex, the routes along which HIV can spread through the population are comparatively limited; most at risk are sex workers, their clients and the clients' regular female partners. Where many men frequent sex workers, this can generate a serious epidemic—as Thailand discovered. But the combination of widespread commercial sex and multiple non-commercial partners seen in **Papua New Guinea** is ominous, since it enables the epidemic to assume much greater proportions. A high incidence of rape, sexual aggression and other forms of violence against women appear to be aiding the epidemic's growth. According to one study, up to 70% of women have experienced domestic violence, while other studies have put the figure even higher (Brouwer, Harris, Tanaka, 1998). Many questions remain unanswered about Papua New Guinea's epidemic but existing data highlight the need for urgent action to improve HIV prevention and AIDS care services if Papua New Guinea is to avert a rampant epidemic which will have ramifications for years to come.

MIDDLE EAST AND NORTH AFRICA

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	540 000 [230 000–1.5 million]	250 000 [80 000–770 000]	92 000 [34 000–350 000]	0.3 [0.1–0.7]	28 000 [12 000–72 000]
2002	430 000 [180 000–1.2 million]	200 000 [62 000–620 000]	73 000 [21 000–300 000]	0.2 [0.1–0.6]	20 000 [8300–53 000]

There is significant scope for further expansion of AIDS epidemics in the countries of the Middle East and North Africa.

Concerns that HIV would continue to strengthen its presence in the Middle East and North Africa are borne out by the latest estimates which show that 92 000 [34 000–350 000] people became infected with HIV in 2004. That brings to 540 000 [230 000–1.5 million] the total number of people living with the virus in this region. AIDS killed an estimated 28 000 [12 000–72 000] people in 2004. Among young people 15–24 years of age, 0.3% of women [0.1–0.8%] and 0.1% of men [0.1–0.3%] were living with HIV by the end of 2004. HIV is being transmitted along diverse paths in this region, including paid sex, sex between men and injecting drug use, and there exists significant scope for further expansion of the epidemic.

Wracked by civil war and humanitarian crises, **Sudan** remains the region's worst-affected country, with its epidemic concentrated largely in the south. Latest estimates show that more than 2% of the adult population were living with HIV at the end of 2003—some 400 000 [120 000–1.3 million] people which amounts to more than 80% of all people with HIV in this region (UNAIDS, 2004). Previous HIV surveillance data have shown HIV prevalence to be up to eight times higher in the south of the country, compared with the capital, Khartoum. It is possible that the gradual cessation of conflict in parts of the country could accelerate HIV spread, as people resume their normal patterns of travel and trade.

The effects of conflict continue to thwart up-to-date information-gathering about Sudan's epidemic. The few surveys that have sought HIV-related information encountered very limited knowledge about the epidemic amid widespread behaviours that could favour HIV transmission. One such investigation, in the towns of Yei (in the far south, close to the Ugandan border) and Rumbek (also in the south), concluded that there was an urgent need for HIV prevention programmes. In Rumbek, for example, although almost one third of respondents had had more than one sex partner in the previous year, a mere 2% had used a condom the last time they had sex with a casual partner and only 20% knew what a condom was (Kaiser et al., 2004).

In most other countries, the epidemics are still in their early stages—which boosts the chances that effective prevention efforts can limit further spread of the virus. It must be noted, however, that inadequate surveillance data in several countries could mean that significant HIV outbreaks in some populations (including men who have sex

with men and injecting drug users) are being missed. **Morocco**, where an estimated 15 000 [5000–30 000] people were living with HIV at the end of 2003, could be a case in point (UNAIDS, 2004). Official statistics indicate HIV is being transmitted mainly during heterosexual intercourse, with sex between men and injecting drug use apparently lesser factors. Men and women appear to be affected in roughly equal numbers. However, recent HIV sentinel surveillance has not monitored HIV among injecting drug users nor among men who have sex with men. Official data show HIV prevalence to be comparatively low among female sex workers (at 2.3%) in 2003 and very low among pregnant women (0.1%). However, among prisoners (the majority of them men), prevalence of 0.8% was detected. Although the official numbers of newly reported HIV cases have fluctuated for the past decade, the number of annual, new diagnoses in 2003 was almost three times higher than in 2001 (99 compared with 39). This could reflect a rising trend in new infections (Ministère de la santé Morocco, 2003/2004).

In most other countries, the epidemics are still in their early stages—which boosts the chances that effective prevention efforts can limit further spread of the virus.

Libya's epidemic has been growing dramatically, with almost 90% of the officially reported 5160 HIV infections among Libyans (at end-2002) having occurred in 2000–2002 alone. The vast majority—over 90%—of reported HIV cases are attributed to injecting drug use, and about 50% of drug users receiving treatment in Tripoli's Tajourah rehabilitation centre were HIV-positive in 2003. Although increasing numbers of immigrants and migrants from sub-Saharan African countries have been seeking AIDS treatment, the majority of patients are Libyan nationals. Most drug injecting is believed to be occurring in the capital, Tripoli, with heroin the drug of choice. It is likely that restrictions placed on the sale of needles and syringes at pharmacies in the late 1990s have increased the use of non-sterile injecting equipment, thereby heightening the risk of HIV transmission (Tawilah and Ball, 2003). Trends currently visible underline the need to expand and integrate HIV prevention and AIDS care services for injecting drug users. Overall, however, a more robust understanding of the epidemic's trends and patterns is vital if the apparent surge in the epidemic is to be halted. Unfortunately, there is currently a lack of systematic HIV surveillance and AIDS data collection (following the regionalization of health services in the late 1990s).

Information about the epidemic in **Tunisia** is also sketchy. Nevertheless, a recent, retrospective study found that some 84% of HIV-positive patients at the Rabta hospital in Tunis were injecting drug users, while about 11% had acquired the virus during unsafe sex. It is possible, however, that the people surveyed included Libyan nationals, a substantial number of whom have sought antiretroviral treatment in Tunisia which provides free and universal treatment (Kilani et al., 2004). Risk behaviour among injecting drug users in the **Egyptian** capital, Cairo, is high and there is ample opportunity for HIV spread from drug injectors to their sexual partners, according to new research. More than half (55%) injected with non-sterile injecting equipment in the previous month and almost one quarter of those who had been incarcerated at some stage said they had injected drugs while in prison. Among the three quarters of the users who were sexually active, almost two thirds had *never* used a condom (Elshimi, Warner-Smith and Aon, 2004).

Inadequate surveillance data in several countries could mean that significant HIV outbreaks in some populations (including men who have sex with men and injecting drug users) are being missed.

HIV infections in **Algeria**, **Bahrain**, **Kuwait** and **Oman** have also been attributed to injecting drug use, but its role is most evident in **Iran**'s growing

epidemic. About 15% of all HIV infections since the start of the epidemic in Iran were reported in 2003 alone (Ministry of Health Iran, 2004). While this increase partly reflects expanded surveillance, it almost certainly also mirrors a recent escalation in an epidemic which is driven primarily by injecting drug use. About 4% of drug injectors tested in sentinel surveillance in 2003 were HIV-positive—but prevalence was over three times higher among those tested beyond the sentinel sites, and in some places one in five drug injectors was testing positive. (MAP, 2004).

Iran's epidemic is growing in the wake of a dramatic rise in the overall number of people who inject drugs. In recent years, Iran has improved its methods for estimating the number of people with behaviours that heighten the risk of HIV exposure. According to an epidemiological survey of drug use published by the Ministry of Health in 2002, the population of injectors could be growing at 5% to 10% a year (MAP, 2004). In 2003, it was estimated that there could be as many as 200 000 injecting drug users in the country (Jenkins and Robalino, 2003). Some moves are afoot to limit the scope for HIV transmission through injecting drug use. In contrast with several other countries in the region, Iran has made needles and syringes available over the counter in pharmacies, a move which some reports suggest could be reducing the use of non-sterile needles by half.

The considerable risk of HIV transmission from injecting-drug users to their sexual partners requires an emphasis on prevention programmes that can limit the sexual transmission of the virus in Iran. About half of injecting drug users were married, according to one study, and one third of the surveyed users reported extra-marital sex, pointing to the potential for further transmission. Such a secondary wave of infections would probably put sex workers (and their other clients) at risk, too. As elsewhere in the region, sex workers in Iran appear to be poorly equipped to avert HIV infections. One study among sex workers in the Iranian city of Kermanshah, found that almost all the sex workers knew about condoms, but only 50% had ever used one (MAP, 2004). Both sex workers and clients in Iran have cited high condom prices as the main reason for shirking their use.

In **Yemen**, meanwhile, the epidemic appears to be centered on the sex-work industry (Jenkins and Robalino, 2003). Sentinel surveillance conducted in a few sites in **Algeria** in 2004 found HIV prevalence among pregnant women ranged from 0.2% to 0.5% in Tizi-Ouzou, Tamanrasset and Oran. In the latter two sites, 2% of sexually-transmitted infection patients were HIV-positive, as were 9% of 70 sex workers tested in Tamanrassset (Institut de Formation Paramédicale de Parnet, 2004). It is worth noting that when tested four years ago, just 1.7% of sex workers in Tamanrasset were found to be HIV-positive (Fares et al., 2004). There and elsewhere in the region more in-depth information is needed about patterns of HIV transmission and the possible role of sex work in the epidemic. The same applies to the role of sex between men, which is heavily stigmatized in the region. Information about this form of behaviour and its possible role in countries' epidemics remains rare. Those studies that have been conducted, however, show significant scope for HIV transmission among and beyond men who have sex with men. Although recent research among a sample of men who have sex with men in Cairo, **Egypt**, found low HIV prevalence (just over 1%), risk behaviour was commonplace. Many of the men, particularly those younger than 25, reported having multiple partners but just 19% of the men overall said they consistently used condoms. Some of them had never heard of a condom. In light of the low rates of condom use and the fact that almost three quarters of the older men (above 25 years) also had female sex partners, there is a significant potential for wider HIV transmission (El-Rahman, 2004).

Steps to defuse the social stigma and institutional discrimination experienced by vulnerable groups remain few and far between; so, too, education and communication to deepen public knowledge of the epidemic.

Effective prevention is needed across the region in order to arrest HIV epidemics in their early stages. Meanwhile, effective interventions depend on systematic and reliable information about the epidemics' patterns and trends. On both those fronts, too many countries are still too "slow off the mark". Even basic steps such as condom promotion are largely absent in the region. Efforts to defuse the social stigma and institutional discrimination experienced by vulnerable groups remain few and far between; so, too, education and communication to deepen public knowledge of the epidemic.

North America, Western and Central Europe

HIV and AIDS statistics and features, end of 2002 and 2004

	Adults and children living with HIV	Number of women living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
2004	1.6 million [1.1–2.2 million]	420 000 [290 000–570 000]	64 000 [34 000–140,000]	0.4 [0.3–0.6]	23 000 [15 000–32 000]
2002	1.6 million [1.1–2.2 million]	390 000 [270 000–550 000]	62 000 [33 000–140 000]	0.4 [0.3–0.6]	22 000 [15 000–31 000]

AIDS is affecting new sections of populations, and an increasing proportion of people are becoming infected through unprotected heterosexual intercourse.

