

07

# AIDS epidemic update



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UNAIDS  
20 avenue Appia  
CH-1211 Geneva 27  
Switzerland

T (+41) 22 791 36 66  
F (+41) 22 791 48 35

[distribution@unaids.org](mailto:distribution@unaids.org)  
[www.unaids.org](http://www.unaids.org)

# AIDS epidemic update

December 2007





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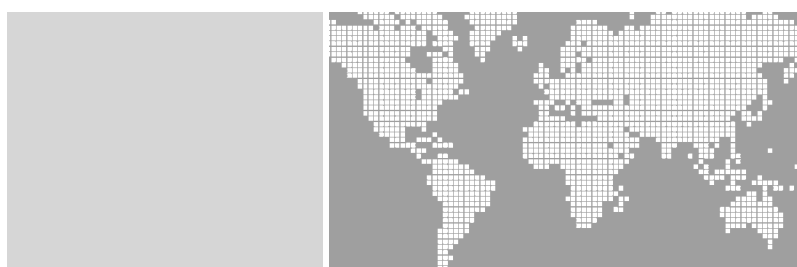
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AIDS epidemic update: December 2007





## Global summary of the AIDS epidemic

### December 2007

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#### Number of people living with HIV in 2007

<b>Total</b>	<b>33.2 million [30.6 – 36.1 million]</b>
Adults	30.8 million [28.2 – 33.6 million]
Women	15.4 million [13.9 – 16.6 million]
Children under 15 years	2.5 million [2.2 – 2.6 million]

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#### People newly infected with HIV in 2007

<b>Total</b>	<b>2.5 million [1.8 – 4.1 million]</b>
Adults	2.1 million [1.4 – 3.6 million]
Children under 15 years	420 000 [350 000 – 540 000]

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#### AIDS deaths in 2007

<b>Total</b>	<b>2.1 million [1.9 – 2.4 million]</b>
Adults	1.7 million [1.6 – 2.1 million]
Children under 15 years	330 000 [310 000 – 380 000]

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







## GLOBAL OVERVIEW

### Background

In 2007, advances in the methodology of estimations of HIV epidemics applied to an expanded range of country data have resulted in substantial changes in estimates of numbers of persons living with HIV worldwide. However the qualitative interpretation of the severity and implications of the pandemic has altered little. The estimated number of persons living with HIV worldwide in 2007 was 33.2 million [30.6–36.1 million], a reduction of 16% compared with the estimate published in 2006 (39.5 million [34.7–47.1 million]). (UNAIDS/WHO, 2006) The single biggest reason for this reduction was the intensive exercise to assess **India's** HIV epidemic, which resulted in a major revision of that country's estimates. Important revisions of estimates elsewhere, particularly in **sub-Saharan Africa**, also contributed. Of the total difference in the estimates published in 2006 and 2007, 70% are due to changes in six countries: **Angola, India, Kenya, Mozambique, Nigeria, and Zimbabwe**. In both **Kenya** and **Zimbabwe**, there is increasing evidence that a proportion of the declines is due to a reduction of the number of new infections which is in part due to a reduction in risky behaviours.

Because estimates of new HIV infections and HIV-associated deaths are derived through mathematical models applied to HIV prevalence estimates, new estimates of HIV incidence and mortality in 2007 also differ substantially from earlier assessments. It is emphasized that these differences between estimates published in 2006 and those published in 2007 result largely from refinements in methodology, rather than trends in the pandemic itself. For this reason, it is inap-

propriate to draw conclusions by comparing 2007 estimates with those published in 2006. However, the methodological revisions have been applied retrospectively to all earlier HIV prevalence data, so that the estimates of incidence, prevalence and mortality from earlier years in the current report allow an assessment of trends over time.

The *AIDS epidemic update* reports on the latest developments in the global AIDS epidemic and has been published annually since 1998. The 2007 edition provides the most recent estimates of the epidemic's scope and human toll and explores new trends in the epidemic's evolution. This is a joint UNAIDS and WHO report and the estimates produced by the UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance are based on methods and parameters that are informed by the UNAIDS Reference Group on HIV/AIDS Estimates, Modelling and Projections. These estimates are also based on work by country analysts in a series of 11 regional HIV estimates workshops conducted in 2007 by UNAIDS and WHO. The process and methodology used by UNAIDS and WHO were reviewed and endorsed by an International Consultation on AIDS Epidemiological Estimates convened jointly by the UNAIDS Secretariat and WHO on 14–15 November 2007 in Geneva.

The major elements of methodological improvements in 2007 included greater understanding of HIV epidemiology through population-based surveys, extension of sentinel surveillance to more sites in relevant countries, and adjustments to mathematical models because of better understanding of the natural history of untreated HIV

infection in low- and middle- income countries. These adjustments to the methodology used are explained in more detail in the box “New data lead to changes in assumptions and improved estimates.” UNAIDS and WHO will continue to modify their estimates of HIV infections and AIDS deaths as new scientific data, research and analyses emerge.

Several comparisons in this report are made between HIV estimates derived by the uniform revised methodology for 2007 and 2001. The year 2001 was the year of the United Nations General Assembly Special Session on HIV/AIDS that first defined intervention targets, but is also sufficiently long ago to allow meaningful examination of trends in data subjected to uniform analysis.

### Epidemic update 2007 - essential findings

Every day, over 6800 persons become infected with HIV and over 5700 persons die from AIDS, mostly because of inadequate access to HIV prevention and treatment services. The HIV pandemic remains the most serious of infectious disease challenges to public health. Nonetheless, the current epidemiologic assessment has encouraged elements since it suggests:

- the global prevalence of HIV infection (percentage of persons infected with HIV) is remaining at the same level, although the global number of persons living with HIV is increasing because of ongoing accumulation of new infections with longer survival times, measured over a continuously growing general population;
- there are localized reductions in prevalence in specific countries;
- a reduction in HIV-associated deaths, partly attributable to the recent scaling up of treatment access; and
- a reduction in the number of annual new HIV infections globally.

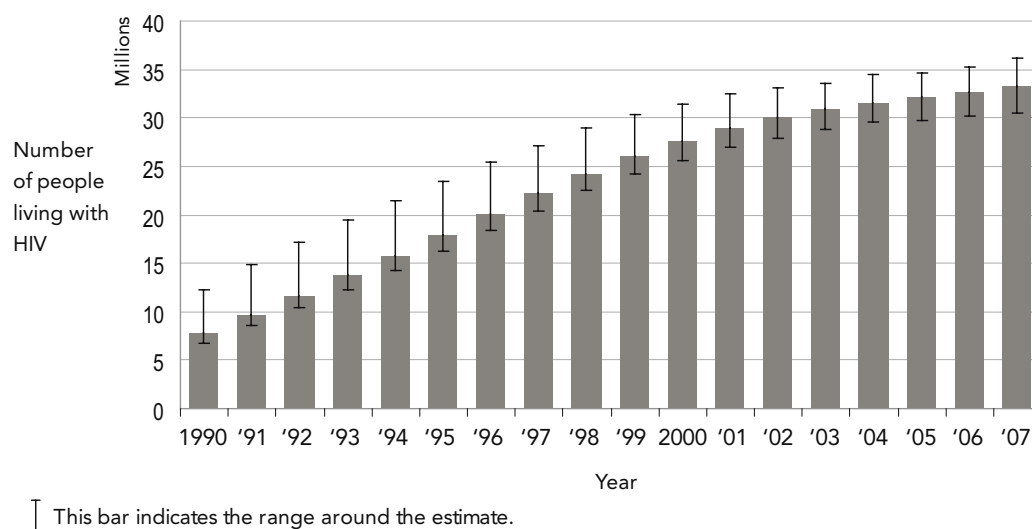
Examination of global and regional trends suggests the pandemic has formed two broad patterns:

- generalized epidemics sustained in the general populations of many sub-Saharan African countries, especially in the southern part of the continent; and
- epidemics in the rest of the world that are primarily concentrated among populations most at risk, such as men who have sex with men, injecting drug users, sex workers and their sexual partners.

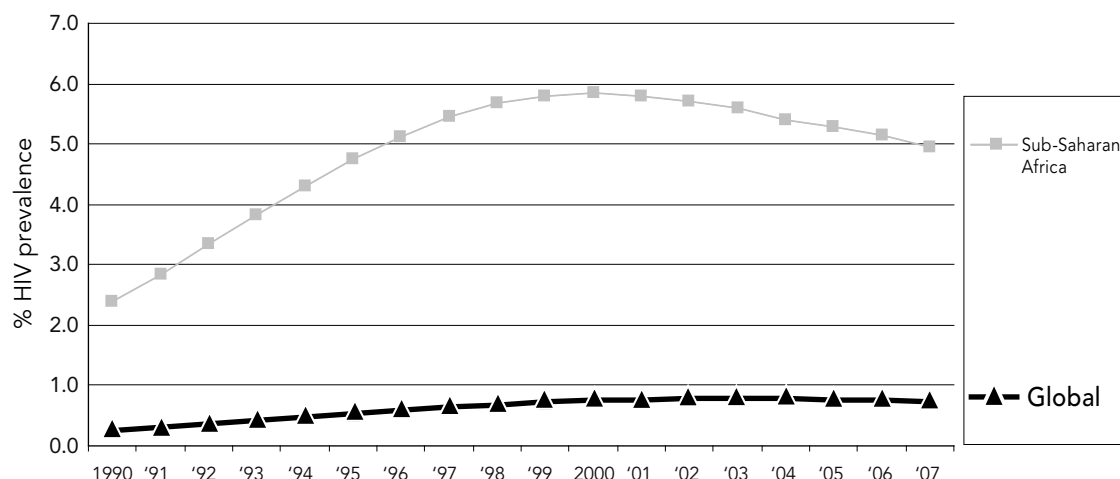
**Sub-Saharan Africa** remains the most seriously affected region, with AIDS remaining the leading cause of death there.

**Figure 1**

Estimated number of people living with HIV globally, 1990–2007



### Estimated adult (15–49) HIV prevalence (%) globally and in sub-Saharan Africa, 1990–2007



**Figure 2**

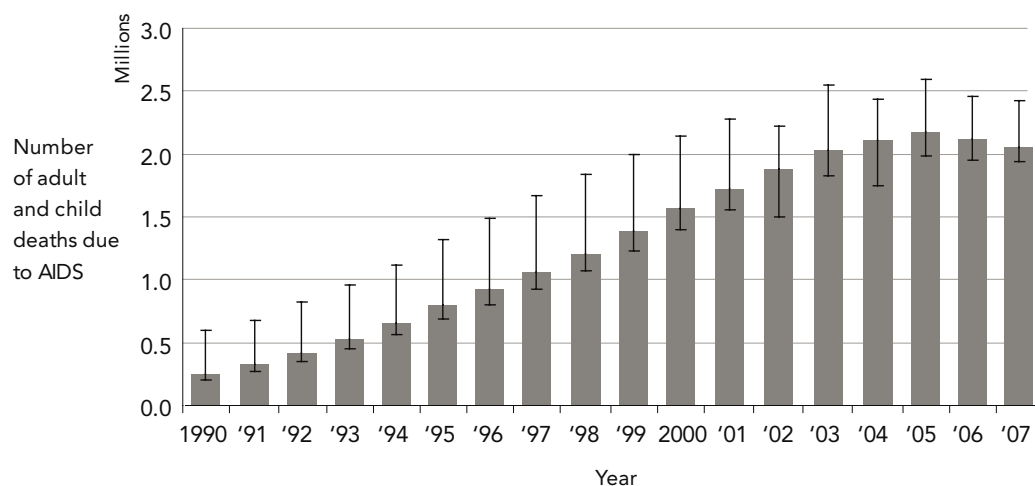
Although percentage prevalence has stabilized, continuing new infections (even at a reduced rate) contribute to the estimated number of persons living with HIV, 33.2 million [30.6–36.1 million], being greater than ever before (Figure 1). HIV prevalence tends to reduce slowly over time as new infections decline and through the death of HIV-infected persons; it can increase through continuing HIV incidence and through reduced

mortality of HIV-infected persons on antiretroviral treatment. The analyses in this report cannot specifically measure the opposing influences on HIV prevalence of prevention efforts that reduce new infections and treatment scale-up that reduces deaths among people with HIV.

Global HIV prevalence—the percentage of the world’s adult population living with HIV—has

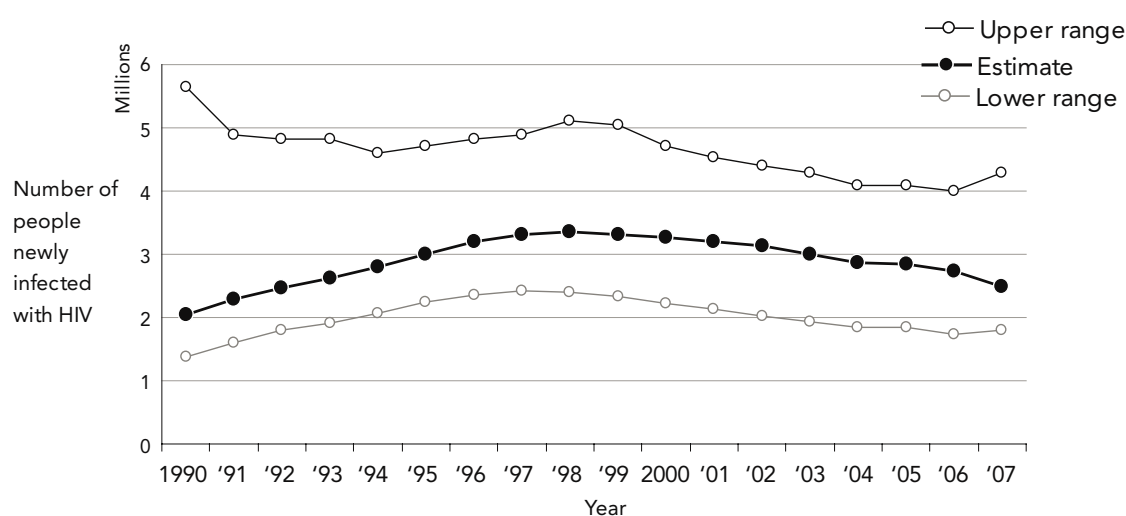
**Figure 3**

### Estimated number of adult and child deaths due to AIDS globally, 1990–2007



┌ This bar indicates the range around the estimate.

### Estimated number of people newly infected with HIV globally, 1990–2007



**Figure 4**

been estimated to be level since 2001 (Figure 2). Downward trends in HIV prevalence are occurring in a number of countries, where prevention efforts aimed at reducing new HIV infections since 2000 and 2001 are showing results. In most of sub-Saharan Africa, national HIV prevalence has either stabilized or is showing signs of a decline (Figure 2). **Côte d'Ivoire**, **Kenya** and **Zimbabwe** have all seen declines in national prevalence, continuing earlier trends. In **South-East Asia**, the epidemics in **Cambodia**, **Myanmar** and **Thailand** all show declines in HIV prevalence.

The estimated number of deaths due to AIDS in 2007 was 2.1 million [1.9–2.4 million] worldwide (Figure 3), of which 76% occurred in sub-Saharan Africa. Declines in the past two years are partly attributable to the scaling up of antiretroviral treatment services. AIDS remains a leading cause of mortality worldwide and the primary cause of death in sub-Saharan Africa, illustrating the tremendous, long-term challenge that lies ahead for provision of treatment services, with the hugely disproportionate impact on sub-Saharan Africa ever more clear.

HIV incidence (the number of new HIV infections in a population per year) is the key parameter that prevention efforts aim to reduce, since newly infected persons contribute to the total number of persons living with HIV; they will progress to disease and death over time; and are a potential source of further transmission. Global HIV incidence likely peaked in the late

1990s (Figure 4) at over 3 million new infections per year, and was estimated to be 2.5 million [1.8–4.1 million] new infections in 2007 of which over two thirds (68%) occurred in sub-Saharan Africa. This reduction in HIV incidence likely reflects natural trends in the epidemic as well as the result of prevention programmes resulting in behavioural change in different contexts.

A final conclusion concerns the quality and nature of strategic information relating to the pandemic and the effects of our programmes. Increased investments in interventions for HIV prevention, treatment and care are showing results but also greatly increase the complexity of the epidemic and analysis of its trends. The analyses reported here cannot adequately define the impact of specific interventions or programmes. This will require special studies in local areas, including direct assessments of HIV incidence, mortality, programme effectiveness and the burden of HIV infection, disease and death in children.

As the resources committed to AIDS and other major health problems continue to increase, more emphasis is required to strengthen systems to collect and analyse data and to improve the quality of such data to strategically guide programming. Despite the challenges and limitations inherent in data collection of this nature, the resources made available to the global AIDS response have enabled the quality of information and our understanding of the HIV pandemic to be superior to many other global disease estimates.

## Regional summaries

Regional data are shown in Table 1. **Sub-Saharan Africa** continues to be the region most affected by the AIDS pandemic. More than two out of

three (68%) adults and nearly 90% of children infected with HIV live in this region, and more than three in four (76%) AIDS deaths in 2007 occurred there, illustrating the unmet need for antiretroviral

**Table 1** Regional HIV and AIDS statistics, 2001 and 2007

	Adults and children living with HIV	Adults and children newly infected with HIV	Adult prevalence (%)	Adult and child deaths due to AIDS
<b>Sub-Saharan Africa</b>				
2007	22.5 million [20.9 million–24.3 million]	1.7 million [1.4 million–2.4 million]	5.0% [4.6%–5.5%]	1.6 million [1.5 million–2.0 million]
2001	20.9 million [19.7 million–23.6 million]	2.2 million [1.7 million–2.7 million]	5.8% [5.5%–6.6%]	1.4 million [1.3 million–1.9 million]
<b>Middle East and North Africa</b>				
2007	380 000 [270 000–500 000]	35 000 [16 000–65 000]	0.3% [0.2%–0.4%]	25 000 [20 000–34 000]
2001	300 000 [220 000–400 000]	41 000 [17 000–58 000]	0.3% [0.2%–0.4%]	22 000 [11 000–39 000]
<b>South and South-East Asia</b>				
2007	4.0 million [3.3 million–5.1 million]	340 000 [180 000–740 000]	0.3% [0.2%–0.4%]	270 000 [230 000–380 000]
2001	3.5 million [2.9 million–4.5 million]	450 000 [150 000–800 000]	0.3% [0.2%–0.4%]	170 000 [120 000–220 000]
<b>East Asia</b>				
2007	800 000 [620 000–960 000]	92 000 [21 000–220 000]	0.1% [<0.2%]	32 000 [28 000–49 000]
2001	420 000 [350 000–510 000]	77 000 [4900–130 000]	<0.1% [<0.2%]	12 000 [8200–17 000]
<b>Oceania</b>				
2007	75 000 [53 000–120 000]	14 000 [11 000–26 000]	0.4% [0.3%–0.7%]	1200 [<500–2700]
2001	26 000 [19 000–39 000]	3800 [3000–5600]	0.2% [0.1%–0.3%]	<500 [1100]
<b>Latin America</b>				
2007	1.6 million [1.4 million–1.9 million]	100 000 [47 000–220 000]	0.5% [0.4%–0.6%]	58 000 [49 000–91 000]
2001	1.3 million [1.2 million–1.6 million]	130 000 [56 000–220 000]	0.4% [0.3%–0.5%]	51 000 [44 000–100 000]
<b>Caribbean</b>				
2007	230 000 [210 000–270 000]	17 000 [15 000–23 000]	1.0% [0.9%–1.2%]	11 000 [9800–18 000]
2001	190 000 [180 000–250 000]	20 000 [17 000–25 000]	1.0% [0.9%–1.2%]	14 000 [13 000–21 000]
<b>Eastern Europe and Central Asia</b>				
2007	1.6 million [1.2 million–2.1 million]	150 000 [70 000–290 000]	0.9% [0.7%–1.2%]	55 000 [42 000–88 000]
2001	630 000 [490 000–1.1 million]	230 000 [98 000–340 000]	0.4% [0.3%–0.6%]	8000 [5500–14 000]
<b>Western and Central Europe</b>				
2007	760 000 [600 000–1.1 million]	31 000 [19 000–86 000]	0.3% [0.2%–0.4%]	12 000 [<15 000]
2001	620 000 [500 000–870 000]	32 000 [19 000–76 000]	0.2% [0.1%–0.3%]	10 000 [<15 000]
<b>North America</b>				
2007	1.3 million [480 000–1.9 million]	46 000 [38 000–68 000]	0.6% [0.5%–0.9%]	21 000 [18 000–31 000]
2001	1.1 million [390 000–1.6 million]	44 000 [40 000–63 000]	0.6% [0.4%–0.8%]	21 000 [18 000–31 000]
<b>TOTAL</b>				
2007	33.2 million [30.6 million–36.1 million]	2.5 million [1.8 million–4.1 million]	0.8% [0.7%–0.9%]	2.1 million [1.9 million–2.4 million]
2001	29.0 million [26.9 million–32.4 million]	3.2 million [2.1 million–4.4 million]	0.8% [0.7%–0.9%]	1.7 million [1.6 million–2.3 million]

treatment in Africa. The region's epidemics, however, vary significantly in scale, with national adult (15–49 years) HIV prevalence ranging from less than 2% in some countries of the Sahel to above 15% in most of **southern Africa**. Southern Africa alone accounted for almost one third (32%) of all new HIV infections and AIDS deaths globally in 2007.