Some 64 000 [34 000–140 000] new infections occurred in North America and in Western and Central Europe in 2004, raising the number of people living with HIV in these countries to between 1.1 million and 2.2 million. Among young people 15–24 years of age, 0.1% of women [0.1–0.2%] and 0.2% of men [0.1–0.5%] were living with HIV by the end of 2004. Widespread access to life-extending antiretroviral treatment kept the number of AIDS deaths at between 15 000 and 32 000 in 2004. However, there are ample indications that prevention efforts are not keeping pace with the changing epidemics in several countries.

Sex between men and, to a lesser extent, injecting drug use remain prominent factors in the epidemics in these countries, but the patterns of HIV transmission are changing. New sections of populations are being affected, with an increasing proportion of people becoming infected through unprotected heterosexual intercourse.

In the **United States of America** the epidemic has altered demonstrably during the past decade. An estimated 40 000 people have been infected with HIV each year in the United States in the last ten years, but the epidemic is now disproportionately lodged among African Americans and is affecting much greater numbers of women.

In 2003, African Americans accounted for at least 25% of all AIDS cases, compared with 20% in 2001. That proportion could be higher, since the estimate was based on data collected in just 29 states. Although African Americans represent just 12% of the country's population, over half of new HIV diagnoses in recent years have been among them (in 2002 the proportion was 54%, according to the most recent available data). Especially affected are African American women, who account for up to 72% of new HIV diagnoses in all US women. At the turn of the century already, AIDS ranked among the top three causes of death for African American men aged 25–54 and for African American women aged 35–44 years (Centers for Disease Control and Prevention, 2003a).

It should go without saying that race and ethnicity are not per se risk factors for HIV. Poverty and other forms of socioeconomic deprivation, however, are known to increase vulnerability

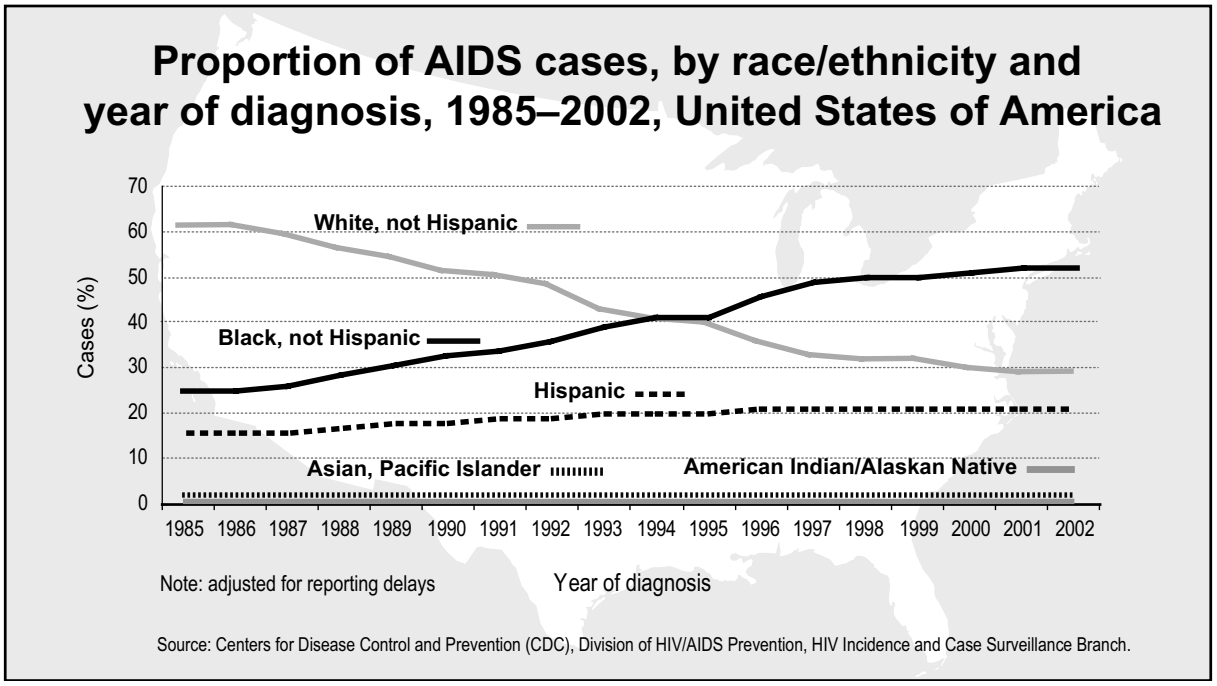


Figure 25

to HIV infection. It is estimated that one in four African Americans lives in poverty, and some studies in the US have discerned a close relationship between higher AIDS incidence and lower income (Centers for Disease Control and Prevention, 2003b; Census Bureau, 2000; Diaz, et al., 1994). It is possible that high incarceration rates, particularly for African American men, could be an amplifying factor in the epidemic through injecting drug use and unprotected sex in prison institutions.

For men overall, and African American men specifically, the vast majority of HIV infections occur during injecting drug use and sex between men. High levels of risk behaviour are still being found especially among younger men who have sex with men. However, heterosexual intercourse accounts for most HIV diagnoses among women, and there are strong indications that the main risk factor for many women acquiring HIV is the often-undisclosed risk behaviour of their male partners. Recent research in a low-income area of New York City, for example, has shown that women were more than twice as likely to be infected by a husband or steady boyfriend than by casual sex partners. Along with injecting drug use, unsafe sex with other men on the part of male partners appears to be a significant risk factor for some women (McMahon et al., 2004). A seven-city study among men who have sex with men has found that 9% of them also had sex with women, and a more recent study among young African American men who have sex with men found that 20% of the men reported also having female sex partners (Valleroy et al., 2004; Centers for Disease Control and Prevention, 2004b).

In the United States of America the epidemic is disproportionately lodged among African Americans and is affecting increasing numbers of women.

The majority of people living with HIV in the **United States of America** are men who have sex with men. Evidence in recent years of increasing cases of syphilis and other sexually transmitted infections among men who have sex with men triggered concerns that risk behaviour was on the rise and that a new wave of HIV infections could follow. Studies in Los Angeles and San Francisco found dramatic increases in the number of syphilis cases (from 4 to 260 in Los Angeles

county in 1998–2000, and from 67 to 299 in San Francisco in the same period). However, new research suggests that those increases have not had a substantial impact on HIV incidence, which stayed steady in 1999–2002 among men who have sex with men (Centers for Disease Control and Prevention, 2004a). In addition, a new, 16-state study indicates that a majority of HIV-positive men who have sex with men have been taking precautionary measures (including condom use, abstinence or staying faithful to one partner) to prevent further HIV transmission. The study urges, though, that more intensive prevention efforts should reach the small number of HIV-positive men who still practice unsafe sex with other men (Centers for Disease Control and Prevention, 2004c).

After the introduction of antiretroviral therapy in 1995-1996, AIDS-related deaths fell steeply in the **United States of America** until the late 1990s and then continued to decline more gradually—from 19 005 reported AIDS deaths in 1998 to 16 371 deaths in 2002 (UNAIDS, 2004). However, the rate of death due to AIDS among African Americans was over twice as high as that among whites in 2002. African Americans now have the poorest survival rates among people diagnosed with AIDS–probably reflecting late diagnoses (often after the disease has become symptomatic) and inadequate access to quality health care services.

AIDS ranks among the top three causes of death for African American men aged 25–54 and for African American women aged 35–44 years in the United States of America.

To the north, in **Canada**, most recent estimates indicate that some 56 000 people were living with HIV at the end of 2002 (Geduld et al., 2004), as many as one third of them unaware of their HIV status. Indigenous persons appear twice as likely to be HIV-infected compared with non-Indigenous persons. Most new HIV infections in Canada in 2002 were attributable to unsafe sex between men (40%) and injecting drug use (30% and declining slightly in recent years). There has been an increase in infections linked to unsafe heterosexual intercourse, a small percentage (less than 10%) of them among refugees or immigrants from high-prevalence countries in sub-Saharan Africa and the Caribbean (Health Canada, 2003).

In the 12 **Western European** countries with data for newly diagnosed HIV infections, HIV diagnoses in people who were infected through heterosexual contact increased by 122% between 1997 and 2002. In contrast to Canada, a large share of those diagnoses are in people originating from countries with serious epidemics, principally countries in sub-Saharan Africa (Hamers and Downs, 2004) and, for the **United Kingdom**, the English-speaking Caribbean. There are signs, too, that the resurgence of risky sex between men noted in previous years is leading to increased HIV transmission in some countries among men who have sex with men.

HIV diagnoses among men who have sex with men increased by 22% in 2001-2002 in **Western Europe**, reversing the slow decline seen in the previous years (Hamers and Downs, 2004). Data on new diagnoses should not be mistaken for HIV incidence, however, since data may reflect an increased uptake of testing services (and therefore include people who became infected several years earlier). The recent rise in new HIV diagnoses in the **United Kingdom** appears partly attributable to increases in HIV testing (half of the men who had sex with men who were diagnosed in 2002 had been infected for more than six years). Nevertheless, HIV infection is now the fastest-growing serious health condition in England

There are strong indications that the main risk factor for many women acquiring HIV is the often undisclosed risk behaviour of their male partners.

(Department of Health United Kingdom, 2003). In **Germany**, where greater treatment access had already boosted uptake of testing in the late 1990s, a recent increase in diagnoses (from 642 HIV diagnoses in 2000 to 742 in 2002) likely reflects an actual increase in new infections. Given persistently high HIV prevalence among men who have sex with men in western Europe—between 10% and 20% in several countries, and even higher in large cities—there is an urgent need to revitalize and improve safer sex campaigns for men who have sex with men (Hamers and Downs, 2004).

Although injecting drug use accounts for a diminishing share of newly diagnosed HIV infections in most Western European countries, it remains an important factor in several countries' epidemics, among them Italy, Portugal and Spain, and in some cities in other countries. In most cases, this reflects declines in unsafe injecting practices likely associated with effective prevention efforts among injecting drug users in many western European countries. Spain offers a striking example of how a comprehensive set of harm-reduction efforts (including methadone maintenance programmes and needle-exchange projects) can reverse an epidemic among injecting drug users. New HIV infections among drug injectors reached as high as 16 000 in 1985-1986, but plummeted subsequently (De la Fuente et al., 2003).

Nevertheless, in **Spain**, as in several other European countries, HIV prevalence among drug injectors can vary considerably in different parts of the country (European Monitoring Centre for Drugs and Drug Addiction, 2003). A survey of drug injectors at Spanish drug-treatment centres in Catalonia still found HIV prevalence of 38% in 2001, for example (Centre d'Estudis Epidemiológicos sobre l'HIV/Sida de Catalunya, 2001). Indeed, injecting drug use in Spain now appears concentrated largely in the north-east of the country and the Balearic Islands (De la Fuente, 2003). In **Portugal** (where the rates of new HIV diagnoses are higher than elsewhere in Europe), injecting drug use still accounted for almost 50% of HIV diagnoses in 2002. HIV prevalence of 20% and higher is still being found among injecting drug users in parts of other countries (including **France**, **Italy** and **Netherlands**) (Hamers and Downs, 2004). A survey among drug injectors at treatment centres in Marseille, France, for example, found 22% were HIV-infected (Emmanuelli et al., 2004). Encouragingly, none of the injectors younger than 30 years was found to be HIV-positive. Nevertheless, ongoing efforts are needed to further limit HIV transmission among injecting drug users—and from them to their sexual partners. Indeed, in Portugal heterosexual infections accounted for more than 40% of newly diagnosed HIV infections in 2002. Based on available data, similar trends have been detected in some regions or provinces of Italy and Spain (Hamers and Downs, 2004).