A total of 1.7 million [1.4 million–2.4 million] people in **sub-Saharan Africa** became infected with HIV in the past year, declining from 2.2 million [1.7 million–2.7 million] new infections in 2001. There are currently an estimated 22.5 million [20.9 million–24.3 million] people living with HIV in the region in 2007—compared with 20.9 million [19.7 million–23.6 million] in 2001. In sub-Saharan Africa, adult (15–49 years) HIV prevalence declined from 5.8% [5.5%–6.6%] in 2001 to 5.0% [4.6%–5.5%] in 2007. AIDS continues to be the single largest cause of mortality in sub-Saharan Africa (WHO, 2003); of the global total of 2.1 million [1.9 million–2.4 million] adult and child deaths due to AIDS in 2007, 1.6 million [1.5 million–2.0 million] occurred in **sub-Saharan Africa**. There are an estimated 11.4 million [10.5 million–14.6 million] orphans due to AIDS<sup>1</sup> in this region.

In addition to the declines in new infections in **sub-Saharan Africa** between 2001 and 2007, the estimated annual number of new HIV infections decreased in **South** and **South-East Asia** from 450,000 [150 000–800 000] in 2001 to 340 000 [180 000–740 000] in 2007, and in **Eastern Europe** from 230,000 [98 000–340 000] in 2001 to 150,000 [70 000–290 000] in 2007. The difference in the number of new infections in **Eastern Europe** is due mainly to the slower growth of the HIV epidemic in the **Russian Federation**, the country with the largest epidemic in that region and where new infections increased steeply in the late 1990s before peaking in 2001. Annually reported (rather than estimated) new infections in the **Russian Federation** have been growing again in recent years, but at a lower rate than at the turn of the century.

The 92 000 [21 000–220 000] adults and children estimated to be newly infected with HIV in **East Asia** in 2007 represent an increase of almost 20% over the 77 000 [4900–130 000] people who acquired HIV in 2001. **Oceania** also saw an

increase in estimated new infections—from 3800 [3000–5600] in 2001 to 14 000 [11 000–26 000] in 2007. In the **Caribbean, Latin America, the Middle East** and **North Africa, North America** and **Western Europe**, the numbers of new HIV infections in 2007 remained approximately stable.

These regional incidence figures can mask the fact that the actual number of persons living with HIV may be increasing; for instance in Eastern Europe, the total number of persons with HIV increased nearly 150% between 2001 and 2007. Also in individual countries, such as Viet Nam and Indonesia, the prevalence of HIV is growing.

## Women living with HIV

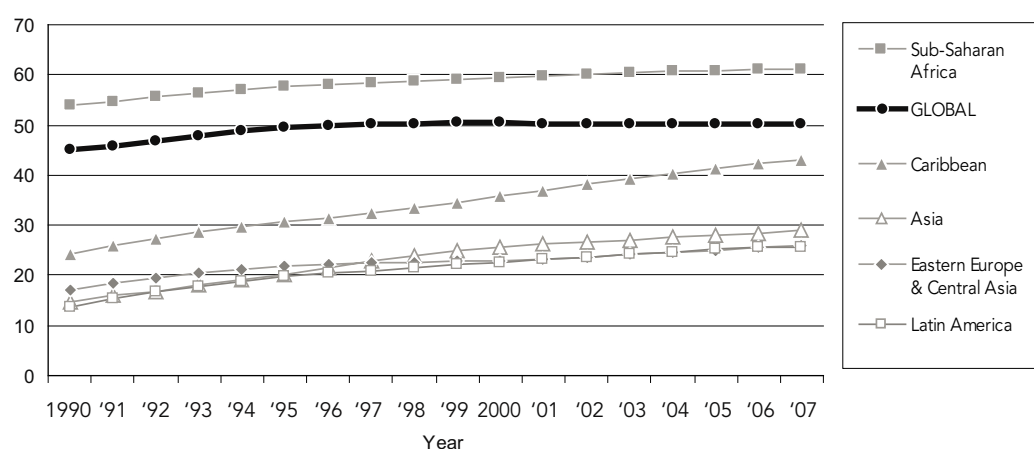
Similar increases occurred in the estimated total numbers of new infections in men and women between 2001 and 2007—the ratio of women to men remaining stable globally. The estimated 15.4 million [13.9–16.6 million] women living with HIV in 2007 numbered 1.6 million more than the 13.8 million [12.7–15.2 million] in 2001. For men, the 15.4 million [14.3–17.0 million] estimated to be living with HIV in 2007 compared with 13.7 million [12.6–15.2 million] in 2001. In **sub-Saharan Africa**, almost 61% of adults living with HIV in 2007 were women, while in the **Caribbean** that percentage was 43% (compared with 37% in 2001) (Figure 5). The proportions of women living with HIV in **Latin America, Asia** and **Eastern Europe** are slowly growing, as HIV is transmitted to the female partners of men who are likely to have been infected through injecting drug use, or during unprotected paid sex or sex with other men. In **Eastern Europe** and **Central Asia**, it is estimated that women accounted for 26% of adults with HIV in 2007 (compared with 23% in 2001), while in **Asia** that proportion reached 29% in 2007 (compared with 26% in 2001).

## Children (less than 15 years of age) living with HIV

Globally the number of children living with HIV increased from 1.5 million [1.3–1.9 million] in 2001 to 2.5 million [2.2–2.6 million] in 2007. However, estimated new infections among children declined from 460 000

<sup>1</sup> Orphans (0–17 years) currently living are defined as the estimated number of children aged 0–17 years in 2007 who have lost one or both parents to AIDS.

Percent of adults (15+) living with HIV who are female 1990–2007

Figure 5<sup>2</sup>

[420 000–510 000] in 2001 to 420 000 [390 000–470 000] in 2007. Deaths due to AIDS among children had increased from 330,000 [380 000 – 560 000] in 2001 to 360,000

[350 000 – 540 000] in 2005, but have now begun to decline to an estimated 330,000 [310 000–380 000] in 2007. Nearly 90% of all HIV positive children live in sub-Saharan Africa.

#### NEW DATA LEADS TO CHANGES IN ASSUMPTIONS AND IMPROVED ESTIMATES

As part of the continuing process of refining HIV estimations, UNAIDS and WHO regularly update their estimation methodology with new information, as recommended by the UNAIDS Reference Group on Estimates, Modelling and Projections, and based on the latest scientific developments.<sup>3</sup> In addition, an International Consultation on AIDS Epidemiological Estimates, convened jointly by the UNAIDS Secretariat and WHO, was held on 14–15 November 2007 in Geneva, Switzerland to review the current processes and methodologies used by UNAIDS and WHO to produce HIV estimates at the country, regional and global level.

The tools that have been developed based on the recommendations of the UNAIDS Reference Group include the Estimation and Projection Package (EPP), WORKBOOK, and Spectrum. These tools generate an HIV prevalence curve and project the age-specific demographic impact of AIDS mortality. The outputs include HIV prevalence over time, number of people living with HIV, new infections, deaths due to AIDS, orphans and treatment need. Estimates of incidence and mortality are derived from the estimates of adult HIV prevalence over time—that are in turn based on data from sentinel surveillance, surveys and special studies.

HIV surveillance systems have expanded and improved considerably in the past few years, most notably in **sub-Saharan Africa** and **Asia**. HIV sentinel surveillance data have improved as the number of surveillance rounds and their geographical and population coverage has increased. For example in India the number of sentinel surveillance sites increased to more than 1 100 in 2006 (up from 155 in 1998) and now cover more extensively the most-at-risk populations. In some African countries that had limited HIV prevalence data in the past (such as **Angola**, **Liberia**, and **Sudan**), the recent rounds of sentinel surveillance have yielded more representative data.



<sup>2</sup> The global proportion of women versus men who are infected has remained at approximately 50% since the late 1990s. In this graphic of proportional rates, even though the proportion of women versus men has been increasing in each region, in most regions, the overall number of men infected still far outnumbers that of women.

<sup>3</sup> The UNAIDS Reference Group on HIV/AIDS Estimates, Modelling and Projections is made up of leading researchers in HIV and AIDS, epidemiology, demography and related areas. The Reference Group assesses the most recent published and unpublished work drawn from research studies in different countries. It also reviews advances in the understanding of HIV epidemics, and suggests methods to improve the quality and accuracy of the estimates.

Data collected in national population-based surveys have improved the accuracy of HIV and AIDS estimates. While HIV prevalence from sentinel surveillance will continue to provide valuable information in terms of the trend in the epidemics, HIV prevalence measured in national population based surveys, adjusted for non-response and other biases, provides improved data to estimate the national prevalence. However, population based surveys in countries with concentrated epidemics may not include populations that may be at higher risk of HIV infection and other adjustments should be made. Since 2001, 30 countries in sub-Saharan Africa, Asia and the Caribbean have conducted national population-based surveys with HIV prevalence measurement, as shown in Table 2. Results from such population-based surveys have generally indicated lower national HIV prevalence than extrapolations from sentinel site surveillance.

For the regional and global estimates included in this report, the adult HIV prevalence found in those surveys has been used to adjust the HIV prevalence in the year of the survey for those respective countries. For countries with a recent national survey (such as **Benin, Cambodia, Central African Republic, Haiti, India, Liberia, Malawi, Mali and Swaziland**) this has resulted in lower estimates compared to those included in the regional and global estimates published in the *2006 AIDS epidemic update* – report.

In addition several new assumptions have been incorporated into the 2007 version of the estimation software tools, Estimation and Projection Package (EPP) 2007 and Spectrum 3. A major new assumption concerns countries with generalized HIV epidemics which have not conducted a national population-based HIV survey. A comparison of HIV prevalence among antenatal clinic attendees and HIV prevalence from population-based surveys has shown that HIV prevalence among adults in the latter surveys is approximately 80% of the prevalence among antenatal clinic attendees, in both rural and urban areas (UNAIDS, 2007). Based on that observation, it was recommended that in countries with generalized HIV epidemics which have not conducted a national population-based survey, HIV prevalence data from antenatal clinic attendees should be adjusted downward on average by a factor of 0.8 (UNAIDS Reference Group on Estimates, Modelling and Projections, 2006). Previously only the prevalence from antenatal clinics in the rural areas was adjusted.

A second, major assumption relates to the estimation of incidence and mortality. HIV incidence and mortality due to AIDS are calculated from a combination of HIV prevalence over time and an assumption regarding the average time a person will survive from HIV infection to death in the absence of antiretroviral treatment, while allowing for longer survival for people on antiretroviral treatment (Stover, 2006). In the absence of such treatment, the net median survival time after infection with HIV is now estimated to be 11 years (UNAIDS Reference Group on Estimates, Modelling and Projections, 2006), instead of the previously estimated nine years (UNAIDS Reference Group on Estimates, Modelling and Projections, 2002). This applies to all countries except those where HIV subtype E accounts for the majority of infections. In the latter countries, the median net survival time is still under review, but a limited number of studies show estimates of nine years survival (UNAIDS Reference Group on Estimates, Modelling and Projections, 2006). These new recommendations are based on recent information provided by longitudinal research studies (Todd et al., 2007; Marston et al., 2007). For the same level of prevalence, this longer average survival period has resulted in lower estimates of new infections and deaths due to AIDS.

In addition to the changes in HIV prevalence for some countries that result from adjusting to country-specific prevalence survey results (see above), other countries have a corrected lower prevalence because an expansion of their surveillance system has yielded more representative data (for example, **Angola and Madagascar**). In addition, in some countries with generalised epidemics that have not conducted a population based survey, it is the additional adjustment to the antenatal clinic data from urban areas (see above) that has resulted in a lowering of estimates of national prevalence, for example in **Angola, Congo, Eritrea, the Gambia, Guinea-Bissau, Mozambique, Namibia, Nigeria, Somalia and Sudan**.





Table 2

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

Countries	Population-based survey prevalence (%) (year)	2001 HIV prevalence (%) reported in 2002 Report on the global AIDS epidemic	2003 HIV prevalence (%) reported in 2004 Report on the global AIDS epidemic	2005 HIV prevalence (%) reported in 2006 Report on the global AIDS epidemic
<b>Sub-Saharan Africa</b>				
Benin	1.2 (2006)	3.6	1.9	1.8
Botswana	25.2 (2004)	38.8	38.0	24.1
Burkina Faso	1.8 (2003)	6.5	4.2	2.0
Burundi	3.6 (2002)	8.3	6.0	3.3
Cameroon	5.5 (2004)	11.8	7.0	5.4
Central African Republic	6.2 (2006)	12.9	13.5	10.7
Chad	3.3 (2005)	3.6	4.8	3.5
Côte d'Ivoire	4.7 (2005)	9.7	7.0	7.1
Equatorial Guinea	3.2 (2004)	3.4	NA	3.2
Ethiopia	1.4 (2005)	6.4	4.4	(0.9–3.5)
Ghana	2.2 (2003)	3.0	3.1	2.3
Guinea	1.5 (2005)	NA	2.8	1.5
Kenya	6.7 (2003)	15.0	6.7	6.1
Lesotho	23.5 (2004)	31.0	29.3	23.2
Malawi	12.7 (2004)	15.0	14.2	14.1
Mali	1.3 (2006) 1.7 (2001)*	1.7	1.9	1.7
Niger	0.7 (2006) 0.9 (2002)	NA	1.2	1.1
Rwanda	3.0 (2005)	8.9	5.1	3.1
Senegal	0.7 (2005)	0.5	0.8	0.9
Sierra Leone	1.5 (2005)	7.0	NA	1.6
South Africa	16.2 (2005) 15.6 (2002)	20.1	20.9	18.8
Swaziland	25.9 (2006–7)	33.4	38.8	33.4
Uganda	7.1 (2004–5)	5.0	4.1	6.7
United Republic of Tanzania	7.0 (2004)	7.8	9.0	6.5
Zambia	15.6 (2001–2)	21.5	16.5	17.0
Zimbabwe	18.1 (2005–6)	33.7	24.6	20.1
<b>Asia</b>				
Cambodia	0.6 (2005)	2.7	2.6	1.6
India	0.28 (2005–6)	0.8	0.9	0.9
<b>Latin America and Caribbean</b>				
Dominican Republic	1.0 (2002)	2.5	1.7	1.1
Haiti	2.2 (2005–6)	6.1	5.6	3.8

\* includes male 15–59 years.

The change in survival assumption (see above) has resulted in lower estimates of mortality and incidence in all countries except those where subtype E is dominant. It did not have a major impact on the timing of the peak of new infections. All of these changes have resulted in improved estimates of the number of people living with HIV, mortality due to AIDS, and the number of new HIV infections. Most of the estimates in the current report are lower compared to those published in previous reports, not just for 2007 but also for past years. Current estimates, therefore, cannot be compared directly with estimates published in previous reports. Unlike previous reports, which presented data for the most recent two-year period, this report presents comparative data for 2001 and 2007 which allows for a better assessment of trends. Because surveillance data for the year



2007 are not yet available for many countries, 2005–2007 estimated trends would be less accurate than those for the more extended 2001–2007 period.

These and other changes in assumptions based on recent reviews and research data will also have implications for estimation of the number of people in need of antiretroviral therapy, but these are not covered in this report.

Significant gaps remain in HIV surveillance systems in some countries, making it difficult to assess with precision the trends and current status of epidemics in these countries. UNAIDS and WHO will continue to improve their HIV and AIDS estimates when new surveillance data and new data from scientific research support such changes.

### Recent HIV and sexual behaviour trends among young people

In 2001, the United Nations' *Declaration of Commitment on HIV/AIDS* outlined a goal of reducing HIV prevalence by 25% in young people (aged 15–24 years) in the most-affected countries by 2005, in order to monitor progress in preventing new infections. Determining real time trends in HIV incidence (and in particular the impact of prevention programmes on HIV incidence) ideally requires longitudinal studies of large numbers of people. Given the practical difficulties of conducting such studies, a proxy measure has been proposed (HIV prevalence in young women aged 15–24 attending antenatal clinics).

To assess progress towards this goal, countries in which national prevalence exceeds 3% were asked by the WHO/UNAIDS Working Group on Global HIV/AIDS and STI Surveillance to participate in this endeavor in 2006 and again in 2007. These countries are the 35 listed in Table 3.

HIV and sexual behaviour trends among young people can offer a window onto recent developments in, and the likely evolution of countries' HIV epidemics. Specifically, trends in HIV prevalence among 15–24-year-old pregnant women, in whom HIV infections are likely to be relatively recently acquired, are influenced less by mortality and antiretroviral treatment than are trends in

adult or all-age HIV prevalence. Trends in HIV prevalence among 15–24-year-olds, therefore, are believed to reflect trends in HIV incidence.

A review of the most recent, available information shows that HIV prevalence among young pregnant women (15–24 years) attending antenatal clinics has declined since 2000/2001 in 11 of 15 countries with sufficient data (prevalence data from three different years) to analyse recent trends among young people in the most-affected countries (see Table 3).

In **Kenya**, HIV prevalence among young pregnant women declined significantly by more than 25% in both urban and rural areas, while similar declines were observed in urban areas of **Côte d'Ivoire**, **Malawi** and **Zimbabwe**, and in rural parts of **Botswana**. Less striking (i.e. statistically non-significant) declines in prevalence in young pregnant women have occurred in both urban and rural areas of **Burkina Faso**, **Namibia** and **Swaziland**, urban parts of the **Bahamas**, **Botswana**, **Burundi** and **Rwanda**, and rural parts of the **United Republic of Tanzania**. There was no evidence of a decrease in HIV infection levels among young people in **Mozambique**, **South Africa** or in **Zambia**.

In nine out of the 35 countries, national surveys conducted between 1994 and 2006 have provided enough comparative data to assess sexual

Table 3

2006/2007 Analysis of trends among 15–24-year-olds in high prevalence countries:  
HIV prevalence among pregnant women (2000–2006) in sentinel surveillance systems,  
and selected sexual behaviours among women and men (1994–2006) from national surveys

Country	Analysis in 2006/2007	Prevalence trend*		Age at sexual debut**		Sex with non-regular partner***		Condom use during sex with non-regular partner****	
		Urban	Rural	Females	Males	Females	Males	Females	Males
Angola*	2006								
Bahamas	2007	↘ NS							
Benin**									
Botswana	2007	↘ NS	↘ ≥ 25%						↗
Burkina Faso	2007	↘ NS	↘ NS						
Burundi	2006/2007	↘ NS	↔						
Cameroon*	2006			↘	↘	↘	↘	↗	↗
Central African Republic**				↗					
Chad*	2006			↘	↗	↗	↘	↗	↘
Congo*	2007								
Côte d'Ivoire	2006	↘ ≥ 25%	ID						
Democratic Republic of the Congo*	2006								
Djibouti**									
Ethiopia**									
Gabon**									
Gambia**									
Ghana**									
Haiti**				↗	↗	↘	↗	↗	↗
Kenya	2006	↘ ≥ 25%	↘ ≥ 25%	↔	↗	↘	↘	↗	↗
Lesotho*	2006			↔	↔				
Liberia**									
Malawi#	2006	↘ ≥ 25%	↔	↘	↘	↔	↘	↗	↗
Mozambique‡	2006	↔							
Namibia	2007	↘ NS	↘ NS	↗	↔				
Nigeria*	2007			↘					
Rwanda	2006	↘ NS	ND	↗	↘	↗	↗	↗	↘
Sierra Leone*	2007								
South Africa§	2006	↔							
Sudan*	2007								
Swaziland	2007	↘ NS	↘ NS						
Togo*	2006			↘	↔			↗	
Uganda**				↘				↗	↘
United Republic of Tanzania	2006	↔	↘ NS	↘	↘	↗	↗	↘	↘
Zambia¶	2006	↔		↔	↔	↘	↗		
Zimbabwe	2006	↘ ≥ 25%	↘ NS	↗	↘	↘	↘	↗	↗

**Notes:** [1] Highlighted cells indicate positive trends in prevalence or behaviour.

**Legend:** [2] Year of analysis indicates the year in which the analysis was done, and not necessarily the last year of data used in the analysis.

\* Consistent sites used in the analysis of median prevalence by year for a minimum of three years. Significance test based on  $H_0$ : slope=0. Analyses of countries with more than three years of data based on the following number of consistent urban and rural sites: Botswana (10,10), Burundi (3,3), Côte d'Ivoire (9 urban), Kenya (20,13), Malawi (11,8), Mozambique (5 South, 8 Center, 7 North), Rwanda (6 urban), United Republic of Tanzania (11,8), Zimbabwe (7,6).

\*\* Among 15–19-year-olds, proportion reported having had sex by age 15. Analyses based on DHS, MICS or national surveys conducted between 1995 and 2005.

\*\*\* Among 15–24-year-olds, proportion reported having had sex with a non-regular partner in the last year. In South Africa, the proportion among 15–24 year olds reporting more than one sexual partner in the last 12 months. Analyses based on DHS, and South Africa national surveys conducted between 1995 and 2005.

\*\*\*\* Among 15–24-year-olds, proportion reporting having used condoms the last time they had sex with a non-regular partner. Analyses based on DHS, MICS or national surveys conducted between 1995 and 2005.

↗ Statistically significant increase.

↘ Statistically significant decrease.

↘ ≥ 25% Statistically significant decrease of more than 25%.

↘ NS Decrease over time but not statistically significant.

↔ No evidence of decrease.

\*ID Insufficient data, i.e. less than three years of data received for prevalence analysis.

\*\*ND Data not received for prevalence.

# Semi-urban and urban areas were combined in analysis of urban data.

‡ Analysis in Mozambique performed for South, North and Central.

§ No data received in response to WG process; analyses based on data in South Africa surveillance report.

¶ No data received in response to WG process; analyses based on data reported in Zambia 2005 surveillance report. Analysis based on urban and rural data combined.

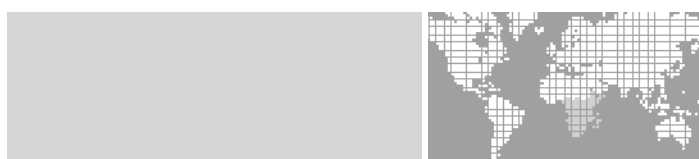
behaviour trends among young people. In two of them—**Haiti** and **Kenya**—the trend data indicate significant reductions in some forms of sexual behaviour that place people at risk of exposure to HIV. The proportion of young people who reported having had sex with non-regular partners in the previous year decreased for both men and women in **Cameroon, Kenya** and **Zimbabwe**, for women only in **Haiti** and **Zambia**, and for men only in **Chad** and **Malawi**. However, the proportion of young men and women having sex with non-regular partners increased in both **Rwanda** and the **United Republic of Tanzania**.

There have been striking shifts in condom use during sex with non-regular partners. The proportion of young people who said they used condoms the last time they had sex with a non-regular partner increased for both men and women in **Cameroon, Haiti, Kenya, Malawi** and **Zimbabwe**, for women only in **Chad, Rwanda, Togo** and **Uganda**, and for men only in **Botswana**. On the other hand, that propor-

tion decreased in for both young men and women in the **United Republic of Tanzania**, and for men only **Chad, Rwanda** and **Uganda**.

Unfortunately, almost two dozen out of the 35 countries had insufficient or no data on HIV prevalence and/or sexual behaviour trends among young people – including several countries with exceptionally high HIV prevalence in southern Africa.

Although the behaviour trends among young people are clearly favourable in only a small number of countries (**Cameroon, Kenya** and **Zimbabwe**), the data also point to recent, encouraging changes in six other countries (**Botswana, Chad, Haiti, Malawi, Togo** and **Zambia**). Those trends, combined with the evidence of significant declines in HIV prevalence among young pregnant women in urban and/or rural areas of five countries (**Botswana, Côte d'Ivoire, Kenya, Malawi** and **Zimbabwe**) suggest that prevention efforts are having an impact in several of the most-affected countries.



## REGIONAL OVERVIEW

### SUB-SAHARAN AFRICA

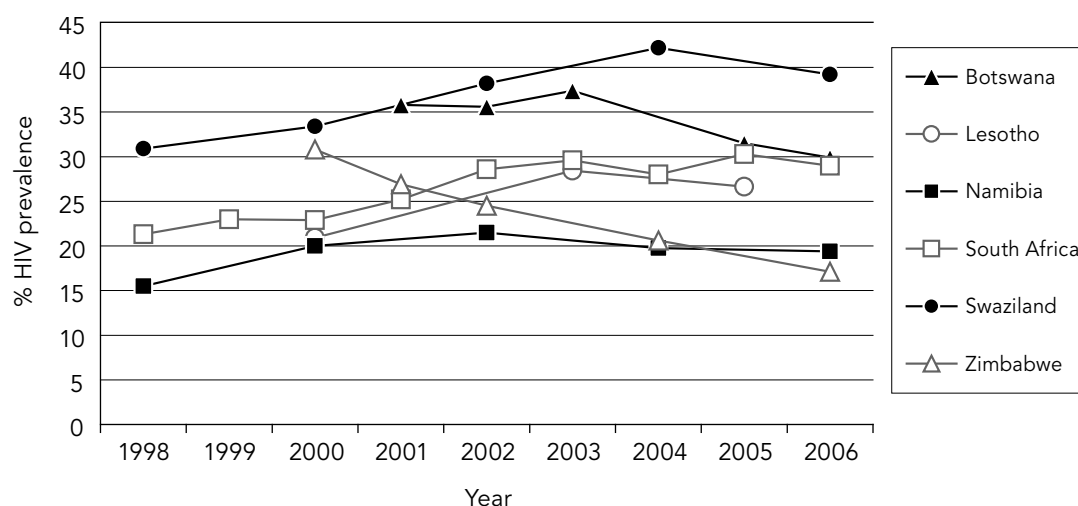
Sub-Saharan Africa remains the most affected region in the global AIDS epidemic. More than two thirds (68%) of all people HIV-positive live in this region where more than three quarters (76%) of all AIDS deaths in 2007 occurred. It is estimated that 1.7 million [1.4 million-2.4 million] people were newly infected with HIV in 2007, bringing to 22.5 million [20.9 million-24.3 million] the total number of people living with the virus. Unlike other regions, the majority of people living with HIV in sub-Saharan Africa (61%) are women.

### Southern Africa

The scale and trends of the epidemics in the region vary considerably, with southern Africa most seriously affected. This subregion accounts for 35% of all people living with HIV and almost one third (32%) of all new HIV infections and AIDS deaths globally in 2007. National adult HIV prevalence exceeded 15% in eight countries in 2005 (Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe). While there is evidence of a significant decline in the national HIV prevalence in Zimbabwe, the epidemics in most of the rest of the subregion have either reached or are approaching a plateau. Only in Mozambique latest HIV data (in 2005) have shown an increase in prevalence over the previous surveillance period.

**Figure 6**

Median HIV prevalence among women (15–49 years) attending antenatal clinics in consistent sites in southern African countries, 1998–2006



Sources: Various antenatal clinic surveys.

In **Zimbabwe**, HIV prevalence among pregnant women attending antenatal clinics has declined significantly in the past few years, from 26% in 2002 to 18% in 2006. Among young pregnant women (15–24 years) prevalence declined from 21% to 13% over the same period. Prevalence is highest among pregnant women attending antenatal clinics in mining (26% HIV prevalence) and commercial farming (22% prevalence) areas (Ministry of Health and Child Welfare Zimbabwe, 2007).

The declining trend observed in Zimbabwe's surveillance data is supported by several studies (UNAIDS, 2005; Mahomva et al., 2006; Hargrove et al., 2005; Mugurungi et al., 2005; Ministry of Health and Child Welfare Zimbabwe, 2007), while declining prevalence among both men and women has also been observed in rural parts of Manicaland (Gregson et al., 2006). The trend reflects a combination of very high mortality and declining HIV incidence, related in part to behaviour change (UNAIDS, 2005). There is evidence from eastern Zimbabwe that more women and men have been avoiding sex with non-regular partners, and that consistent condom use with non-regular partners increased for women (from 26% in 1998–2000 to 37% in 2001–2003), though not for men (Gregson et al., 2006). Mathematical modelling also suggests that the declines in HIV prevalence could not be attributed solely to the natural evolution of Zimbabwe's AIDS epidemic but are in part due to behavioural change (Hallet et al., 2006).

**South Africa** is the country with the largest number of HIV infections in the world. HIV prevalence data collected from the latest round of antenatal clinic surveillance suggest that HIV infection levels might be levelling off, with prevalence among pregnant women at 30% in 2005 and 29% in 2006 (Department of Health South Africa, 2007). In addition, the decrease in HIV prevalence among young pregnant women (15–24 years) suggests a possible decline in the annual number of new infections. The epidemic varies considerably between provinces, from 15% in the Western Cape to 39% in the province of KwaZulu-Natal. (Department of Health South Africa, 2007).

According to preliminary data from a new population-based survey in **Swaziland**, approximately one in four (26%) adults (15–49 years) are infected with HIV. Both antenatal and population-based survey data show little difference in

HIV prevalence between regions, but there is a significant difference in infection levels between men and women: 20% of adult men tested HIV-positive, compared to 31% of women (Ministry of Health and Social Welfare Swaziland, 2007; Central Statistical Office Swaziland & Macro International, 2007).

HIV prevalence in **Lesotho** remains high, with prevalence among antenatal clinic attendees of 38% in the 25–29-year-age group in 2005 (Ministry of Health and Social Welfare (Lesotho), 2005). Women account for about 57% of people living with HIV. The most recent HIV surveillance data show a decline in infection levels among young (15–24 years) pregnant women from about 25% in 2003 to 21% in 2005, but the apparent decrease might be due to the addition of new sentinel surveillance sites in the most recent survey (Ministry of Health and Social Welfare (Lesotho), 2005).

Overall, the epidemic in **Namibia** appears to have stabilized with one in five women (20%) attending antenatal clinics testing HIV-positive in 2006 (Ministry of Health and Social Services, 2007). The relatively stable trend since the mid-1990s in HIV prevalence among young pregnant women (15–24 years), and the rising trend among those in their 30s suggests that prevention efforts need to be improved (Ministry of Health and Social Services, 2007).

The decrease in HIV prevalence among pregnant women attending antenatal clinics in **Botswana** in recent years (from 36% in 2001 to 32% in 2006) suggests that the epidemic has reached its peak and could be on the decline. Prevalence is unusually high even among pregnant teenagers, 18% of whom tested HIV-positive in 2005. However, infection levels among young pregnant women have been declining in recent years (Ministry of Health Botswana, 2006). Among 15–19-year-old women attending antenatal clinics, prevalence decreased from 25% to 18% between 2001 and 2006, while among their 20–24-year-old counterparts it declined from 39% to 29% over the same period (Ministry of Health Botswana, 2006).

The latest HIV data collected at antenatal clinics in **Angola** indicate that HIV prevalence among pregnant women did not change much between 2004 and 2005. Median national HIV prevalence was estimated at 2.5% in 2005, compared with 2.4% in 2004 (Ministério da Saúde & CDC USA, 2006).

In the other lusophone country of this subregion, **Mozambique**, the epidemic has again started to increase in all three zones after appearing to have stabilized in the early 2000s. HIV prevalence among women attending antenatal clinics are lowest in the north (average of 9% in 2004), but in the central and southern zones prevalence of 20% or more has been found, including in the capital, Maputo, and in Gaza, Inhambane, Manica and Sofala provinces (where it reached almost 27% in 2004) (Conselho Nacional de Combate ao HIV/SIDA, 2006).

**Malawi's** epidemic appears to have stabilized with declines in some local areas and amid some evidence of behavioural changes that can reduce the risk of acquiring HIV infection (Heaton, Fowler & Palamuleni, 2006). Median HIV prevalence among pregnant women at sentinel surveillance sites has remained between 15% and 17% since the turn of the century (National AIDS Commission Malawi, 2005).

While there is little sign of a decline in HIV prevalence at the national level in **Zambia**, the epidemic appears to be declining in some parts of the country. The most recent antenatal clinic surveillance showed HIV prevalence among pregnant women to be twice as high in urban as in rural areas (25% versus 12%) (Ministry of Health, 2005), as did earlier population-based survey estimates (23% versus 11%) (Central Statistical Office Zambia et al., 2003). HIV prevalence has declined among 20–24-year-old pregnant women in urban areas (where it dropped from 30% in 1994 to 24% in 2004) as well as among 15–19-year-old pregnant women (down from 20% in 1994 to 14% in 2004) (Ministry of Health Zambia, 2005).

The HIV epidemics in the island nations of southern Africa are much smaller. Recent HIV data collected from pregnant women using antenatal services in **Madagascar** show national HIV prevalence of 0.2%, although prevalence was as high as 1.1% in Sainte Marie and 0.8% in Morondava (Ministère de la Santé et du Planning Familial Madagascar, 2005). Exposure to non-sterile drug injecting equipment is the main risk factor for HIV infection in **Mauritius**, where about three quarters of the HIV infections diagnosed in the first six months of 2004 were among injecting drug users (Sulliman & Ameerberg, 2004).

## East Africa

*In most of the countries in East Africa adult HIV prevalence is either stable or has started to decline. The latter trend is most evident in Kenya, where the HIV epidemic has been declining amid evidence of changing behaviour. Besides behavioural change, mortality of people infected with HIV several years ago has also contributed to the declines in prevalence.*

**Uganda** was the first country in sub-Saharan Africa to register a drop in adult national HIV prevalence. The epidemic, however, remains serious with infection levels highest among women (7.5% compared to 5.0% among men) and urban residents (10% compared to 5.7% among rural residents) according to a national survey conducted in 2004–5 (Ministry of Health Uganda & ORC Macro, 2006).

HIV prevalence started to decrease in Uganda in 1992, alongside evidence of substantial behaviour change that inhibited the spread of HIV (Asamoah-Odei, Garcia-Calleja & Boerma, 2004). However, that trend appears to have stabilized in the early 2000s. While the decline in HIV prevalence observed among pregnant women attending antenatal clinics in Kampala and some other urban areas appears to have persisted through 2005, other urban and most rural surveillance sites indicate an overall levelling off of prevalence during the current decade (Kirungi et al., 2006; Shafer et al., 2006). Similarly, in a cohort study in a rural area in southern Uganda, there is evidence that HIV prevalence and incidence have levelled off since about 2000 in both men and women (Shafer et al., 2006). It is important to note that with a population growing as rapidly as in Uganda (which has a total fertility rate of 6.7, according to the 2006 Demographic and Health Survey), a stable HIV incidence rate means that an increasing number of people acquire HIV each year.

The stable HIV trends are occurring alongside an apparent recent increase in more sexual risky behaviour. In national population-based surveys conducted in 1995, 2000, 2004–5, and 2006, higher risk sex was reported by 12%, 14%, 15% and 16% of adult women respectively, and by 29%, 28%, 37% and 36% of adult men respectively (Kirungi et al., 2006; Ministry of Health Uganda & ORC Macro, 2006; Uganda Bureau of Statistics & Macro International Inc. 2007). In the same surveys, condom use during sex with these partners was reported by 20%, 39%, 47% and 35%

of women, respectively, and by 35%, 59%, 53% and 57% of men, respectively, indicating a lack of progress in the adoption of safer sexual behaviour in recent years. There is an urgent need to revive and adapt the kind of prevention efforts that helped bring Uganda's HIV epidemic under control in the 1990s.

National HIV prevalence in **Kenya** has decreased from a high of around 14% in the mid-1990s to 5% in 2006 (Ministry of Health Kenya, 2005; National AIDS Control Council Kenya, 2007). The downward trend was especially profound in the urban sites of Busia, Meru, Nakuru and Thika, where median prevalence declined from 28% in 1999 to 9% in 2003 among 15–49-year-old women attending antenatal clinics, and from 29% in 1998 to 9% in 2002 among those aged 15–24 years (Hallett et al., 2006).

HIV prevalence has declined also in the **United Republic of Tanzania**. The most recent information shows HIV prevalence among antenatal clinic attendees in Zanzibar ranging from 0.7% in Unguja to 1.4% in Pemba (Salum et al., 2003), while in mainland Tanzania it was 8.7% among women using antenatal services in 2003–2004, down from 9.6% in 2001–2002 (Swai et al., 2006). On the mainland, a national population-based HIV survey in 2003–2004 found adult HIV prevalence of 7% in 2003–2004 (Tanzania Commission for AIDS, National Bureau of Statistics & ORC Macro, 2005).

In **Burundi**, recent HIV surveillance among women attending antenatal clinics suggests that the declining trend which started in the late 1990s did not continue beyond 2005, when HIV prevalence started to increase again at most surveillance sites. (Ministère de la Santé Publique du Burundi, 2005).

In **Rwanda**, antenatal clinic surveillance in 2005 showed that 4.1% of pregnant women were HIV-positive, with the prevalence highest in Kigali (13%), but on average about 5% in other urban areas and a little over 2% in rural areas. Substantial declines in HIV prevalence were observed in Rwamagana (from 13% to 4% between 1998 and 2005) and in Gikondo in the city of Kigali (14% to 8%) (Ministère de la santé du Rwanda, 2005). The declines in HIV prevalence among pregnant women in urban areas in Rwanda were strongest in the late 1990s and infection levels appeared to have stabilized subsequently (Kayirangwa et al., 2006).

In **Ethiopia**, the 2005 Demographic and Health Survey estimated national adult HIV prevalence to be 1.4%, with infection levels highest in the

Gambela (6%) and Addis Ababa (4.7%) regions (Central Statistical Agency & ORC Macro, 2006). Ethiopia's epidemic stabilized in urban areas in 1996–2000, after which HIV infection levels declined slowly, notably in parts of the capital, Addis Ababa. In rural Ethiopia, where the majority of the population resides, the epidemic has remained relatively stable since HIV prevalence peaked in 1999–2001 (Federal Ministry of Health Ethiopia, 2006).