In Western Europe, thousands of new infections are occurring every year and large numbers of HIV-infected persons are unaware of their HIV status. A large share of new HIV diagnoses are in people originating from countries with serious epidemics.

There is an increasing trend in the share of HIV infections attributable to heterosexual intercourse in Western Europe—and with it, a rise in the number of women who are being diagnosed with the virus. In the 12 Western European countries for which data are available, the proportion of women among people newly diagnosed with HIV infection increased from 25% (1955 out of 7770) in 1997 to 38% (4269 out of 11 337) in 2002 (Hamers and Downs, 2004). In **France**, some two thirds of new HIV diagnoses in 2003 were in people infected during heterosexual intercourse, while in the **United Kingdom** the proportion was about 49% and in **Germany** 41%. A significant number of female sex workers are still being infected in some countries, such as the **Netherlands**, where a 2002-2003 study found 7% of sex workers (and up to 12% of those working in the street) in Rotterdam were HIV-

positive (Van Veen et al., 2004). Approximately 5% of immigrant sex workers (male and female) in Madrid, **Spain**, were found to be HIV-positive during 1998–2003, according to a recent study. Most of the sex workers were from sub-Saharan Africa (Gutierrez et al., 2004).

Migrants from countries experiencing serious AIDS epidemics, notably in sub-Saharan Africa, bear a disproportionate and growing share of HIV infections throughout Western Europe. In **Germany** and the **United Kingdom**, for example, a large share of newly diagnosed, heterosexually-acquired infections in recent years have been in people originating from high prevalence countries (Hamers and Downs, 2004). In the United Kingdom, as many as three quarters of heterosexual infections probably occurred in sub-Saharan Africa, while in **Sweden**, more than 80% of such infections were probably acquired abroad. The majority of migrants living with HIV appear to be unaware of their serostatus; by and large, HIV diagnoses tend to occur when individuals become symptomatic or get pregnant. In most countries, migrants are not being reached with adequate, appropriate and socially relevant prevention, treatment, and care services. Remedying this situation will require concerted efforts, including forthright steps to counter the social and legal discrimination, and the administrative hurdles migrants encounter.

In the countries of central Europe (including **Czech Republic** and **Hungary**), numbers of new HIV infections have stayed stable since the late 1990s, with most of the new infections being recorded in **Poland**. In the **Czech Republic**, **Hungary**, **Slovenia**, and the **Slovak Republic**, sex between men is known to be the predominant mode of HIV transmission.

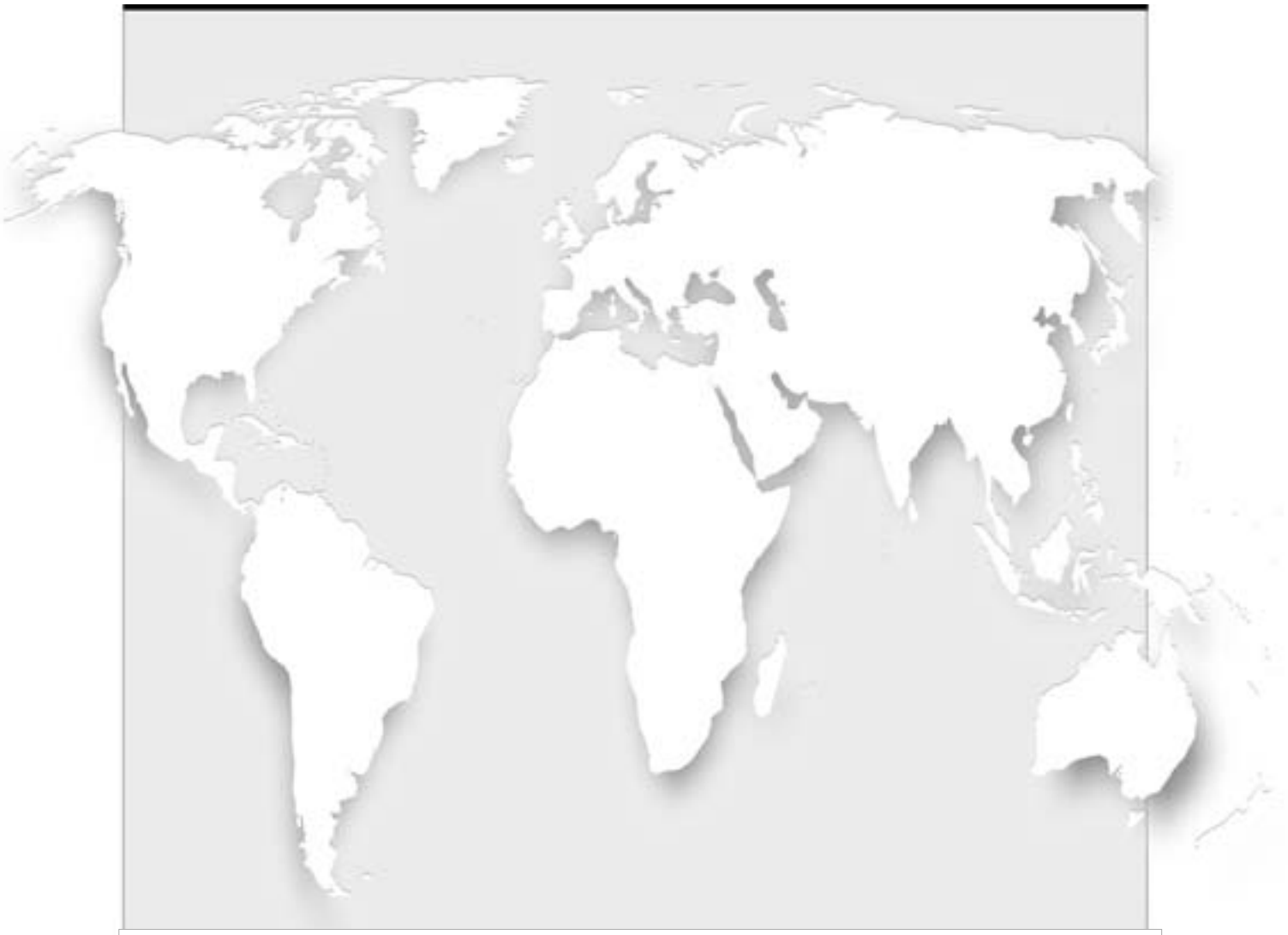
Unlike elsewhere in the world, a large majority of people in most countries in this region who need antiretroviral treatment do have access to it. As a result, AIDS deaths have stayed low since plummeting in the mid-to-late 1990s. In Western Europe, the number of reported deaths among AIDS patients was 3101 in 2002 (UNAIDS, 2004). Two trends, though, warrant concern. In some countries, a large share of HIV infections remain undiagnosed; in the **United Kingdom**, for example, an estimated one third of people with HIV do not know their serostatus and are likely to discover it only once afflicted by AIDS-related illnesses (Department of Health, 2003). And there is worrying evidence of antiretroviral drug resistance among some newly HIV-infected individuals in Western Europe (Girardi, 2003).

Overall in these countries, thousands of new infections are occurring every year and large numbers of HIV-infected persons are unaware of their HIV status. The main challenges are to provide early and effective treatment and care to all HIV-infected people, to rejuvenate prevention efforts and adapt them to the changing patterns of the epidemic, and to reduce the psychosocial, economic and physical repercussions of HIV infection.

Maps

Global estimates for adults and children, end 2004
Adults and children estimated to be living with HIV as of end 2004
Estimated number of adults and children newly infected with HIV during 2004
Estimated adult and child deaths from AIDS during 2004

GLOBAL ESTIMATES FOR ADULTS AND CHILDREN, END 2004



People living with HIV ..... 39.4 million (35.9–44.3 million)

New HIV infections in 2004 ..... 4.9 million (4.3–6.4 million)

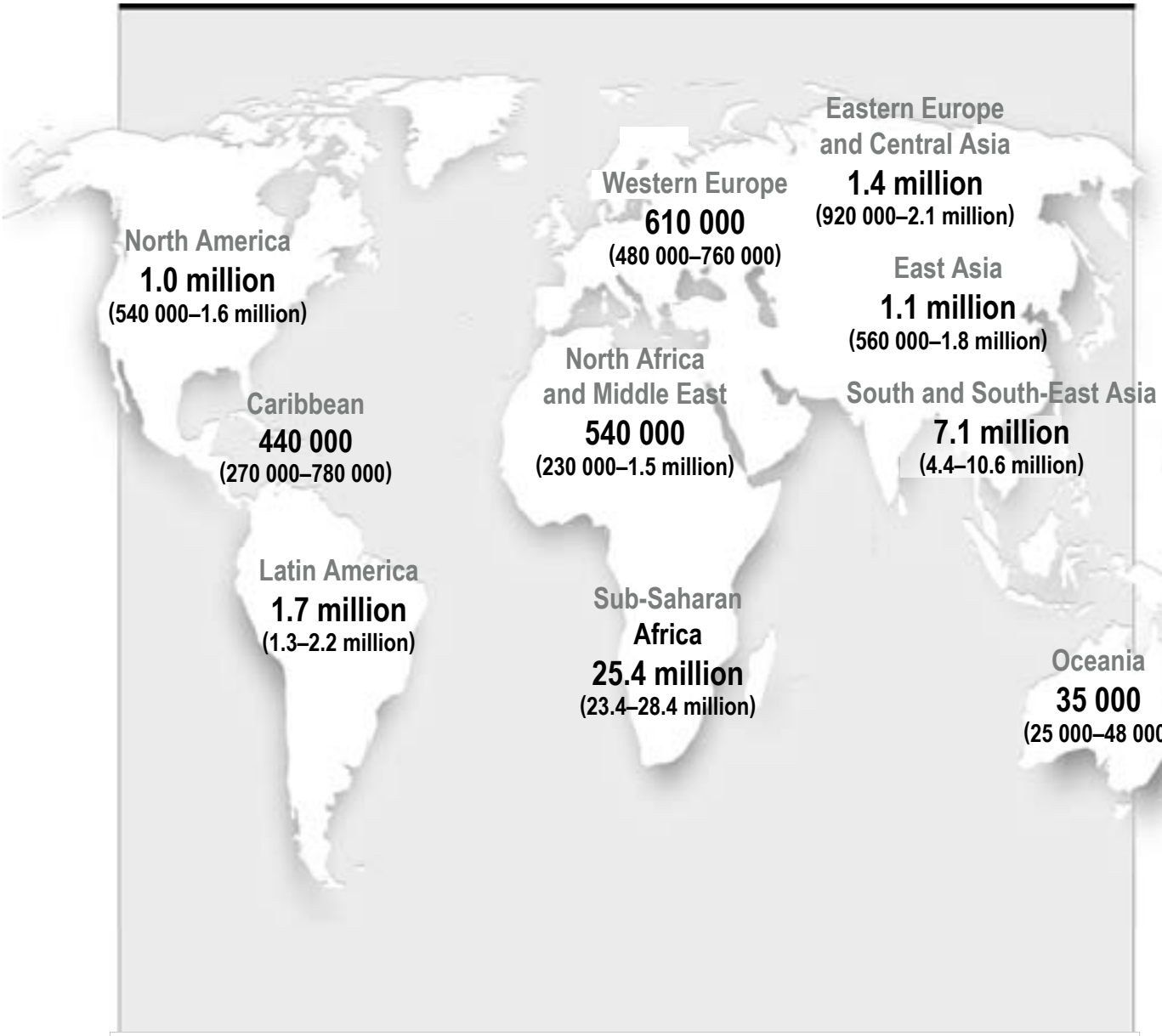
Deaths due to AIDS in 2004 ..... 3.1 million (2.8–3.5 million)

The ranges around the estimates in this table define the boundaries within which the actual numbers lie, based on the best available information.

Joint United Nations Programme on HIV/AIDS
UNAIDS
UNHCR • UNICEF • WFP • UNDP • UNFPA
UNODC • ILO • UNESCO • WHO • WORLD BANK

World Health Organization

ADULTS AND CHILDREN ESTIMATED TO BE LIVING WITH HIV AS OF END 2004



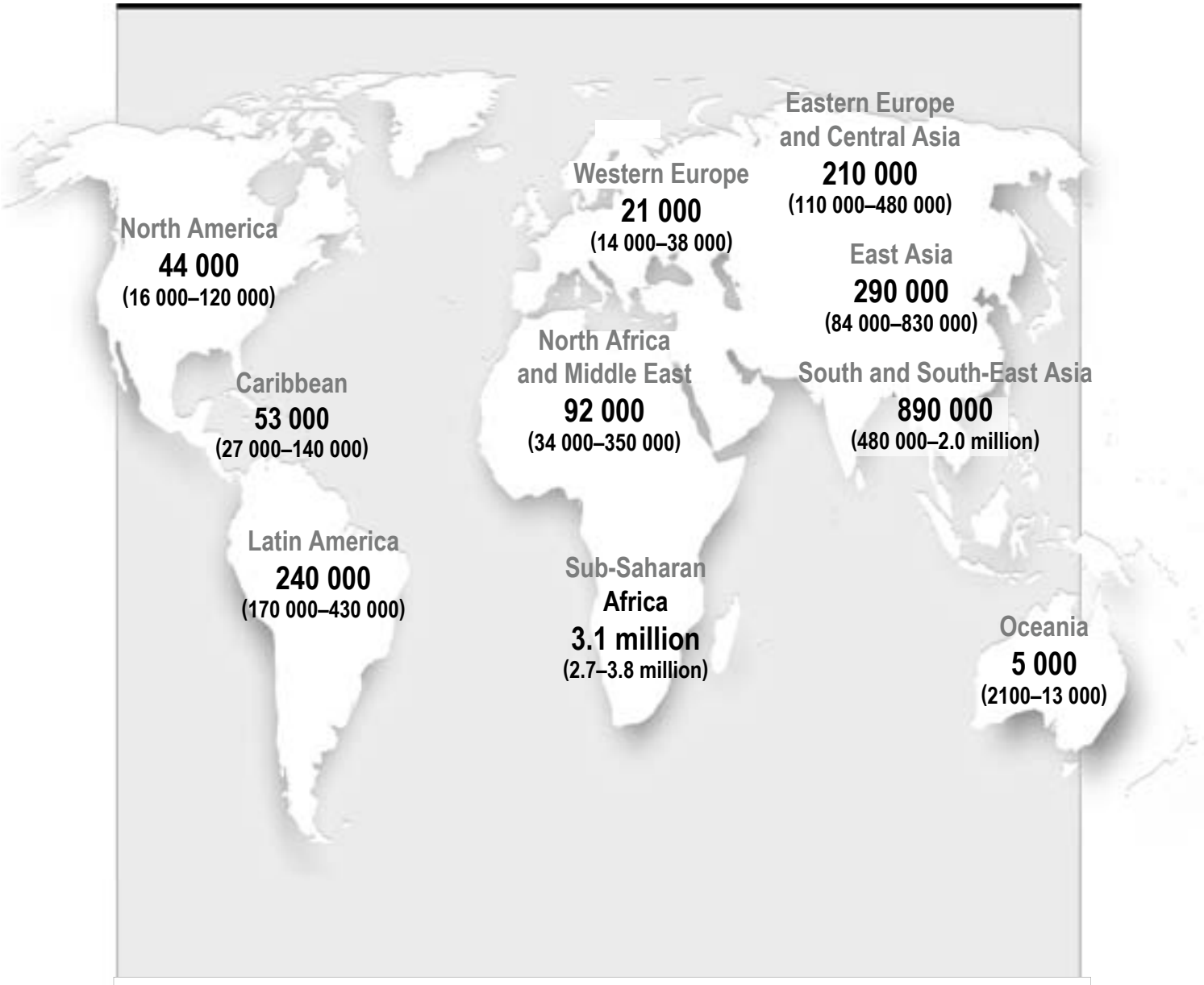
Total: 39.4 (35.9–44.3) million

AIDS epidemic update: December 2004

World Health Organization

Joint United Nations Programme on HIV/AIDS
UNAIDS
UNHCR • UNICEF • WFP • UNDP • UNFPA
UNODC • ILO • UNESCO • WHO • WORLD BANK

Estimated number of adults and children newly infected with HIV during 2004



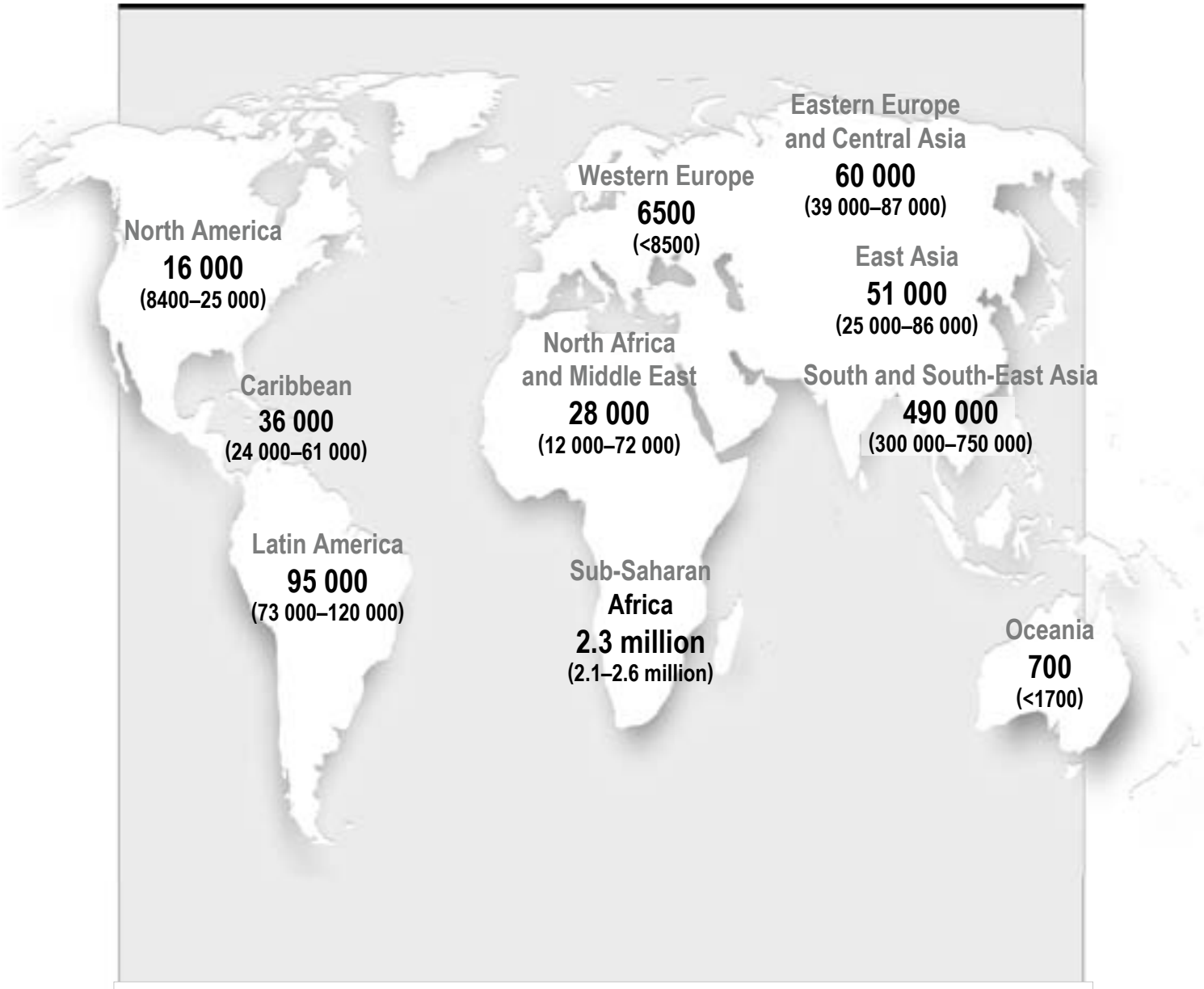
Total: 4.9 (4.3–6.4) million

Joint United Nations Programme on HIV/AIDS
UNAIDS
UNHCR • UNICEF • WFP • UNDP • UNFPA
UNODC • ILO • UNESCO • WHO • WORLD BANK

World Health Organization

AIDS epidemic update: December 2004

Estimated adult and child deaths from AIDS during 2004



Total: 3.1 (2.8–3.5) million

AIDS epidemic update: December 2004

World Health Organization

Joint United Nations Programme on HIV/AIDS
UNAIDS
UNHCR • UNICEF • WFP • UNDP • UNFPA
UNODC • ILO • UNESCO • WHO • WORLD BANK

BIBLIOGRAPHY

INTRODUCTION

POLICY Project, USAID, UNAIDS, UNICEF (2004). Coverage of selected services for HIV/AIDS prevention, care and support in low and middle-income countries in 2003. Washington DC, POLICY Project.

UNAIDS (2004). *2004 Report on the global AIDS epidemic*. Geneva, UNAIDS.

WHO (2004). *Investing in a comprehensive health sector response to HIV/AIDS: Scaling up treatment and Accelerating Prevention*. Geneva, WHO. July.

WOMEN AND AIDS

Access Working Group (2002). *Preparing for Microbicide Access and Use: A Report by the Access Working Group of the Microbicide Initiative*. New York, Rockefeller Foundation.

Bracher M, Santow G, Watkins S (2003). Moving and marrying. *Demographic Research*. Special Collection 1. Article 7. September. Available at http://www.demographic-research.org/special/1/7/s1-7.pdf.