In **Eritrea**, HIV prevalence among antenatal clinic attendees was 2.4% in 2005 and in 2003. HIV prevalence in 2005 was highest in urban areas (3% versus 0.9% in rural areas), and ranged from as high as 7.4% in the port city of Assab in the far south, to 4.2% in the capital, Asmara, and 3.3% in Massawa, another port city (Ministry of Health Eritrea, 2006).

In **Somalia**, surveys among women attending antenatal clinics have found HIV prevalence as high as 2.3% in Berbera (WHO, 2005). However, due to the conflict situation in the country, sentinel surveillance is limited.

## West and Central Africa

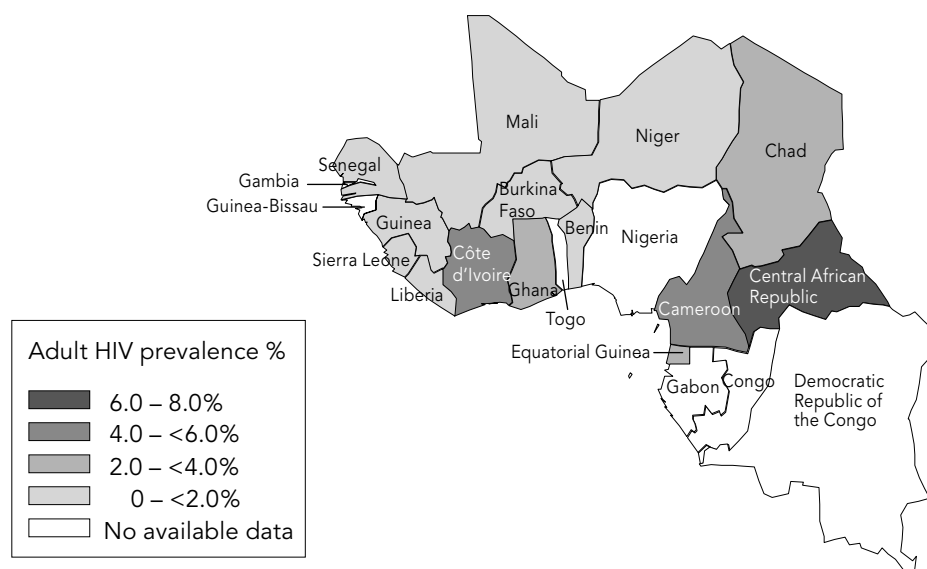
*In most of the comparatively smaller epidemics in West and Central Africa, adult national HIV prevalence has remained stable overall. However, signs of declining HIV prevalence are evident in an increasing number of countries, notably Côte d'Ivoire, Mali and urban Burkina Faso. In these countries, as well as in Benin, there is evidence of a shift towards safer behaviour.*

**Nigeria** still has the largest epidemic in this subregion. The national HIV prevalence among women attending antenatal clinics in Nigeria appears to be stable, but with large variation between different regions and states (Utulu & Lawoyin, 2007). State-wide HIV prevalence among pregnant women, for example, ranges from as low as 1.6% in Ekiti (in the west) to 8% in Akwa Ibom (in the south) and 10% in Benue in the south-east (Federal Ministry of Health Nigeria, 2006).

In **Benin**, sentinel surveys among pregnant women attending antenatal clinics indicate a relatively stable national epidemic, with HIV prevalence having remained around 2% since 2003. According to the 2006 Demographic and Health Survey, 1.2% of adults nationally was infected with HIV, and prevalence among women (1.5%) was almost twice as high as among men (0.8%) (Institut National de



## HIV prevalence from national population-based surveys in countries in West and Central Africa, 2003–2007



Sources: (Central African Republic) [1] Institut Centrafricain de la Statistique et des Études Économiques et Sociales; [2] United Nations Population Fund; [3] MEASURE DHS, Macro International Inc. Enquête de sérologie VIH en République Centrafricaine, 2006. (Cameroon) [1] Institut National de la Statistique, Ministère de la Planification de la Programmation du Développement et de l'Aménagement du Territoire; [2] ORC Macro. Enquête Démographique et de Santé. Cameroun 2004. (Côte d'Ivoire) [1] Project RETRO-CI, Institut National de la Statistique, Ministère de la Lutte contre le Sida; [2] ORC Macro. Enquête sur les Indicateurs du Sida. Côte d'Ivoire 2005. (Chad) [1] Institut National de la Statistique, des Études Économiques et Démographiques; [2] ORC Macro. Enquête Démographique et de Santé. Tchad 2004. (Equatorial Guinea) Programa Nacional de Lucha Contra el SIDA, Proyecto Centro de Referencia para el Control de Endemias en Guinea Ecuatorial. Informe Final de la Encuesta de Seroprevalencia del VIH en Guinea Ecuatorial 2004. (Ghana) [1] Ghana Statistical Service; [2] Noguchi Memorial Institute for Medical Research; [3] ORC Macro. Ghana Demographic and Health Survey 2003. (Burkina Faso) [1] Institut National de la Statistique et de la Démographie; [2] ORC Macro Burkina Faso Enquête Démographique et de Santé 2003. (Liberia) [1] Liberia Institute of Statistics and Geo-Information Services; [2] Ministry of Health and Social Welfare; [3] National AIDS Control Program; [4] MEASURE DHS, Macro International. Liberia Demographic and Health Survey 2007. (Guinea) [1] Direction Nationale de la Statistique; [2] ORC Macro. Démographique et de Santé Guinée 2005. (Sierra Leone) [1] Nimba Research and Consulting Company; [2] Statistics Sierra Leone; [3] Ministry of Health and Sanitation; [4] National HIV/AIDS Secretariat. National Population Based HIV Seroprevalence Survey of Sierra Leone 2005. (Mali) [1] Cellule de Planification et de Statistique, Ministère de la Santé; [2] Direction Nationale de la Statistique et de l'Informatique, Ministère du Plan et de l'Aménagement du Territoire; [3] MEASURE DHS. Enquête Démographique et de Santé EDSM-IV, Mali 2006. Rapport Préliminaire. (Benin) [1] Institut National de la Statistique et de l'Analyse Économique; [2] Programme National de Lutte contre le Sida; [3] Demographic and Health Surveys, Macro International, Inc. Enquête Démographique et de Santé (EDSB-III) Bénin 2006. Rapport Préliminaire. (Niger) [1] Institut National de la Statistique, Ministère de l'Économie et des Finances; [2] Macro International Inc. Enquête Démographique et de Santé et à Indicateurs Multiples 2006. (Senegal) [1] Ministère de la Santé et de la Prévention Médicale Centre de Recherche pour le Développement Humain; [2] ORC Macro. Enquête Démographique et de Santé Sénégal 2005.

**Figure 7**

la Statistique et de l'Analyse Économique & ORC Macro, 2007).

HIV prevalence in **Togo** is among the highest in West Africa: prevalence among pregnant women tested for HIV at antenatal clinics in 2006 was 4.2%, showing a decline in national infection levels. (In 2003, 4.8% of antenatal clinic attendees tested HIV-positive; this fell to 4.6% in 2004.) (Ministère de la Santé du Togo, 2007 & 2006).

The HIV epidemic in **Burkina Faso** continues to decline in urban areas. Among young pregnant women attending antenatal clinics in urban areas, HIV prevalence fell by half in 2001–2003 (to a little below 2%) (Présidence du Faso, 2005; Institut National de la Statistique et de la Démographie & ORC Macro, 2004).

The most recent data for **Mali**, collected during a 2006 Demographic and Health Survey, also indicate a possible decline in the epidemic.

Adult national HIV prevalence was estimated at 1.2% in 2006 (Ministère de la Santé du Mali & ORC Macro, 2007), lower than that recorded in a similar survey in 2001, when adult national HIV prevalence was estimated at 1.7% (2% among women and 1.3% among men) (Cellule de Planification et de Statistique du Ministère de la Santé et al., 2002). Here also, mortality would be a contributing factor to the decline in prevalence. Among pregnant women attending public antenatal clinics, prevalence was 3.4% in 2005, similar to prevalence in previous years (Ministère de la Santé du Mali, 2005).

Median HIV prevalence among women attending antenatal clinics in **Ghana** has ranged between

2.3% and 3.6% between 2000 and 2006. (Ministry of Health Ghana, 2007).

In **Côte d'Ivoire**, the national adult HIV prevalence as obtained from the latest Demographic and Health Survey was estimated to be 4.7% (Institut National de la Statistique et Ministère de la Lutte contre le Sida Côte d'Ivoire & ORC Macro, 2006). HIV surveillance among pregnant women indicates that prevalence is declining, at least in urban areas, where prevalence fell from 10% in 2001 to 6.9% in 2005 (Ministère de la Santé et de l'Hygiène Publique de la Côte d'Ivoire et al., 2007).

In **Senegal**, HIV prevalence in the general population was 0.7% in 2005 (Ndiaye & Ayad, 2006). However, most HIV transmission is still estimated to be associated with unprotected paid sex: in Ziguinchor, for example, HIV prevalence as high as 30% has been found among female sex workers (Gomes do Espirito Santo & Etheredge, 2005).

Prevalence of HIV-1 among pregnant women in the **Gambia** increased from 0.7% to 1.0% between 1994 and 2000, while prevalence of HIV-2 decreased from 1.0% to 0.8% in the same period (van der Loeff et al., 2003).

HIV prevalence in **Guinea** does not vary much across the country, and appears to have peaked at 2.1% in the capital, Conakry, according to a national population-based survey in 2005 (Direction Nationale de la Statistique & ORC Macro, 2006).

In **Liberia**, preliminary results from the 2007 Demographic and Health survey show adult (15–49 years) national HIV prevalence of 1.5%, with infection levels varying from 2.5% in urban areas to 0.8% in rural areas. Adult prevalence was highest in the Monrovia region, at 2.6% (Liberia Institute of Statistics and Geo-Information Services & Macro International, 2007).

In **Sierra Leone**, the country's second round of national sentinel surveillance showed HIV prevalence of 4.1% among pregnant women attending (mostly urban) antenatal clinics in 2006. Compared to the HIV prevalence of 3% among pregnant women in a similar survey in 2003, the latest data suggest that the epidemic in Sierra Leone might be growing (Ministry of Health and Sanitation Sierra Leone, 2007). A 2005 population-based survey found national adult prevalence of 1.5% (National AIDS Secretariat & Nimba Research Consultancy, 2005).

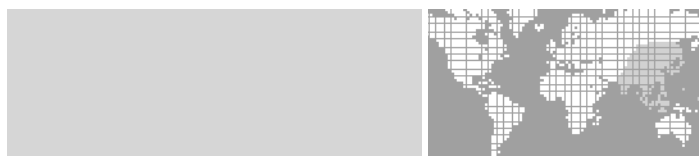
In **Chad**, a national population based survey found that 3.3% of adults were living with HIV in 2005. The epidemic appears to be concentrated mainly in urban areas where average HIV prevalence was 7%, more than three times higher than in rural areas (Institut National de la Statistique, des Etudes Economiques et Démographiques et Programme National de Lutte Contre le Sida, 2006).

HIV prevalence is considerably lower in neighbouring **Niger** where a 2006 Demographic and Health Survey estimated that 0.7% of adults were infected with HIV. Prevalence was highest in the Agadez and Diffa regions, at 1.6% and 1.7%, respectively (Institut National de la Statistique du Niger & Macro International Inc., 2007).

In **Cameroon**, a national population-based survey in 2004 showed large geographic variation in prevalence, from 1.7% in the North and 2.0% in the Extreme North, to substantially higher levels of infection in the capital Yaoundé (8.3%) and the south-west (8%), east (8.6%) and north-west (8.7%) provinces (Institut National de la Statistique & ORC Macro, 2005). Surveillance among pregnant women has not been conducted in recent years, making it difficult to assess trends in the epidemic.

In the **Democratic Republic of the Congo** HIV prevalence among antenatal clinic attendees has remained relatively stable in the capital, Kinshasa (between 3.8% in 1995 and 4.2% in 2005), but prevalence has risen in the country's second-largest city, Lubumbashi (from 4.7% to 6.6% between 1997 and 2005), as well as in Mikalayi (from 0.6% to 2.2% between 1999 and 2005) (Kayembe et al., 2007). Prevalence is also high in the cities of Matadi, Kisangani and Mbandaka (where 6% of women using antenatal services were HIV-positive in 2005), as well as in Tshikapa (where prevalence was 8%) (Programme National de Lutte contre le SIDA, 2005).

Adult national HIV prevalence in the **Central African Republic** is among the highest in all of West and Central Africa, and was estimated at 6.2% in a 2006 national population-based survey (Ministère de l'Economie, du Plan et de la Coopération internationale de la République centrafricaine, 2007). Nationally, prevalence among women was almost twice as high as among men (7.8% versus 4.3%), and there is considerable regional variation in HIV prevalence.



## ASIA

*In Asia, national HIV prevalence is highest in South-East Asia, with wide variation in epidemic trends between different countries. While the epidemics in Cambodia, Myanmar and Thailand all show declines in HIV prevalence, those in Indonesia (especially in the Papua province) and Viet Nam are growing. Although the proportion of people living with HIV in India is lower than previously estimated, its epidemic continues to affect large numbers of people. Overall in Asia, an estimated 4.9 million [3.7 million–6.7 million] people were living with HIV in 2007, including the 440 000 [210 000–1.0 million] people who became newly infected in the past year. Approximately 300 000 [250 000–470 000] died from AIDS-related illnesses in 2007.*

Although HIV infections have been reported in each of **China's** provinces, most of the people living with HIV in China are believed to be in Henan, Guangdong, Guangxi, Xinjiang and Yunnan provinces (Ministry of Health China, 2006). It is estimated that just under half of all people living with HIV in China in 2006 were infected while injecting drug uses with contaminated equipment, while a similar proportion acquired the virus during unprotected sex (Ministry of Health China, 2006; Lu et al., 2006).

Although the epidemic is still dominated by injecting drug use, recent data indicate an emerging epidemic among men who have sex with men in the main cities and it is estimated that as many as 7% of HIV infections could be attributed to unsafe sex between men (Lu et al. 2006). Studies have found HIV prevalence among men who have sex with men ranging from 1.5% in Shanghai (Choi et al., 2007), 1.7% in the south (Tao et al., 2004; Zhu et al., 2005), and 3.1%–4.6% in Beijing (Choi et al., 2003; Ma et al., 2006). The overlap of injecting drug use and sex work is an important factor in the HIV epidemic in China. Increasing numbers of women are injecting drugs and in some places as many as half of those also sell sex. Many male injecting drug users also buy sex, often without using condoms. (Hesketh et al., 2006).

New, more accurate estimates of HIV indicate that approximately 2.5 million (2 million–3.1 million) people in **India** were living with HIV in 2006, with national adult HIV prevalence of 0.36%. Although the proportion of people living with HIV is lower than previously estimated, India's epidemic continues to affect large numbers of people.

The revised estimates are based on an expanded and improved surveillance system, and the use of more robust and enhanced methodology. The inclusion of the results of the recent national household survey (the National Family Health Survey 3, conducted in 2005–2006) in the estimation process contributed significantly to the revised estimates. Over 100 000 people were tested for HIV in the survey which was the first national population based survey to include a component on HIV (NFHS-3, 2007).

In addition, India has expanded its HIV sentinel surveillance system in recent years and the number of surveillance sites increased from 155 in 1998 to 1120 in 2006. Data from pregnant women attending antenatal clinics, people attending sexually transmitted infections clinics and population groups that are at a higher risk of exposure to HIV are included in the surveillance.

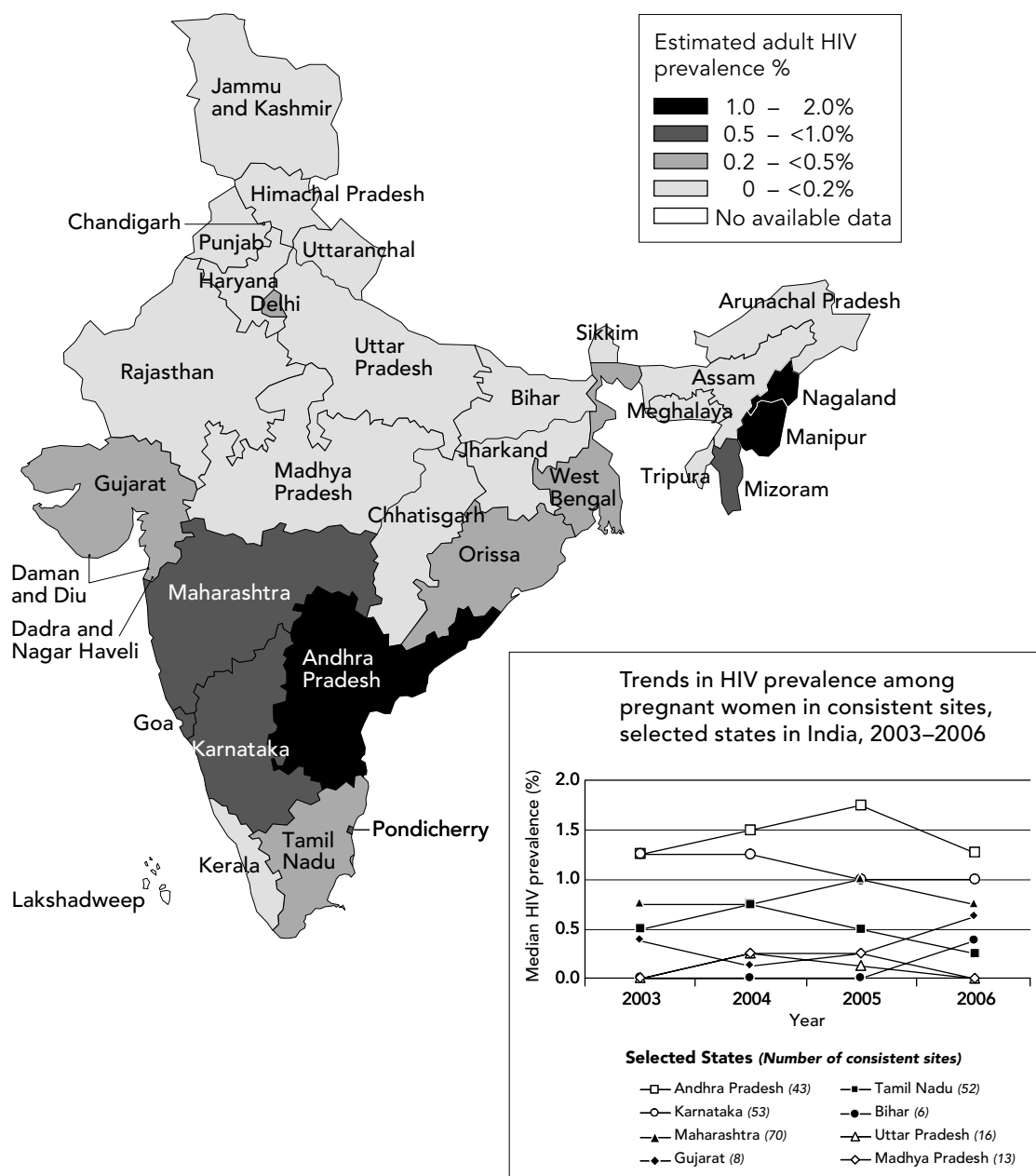
Prevalence trends in India vary greatly between states and regions. Even in the four southern

states (Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu) where the large majority of people living with HIV are residing, HIV prevalence varies and the epidemic tends to be concentrated in certain districts (NACO, 2005a; World Bank, 2005). Reported adult HIV prevalence in six states included in the recent national population-based survey (NFHS-3, 2007) varied from 0.07% in Uttar Pradesh, to 0.34% in Tamil Nadu, 0.62% in Maharashtra, 0.69% in Karnataka,

0.97% in Andhra Pradesh, and 1.13% in Manipur. Prevalence in all other states together was 0.13%. An earlier analysis of sentinel surveillance data also showed that HIV prevalence in southern states overall was about five times higher than in northern states in 2000–2004 (Kumar R et al., 2006). However, pockets of high HIV prevalence (mainly among population groups at high risk of exposure to HIV) have also been identified in

**Figure 8**

Estimated adult HIV prevalence (15–49 years), by state, India 2006



states where overall prevalence is generally low, warning against complacency.