Buve A, Bishikwabo-Nzarhaza K, Mutangadura G (2002). The spread and effect of HIV-1 infection in sub-Saharan Africa. *Lancet*, 359:2011-2017.

Carpenter LM, Kamali A, Ruberantwari A, Malamba SS, Whitworth JAG (1999). Rates of HIV-1 transmission within marriage in rural Uganda in relation to the HIV sero-status of the partners. *AIDS*, 13:1083–1089.

Cates W (2004). The staying power of sexually transmitted diseases. *Lancet*, 354(Suppl. 4):S2.

Clark S (2004). Early Marriage and HIV Risks in sub-Saharan Africa. *Studies in Family Planning*, 35(3):149-160.

Cohen J (2004). Till death do us part. *Science*, 304:513. 23 April.

Demographic and health survey 1998: final report. Pretoria, Department of Health, South Africa, 1998.

Drimie, S (2002). *The Impact of HIV/AIDS on Land: Case studies from Kenya, Lesotho and South Africa*. Synthesis report prepared for the FAO Southern Africa Regional Office. Pretoria, Human Sciences Research Council.

Dunkle et al. (2004). Gender-based violence, relationship power, and risk of HIV infection among women attending antenatal clinics in South Africa. *Lancet*, 363:1415–1421.

Federal Ministry of Health Nigeria (2003). *National HIV Sero-prevalence Sentinel Survey Technical Report*. Abuja, Federal Ministry of Health. April.

Garcia-Moreno C, Watts C (2000). Violence against women: its importance for HIV/AIDS. *AIDS*, 14(suppl 3):S253–265.

Ghana Statistical Service, Noguchi Memorial Institute for Medical Research, MEASURE *DHS+* (2004). *Ghana Demographic and Health Survey 2003*. Preliminary Report. Accra, Ghana Statistical Service.

Gilbert L, Walker L (2002). Treading the path of least resistance: HIV/AIDS and social inequalities—a South African case study. *Social Science & Medicine*, 54:1093-1110.

Glynn, JR et al. (2001). Why do young women have a much higher prevalence of HIV than young men? A study in Kisumu, Kenya and Ndola, Zambia. *AIDS*, 15(Suppl. 4):S51-60.

Gregson S et al. (2002). Sexual mixing patterns and sex-differentials in teenage exposure to HIV infection in rural Zimbabwe. *Lancet*, 359:1896-1903.

Gupta, GR (2002). How men's power over women fuels the HIV epidemic. *British Medical Journal*, 234:183-184.

Hallman, K (2004). Socioeconomic disadvantage and unsafe sexual behaviours among young women and men in South Africa. Policy research working paper No. 190. New York, Population Council. Available at http://www.popcouncil.org/publications/wp/prd/190.html

Halperin DT, Epstein H (2004). Concurrent sexual partnerships help to explain Africa's high HIV prevalence: implications for prevention. *Lancet*, 364:4-6. 3 July.

HelpAge International (2004). *Age and security: How social pensions can deliver effective aid to poor older people and their families*. London, HelpAge International.

Heise L, Ellsberg M, Gottemoeller M (1999). *Ending violence against women*. Population Reports, Series L, No 11. Baltimore, Johns Hopkins University School of Public Health, Population Information Program, December.

Human Rights Watch (2003a). *Double standards: women's property rights violations in Kenya*. New York, Human Rights Watch.

Human Rights Watch (2003b). *Just Die Slowly: Domestic Violence and Women's Vulnerability to HIV in Uganda*. New York, Human Rights Watch.

Human Rights Watch (2001). *Scared At School: Sexual Violence Against Girls in South African Schools*. New York, Human Rights Watch.

Hunter M. (2002). The materiality of everyday sex: thinking beyond "prostitution". *African Studies*, 61(1):99-120.

Jewkes R (2002). Intimate partner violence: causes and prevention. *Lancet*, 359:1423-1429.

Jewkes R, Wood K (2002). Dangerous Love: Reflections on Violence among Xhosa Township Youth. In: Morrell R, ed. *Changing Men in Southern Africa*. Pietermaritzburg, University of Natal Press.

Jewkes R, Levin J, Penn-Kekana L (2002). Risk factors for domestic violence: findings from a South African cross-sectional study. *Social Science and Medicine*, 55(9):1603-1617.

Jewkes R, Penn-Kekana L, Levin LEA (1999). *He Must Give Me Money, He Mustn't Beat Me: Violence against Women in Three South African Provinces*. Pretoria, Medical Research Council.

Jewkes R, Vundule C, Maforah FEA (2001). Relationship dynamics and teenage pregnancy in South Africa. *Social Science & Medicine*, 52(5):733-44.

Kaori I (2004). Women's Land/Property Rights and Livelihood in the Context of HIV/AIDS – an Emergency and Opportunity to Change. Concept Paper. Rome, FAO.

Kelly RJ et al. (2003). Age differences in sexual partners and risk of HIV-1 infection in rural Uganda. *Journal of Acquired Immune Deficiency Syndrome*, 32:446-451.

Khan ME, Townsend J, Sinha R, Lakhanpal S (2004). *Sexual violence within marriage*. Vadodara, Centre for Operations Research and Training.

Kishor S, Johnson K (2004). *Domestic violence in nine developing countries: A comparative study*. Calverton, MACRO International.

Krantz G (2003). Domestic violence against women—a population based study in Vietnam. In: Centre for Health Equity Studies SUKI, ed. Stockholm.

Luke N, Kurz KM (2002). *Cross-generational and transactional sexual relations in sub-Saharan Africa: Prevalence of behaviour and implications for negotiating safer sex practices*. September. Washington, AIDSmark. Available at www.icrw.org/docs/crossgensex_Report_902pdf

Maman S et al. (2002). HIV-1 Positive Women Report More Lifetime Experiences with Violence: Findings from a Voluntary HIV-1 Counseling and Testing Clinic in Dar es Salaam, Tanzania. *American Journal of Public Health*, 92:1331-1337.

Martin S, Curtis S (2004). Gender-based violence and HIV/AIDS: recognizing links and acting on evidence. *Lancet*, 363:1410-11.

Martin S, Tsui AO, Maitra K, Marinshaw R (1999). Domestic violence in Northern India. *American Journal of Epidemiology*, 150:417-426.

Measure DHS, Central Statistical Office, Central Board of Health (2002). *Zambia Demographic and Health Survey 2001/2002*. Lusaka.

Measure DHS, National Council for Population and Development (1993 & 1998). *Kenya Demographic and Health Surveys*, Washington DC, Measure DHS, National Council for Population and Development.

Ministère de la Santé Burkina Faso (2003). *Burkina Faso Enquête Démographique et de Santé 2003*. Ouagadougou, Ministère de Santé.

Mutangadura G (2000). Household Welfare Impacts of Mortality of Adult Females in Zimbabwe: Implications for Policy and Programme Development. Paper presented at the AIDS and Economics Symposium. Durban, IAEC Network. July.

Ogden J, Esim S (2003). *Reconceptualizing the care continuum for HIV/AIDS: Bringing carers into focus*. Desk review draft. Washington DC, International Center for Research on Women.

Preston-Whyte E et al. (2000). Survival Sex and HIV/AIDS in an African City. In: Parker RG et al. (2000). *Framing the sexual subject - The Politics of Gender, Sexuality and Power*. San Francisco, University of California.

Reproductive Health Research Unit, Medical Research Council (2004). *National Survey of HIV and Sexual Behaviour among Young South Africans*. Johannesburg, Reproductive Health Research Unit.

Rugalema G (1999). Adult Mortality as Entitlement Failure: AIDS and the Crisis of Rural Livelihoods in a Tanzanian Village. PhD thesis. The Hague, Institute of Social Studies.

Russian Federal AIDS Center (2004). Newsletter No. 26. Moscow. August.

Steinberg M, Johnson S, Schierhout S, Ndegwa D (2002). *Hitting home: how households cope with the impact of the HIV/AIDS epidemic*. Cape Town, Henry J Kaiser Foundation & Health Systems Trust. October.

Stephenson J, Obasi A (2004). HIV risk-reduction in adolescents. *Lancet*, 363:1177.

Strickland R (2004). *To Have and to Hold: Women's Property and Inheritance Rights in the Context of HIV/AIDS in Sub-Saharan Africa*. Working paper. Washington, International Center for Research on Women.

Thai Working Group on HIV/AIDS Projections (2001). *HIV/AIDS Projections for Thailand: 2000-2020.* Bangkok. March.

UNAIDS (2004). *2004 Report on the global AIDS epidemic*. Geneva, UNAIDS.

UNAIDS, UNIFEM, UNFPA (2004). *Women and HIV/AIDS: Confronting the Crisis*. New York, UNFPA.UNICEF (2003a). *Finding Our Voices, Gendered & Sexual Identities and HIV/AIDS in Education*. Nairobi, UNICEF.

UNICEF (2003a). *Finding Our Voices, Gendered & Sexual Identities and HIV/AIDS in Education*. Nairobi, UNICEF.

UNICEF (2003b). *The State of the World's Children 2004*. New York, UNICEF.

UNICEF, Ministry of Local Government Botswana (2003). *Situation Analysis on Orphans and Vulnerable Children*. Francistown, UNICEF, Ministry of Local Government Botswana.

UNICEF, UNAIDS (2003). *Africa's orphaned generations*. New York, UNICEF.

UN Secretary General's Task Force on Women, Girls and HIV/AIDS in Southern Africa (2004). *Facing the Future Together: Report of the United Nations Secretary-General's Task Force on Women, Girls and HIV/AIDS in Southern Africa*. New York.

Van der Straten A et al. (1998). Sexual coercion, physical violence, and HIV infection among women in steady relationships in Kigali, Rwanda. *AIDS*, 9:935–944.

WHO (forthcoming 2005). *WHO Multi-Country Study on Domestic Violence Against Women and Women's Health - Report on the first results*. Geneva, WHO.

WHO (2004). *Investing in a comprehensive health sector response to HIV/AIDS--Scaling up treatment and accelerating prevention: WHO HIV/AIDS Plan (January 2004-December 2005)*. Geneva, WHO.

WHO (2003). Integrating gender into HIV/AIDS programmes: expert consultation. Geneva, WHO/International Center for Research on Women (ICRW). 3-5 June 2002. Available at http://www.who.int/hiv/pub/prev_care/Gender_hivaidsreviewpaper.pdf

WHO Regional Office for Africa (2003). *HIV/AIDS Epidemiological Surveillance Update for the WHO African Region 2002*. Harare, WHO Regional Office for Africa. September.

Women and Law in Southern Africa Research Trust (1998). *Family in Transition: the experience of Swaziland*. Manzini, Women and Law in Southern Africa Research Trust.

Zambia Central Statistical Office, Zambia Central Board of Health, ORC Macro (2003). *Zambia Demographic and Health Survey 2001-2002.* Calverton, Maryland, USA: Central Statistical Office, Central Board of Health, and ORC Macro.

Zierler S, Krieger N (1997). Reframing women's risk: social inequalities and HIV infection. *Annual Review of Public Health*, 18:401–436.