Data from the expanded 2006 sentinel surveillance show stable or declining prevalence among pregnant women in Tamil Nadu, Maharashtra, Karnataka, and Andhra Pradesh, but high HIV prevalence among sex workers, and rising HIV prevalence among injecting drug users and men who have sex with men in a few states. Outside of the north-east of the country, where the use of contaminated drug injecting equipment is a key risk factor, HIV appears to be spreading mainly as a result of unprotected sex between sex workers and their clients, and their respective other sex partners (Kumar et al., 2005). Prevention programmes focusing on sex workers show some success and HIV prevalence is on the decline among sex workers in areas that have been the focus of targeted prevention efforts, especially in Tamil Nadu and other southern states. However, prevention efforts are often complicated by the varied nature of commercial sex. (Char, Piller & Shirke, 2003).

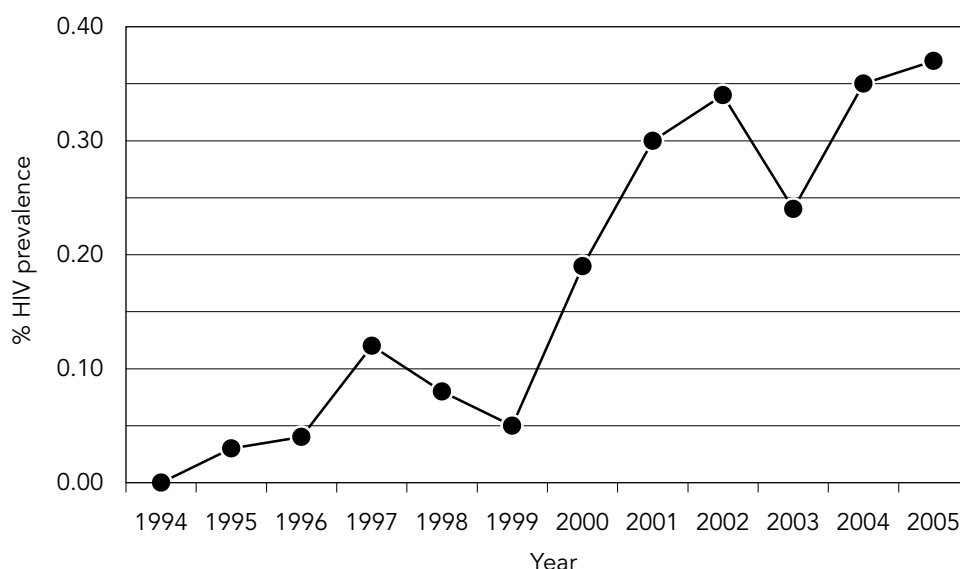
In **Pakistan**, HIV prevalence is increasing among injecting drug users. One study in Karachi showed an increase in HIV prevalence among injecting drug users from under 1% in early 2004

to 26% in March 2005 (Emmanuel, Archibal & Altaf, 2006), while other studies have found that HIV prevalence among injecting drug users has reached 24% in Quetta (along the border with Afghanistan) (Achakzai, Kassi & Kasi, 2007), 12% in Sargodha, nearly 10% in Faisalabad (Nai Zindagi and Associates, 2006) and 8% in Larkana (Abbasi, 2006). HIV prevalence remains low in other populations at higher risk of infection. Among female sex workers in Karachi, HIV prevalence in 2005 was 2% while it was below 1% in Lahore and Rawalpindi (Ministry of Health Pakistan, 2005; National AIDS Control Program Pakistan, 2005).

The estimated number of people living with HIV in **Viet Nam** has more than doubled between 2000 and 2005 from 120 000 to 260 000 (Ministry of Health Viet Nam, 2005). The main risk factors associated with HIV infection are the use of contaminated injecting equipment and unprotected sex with non-regular partners or sex workers (Tuang et al., 2007). Among injecting drug users in Viet Nam, prevalence increased from 9% in 1996 to about 34% in 2005 (Ministry of Health Viet Nam, 2006 & 2005). As the epidemic evolves, increasing numbers of women are acquiring HIV from males who were infected during unsafe paid sex and injecting drug use, as

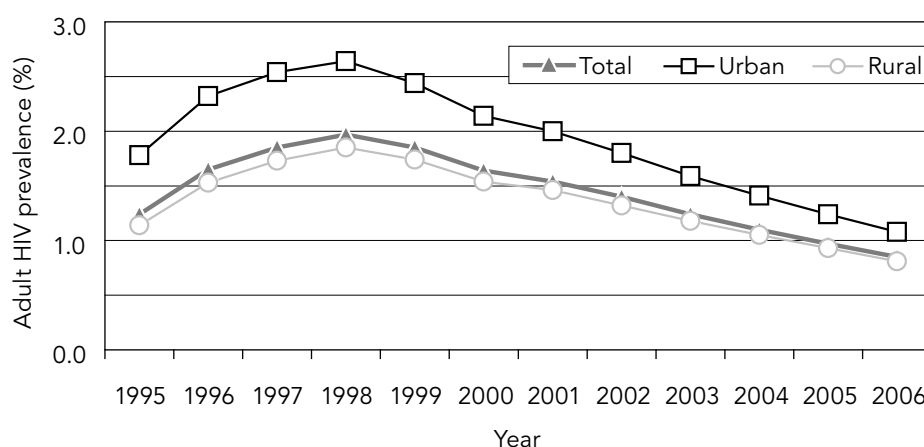
**Figure 9**

HIV prevalence among pregnant women in Viet Nam, 1994–2005



Source: Ministry of Health, Sentinel Surveillance Survey Data.

## HIV prevalence among the general population in Cambodia, 1995–2006



Source: National Center for HIV/AIDS, Dermatology and STDs (NCHADS).

**Figure 10**

seen by the increase over time in the prevalence among pregnant women attending antenatal clinics (see Figure 9). In 2006, an estimated one third of people living with HIV were women (Viet Nam Commission for Population et al., 2006). However, the majority of HIV infections are still directly or indirectly linked to injecting drug use.

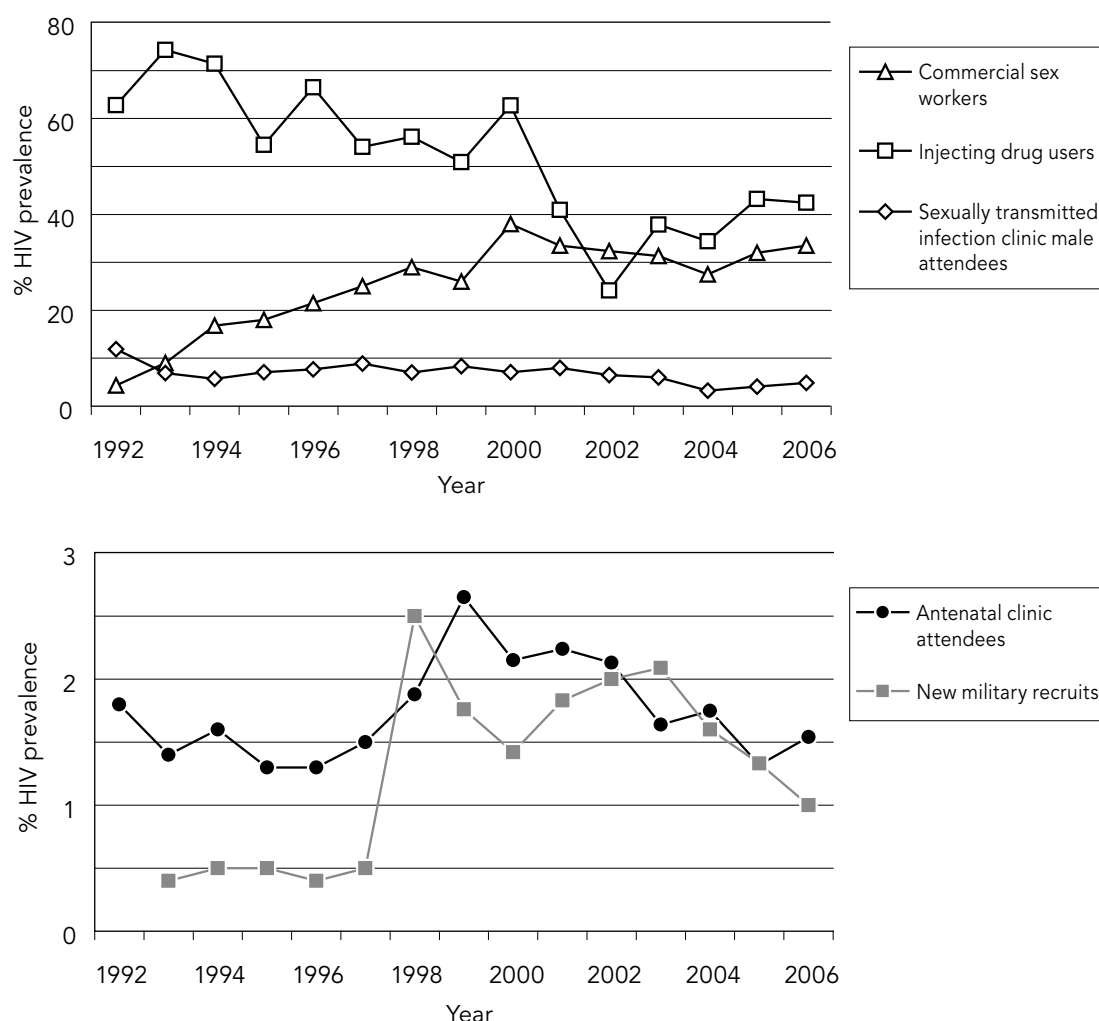
The HIV epidemic in **Indonesia** is among the fastest growing in Asia. The majority of HIV infections are estimated to occur through the use of contaminated injecting equipment, unprotected paid sex and, to a lesser extent, unprotected sex between men. (Ministry of Health Indonesia & Statistics Indonesia, 2006). When surveyed in 2005, more than 40% of injecting drug users in Jakarta tested HIV-positive (WHO & Ministry of Health Indonesia, 2007), and about 13% in West Java (Ministry of Health Indonesia, 2006). In addition, many injecting drug users also buy or sell sex (Ministry of Health Indonesia & Statistics Indonesia, 2006). In 2005, approximately one quarter of injecting drug users in Bandung, Jakarta and Medan said they had had unprotected paid sex in the previous year (Ministry of Health Indonesia & Statistics Indonesia, 2006).

In Papua province (bordering Papua New Guinea) the epidemic is more serious with unprotected sex being the main mode of transmission. In a province-wide population-based survey in Papua in 2006, adult HIV prevalence was estimated at 2.4%, and reached 3.2% in the remote highlands and 2.9% in less-accessible lowland areas. Among 15–24-year-olds, HIV prevalence was 3% (Ministry of Health Indonesia & Statistics Indonesia, 2007).

In **Cambodia** there is evidence that well-focused and sustained prevention efforts can help reverse an HIV epidemic. Nationally, HIV prevalence has fallen to an estimated 0.9% among the adult (15–49 years) population in 2006, down from a peak of 2% in 1998 (National Center for HIV/AIDS, Dermatology and STIs, 2007).

The number of new annual HIV infections in **Thailand** continues to decline, although the decline in HIV prevalence has been slowing in recent years as more people are receiving antiretroviral therapy. The patterns of HIV transmission in Thailand have changed over time, with the virus spreading increasingly to persons considered to be at lower risk. More than four in 10 (43%) new infections in 2005 were among women, the majority of whom probably acquired HIV from

HIV prevalence among various groups in Myanmar, 1992–2006



Source: Progress of HIV Epidemic in Myanmar, International Congress on AIDS in Asia & the Pacific. Colombo, Sri Lanka, August 2007.

Figure 11

husbands or partners who had been infected either during unsafe paid sex or through injecting drug use (WHO, 2007).

Despite the overall achievements in reversing the HIV epidemic in Thailand, prevalence among injecting drug users has remained high over the past 15 years, ranging between 30% and 50% (WHO, 2007). Similarly, recent studies show increasing HIV prevalence among men who have sex with men (e.g. in Bangkok

from 17% in 2003 to 28% in 2005) (van Griensven, 2006).

The epidemic in **Myanmar** is also showing signs of a decline, with HIV prevalence among pregnant women at antenatal clinics having dropped from 2.2% in 2000 to 1.5% in 2006 (National AIDS Programme Myanmar, 2006). Despite the overall decline in prevalence, the elevated prevalence of HIV among key populations at higher risk is of concern (see Figure 11).



## EASTERN EUROPE AND CENTRAL ASIA

*An estimated 150 000 people [70 000—290 000] people were newly infected with HIV in 2007 bringing the number of people living with HIV in Eastern Europe and Central Asia to 1.6 million [1.2 million–2.1 million] compared to 630 000 [490 000–1.1 million] in 2001, a 150% increase over that time period.*

*Nearly 90% of newly reported HIV diagnoses in this region in 2006 were from two countries: the Russian Federation (66%) and Ukraine (21%). Elsewhere, the annual numbers of newly reported HIV diagnoses are also rising in Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, the Republic of Moldova, Tajikistan and Uzbekistan (which now has the largest epidemic in Central Asia). Of the new HIV cases reported in 2006 in Eastern Europe and Central Asia for which there was information on the mode of transmission, nearly two thirds (62%) were attributed to injecting drug use and more than one third (37%) were ascribed to unprotected heterosexual intercourse.*

The HIV epidemic in the **Russian Federation** continues to grow, although not as rapidly as in the late 1990s. The annual number of newly registered HIV cases declined between 2001 and 2003 (from a peak of 87 000 to 34 000), but has subsequently started to increase again. In 2006, 39 000 new HIV diagnoses were officially recorded, bringing the total number of HIV cases registered in the Russian Federation to about 370 000 (AIDS Foundation East-West, 2007; EuroHIV, 2007). Those officially documented HIV cases represent only those persons who have been in direct contact with the Russian Federation's HIV reporting system.

Injecting drug use remains the main mode of HIV transmission in the **Russian Federation**. Of the newly registered HIV cases in 2006 where the mode of transmission was known, two thirds (66%) were due to injecting drug use and about one third (32%) to unprotected heterosexual intercourse (Ladnaya, 2007). The latter proportion, though, has been increasing steadily since the late 1990s, especially in areas with comparatively mature epidemics. Less than 1% of newly registered HIV cases in 2006 were attributed to unsafe sex between men. (EuroHIV, 2007)

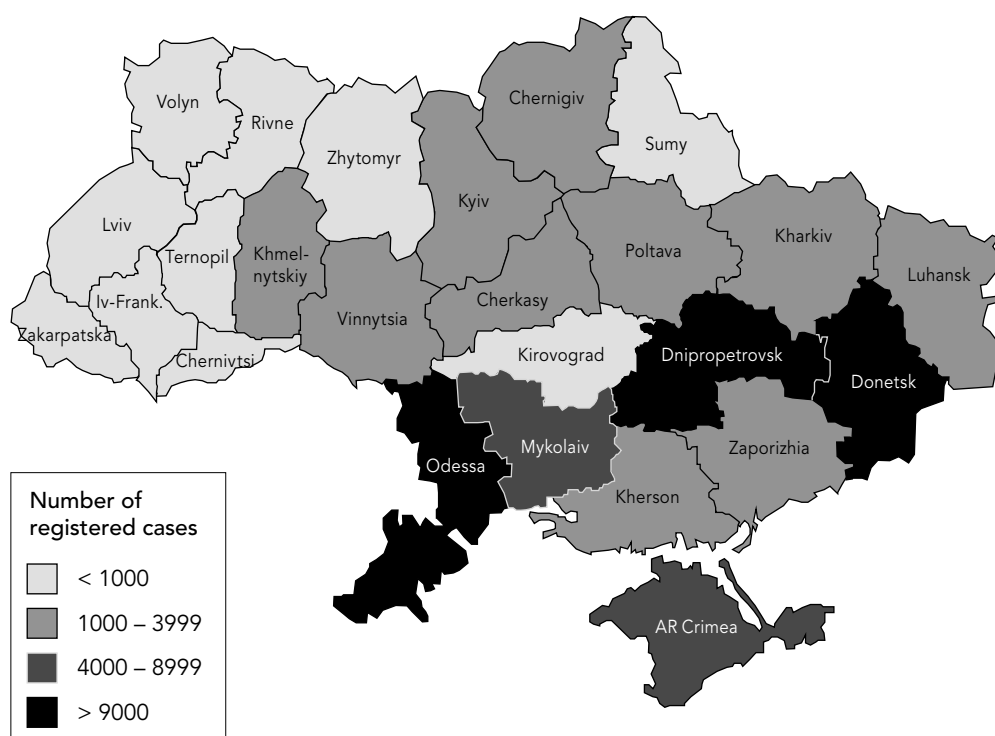
Overall, women comprised about 44% of newly registered HIV cases in 2006 (Russian Federal AIDS Centre, 2007). National HIV prevalence among pregnant women was 0.4% in 2005 and 2006 (Ladnaya, 2007), although prevalence of 1% or more has been recorded in some areas, including Saint Petersburg and Orenburg (Lazutkina, 2007; Volkova, 2007).

In **Ukraine**, annual HIV diagnoses have more than doubled since 2001, reaching 16 094 in 2006 and exceeding 8700 in the first six months of 2007 (Ministry of Health of Ukraine, 2007).

South-eastern Ukraine continues to be the most affected area, especially the regions of Dnipropetrovsk, Donetsk, Mikolaiv and Odessa, as well as the Autonomous Republic of Crimea. These regions, together with the capital city Kiev, represent more than 70% of all registered cases of HIV currently in Ukraine (Ministry of Health of Ukraine, 2007). In recent HIV sentinel surveys in six cities in 2007, HIV prevalence among injecting drug users ranged from 10% in Lugansk to 13% in Kiev, and 89% in Krivoi Rog (Ukrainian Institute for Social Research et al., 2007). HIV prevalence among sex workers ranged from 4% in Kiev to



## HIV infection in Ukrainian regions\*, 2007



\* Data on number of officially registered cases of HIV infection currently under medical care at the regional level in Ukraine as of 01 July 2007.

Source: Ukrainian AIDS Centre, 2007.

**Figure 12**

24% in Donetsk and 27% in Mikolayev (Booth, Kwiatkowski & Brewster, 2006; Ministry of Health of Ukraine, 2007).

Recent research has revealed the extent of the previously hidden epidemic among men who have sex with men in Ukraine. A study in four cities found HIV prevalence ranging from 4% in the capital Kiev to 23% in the city of Odessa. Among the HIV-positive men in this study, only 34% reported condom use the last time they had sex with a male partner (Ukrainian Institute for Social Research et al., 2007).

The HIV epidemic in **Belarus** may have stabilized, with the annual number of newly reported HIV diagnoses varying only slightly since 2003 (between 713 and 778) (EuroHIV, 2007). Most new HIV infections are being reported in and around the capital, Minsk, and in the provinces of Brest and Vitebsk (Ministry of Health Belarus, 2007). Here, too, the epidemic is largely concentrated among injecting drug users, with a high

HIV prevalence found in this population: 34% in Zhlobine, 31% in Minsk, 23% in Soligorsk, 20% in Rechitza and 17% in Gomel (WHO, 2006a).

Newly reported HIV cases in the **Republic of Moldova** have more than doubled since 2003, to 621 in 2006 (EuroHIV, 2007). More than half (59%) of HIV infections reported in 2006 were attributed to unprotected sexual transmission (EuroHIV, 2007).

Increasing numbers of new HIV cases are being reported in each of the Caucasian republics. In **Georgia**, more than half (60%) of the 1156 registered HIV cases to date were reported in the past three years (2004–2006), and the annual number of newly registered HIV infections has risen each year (EuroHIV, 2007).

Similar patterns are evident in **Armenia's** smaller epidemic (EuroHIV, 2007), where most reported HIV infections have been among injecting drug users (almost all of them men). HIV prevalence of about 9% was found among injecting drug users,

whereas prevalence of less than 2% was found among female sex workers (Armenian National AIDS Foundation, 2006).

Almost half (47%) of all HIV infections documented in **Azerbaijan**'s relatively recent epidemic were reported in 2005–2006 (EuroHIV, 2007). Almost half of the HIV cases registered by 2006 were in the capital, Baku, where 13% of injecting drug users tested HIV-positive in a 2003 survey (WHO, 2006b). In addition, high prevalence of HIV (9%) and other sexually transmitted infections (9% syphilis and 63% chlamydia) has been found among female sex workers, among whom condom use appears to be infrequent (WHO, 2006b).

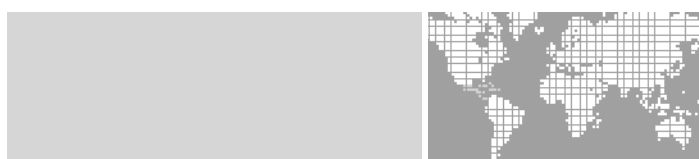
In **Uzbekistan**, which now has the largest epidemic in Central Asia, the number of newly reported HIV diagnoses rose exponentially between 1999 and 2003, from 28 to 1836. Since then, the number of newly reported HIV infections has grown at a slower pace, and reached 2205 in 2006 (EuroHIV, 2007). Almost one in three (30%) injecting drug users tested HIV-positive in a study in Tashkent between 2003 and 2004 (Sanchez et al., 2006).

In **Kazakhstan**, newly registered HIV cases increased from 699 in 2004 to 1745 in 2006 (EuroHIV, 2007). The increase can be attrib-

uted in part to expanded HIV testing (including testing in correctional settings, among most-at-risk groups and among pregnant women), although a nosocomial HIV outbreak infecting more than 130 children in the south of the country was reported in 2006 (AIDS Center of the South-Kazakhstan Oblast, 2007). In a 2005 study in Temirtau 17% of injecting drug users were HIV-positive (Ministry of Health Kazakhstan et al., 2005). Sentinel surveillance in 23 towns and cities across the country in 2005 indicated that a little more than 3% of injecting drug users nationally were infected with HIV (Republic Centre for AIDS Prevention and Control, 2005).

In **Tajikistan**, HIV prevalence among injecting drug users increased from 16% in 2005 to 24% in 2006 in the cities of Dushanbe and Khujand. Also of concern is the sudden rise in prevalence among sex workers in those same cities (from 0.7% to 3.7% over the same period) (Ministry of Health Tajikistan, 2007).

In **Kyrgyzstan**, the HIV epidemic is also concentrated largely among injecting drug users. Sentinel surveys in Bishkek and Osh found HIV prevalence of 0.8% among injecting drug users, 3.5% among prisoners, 1.3% among female sex workers and 1% among men who have sex with men in 2006 (Ministry of Health Kyrgyzstan, 2007).



## CARIBBEAN

*Adult HIV prevalence in the Caribbean is estimated at 1.0% [0.9%–1.2%] in 2007. Prevalence in this region is highest in the Dominican Republic and Haiti, which together account for nearly three quarters of the 230 000 [210 000–270 000] people living with HIV in the Caribbean, including the 17 000 [15 000–23 000] who were newly infected in 2007. An estimated 11 000 [9800–18 000] people in the Caribbean died of AIDS in this year and AIDS remains one of the leading causes of death among persons aged 25 to 44 years.*

The primary mode of HIV transmission in this region is sexual intercourse, with unprotected sex between sex workers and clients a significant factor in the transmission of HIV. Among female sex workers, HIV prevalence of 3.5% has been found in the **Dominican Republic**, 9% in **Jamaica** and 31% in **Guyana** (Gupta et al., 2006; Secretaria de Estado de Salud Pública y Asistencia Social de República Dominicana, 2005b; PAHO, 2007; Gebre et al., 2006; Allen et al., 2006).

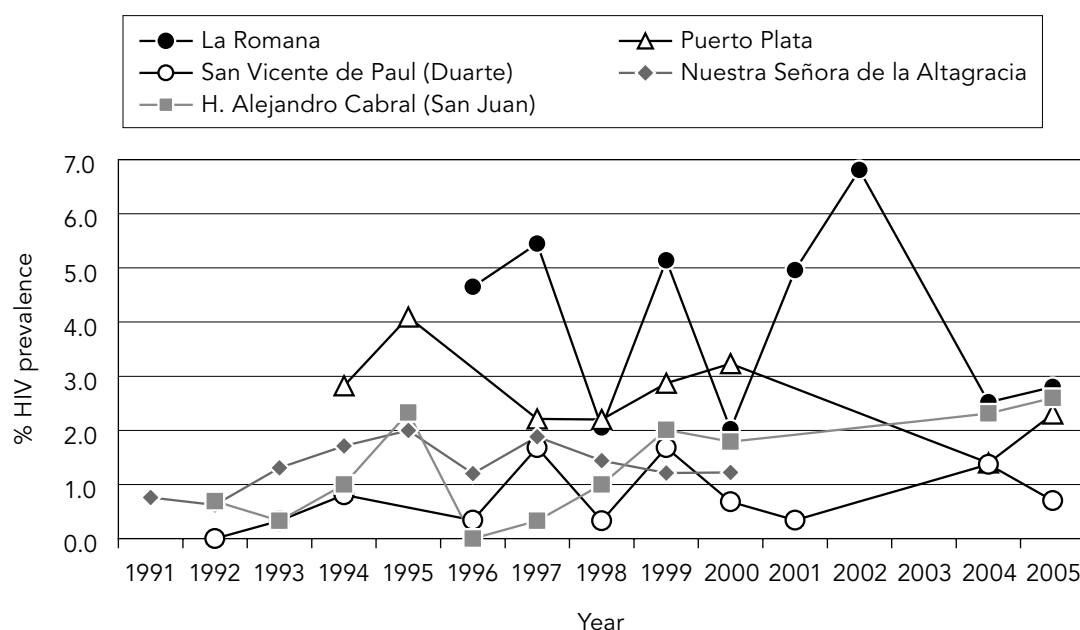
Unsafe injecting drug use is responsible for a minority of HIV infections, and contributes significantly to the spread of HIV only in Bermuda and Puerto Rico. Unsafe sex between men is a significant factor in this region but is largely hidden because of associated stigma. Little research has been conducted in the Caribbean among men who have sex with men, but the available data suggest that about 12% of reported HIV infections are the result of unsafe sex between men (Caribbean Commission on Health and Development, 2005; Inciardi, Syvertsen & Surratt, 2005).

**Haiti** still accounts for the largest HIV burden in the Caribbean. Among pregnant women attending antenatal clinics, HIV prevalence declined from 5.9% in 1996 to 3.1% in 2004

(Gaillard et al., 2006). However, results of sentinel surveillance among pregnant women in 2006 show a stabilization in HIV prevalence (Ministère de la Santé Publique et de la Population, 2007). A national population-based survey estimated adult national prevalence at 2.2% in 2005 (Cayemittes et al., 2006). The declining trend is largely related to decreasing infection levels in the capital, Port-au-Prince, and other cities, where HIV prevalence among 15–44-year-old women fell from 5.5% to 3% between 2000 and 2005. Modelling of the epidemic indicates that besides mortality, protective behaviour changes were at least partly responsible for those declines (Gaillard et al., 2006). Behavioural surveys have shown a 20% drop in the mean number of sexual partners between 1994 and 2000, while condom use increased, especially during sex with non-regular partners (Cayemittes et al., 2006; Hallet et al., 2006; Gaillard et al., 2006).

The HIV epidemic in the **Dominican Republic** appears to have stabilized (see Figure 13) (Secretaria de Estado de Salud Pública y Asistencia Social de República Dominicana, 2007). As in most other countries of the Caribbean, commercial sex is a key factor in the epidemic. One study found that condom use increased from 75% to 94% in 12 months among sex workers

## HIV prevalence among pregnant women in the Dominican Republic, 1991–2005



Source: Ministry of Health surveillance reports, 1991–2006.

Figure 13

who participated in a community solidarity prevention project in the capital, Santo Domingo (Kerrigan et al., 2006).

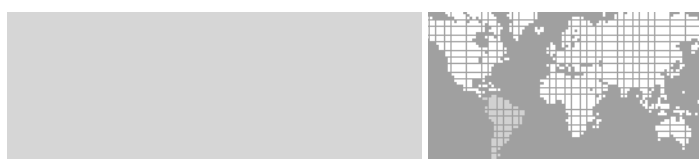
The HIV epidemics in **Jamaica**, the **Bahamas**, and **Trinidad and Tobago** have also been stable over recent years (Ministry of Health Jamaica, 2007; Ministry of Health The Bahamas, 2006; PAHO & WHO, 2006; Ministry of Health Trinidad and Tobago, 2007).

In **Barbados**, the number of persons newly diagnosed with HIV each year has remained relatively stable since the late 1990s (Ministry of Health Barbados, 2007).

HIV transmission in **Guyana**, is occurring primarily through unprotected sexual intercourse.

The latest antenatal clinic survey shows HIV prevalence of 1.6% among pregnant women. This is lower than the 2.3% prevalence found in a similar survey in 2004, but due to methodological differences, comparing the two sets of data should be done with caution. (Ministry of Health Guyana, 2007).

In contrast to the rest of the region, injecting drug use is the key factor in HIV transmission in Bermuda and Puerto Rico. Very high HIV prevalence is still being found among injecting drug users in Puerto Rico, where the rate of HIV infection (26 per 100 000) is twice that of the United States mainland and where more than two thirds of HIV infections have been among men (AIDS Action, 2007).



## LATIN AMERICA

*The HIV epidemics in Latin America remain generally stable, and HIV transmission continues to occur among populations at higher risk of exposure, including sex workers and men who have sex with men. The estimated number of new HIV infections in Latin America in 2007 was 100 000 [47 000–220 000], bringing to 1.6 million [1.4 million–1.9 million] the total number of people living with HIV in this region. An estimated 58 000 [49 000–91 000] people died of AIDS in the past year.*

*Unprotected sex between men is an important factor in the epidemics of Bolivia, Chile, Ecuador and Peru in South America, as well as in several Central American countries, including El Salvador, Guatemala, Honduras, Mexico, Nicaragua and Panama.*

About one third of all people living with HIV in Latin America reside in **Brazil**. In 2005, an estimated 620 000 [370 000–1 million] people were living with HIV. Although initially concentrated primarily among men who have sex with men, the epidemic subsequently spread to injecting drug users and eventually into the general population, with increasing numbers of women becoming infected (Dourado et al., 2007). It is estimated that a large proportion of infections among women can be attributed to the behaviour of their male sexual partners (Silva & Barone, 2006). However, unprotected sex between men remains an important factor, and is estimated to account for about half of all HIV infections that are sexually transmitted in Brazil. HIV prevalence among injecting drug users in Brazil has declined in some cities as a result of harm-reduction programmes, changing from injecting to inhaling drugs, and mortality among drug users (UNAIDS & WHO, 2006).

In recent years, unprotected sex has become the main route of HIV transmission in **Argentina** (Cohen, 2006), with an estimated four in five new HIV diagnoses in 2005 attributed to unprotected sexual intercourse (mainly heterosexual) (National AIDS Programme Argentina, 2005). However, as in several other South American countries, the highest HIV prevalence has been

found among men who have sex with men.

Injecting drug use as well as the use of non-sterile injecting equipment, once an important risk factor in the epidemic, has decreased in the last decade. It was estimated that injecting drug use accounted for only about 5% of new HIV infections in the capital of Buenos Aires between 2003 and 2005 (Cohen, 2006).

The HIV epidemic in **Uruguay** is concentrated largely in and around the capital, Montevideo (where more than three quarters of all AIDS cases have been reported), and in the Canelones, Maldonado and Rivera districts. Unprotected sex (mostly heterosexual) accounts for approximately two thirds of reported HIV cases. In addition, unsafe sex between men and the use of non-sterile injecting drug equipment account for substantial proportions of HIV infections (Montano et al., 2005; National AIDS Program Uruguay, 2007; IDES et al., 2005).

In **Paraguay** the epidemic is concentrated mainly in the capital city (Asunción), the department of Central, as well as in some areas bordering Argentina and Brazil (National AIDS Program Paraguay, 2007). The majority of people living with HIV at the end of 2005 were men. HIV prevalence among pregnant women nationally was 0.3% in 2005 (National AIDS Program Paraguay, 2006).

In **Bolivia, Chile, Colombia, Ecuador** and **Peru**, HIV infections continue to be concentrated among men who have sex with men (Martínez, Elea & Chiu, 2006; Ministerio de Salud y Deportes, ONUSIDA, 2007a,b).

National HIV prevalence in Peru is estimated to be low and concentrated in specific populations. Prevalence among men who have sex with men remained between 18% and 22% in various studies conducted between 1996 and 2002 (Sanchez et al., 2007; Ministerio de Salud del Peru, 2006).

Against the background of widespread homophobia, high HIV prevalence has been found among men who have sex with men in several Central American countries, including **Belize, Costa Rica, El Salvador, Guatemala, Nicaragua** and **Panama**. Compared with HIV prevalence in the adult general population, research in 2002 suggested that infection levels among men who have sex with men were seven times higher in Honduras, 10 times higher in Guatemala and Panama, 22 times higher in El Salvador and 38 times higher in Nicaragua (Soto et al., 2007).

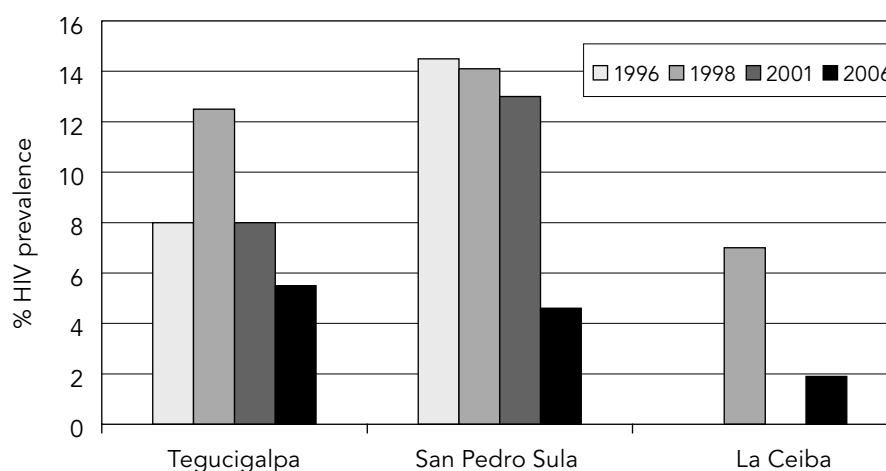
High levels of HIV prevalence have also been found among female sex workers in Honduras (10%), Guatemala (4%) and El Salvador (3%), but

low prevalence of 0.2% in Nicaragua and Panama (Soto et al., 2007)

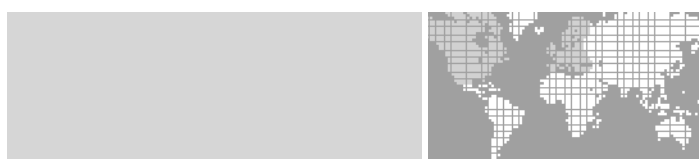
Recent HIV sentinel surveys have provided more information on the epidemic in **Honduras**, where HIV transmission occurs mainly during unsafe paid sex and unprotected sex between men (Ministry of Health Honduras, 2006). However, there is evidence of declining prevalence and consistent condom use among these population groups (Secretaria de Salud de Honduras et al., 2007a,b). Preliminary findings from a 2006 study show HIV prevalence of 5.7% among men who have sex with men in Tegucigalpa (down from 8.2% in 2001 and 10% in 1998) and 9.7% in San Pedro Sula (down from 16% in 2001) (Secretaria de Salud de Honduras et al., 2007b). A sharp decline in HIV prevalence among female sex workers has also been observed in three cities in Honduras (see graph). Consistent condom use during the previous 30 days was high in all three cities (>80% in Tegucigalpa and San Pedro Sula, and 98% in La Ceiba with paying clients, and 87% or more with non-regular partners), which suggests that condom promotion and other prevention efforts have been successful (Secretaria de Salud Honduras, 2007a).

**Figure 14**

HIV prevalence in female sex workers in various cities in Honduras, 1996–2006



Source: Secretaria de salud de Honduras et al. (2007). Estudio Centroamericano de vigilancia de comportamiento sexual y prevalencia de VIH/ITS en poblaciones vulnerables: Trabajadoras Sexuales. Agosto. Tegucigalpa, Secretaria de salud de Honduras.



## NORTH AMERICA, WESTERN AND CENTRAL EUROPE

*In these regions, the total number of people living with HIV is increasing. This increase is due mainly to the life-prolonging effects of antiretroviral therapy and an increase in the number of new HIV diagnoses in Western Europe since 2002, combined with a relatively stable number of new HIV infections each year in North America. Overall, approximately 2.1 million [1.1 million–3.0 million] people in North America, Western and Central Europe were living with HIV in 2007, including the 78 000 [19 000–86 000] who acquired HIV in the past year. In the context of widespread access to effective antiretroviral treatment, comparatively few people died of AIDS—32 000 [20 000–84 000] in 2007.*

The **United States of America** is one of the countries with the largest number of HIV infections in the world. Based on data from the 33 states and four dependent territories with long-term, confidential name-based HIV reporting, men accounted for most of the HIV or AIDS diagnoses (74%) among adults and adolescents in the country in 2005. More than half of all newly diagnosed HIV infections (53%) in 2005 were among men who have sex with men. Persons exposed to HIV through heterosexual intercourse with a non-regular partner accounted for just under one third (32%) of newly diagnosed HIV infections and AIDS cases, while about 18% occurred among injecting drug users (US Centers for Disease Control and Prevention, 2007a).

Racial and ethnic minorities continue to be disproportionately affected by the HIV epidemic in the United States. Although African Americans represent about 13% of the population (US Census Bureau, 2006) they accounted for 48% of new HIV or AIDS diagnoses in 2005. AIDS was the fourth leading cause of death among African Americans aged 25–44 years in the United States in 2004 (Anderson, Mosher & Chandra, 2006; US Centers for Disease Control and Prevention, 2006). Hispanics, who comprise

about 14% of the population, accounted for 18% of new diagnoses (US Centers for Disease Control and Prevention, 2007b).

After levelling off in the mid-1990s, the estimated total number of people living with HIV in **Canada** started to increase again in the late 1990s, mainly because of the life-prolonging effects of antiretroviral treatment. The annual number of newly reported HIV infections stayed about the same during that period, ranging between 2495 and 2538 per year (Public Health Agency of Canada, 2006).

Unprotected sex between men continues to account for the largest proportion of new HIV infections (45% in 2005 compared with 42% in 2002) (Boulos et al., 2006).

An estimated 37% of new HIV infections in 2005 were attributed to unprotected heterosexual intercourse, with a substantial proportion among people born in countries where HIV is endemic (mainly sub-Saharan Africa and the Caribbean).

Heterosexually acquired HIV infections, most of which were among immigrants and migrants, accounted for the largest proportion (42%) of new HIV diagnoses in **Western Europe** in

2006. A little under one third (29%) of newly diagnosed HIV infections were attributable to unsafe sex between men, and only 6% to injecting drug use (EuroHIV, 2007).