Ministry of Health and Child Welfare Zimbabwe, Zimbabwe National Family Planning Council, Zimbabwe National AIDS Council, US Centers for Disease Control and Prevention (2003). *The Zimbabwe Young Adult Survey (YAS) 2001-2002.* Harare.

SUB-SAHARAN AFRICA

Asamoah-Odei E, Garcia-Calleja JM, Boerma T (2004). HIV prevalence and trends in sub-Saharan Africa: no decline and large subregional differences. *Lancet*, 364:35-40.

Bradshaw D et al. (2004). Unabated rise in number of adult deaths in South Africa. *South African Medical Journal*, 94(4):278-279.

Chitate D, Muvandi I (2004). The demographic impact of sustained high levels of HIV prevalence in Zimbabwe. XV International AIDS Conference. Abstract ThPeE7934. Bangkok. 11-16 July.

Cote et al. (2004). Transactional sex is the driving force of the HIV epidemic in Accra, Ghana. *AIDS*, 18(6):917-925.

Evian C et al. (2004). Prevalence of HIV in workforces in southern Africa, 2000-2001. *South African Medical Journa*l, 94(2):125-130.

Federal Ministry of Health Nigeria (2004). *Technical Report on the 2003 National HIV/Syphilis Sentinel Survey among Pregnant Women attending Antenatal Clinics in Nigeria.* Abuja, Nigeria, Federal Ministry of Health. April.

Hosegood V, Vanneste A-M, Timaeus IM (2004). Levels and causes of adult mortality in rural South Africa: the impact of AIDS. *AIDS*, 18(4):663-671.

Jordan-Harder B et al. (2004). Thirteen years HIV-1 sentinel surveillance and indicators for behavioural change suggest impact of programme activities in south-west Tanzania. *AIDS*, 18(2):287-294.

Meehan A et al. (2004). Prevalence and risk factors for HIV in Zimbabwean and South African women. XV International AIDS Conference. Abstract MoPeC3468. Bangkok. 11-16 July.

Ministère de la Santé République du Congo (2004). *Evaluation de la séroprévalence des infections a VIH Rapport d'analyse provisoire*. Brazzaville, Ministère de la Santé.

Ministère de la Santé République démocratique du Congo (2004). *Rapport du passage de la surveillance sentinelle du VIH chez les femmes enceintes fréquentant les services de CPN, Mai 2003 a Mai 2004*. Kinshasha, Ministère de la Santé. Juin.

Ministère de la Santé Madagascar (2003). *Etude combinée des séroprévalences de l'infection a VIH et de la syphilis chez les femmes enceintes a Madagascar*. Antananarivo, Ministère de la Santé.

Ministère de la Santé Togo (2004). *Rapport de surveillance de l'infection par le VIH dans le groupe des consultantes prénatales, Année 2003*. Lomé, Ministère de la Santé. Février.

Ministry of Health Eritrea (2004). *HIV prevention impact in Eritrea: Results from the 2003 Round of HIV Sentinel Surveillance*. Asmara, Ministry of Health.

Ministry of Health South Africa (2004). *National HIV and Syphilis Antenatal Sero-prevalence Survey in South Africa*. Pretoria, Ministry of Health.

Ministry of Health and Child Welfare Zimbabwe, US Centers for Disease Control and Prevention, UNAIDS (2004). Zimbabwe National HIV and AIDS Estimates 2003. Harare, Ministry of Health.

Montana LS et al. (2004). Estimating district-level HIV prevalence in Malawi. XV International AIDS Conference. Abstract MoPeC3649. Bangkok. 11-16 July.

Mwaluko G et al. (2003). Trends in HIV and sexual behaviour in a longitudinal study in a rural population in Tanzania, 1994-2000. *AIDS*, 17(18):2645-2651.

Nagot N et al. (2004). Review of STI and HIV epidemiological data from 1990 to 2001 in urban Burkina Faso: implications for STI and HIV control. *Sexually Transmitted Infections*, 80:124-129.

Notkola V, Timaeus IM, Siiskonen H (2004). Impact on mortality of the AIDS epidemic in northern Namibia assessed using parish registers. *AIDS*, 18(7):1061-1065.

Reproductive Health Research Unit, Medical Research Council (2004). National Survey of HIV and Sexual Behaviour among Young South Africans. Johannesburg, Reproductive Health Research Unit.

Sanda TA et al. (2004). First national epidemiological survey of STD and HIV infection among female sexual workers in 3 regions of Niger in 2002. XV International AIDS Conference. Abstract WePeC6244. Bangkok. 11-16 July.

Sonnenberg P et al., 2004. HIV and pulmonary tuberculosis: the impact goes beyond those infected with HIV. *AIDS*, 18(4):657-662.

UNAIDS (2004). *2004 Report on the global AIDS epidemic*. Geneva, UNAIDS.

UNAIDS/WHO. 2004. Epidemiological Fact Sheet—2004 update: Senegal. Geneva, UNAIDS/WHO.

UNDP, 2004. *Human Development Report 2004*. New York, UNDP.

CARIBBEAN

Caribbean Epidemiology Centre (CAREC)/PAHO/WHO (2004). Status and Trends, Analysis of the Caribbean HIV/AIDS Epidemic 1982-2002. Caribbean Epidemiology Centre/PAHO/WHO, Trinidad and Tobago. Available at http://www.carec.org/pdf/20-years-aids-caribbean.pdf.

Caribbean Epidemiology Centre (2004). Quarterly AIDS Surveillance Reports submitted to CAREC's Epidemiology Division. Port of Spain, CAREC. May.

Caribbean Epidemiology Centre, PAHO, WHO (2004). *Status and Trends Analysis of the Caribbean HIV/AIDS Epidemic 1982–2002*. Port of Spain, CAREC.

Caribbean Epidemiology Centre, PAHO, WHO (2003). *Success stories in the fight against HIV/AIDS in the Caribbean—An update*. Port of Spain, CAREC. December.

Caribbean Epidemiology Centre (2003). The Caribbean HIV/AIDS Epidemic Epidemiological Status—Success Stories: A Summary. *CAREC Surveillance Report*, 23 (Supplement 1). October.

Department of Public Health The Bahamas (2004). *HIV Surveillance 1992-2003*. Nassau, Department of Public Health.

Kumar A, Singh B (2004). Impact of the AIDS Prevention Program on trends in prevalence and incidence of HIV infection among pregnant women in Barbados. XV International AIDS Conference. Abstract ThPeC2782. Bangkok. 11-16 July.

Ministère de la Santé Publique et de la Population Haïti et al. (2004). *Etude de sero surveillance par méthode sentinelle de la prévalence du VIH, de la syphilis, de l'hépatite B et de l'hépatite C chez les femmes enceintes en Haïti 2003/2004*. Port-au-prince, Ministère de la Santé Publique et de la Population. Juillet.

Ministry of Health Jamaica (2003). *Surveillance Report 2001-2002*. Kingston, Ministry of Health.

Monitoring the AIDS Pandemic Network (MAP) (2003). *HIV infection and AIDS in the Americas: lessons and challenges for the future*. Havana, MAP and Latin American and Caribbean Epidemiologic Network, EpiNet.

Norman LR, Uche C (2002). Prevalence and Determinants of Sexually Transmitted Diseases: An analysis of young Jamaican males. *Sexually Transmitted Diseases*, (29)3:126-132. March.

Palmer CJ et al. (2002). HIV Prevalence in a Gold Mining Camp in the Amazon Region, Guyana. *Emerging Infectious Diseases*, (8)3. March. Available at http://www.cdc.gov/ncidod/eid/vol8no3/01-0261.htm

Stanecki, K. (2004). *The AIDS Pandemic in the 21st Century*. Washington, USAID, US Census Bureau. March.

St John MA et al., (2003). Efficacy of Nevirapine Administration on Mother-to-Child Transmission of HIV using a modified HIVNET 012 regimen. *West Indian Medical Journal*, 51 (Suppl 3):1-87.

UNAIDS (2004). *2004 Report on the global AIDS epidemic*. Geneva, UNAIDS.

ASIA

AIDS Prevention and Control Project (2003). HIV Risk behaviour surveillance survey in Tamil Nadu Wave VII. Chennai.

Brown T (2004). Tackling the HIV/AIDS Epidemic in Asia. *Asia-Pacific Population & Policy* No. 68. January.

China National Center for AIDS/STD Control and Prevention (2004). *A needle social marketing intervention programme in Guangdong and Guangxi province*. Beijing, China Center for Disease Control.

China National Center for AIDS/STD Control and Prevention (2003). *Questionnaire survey of injection drug users in a compulsory detoxification center and non-treatment locations in Beijing*. Beijing. World Health Organization.

Choi K-H et al. (2003). Emerging HIV-1 epidemic in China in men who have sex with men. *Lancet*, 361:2125-2126.

Douthwaite M (2003). Reproductive Health Risk Young Men's Sexual Behaviour in Cambodia: Evidence that Safe Sex Messages are Getting Through. 2nd Asia Pacific Conference on Reproductive and Sexual Health, Bangkok, Centre for Health Policy Studies, Mahidol University.

Go VF et al. (2004). High HIV Prevalence and Risk Behaviours in Men Who Have Sex with Men in Chennai, India. *Journal of Acquired Immune Deficiency Syndrome*, 35(3):314-9. 1 March.

Indonesia Central Bureau of Statistics, MACRO International (2004). Indonesia Young Adults Reproductive Health Survey. Jakarta, BPS.

Johnston P et al. (2004). Changing patterns of HIV prevalence among injection drug users: early evidence from a cross-border HIV prevention project in Ning Ming County (Guangxi), China and Lang Son Province, Vietnam. XV International AIDS Conference Abstract WePeC6045. Bangkok. 11-16 July.

Kato K et al. (2001). Closely related HIV-1 prevalence in STD clinic attendees in Delhi, India: 5-year (1995-2000) hospital-based study results. *Sexually Transmitted Infections*, 77(5):393.

Lao People's Democratic Republic National Committee for the Control of AIDS Bureau (2001). *HIV Surveillance Survey and Sexually Transmitted Infection Periodic Prevalence Survey*. Lao People's Democratic Republic, Lao PDR HIV/AIDS Trust.

Ministry of Health China, UN Theme Group on HIV/AIDS in China (2003). *A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China*. Beijing, China Ministry of Health, UN Theme Group on HIV/AIDS in China.

Monitoring the AIDS Pandemic Network (MAP) (2003). *HIV infection and AIDS in the Americas: lessons and challenges for the future*. Havana, MAP and Latin American and Caribbean Epidemiologic Network, EpiNet.

National AIDS Control Organization (NACO) (2002). *National Baseline High Risk and Bridge Population Behavioural Surveillance Survey Part II Men who have Sex with Men and Injecting Drug users*. Delhi, NACO.

Navaratnam V, Vicknasingham B (2003). *Survey of drug users in Penang and the Northern Province Wellesley district.* Penang, Universiti Sains Malaysia.

Philippines Department of Health (2002). *The 2002 technical report of the national HIV/AIDS sentinel surveillance system (1997-2003)*. Manila, AIDS Surveillance and Education Project.