The HIV epidemics in **Spain, Italy, France** and the **United Kingdom**, continue to be the largest in Western and Central Europe. The annual number of newly diagnosed HIV infections has more than doubled in the United Kingdom, from 4152 in 2001 to 8925 in 2006 (EuroHIV, 2007). The increase in HIV diagnoses reported in the **United Kingdom** is mainly due to sustained levels of newly acquired infections among men who have sex with men, an increase in diagnoses among heterosexual men and women who acquired their infection in a high-prevalence country (mainly sub-Saharan Africa and the Caribbean), and improved reporting due to expanding HIV testing services. (Health Protection Agency, 2007; EuroHIV, 2007).

In Western Europe (excluding the United Kingdom), the number of annual reported new HIV diagnoses almost tripled between 1999 and 2005 (from 7497 to 19 476), but declined significantly in 2006 (to 16 316). The largest number of diagnoses were reported in **France** (where routine reporting only started in 2003 and where 5750 HIV infections were newly diagnosed in 2006), **Germany** (2718) and **Portugal** (2162). In Spain and Italy, only certain regions contribute to the reporting system. Elsewhere, the number of diagnoses is smaller, and new infections in 2006 exceeded 1000 only in the **Netherlands** (1017) (EuroHIV, 2007).

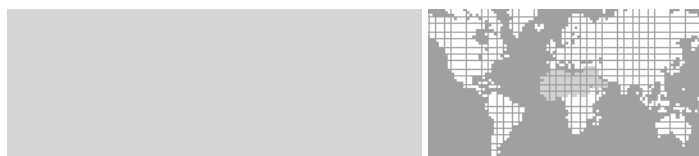
HIV in this region is transmitted mainly through unsafe sex and, to a much lesser extent (except in countries such as Portugal and Spain), through the use of contaminated equipment by injecting drug users. Most heterosexually transmitted HIV cases originate in countries with high HIV prevalence and within that group, more than 50% of new HIV diagnoses are in women (EuroHIV, 2007).

Two divergent epidemic trends have been observed in Western Europe. While the number of new HIV diagnoses attributed to unsafe sex between men nearly doubled between 1999 and 2006 (from 2538 to 5016), those attributed to injecting drug use declined in the same period (from 661 to 581).

In Central Europe, the number of newly diagnosed HIV infections in 2006 surpassed 100 in only three countries: **Poland** (750), **Turkey** (290) and **Romania** (180). Elsewhere, the epidemics are comparatively small and only in **Hungary, Montenegro** and **Serbia** more than 1000 HIV infections in total have been reported since the epidemic began (EuroHIV, 2007).

Injecting drug use is the most-reported mode of HIV transmission in the three Baltic states (**Estonia, Latvia, and Lithuania**) where the epidemics appear to have stabilized (Hamers, 2006; EuroHIV, 2007). However, **Estonia** continues to have the highest rate of newly reported HIV diagnoses (504 per one million population) and the highest estimated adult national HIV prevalence (1.3% [0.6%–4.3%] in 2005) in all of Europe (UNAIDS, 2006; EuroHIV, 2007).





## MIDDLE EAST AND NORTH AFRICA

*Despite recent improvements in some countries, epidemiological surveillance in this region remains limited (Obermeyer, 2006). Nevertheless, using available HIV information it is estimated that 35 000 [16 000–65 000] people acquired HIV in 2007, bringing to 380 000 [270 000–500 000] the total number of people living with HIV in the region. As a result of AIDS-related illnesses, an estimated 25 000 [20 000–34 000] people died in 2007.*

Reported numbers of HIV cases in the region remain small. Most HIV infections are occurring in men and in urban areas, with the exception of the **Sudan**, the country with the highest prevalence in the region, where unsafe heterosexual intercourse is the most important risk factor for HIV infection.

While unprotected paid sex is a key factor in the HIV epidemics throughout the region, exposure to contaminated drug injecting equipment is the main route of HIV transmission in **Afghanistan**, the **Islamic Republic of Iran**, the **Libyan Arab Jamahiriya** and **Tunisia**, and contributes to the epidemics of **Algeria**, **Morocco** and the **Syrian Arab Republic**.



## OCEANIA

*An estimated 14 000 [11 000–26 000] people acquired HIV in Oceania in 2007, bringing to 75 000 [53 000–120 000] the number of people living with the virus in this region.*

Over 70% of those persons reside in **Papua New Guinea**, where the epidemic is still expanding, although at slightly lower levels than previously believed. The majority of reported HIV infections to date have been in rural areas, where more than 80% of the population lives (National AIDS Council Secretariat Papua New Guinea, 2007). Unsafe heterosexual intercourse is estimated to be the main mode of HIV transmission.

In **Australia**, HIV continues to be transmitted mainly through unprotected sex between men (National Centre in HIV Epidemiology and Clinical Research, 2007). While concerted prevention efforts controlled the epidemic

during the 1990s, new HIV diagnoses have increased by 41% between 2000 and 2005, (National Centre in HIV Epidemiology and Clinical Research, 2006), together with an increase in unsafe sex among men who have sex with men. (Prestage et al., 2006).

In **New Zealand** the main factor for acquiring HIV inside the country remains unsafe sex between men. However, the number of people diagnosed with HIV who report being infected though unsafe heterosexual intercourse is on the rise, with the majority of infections occurring outside the country, primarily in Asia and sub-Saharan Africa (Ministry of Health New Zealand, 2007).

## MAPS

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Global estimates for adults and children, 2007

Adults and children estimated to be living with HIV in 2007

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

Estimated adult and child deaths from AIDS during 2007

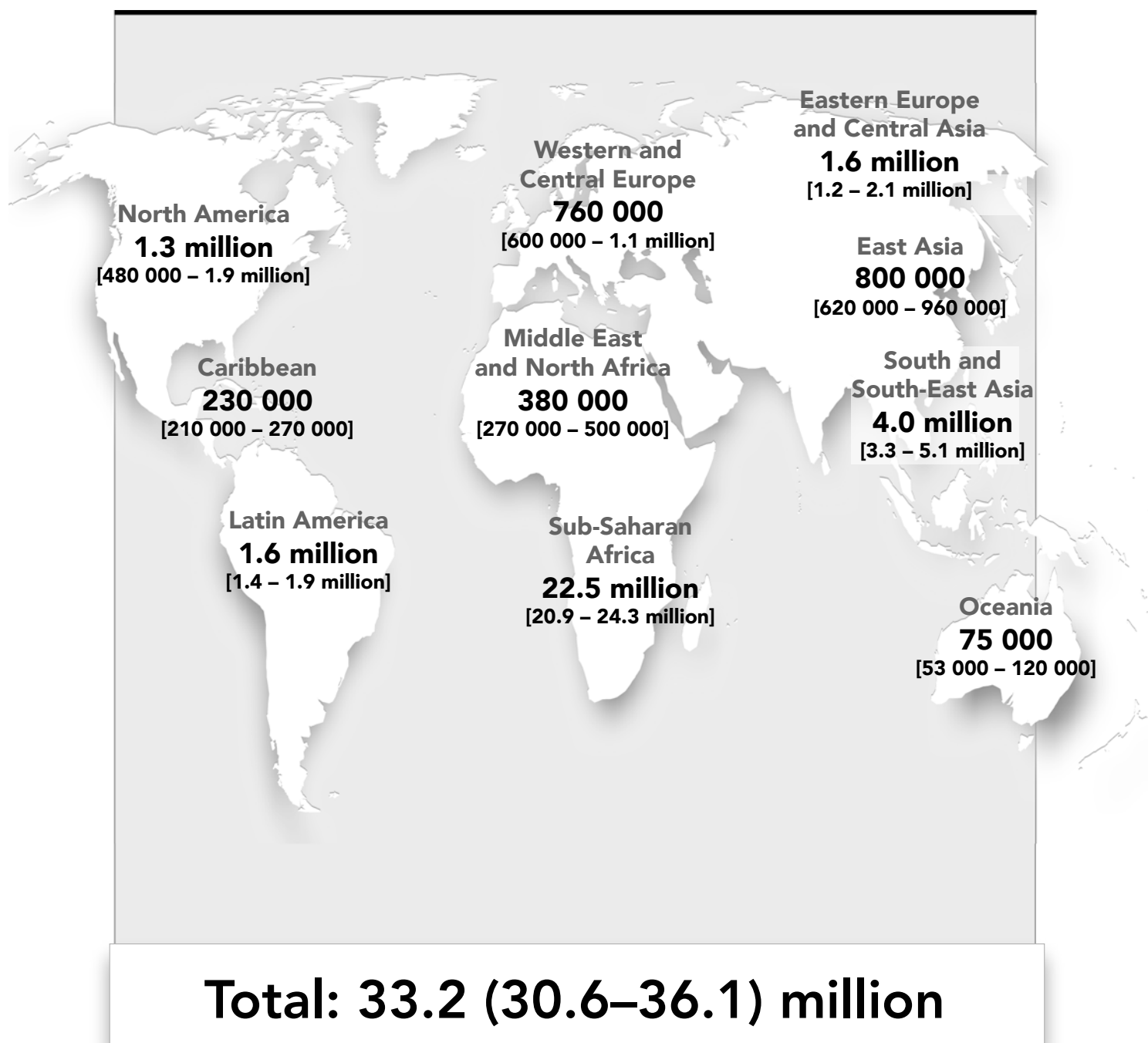
# GLOBAL ESTIMATES FOR ADULTS AND CHILDREN, 2007



People living with HIV .....	33.2 million [30.6 – 36.1 million]
New HIV infections in 2007 .....	2.5 million [1.8 – 4.1 million]
Deaths due to AIDS in 2007 .....	2.1 million [1.9 – 2.4 million]

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

# ADULTS AND CHILDREN ESTIMATED TO BE LIVING WITH HIV IN 2007



**UNAIDS**  
JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS

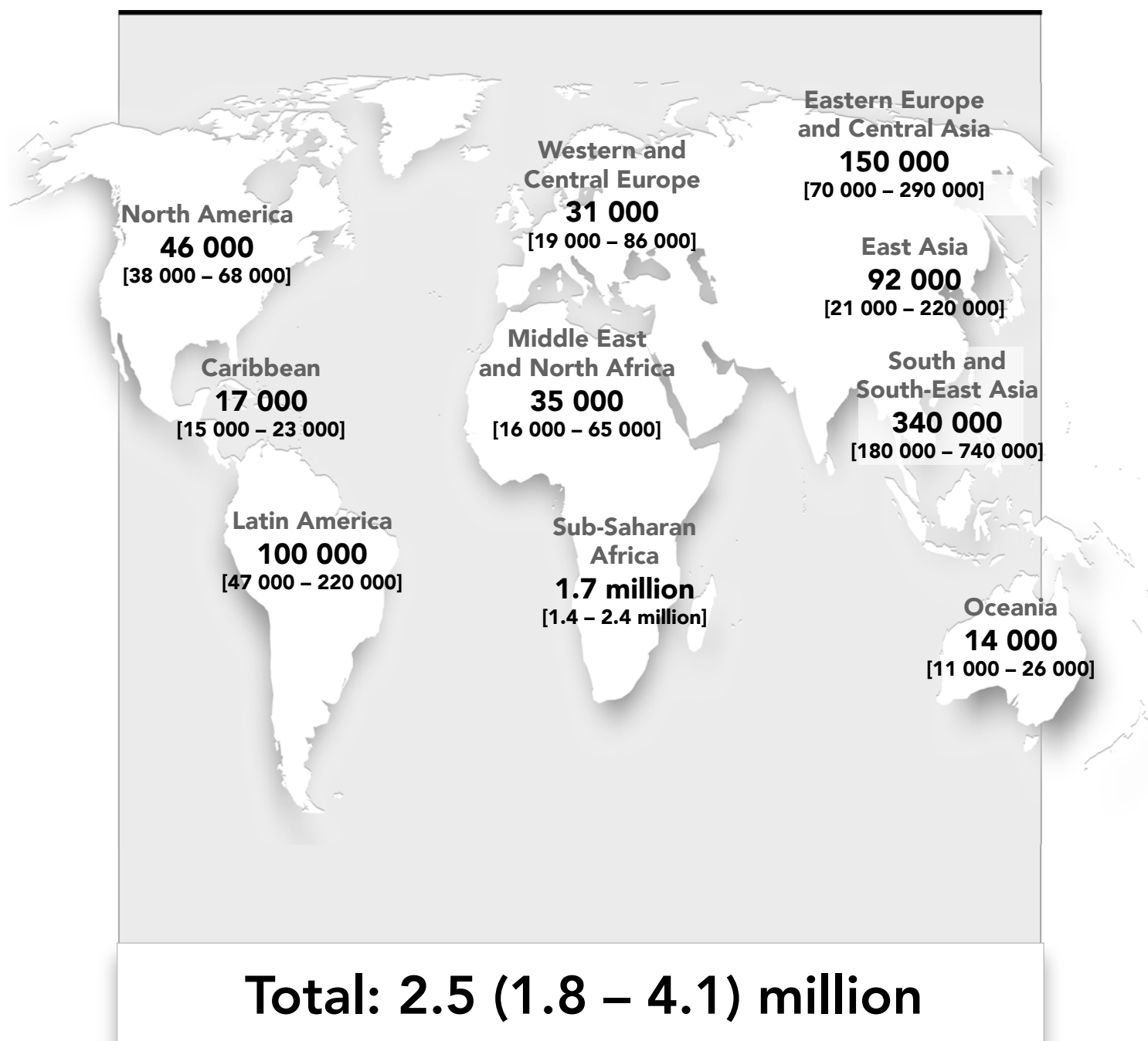
UNHCR  
UNICEF  
WFP  
UNDP  
UNFPA

UNODC  
ILO  
UNESCO  
WHO  
WORLD BANK



**World Health Organization**

## ESTIMATED NUMBER OF ADULTS AND CHILDREN NEWLY INFECTED WITH HIV DURING 2007



**UNAIDS**  
JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS

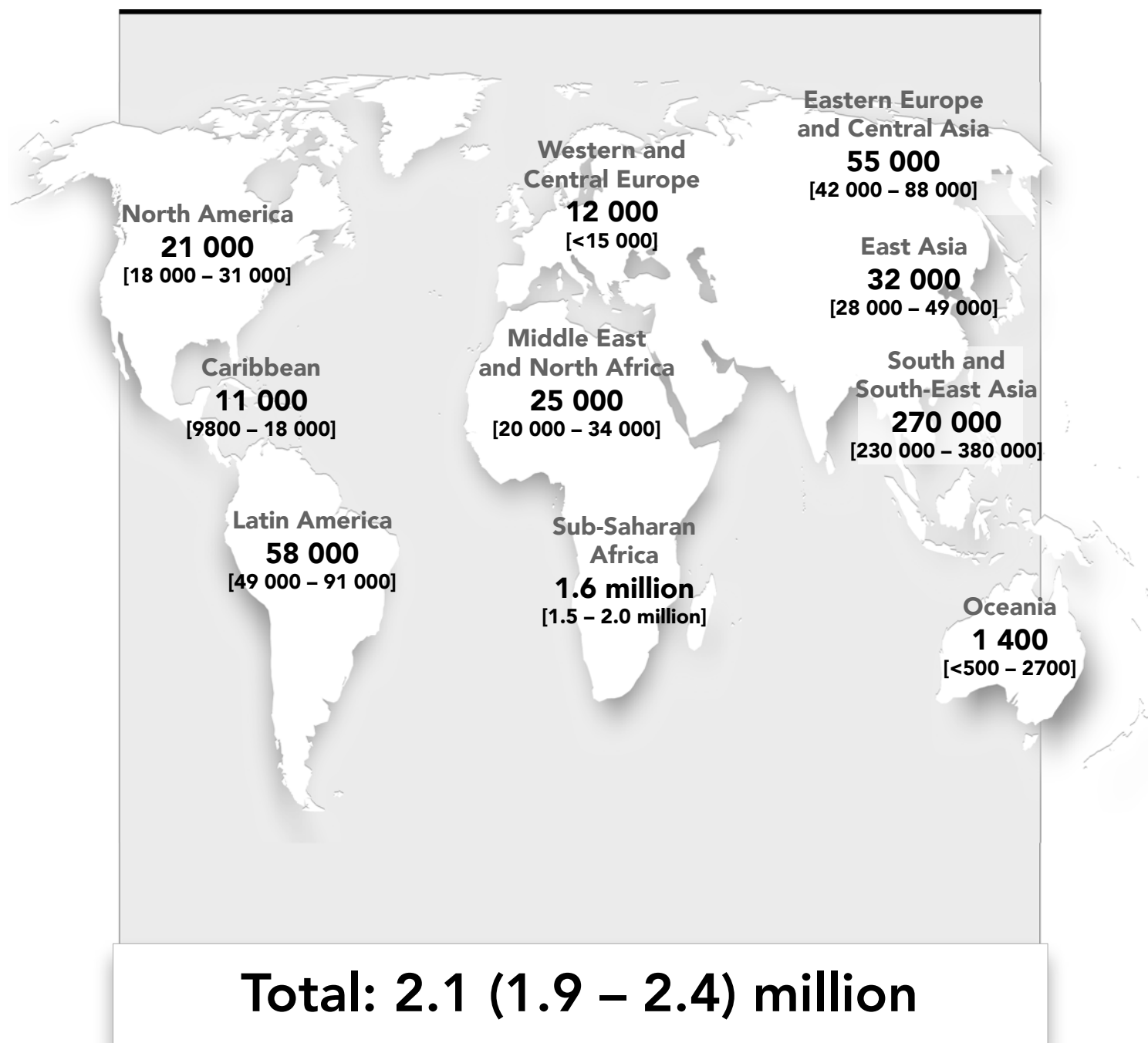
UNHCR  
UNICEF  
WFP  
UNDP  
UNFPA

UNODC  
ILO  
UNESCO  
WHO  
WORLD BANK



**World Health Organization**

# ESTIMATED ADULT AND CHILD DEATHS FROM AIDS DURING 2007



**UNAIDS**  
JOINT UNITED NATIONS PROGRAMME ON HIV/AIDS

UNHCR  
UNICEF  
WFP  
UNDP  
UNFPA

UNODC  
ILO  
UNESCO  
WHO  
WORLD BANK



**World Health Organization**







## BIBLIOGRAPHY

### GLOBAL OVERVIEW

---

Marston M et al. (2007). Estimating 'net' HIV-related mortality and the importance of background mortality rates. *AIDS* 2007, 21 (suppl 6): S65–S71.

Stover J, Walker N, Grassly NC, Marston M (2006). Projecting the demographic impact of AIDS and the number of people in need of treatment: updates to the Spectrum projection package. *Sex Transm Inf*, 82 (Suppl. III):iii45–iii50.

Todd J, et al. (2007). Time from HIV seroconversion to death: a collaborative analysis of eight studies in six low and middle-income countries before highly active antiretroviral therapy. *AIDS* 2007, 21 (suppl 6): S55–S63.

UNAIDS (2007). *Comparing adult antenatal-clinic based HIV prevalence with prevalence from national population based surveys in sub-Saharan Africa*. UNAIDS presentation. Accessed 17 November 2007 at [http://data.unaids.org/pub/Presentation/2007/survey\\_anc\\_2007\\_en.pdf](http://data.unaids.org/pub/Presentation/2007/survey_anc_2007_en.pdf).

UNAIDS Reference Group on Estimates, Modelling, and Projections (2006). *Improving parameter estimation, projection methods, uncertainty estimation, and epidemic classification. Report of a meeting of the UNAIDS Reference Group on Estimates, Modelling, and Projections, Prague, Czech Republic, 29 Nov—1 Dec*. [http://data.unaids.org/pub/Report/2007/2006prague\\_report\\_en.pdf](http://data.unaids.org/pub/Report/2007/2006prague_report_en.pdf).

UNAIDS Reference Group on Estimates, Modelling and Projections (2002). Improved methods and assumptions for the estimation of the HIV/AIDS epidemic and its impact: recommendations of the UNAIDS Reference Group on Estimates, Modelling and Projections. *AIDS*, 16: W1–W16.