Pisani E, Dili STI survey team (2004). *HIV, STIs and risk behaviour in East Timor: an historic opportunity for effective action*. Dili, East Timor, Family Health International.

Pisani E et al. (2003). Sexual behaviour among injecting drug users in 3 Indonesia carries a high potential for HIV spread to noninjectors. *Journal of Acquired Immune Deficiency Syndrome*, 34(4):403-6.

Ruxrungtham K, Brown T, Phanuphak P (2004). HIV/AIDS in Asia. *Lancet*, 364:69-82.

Shah SA, Altaf A, Mujeeb SA, Memon A (2004). An outbreak of HIV infection among injection drug users in a small town in Pakistan: potential for national implications. *International Journal of STD & AIDS*, 15(3):209-210.

Shengli C, Shikun Z, Westley SB (2004). HIV/AIDS Awareness Is Improving in China. *Asia-Pacific Population & Policy*, 69:1-5.

Thai Working Group on HIV/AIDS Projections (2001). *HIV/AIDS Projections for Thailand: 2000–2020.* Bangkok. March.

UNAIDS (2004). *2004 Report on the global AIDS epidemic*. Geneva, UNAIDS.

UNAIDS/WHO (2003). *AIDS Epidemic Update 2003*. Geneva, UNAIDS/WHO.

UNDP (2004). *Thailand's Response to HIV/AIDS: Progress and Challenges*. Bangkok, UNDP.

Van Griensven F et al. (2004). Prevalence and risk factors for HIV infection among men who have sex with men in Bangkok. XV International AIDS Conference Abstract WePpC2068. Bangkok. 11-16 July.

Vonthanak S, Parekh B (2004). *BED-Capture EIA: A subtype-independent, second-generation assay for HIV-1 incidence estimation. New Strategies for HIV/AIDS Surveillance in Resource-Constrained Countries*. Paper. Addis Ababa, Ethiopia.

Yu XF et al. (1999). Emerging HIV infections with distinct subtypes of HIV-1 infection among injection drug users from geographically separate locations in Guangxi Province, China. *Journal of Acquired Immune Deficiency Syndrome*, 22(2):180-8.

Zang K-L, Ma S-j, Xia D-y (2004). Epidemiology of HIV and sexually transmitted infections in China. *Sexual Health*, 16:39-46.

EASTERN EUROPE AND CENTRAL ASIA

AIDS Foundation East-West (2004). Officially Registered HIV Cases by Region of the Russian Federation, 1 January 1987through 22 March 2004. AIDS Foundation East-West.

Booth RE et al. (2004). Predictors of Self-Reported HIV Infection Among Drug Injectors in Ukraine. *Journal of Acquired Immune Deficiency Syndrome*, 35(1):82-88.

EuroHIV (2004). *HIV/AIDS Surveillance in Europe*. End-year report 70. Saint-Maurice, Institut de Veille Sanitaire.

EuroHIV (2003). *HIV/AIDS Surveillance in Europe*. Mid-year report 69. Saint-Maurice, Institut de Veille Sanitaire.

Federal Service of the Russian Federation for Surveillance in Consumer Rights Protection and Human Welfare, 2004

Field MG (2004). HIV and AIDS in the Former Soviet Bloc. *New England Journal of Medicine*, 315:117-120.

Filatov A, Suharsky D (2002). Peculiarities of HIV infection among intravenous drug users in Mirninsk district, Yakut area. 4th European AIDS Conference, Vilnius, Lithuania.

Kelly JA et al. (2002). HIV risk characteristics and prevention needs in a community sample of bisexual men in St. Petersburg, Russia. *AIDS Care*, 14:63-76.

Klavs I, Poljak M (2003). Unlinked monitoring of human immunodeficiency virus prevalence in high- and low-risk groups in Slovenia, 1993-2002. *Croatian Medical Journal*, 44:545-9.

Lowndes, C. M. et al. (2002). *Female injection drug users who practice sex work in Togliatti City, Russian Federation: HIV prevalence and risk behaviour*. XIV International AIDS Conference. Abstract MoPeC3501. Barcelona.

Max Planck Institute for Foreign and International Law (2000). *Illegal drug trade in Russia.* Freiburg, Max Planck Institute.

Moshkovich GF et al. (2000). Prevention of HIV infection and other blood borne infections amongst injecting drug users in Nizhny Novgorod associated with harm reduction. *Journal of Microbiology, Epidemiology and Immunobiology*, (4):78-82 (Original in Russian).

Republican AIDS Centre (2004). *Results of 2003 Sentinel Epidemiological Surveillance for HIV among Sex Workers in Kazakhstan*. Almaty, Republican AIDS Centre.

Republican AIDS Centre (2001). *Behavioural Survey among Injecting Drug Users in Nine Cities of Kazakhstan.* Almaty, Republican AIDS Centre.

Rhodes T et al. (2004). HIV transmission and HIV prevention associated with injecting drug use in the Russian Federation. *International Journal of Drug Policy*, 15:1-16.

Rhodes T et al. (2002). Behavioural factors in HIV transmission in eastern Europe and central Asia. Unpublished paper, UNAIDS, Geneva.

Russian Federal AIDS Center (2004). Newsletter 26. Moscow, Russian Federal AIDS Center. August.

Smolskaya T et al. (2004a). *Sentinel sero-epidemiological and behavioural surveillance among female sex workers, St Petersburg, Russian Federation, 2003*. XV International AIDS Conference. Abstract ThOrC137. Bangkok. 11-16 July.

Smolskaya et al., (2004b). *Sentinel seroepidemiological and behavioural surveillance among female sex workers*. XV International AIDS Conference. Abstract. ThOrC1371. Bangkok. 11-16 July.

UNAIDS (2004). *2004 Report on the global AIDS epidemic*. Geneva, UNAIDS.

WHO Regional Office for Europe (2004). *HIV Infections epidemiology: Sentinel Surveillance and Risk Factors: A Comparative Study in the Russian Federation, Azerbaijan and Republic of Moldova*. Copenhagen, WHO-Euro.

World Bank (2004). *World Development Report 2005: A Better Investment Climate For Everyone*. Washington, World Bank.

LATIN AMERICA

Alarcon JO et al. (2003). Determinants and prevalence of HIV infection in pregnant Peruvian women. *AIDS*. 17:613-618.

Avila MM et al. (2004). Monitoring for HIV-1 infection and other sexually-transmitted infections (STIs) in a cohort of men who have sex with men (MSM) in Buenos Aires, Argentina. XV International AIDS Conference. Abstract WePpC2609. Bangkok. 11-16 July.

Bravo-Garcia E, Magis C (2004). HIV prevalence in 32 Mexican States: a new methodology. XV International AIDS Conference. Abstract C12624. Bangkok. 11-16 July.

Caiaffa WT et al. (2003). The Dynamics of the Human Immunodeficiency Virus Epidemics in the South of Brazil: Increasing Role of Injection Drug Users. *Clinical Infectious Diseases*, 37(Suppl 5):S376-81.

De los Pando M et al. (2003). High human immunodeficiency virus type 1 seroprevalence in men who have sex with men in Buenos Aires, Argentina: risk factors for infection. *International Journal of Epidemiology*, 32:735-40.

Gravato N, Morell MGG, Areco K, Peres CA (2004). Associated Factors to HIV Infection in Commercial Sex Workers in Santos, Sao Paulo, Brazil. XV International AIDS Conference. Abstract WePeC6202. Bangkok. 11-16 July.

Guanira J et al. (2004). Second generation of HIV surveillance among men who have sex with men in Peru during 2002. XV International AIDS Conference. Abstract WePeC6162. Bangkok. 11-16 July.

Johnson KM et al. (2003). Sexual networks of pregnant women with and without HIV infection. *AIDS*, 17(4):605-12.

Khalsa JH, Francis H, Mazin R (2003). Bloodborne and Sexually Transmitted Infections in Drug Abusers in the United States, Latin America, the Caribbean and Spain. *Clinical Infectious Diseases*, 37(Suppl 5):S331-7.

Marins JRP et al. (2003). Dramatic improvement in survival among adult Brazilian AIDS patients. *AIDS*, 17(11):1675-1682.

Mayorga RS (2003). *Use of surveillance data and resource flows in Latin America and the Caribbean.* Presentation. Asociación para la Salud Integral y Ciudadanía do América Latina.

Mesquita F et al. (2003). Brazilian Response to the Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome Epidemic among Injection Drug Users. *Clinical Infectious Diseases*, 37(Suppl 5):S382-5.

Minichielloa SN, Uribe CMP, Anaya L, Bertozzia S (2002). The Mexican HIV/AIDS Surveillance System: 1986-2001. *AIDS*, 16(suppl 3):S13-17.

Ministerio de Salud de Argentina (2003). *Boletín sobre el SIDA en la Argentina*. Ano X Numeró 22. Buenos Aires, Ministerio de Salud. Octubre.

Ministerio de Salud de Costa Rica (2003). *Situación de SIDA Costa Rica 2003*. Presentación. San José, Ministerio de Salud.

Ministerio de Salud Pública y Asistencia Social de El Salvador (2003). *Estudio Multicéntrico Centroamericano de Prevalencia de VIH/ITS y Comportamientos en Poblaciones especificas en El Salvador*. San Salvador, Ministerio de Salud Pública y Asistencia Social. Abril.

Ministerio de Salud Pública y Asistencia Social de Guatemala (2003). *Estudio Multicéntrico Centroamericano de Prevalencia de VIH/ITS y Comportamientos en Poblaciones especificas en Guatemala*. Ciudad de Guatemala, Ministerio de Salud Pública y Asistencia Social. Mayo.

Ministerio de Salud de Nicaragua (2004). *Programa nacional de prevención atención y control de las ITS/VIH/SIDA*. Presentación. Agosto.

Ministerio de Salud de Panamá (2004). *Situación epidemiológica del VIH/SIDA en Panamá*. Presentación. Agosto.

Ministerio de Salud y Desarrollo Social de Venezuela (2003). Registro de infecciones de transmisión sexual en los servicios del país, 1998-2002. Caracas, Ministerio de Salud y Desarrollo Social.

Ministerio da Saude do Brasil (2003). *Boletim Epidemiologico AIDS*, 17(1). Brasilia, Ministerio da Saude do Brasil.

Ministerio da Saude do Brasil (2001). *A contribuicao dos estudos multicentricos frente a epidemia de HIV/AIDS entre UDIs no Brasil: 10 anos de pesquisa e reducao de danos*. Brasilia, Ministerio da Saude do Brasil.

Monitoring the AIDS Pandemic Network (MAP) (2003). *HIV infection and AIDS in the Americas: lessons and challenges for the future*. Havana, MAP and Latin American and Caribbean Epidemiologic Network, EpiNet.

National AIDS Programme Ecuador (2002). *Situación epidemiológica*. Latin America Epidemiological Network meeting report. Cartagena, Colombia.

Osimani ML (2003). The Challenge of Implementation of Preventive Programs in a Developing Country: Experiences, Situations and Perspectives in Uruguay. *Clinical Infectious Diseases*, 37(Suppl 5):S422-6.

Secretaria de Salud de Honduras (2004). *VIH SIDA en Honduras, antecedentes, proyecciones, impacto e intervenciones*. Presentación. Tegucigalpa, Secretaria de Salud.

Secretaria de Salud de Honduras (2003). *Estudio Multicéntrico Centroamericano de Prevalencia de VIH/ITS y Comportamientos en Mujeres Trabajadoras Comerciales del Sexo en Honduras*. Tegucigalpa, Secretaria de Salud. Enero.

Secretaria de Salud de México (2003). Epidemiológica del VIH/SIDA en México en el ano 2003. Cuidad de México, Secretaria de Salud.

UNAIDS (2004). *2004 Report on the global AIDS epidemic*. Geneva, UNAIDS.

UNAIDS/WHO (2003). *AIDS epidemic update 2003*. Geneva, UNAIDS/WHO.

OCEANIA

Brouwer C, Harris BM, Tanaka S (1998). *Gender Analysis in Papua New Guinea*. World Bank, Washington.

Indonesia Central Bureau of Statistics, MACRO International (2004). Indonesia Young Adults Reproductive Health Survey. Jakarta, BPS

Monitoring the AIDS Pandemic Network (2004). *AIDS in Asia: Face the facts—A comprehensive analysis of the AIDS epidemics in Asia*. Bangkok, Monitoring the AIDS Pandemic Network. Available at http://www.fhi.org/en/hivaids/pub/survreports/aids_in_asia.htm

National Centre in HIV Epidemiology and Clinical Research, Australia (2003). *HIV/AIDS, viral hepatitis and sexually transmitted infections in Australia: Annual Surveillance Report 2003*. Sydney, National Centre in HIV Epidemiology and Clinical Research.

National AIDS Council Secretariat and Department of Health Papua New Guinea (2003). *HIV/AIDS Quarterly Report*. Boroko, Department of Health. December.

Sullivan EA et al. (2004). HIV, Hepatitis B and other sexually transmitted infections and associated risk behaviours in Pacific-island seafarers, Kiribati. XV International AIDS Conference. Abstract ThP2C735. Bangkok. 11-16 July.

UNAIDS (2004). *2004 Report on the global AIDS Epidemic*. Geneva, UNAIDS.

MIDDLE EAST AND NORTH AFRICA

El-Rahman A (2004). Risky behaviours for HIV/AIDS infection among a sample of homosexuals in Cairo city, Egypt. XV International AIDS Conference. Abstract WePeC6146. Bangkok. 11-16 July.

Elshimi T, Warner-Smith M, Aon M (2004). *Blood-borne virus risks of problematic drug users in Greater Cairo*. Geneva, UNAIDS & UNODC. August.

Fares E et al. (2004). Epidemiological surveillance of HIV/AIDS in Algeria, North Africa, based on the sentinel sero-surveillance survey. XV International AIDS Conference. Abstract C10572. Bangkok. 11-16 July.

Institut de Formation Paramédicale de Parnet (2004). Rapport de la réunion d'évaluation a mis-parcours de l'enquête de sero-suveillance du VIH. 9 Juin.

Jenkins C, Robalino DA (2003). *HIV/AIDS in the Middle East and North Africa: The Costs of Inaction*. Washington, World Bank.

Kaiser et al. (2004) HIV/STI prevalence and risk factor surveys in Yei and Rumbek, South Sudan, 2002/2003. XV International AIDS Conference. Abstract TuPeC4739. Bangkok. 11-16 July.

Kilani B et al. (2003). Sero-epidemiology of HCV-HIV co-infection in Tunisia. Paper. Tunis.

Ministère de la Santé Morocco (2004). AIDS/HIV surveillance reports 2003/2004. Rabat, Ministère de la Santé.

Sudan National AIDS Control Programme (2003). HIV/AIDS/STIs Surveillance Report, First Quarter. Khartoum, National AIDS Control Programme.

Ministry of Health Iran (2004). *AIDS/HIV Surveillance Report*, Fourth Quarter. Teheran, Ministry of Health.

Tawilah J, Ball A (2003). WHO/EMRO & WHO/HQ Mission to Libyan Arab Jamahiriya to Undertake an Initial Assessment of the HIV/AIDS and STI Situation and National AIDS Programme. Tripoli. 15-19 June.

NORTH AMERICA, WESTERN AND CENTRAL EUROPE

Alliance for Health Reform (2004). Closing the Gap: Racial and Ethnic Disparities in Healthcare. *Journal of the National Medical Association,* 96(4): 436-440. April.

Centre d'Estudis Epidemiológicos sobre l'HIV/Sida de Catalunya (2001). *SIVES 2001 Integrated HIV/AIDS surveillance system of Catalonia*. Barcelona, Departamento de Sanitat 1 Seguretat Social.

De la Fuente L et al. (2003). Lessons from the history of the human immunodeficiency virus / acquired immunodeficiency syndrome epidemic among Spanish drug injectors. *Clinical Infectious Diseases*, 37(suppl 5):S410-5.

Department of Health United Kingdom (2003). *Annual Report of the Chief Medical Officer: No time to wait.* London, Department of Health. Available at www.publications.doh.gov.uk/cmo/annualreport2003/notime.htm

Diaz T et al. (1994). Socioeconomic differences among people with AIDS: Results from a multistate surveillance project. *American Journal of Preventive Medicine*, 10(4):217-222.

Emmanuelli J et al. (2004). HIV and HCV prevalence among French intravenous drug users (IDU). XV International AIDS Conference. Abstract C10938. Bangkok. 11-16 July.

EuroHIV (2003). *HIV/AIDS Surveillance in Europe*. Mid-year report 69. Saint-Maurice, Institut de Veille Sanitaire.

European Monitoring Centre for Drugs and Drug Addiction (2003). *Annual Report 2003: The state of the drug problem in the European Union and Norway.* Lisbon, European Monitoring Centre for Drugs and Drug Addiction. Available at http://annualreport.emcdda.eu.int/en/home-en.html

Geduld J, Gatali M, Remis RS (2004). Estimating HIV prevalence and incidence in Canada: highlighting the need for enhanced research data and improved HIV surveillance. XV International AIDS Conference. Abstract MoPeC3650. Bangkok. 11-16 July.

Girardi E (2003). Epidemiological aspects of transmitted HIV drug resistance. *Scandinavian Journal of Infectious Diseases Supplement*, 35(suppl 106):17-20.

Gutierrez et al. (2004). High rate of HIV-1 non-B subtypes and syphilis but low rate of HTLV and hepatitis B and C viruses among immigrant sex workers in Madrid, Spain. XV International AIDS Conference. Abstract WePeC6197. Bangkok. 11-16 July.

Hamers FF, Downs AM (2004). The changing face of the HIV epidemic in western Europe: what are the implications for public health policies? *Lancet*, 364:83-94.

Health Canada (2003). *Looking forward: Focusing the response–Canada's Report on HIV/AIDS 2003*. Ottawa, Health Canada.

McMahon et al. (2004). Increased sexual risk behaviour and high HIV sero-incidence among drug-using low-income women with primary heterosexual partners. XV International AIDS Conference. Abstract TuOrD1220. Bangkok. 11-16 July.

UNAIDS (2004). *2004 Report on the global AIDS Epidemic*. Geneva, UNAIDS

U.S. Census Bureau (2000). *Poverty status of the population in 1999 by age, sex, and race and Hispanic origin*. Washington, U.S. Census Bureau. March.

U.S. Centers for Disease Control and Prevention (2004a). Trends in Primary and Secondary Syphilis and HIV Infections in Men Who Have Sex with Men—San Francisco and Los Angeles, California, 1998-2002. *MMWR Weekly*, 53(26):575-578. 9 July. Available at http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5326a1.htm

U.S. Centers for Disease Control and Prevention (2004b). HIV Transmission Among Black College Student and Non-Student Men Who Have Sex With Men—North Carolina, 2003. *MMWR Weekly*, 53(32):731-734. 20 August.

U.S. Centers for Disease Control and Prevention (2004c). High-risk sexual behaviour by HIV-positive men who have sex with men – 16 sites, United States, 2000-2002. *MMWR Weekly*, 53(38):891-894. 1 October.

U.S. Centers for Disease Control and Prevention (2003a). HIV/AIDS Among African Americans. Available at http://www.cdc.gov/hiv/pubs/facts/safam.htm

U.S. Centers for Disease Control and Prevention (2003b). HIV/AIDS Among African-Americans. Fact sheet. Washington, U.S. Centers for Disease Control and Prevention. Available at http://ww.cdc.gov/hiv/pubs/facts/afam.htm

Valleroy LA et al. (2004). The bridge for HIV transmission to women from 15- to 29-year-old men who have sex with men in 7 US cities. XV International AIDS Conference. Abstract ThOrC1367. Bangkok. 11-16 July.

Van Veen MG et al. (2004). Prevalence of HIV and related risk behaviour among ex workers in the Netherlands. XV International AIDS Conference. Abstract WePeC6198. Bangkok. 11-16 July.

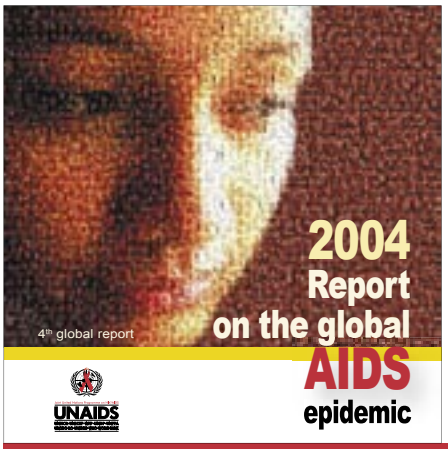
Explanatory note about UNAIDS/WHO estimates

The UNAIDS/WHO estimates in this document are based on the most recent available data on the spread of HIV in countries around the world. They are provisional. UNAIDS and WHO, together with experts from national AIDS programmes and research institutions, regularly review and update the estimates as improved knowledge about the epidemic becomes available, while also drawing on advances made in the methods for deriving estimates. Because of these and future advances, the current estimates cannot be compared directly with estimates published in previous years, nor with those that may be published subsequently.

The estimates and data provided in the graphs and tables are given in rounded numbers. However, unrounded numbers were used in the calculation of rates and regional totals, so there may be small discrepancies between the global totals and the sum of the regional figures.

UNAIDS and WHO will continue to work with countries, partner organizations and experts to improve data collection. These efforts will ensure that the best possible estimates are available to assist governments, nongovernmental organizations and others in gauging the status of the epidemic and monitoring the effectiveness of their considerable prevention and care efforts.

The annual ***AIDS epidemic update*** reports on the latest developments in the global AIDS epidemic. With maps and regional summaries, the 2004 edition provides the most recent estimates of the epidemic's scope and human toll, explores new trends in the epidemic's evolution, and features a special section on women and AIDS.



www.unaids.org

UNAIDS – 20 avenue Appia – 1211 Geneva 27 – Switzerland
Telephone: (+41) 22 791 36 66 – Fax: (+41) 22 791 41 87
E-mail: unaids@unaids.org – Internet: http:/www.unaids.org