UNAIDS/WHO (2006). *AIDS epidemic update: December 2006*. UNAIDS, Geneva 2006. UNAIDS/06.29E. ISBN 92 9 173542 6.

WHO, UNAIDS, UNICEF (2007). *Towards universal access: scaling up priority HIV/AIDS interventions in the health sector: progress report*. April. Geneva. ISBN 978 92 4 159539 1.

WHO (2003). *The World health report: 2003: shaping the future*. Geneva. ISBN 92 4 156243 9.

### SUB-SAHARAN AFRICA

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

Cellule de Planification et de Statistique du Ministère de la Santé, Direction nationale de la Statistique et de l'Informatique/ORC Macro (2002). *Enquête démographique et de santé au Mali 2001*. June. Calverton.

Central Statistical Agency & ORC Macro (2006). *Ethiopia Demographic and Health Survey 2005*. Addis Ababa & Calverton.

Central Statistical Office Swaziland, Macro International Inc. (2007). *Swaziland Demographic and Health Survey 2006–2007: preliminary report*. June. Calverton.

Central Statistical Office Zambia et al. (2003). *Zambia Demographic and Health Survey 2001–2002*. Calverton.

Conselho Nacional de Combate ao HIV/SIDA (2006). *Relatório de actividades por 2005*. Ministério de Saúde. Maputo.

- Department of Health South Africa (2007). National HIV and syphilis antenatal prevalence survey, South Africa 2006. Pretoria.
- Department of Health South Africa (2006). National HIV and syphilis antenatal prevalence survey, South Africa 2005. Pretoria.
- Direction Nationale de la Statistique, ORC Macro (2006). *Enquête démographique et de santé, Guinée 2005*. Calverton.
- Federal Ministry of Health Ethiopia (2006). *AIDS in Ethiopia: 6<sup>th</sup> report*. September. Addis Ababa.
- Federal Ministry of Health Nigeria (2006). *The 2005 national HIV seroprevalence sentinel survey among pregnant women attending antenatal clinics in Nigeria: summary position paper*. April. Abuja.
- Gomes do Espirito Santo ME, Etheredge GD (2005). Male clients of brothel prostitutes as a bridge for HIV infection between high risk and low risk groups of women in Senegal. *Sexually Transmitted Infections*, 81:342–4.
- Gregson S et al. (2006). HIV decline associated with behaviour change in eastern Zimbabwe. *Science*, 311(5761):664–6.
- Hallett TB et al. (2006). Declines in HIV prevalence can be associated with changing sexual behaviour in Uganda, urban Kenya, Zimbabwe, and urban Haiti. *Sexually Transmitted Infections*, 82(Suppl 1): i1–i8.
- Hargrove JW et al. (2005). Declining HIV prevalence and incidence in women attending maternity clinics in greater Harare, Zimbabwe. (Submitted for publication)
- Heaton L, Fowler T, Palamuleni M (2006). The HIV/AIDS epidemic in Malawi – putting the epidemic in context. Abstract CDC0062. XVI International AIDS Conference. 13–18 August. Toronto.
- Institut National de la Statistique du Cameroun, ORC Macro (2005). *Enquête démographique et de santé Cameroun 2004*. June. Yaoundé & Calverton.
- Institut National de la Statistique du Niger, Macro International Inc (2007). *Enquête démographique et de santé et à Indicateurs multiples du Niger 2006*. February. Calverton.
- Institut national de la Statistique et de l'Analyse économique & ORC Macro (2007). *Enquête démographique et de santé EDSB-III Bénin 2006—Rapport préliminaire*. Calverton.
- Institut National de la Statistique, des Etudes économiques et démographiques et Programme national de Lutte Contre le Sida (2006). *Rapport de l'enquête nationale de séroprévalence du VIH/SIDA au Tchad 2005*. December. N'Djaména.
- Institut National de la Statistique et de la Démographie, ORC Macro (2004). *Enquête démographique et de santé Burkina Faso 2003*. Calverton.
- Institut national de la Statistique et Ministère de la Lutte contre le Sida Côte d'Ivoire, ORC Macro (2006). *Enquête sur les indicateurs du sida, Côte d'Ivoire 2005*. Calverton.
- Kayembe PK et al. (2007). Evolution de la prévalence du VIH en République démocratique du Congo (1985–2005): évidence de plusieurs épidémies à différentes vitesses. In press.
- Kayirangwa E et al. (2006). Current trends in Rwanda's HIV/AIDS epidemic. *Sexually Transmitted Infections*, 82(Suppl 1): i27–31.
- Kirungi WL et al. (2006). Trends in antenatal HIV prevalence in urban Uganda associated with uptake of preventive sexual behaviour. *Sexually Transmitted Infections*, 82(Suppl 1):136–41.
- Liberia Institute of Statistics and Geo-Information Services/Macro International (2007). *Liberia demographic and health survey 2007: preliminary report*. Monrovia and Calverton.
- Mahomva A et al. (2006). HIV prevalence and trends from data in Zimbabwe, 1997–2004. *Sexually Transmitted Infections*, 82(Suppl 1):i42–7.
- Ministère de l'Economie, du Plan et de la Coopération internationale de la République centrafricaine (2007). *Suivi de la situation des enfants et des femmes, MICS-3: Résultats de l'enquête à indicateurs multiples couplée avec la sérologie VIH et anémie en RCA 2006*. March. Bangui.
- Ministère de la Santé du Bénin (2006). *Rapport de surveillance de l'infection à VIH et de la syphilis au Bénin—Année 2006*. Ministère de la Santé. Cotonou.
- Ministère de la Santé Publique du Burundi (2005). *Bulletin Epidemiologique annuel de surveillance du VIH/SIDA en 2005*. Septembre. Bujumbura.
- Ministère de la Santé du Mali (2005). *Rapport: Surveillance sentinelle du VIH et de la syphilis chez les femmes enceintes*. November. Bamakó.
- Ministère de la Santé du Mali, ORC Macro (2007). *Enquête démographique et de santé, EDSM-IV: rapport préliminaire*. April. Calverton.

- Ministère de la Santé du Rwanda (2005). *Surveillance de l'infection à VIH par sites sentinelles chez les femmes enceintes fréquentant les services de consultation prénatale*. Kigali, Centre de Traitement et de Recherche sur le SIDA, CDC.
- Ministère de la Santé du Togo (2007). *Rapport annuel des activités du programme national de lutte contre le SIDA et les infections sexuellement transmissibles, année 2006*. Lomé.
- Ministère de la Santé du Togo (2006). *Surveillance sentinelle de l'infection au VIH/sida chez les femmes en consultation prénatale au Togo, avril-juin*. Lomé.
- Ministère de la Santé et de l'Hygiène Publique de la Côte d'Ivoire, CDC/RETRO-CI/MEASURE Evaluation, (2007). *Enquête de surveillance sentinelle du VIH de 2005*. Abidjan.
- Ministère de la Santé et du Planning Familial Madagascar (2005). Résultats de l'enquête de surveillance biologique du VIH/SIDA et de la syphilis, année 2005. Décembre. Ministère de la Santé et du Planning Familial. Antananarivo.
- Ministério da Saúde, CDC USA (2006). *Relatório Final I-II estudos de seroprevalência em mulheres grávidas em consultas pré-natal (2004-2005)*. Luanda.
- Ministry of Health and Sanitation. Sierra Leone (2007). *Antenatal HIV and syphilis sentinel surveillance (2006)*. Freetown.
- Ministry of Health and Social Services Namibia, ORC Macro (2007). *2006 Namibian Demographic and Health Survey: Preliminary Tables*. July. Calverton
- Ministry of Health and Social Services. Republic of Namibia. (2007). *Results of the 2006 national sentinel survey among pregnant women*. Windhoek.
- Ministry of Health Botswana (2006). *2006 Botswana Second-Generation HIV/AIDS Surveillance Technical Report*. Gabarone.
- Ministry of Health Eritrea (2006). *Report of the 2005 round of HIV sentinel surveillance survey in ANC attendee women*. March. Asmara.
- Ministry of Health Ghana (2007). *HIV sentinel survey 2006 report*. March. Accra.
- Ministry of Health Kenya (2005). *AIDS in Kenya, 7th edition*. National AIDS and STI Control Programme (NASCOP), Nairobi.
- Ministry of Health Uganda & ORC Macro (2006). *Uganda HIV/AIDS Sero-behavioural Survey 2004/2005*. March. Kampala & Calverton.
- Ministry of Health Zambia (2005). *Zambia Antenatal Clinic Sentinel Surveillance Report, 1994-2004*. November. Ministry of Health Zambia. Lusaka.
- Ministry of Health and Child Welfare Zimbabwe (2007). *2006 ANC preliminary report*.
- Ministry of Health and Social Welfare Lesotho (2005). *Report of the sentinel HIV/syphilis survey 2005*. September. Maseru.
- Ministry of Health and Social Welfare Lesotho & ORC Macro (2004). *2004 Lesotho Demographic and Health Survey*. Maseru & Calverton, Ministry of Health & Social Welfare and ORC Macro.
- Ministry of Health and Social Welfare Swaziland (2006) *10th Round of the national HIV Serosurveillance in women attending antenatal care, sexually transmitted infections clients and tuberculosis patients*. January. Mbabane.
- Mugurungi O et al. (2005). HIV in Zimbabwe. In: Glynn JR, Carael M (eds.) *HIV, Resurgent Infections and Population Change in Africa*. Springer.
- National AIDS Commission Malawi (2005). *HIV and Syphilis Sero-Survey and National HIV Prevalence Estimates Report 2005*. Lilongwe.
- National AIDS Control Council Kenya (2007). *National HIV Prevalence in Kenya*. July. Nairobi.
- National AIDS Secretariat, Nimba Research Consultancy (2005). *National population-based HIV seroprevalence survey of Sierra Leone*. Freetown. Available at [http://www.daco-sl.org/encyclopedia/1\\_gov/1\\_5/NAS/nas\\_national\\_pop\\_hivsero\\_survey05.pdf](http://www.daco-sl.org/encyclopedia/1_gov/1_5/NAS/nas_national_pop_hivsero_survey05.pdf)
- Ndiaye S, Ayad M (2006). *Enquête démographique et de santé au Sénégal 2005*. Calverton, Centre de Recherche pour le Développement humain/ORC Macro.
- Présidence du Faso (2005). *Suivi de la déclaration d'engagement sur le VIH/sida (UNGASS): cadre pour la présentation des rapports pays—période concernée janvier-décembre 2004*. Ouagadougou.
- Programme national de Lutte contre le sida (PNLS) (2005). *Rapport de passage de la surveillance sentinelle du VIH chez les femmes enceintes*. August. Kinshasa, Ministère de la Santé de la République démocratique du Congo.
- Salum A et al. (2003). *Report on the population-based survey to estimate HIV prevalence in Zanzibar*. January. Revolutionary Government of Zanzibar. Ministry of Health and Social Welfare.

- Shafer LA et al. (2006). HIV prevalence and incidence are no longer falling in Uganda – a case for renewed prevention efforts: Evidence from a rural population cohort 1989–2005, and from ANC surveillance. Abstract C10. XVI International AIDS Conference. 13–18 August. Toronto.
- Sulliman FT, Ameerberg SAG (2004a). *Mauritius epidemiology network on drug use report: January–June 2004*. Port Louis.
- Swai RO et al. (2006). Surveillance of HIV and syphilis infections among antenatal clinic attendees in Tanzania–2003/2004. *BMC Public Health*, 6(91). Apr 10.
- Tanzania Commission for AIDS, National Bureau of Statistics, ORC Macro (2005). *Tanzania HIV/AIDS Indicator Survey 2003–04*. Calverton.
- Uganda Bureau of Statistics & Macro International Inc. (2007). *Uganda Demographic and Health Survey 2006*. Calverton.
- Uganda Bureau of Statistics & ORC Macro (2001). *Uganda Demographic and Health Survey 2000–2001*. Calverton.
- UNAIDS (2005). *Evidence for HIV decline in Zimbabwe: a comprehensive review of the epidemiological data*. November. Geneva.
- Utulu SN, Lawoyin TO (2007). Epidemiological features of HIV infection among pregnant women in Makurdi, Benue State, Nigeria. *Journal of Biosocial Science*, 39(3):397–408.
- van der Loeff MF et al. (2003). Regional differences in HIV trends in the Gambia: results from sentinel surveillance among pregnant women. *AIDS*, 17:1841–46.
- WHO (2005). *The 2004 First national second generation HIV/AIDS/STI sentinel surveillance survey among antenatal care women attending maternity and child health clinics, tuberculosis and STD patients in Central South, Puntland and Somaliland*. A technical report. July. Nairobi.

## ASIA

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- Abbasi B (2006). HIV outbreak among injecting drug users in Larkana, Pakistan: serious threat of a generalized epidemic. Abstract CDC0274. XVI International AIDS Conference. 13–18 August. Toronto.
- Achakzai M, Kassi M, Kasi PM (2007). Seroprevalences and co-infections of HIV, hepatitis C virus and hepatitis B virus in injecting drug users in Quetta, Pakistan. *Tropical Doctor*, 37(1):43–5.
- Char A, Pillar A, Shirke S (2003). HIV/AIDS intervention among women working in bars and lodges in Thane district of Maharashtra, India. Abstract 1168. 2nd International AIDS Society Conference on HIV Pathogenesis and Treatment. 13–16 July. Paris.
- Choi K et al. (2003) Emerging HIV-1 epidemic in China in men who have sex with men. *Lancet*, 361(9375):2125–6.
- Choi KH et al. (2007). The influence of social and sexual networks in the spread of HIV and syphilis among men who have sex with men in Shanghai, China. *Journal of Acquired Immune Deficiency Syndromes*, 45(1):77–84.
- Emmanuel F, Archibald C, Altaf A (2006). What drives the HIV epidemic among injecting drug users in Pakistan: a risk factor analysis. Abstract MOPE0524. XVI International AIDS conference. 13–18 August. Toronto.
- Hesketh T et al. (2006). Risk behaviours in injecting drug users in Yunnan province, China: lessons for policy. Abstract CDD0591. XVI International AIDS Conference. 13–18 August. Toronto.
- Kumar R et al. (2005). *HIV-1 trends, risk factors and growth in India*. National Commission on Macroeconomics and Health (NCMH) Background Papers—Burden of Disease in India. September. New Delhi, Ministry of Health & Family Welfare.
- Kumar R et al. (2006). Trends in HIV-1 in young adults in south India from 2000 to 2004: a prevalence study. *Lancet*, 367(9517):1164–72.
- Lu F et al. (2006). HIV/AIDS epidemic in China: Increasing or decreasing? Abstract MOPE0462. XVI International AIDS Conference. 13–18 August. Toronto.
- Ma X et al. (2006). Possible rise in HIV prevalence among men who have sex with men (MSM) in Beijing. Abstract MOPE0526. XVI International AIDS Conference. 13–18 August. Toronto.
- Ministry of Health China (2006). *2005 update on the HIV/AIDS epidemic and response in China*. Beijing, Ministry of Health China, UNAIDS, WHO.
- Ministry of Health Indonesia (2006). *HIV/AIDS surveillance report*. Jakarta.
- Ministry of Health Indonesia, Statistics Indonesia (2006). *Situation of risk behaviour for HIV in Indonesia. Results of BSS 2004–2005*. Jakarta.
- Ministry of Health Indonesia, Statistics Indonesia (2007). *Risk behavior and HIV prevalence in Tanah Papua, 2006*. Jakarta.

- Ministry of Health Pakistan (2005). *National study of reproductive tract and sexually transmitted infections: Survey of high risk groups in Lahore and Karachi, March–August 2004*. Islamabad.
- Ministry of Health Viet Nam (2005). HIV/AIDS estimates and projections 2005–2010. Hanoi, General Department of Preventive Medicine and HIV/AIDS Control, Ministry of Health.
- Ministry of Health Viet Nam (2006). *Results from the HIV/STI integrated biological and behavioural surveillance (IBBS) in Viet Nam, 2005–2006*. Hanoi.
- Nai Zindagi and Associates (2006). *Baseline study on HIV and STIs risks among IDUs in Lahore, Sargodha, Faisalabad and Sialkot*, June–July. Islamabad.
- NACO (2005a). An overview of the spread and prevalence of HIV/AIDS in India. New Delhi. [http://www.nacoonline.org/facts\\_overview.htm](http://www.nacoonline.org/facts_overview.htm)
- NACO, Ministry of Health and Family Welfare. <http://www.nacoonline.org>
- National AIDS Control Program Pakistan (2005). Pilot study under the HIV/AIDS surveillance project. March. Islamabad.
- National AIDS Programme Myanmar (2007). *Sentinel Survey Data for March–April 2006*. Yangon.
- National Center for HIV/AIDS, Dermatology and STIs (2007). *HIV sentinel surveillance (HSS) 2006/2007: results, trends and estimates*. Phnom Penh.
- NFHS-3 (2007). National Family Health Survey 3, India. Available at [http://www.nfhsindia.org/nfhs3\\_national\\_report.html](http://www.nfhsindia.org/nfhs3_national_report.html).
- Tao X et al. (2004) Survey of related high risk behaviors of MSM in Shenzhen city. *Modern Preventive Medicine*, 31:247–8.
- Tuang NA et al. (2007). Human immunodeficiency virus (HIV) infection patterns and risk behaviours in different population groups and provinces in Viet Nam. *Bulletin of the WHO*, 85(1):35–41.
- Van Griensven F et al. (2006). HIV prevalence among populations of men who have sex with men—Thailand, 2003 and 2005. *Morbidity and Mortality Weekly Report*, 55(31):844–8. August 11.
- Viet Nam Commission for Population et al. (2006). *HIV/AIDS in Viet Nam*. Hanoi, Ministry of Health, Population Reference Bureau.
- WHO (2007). *HIV/AIDS in the South-East Asia region*. March. New Delhi, WHO Regional Office for South-East Asia. <http://www.searo.who.int/hiv-aids>
- WHO, Ministry of Health Indonesia (2007). *Review of the health sector response to HIV and AIDS in Indonesia, 2007*. Delhi, WHO Regional Office for South-East Asia. [http://www.searo.who.int/LinkFiles/Publications\\_REVIEW\\_HIV\\_AIDS\\_Indonesia\\_2007.PDF](http://www.searo.who.int/LinkFiles/Publications_REVIEW_HIV_AIDS_Indonesia_2007.PDF)
- World Bank (2005). *AIDS in South Asia: understanding and responding to a heterogeneous epidemic*. August. Washington.
- Zhu TF et al. (2005). High risk populations and HIV-1 infection in China. *Cell Research*, 15(11–12):852–7.

## EASTERN EUROPE AND CENTRAL ASIA

---

- AIDS Center of the South-Kazakhstan Oblast (2007). Presentation to the national meeting on universal access to ART treatment and testing services. 3–4 September. Astana.
- AIDS Foundation East-West (2007). *Officially registered HIV cases by region of the Russian Federation—1 January 1987 through 30 June 2007*. Moscow. Available at <http://www.afew.org/english/statistics/HIVinRFregions.htm>
- Armenian National AIDS Foundation (2006). *Results of biological and behavioural HIV surveillance in the Republic of Armenia, 2002 and 2005*. Yerevan.
- Booth RE, Kwiatkowski CF, Brewster JT (2006). Predictors of HIV sero-status among drug injectors at three Ukraine sites. *AIDS*, 20(17):2217–2223.
- EuroHIV (2007). *HIV/AIDS surveillance in Europe: end-year report 2006*, No. 75. Saint-Maurice, Institut de Veille Sanitaire.
- Ladnaya NN (2007). The national HIV and AIDS epidemic and HIV surveillance in the Russian Federation. Presentation to “Mapping the AIDS Pandemic” meeting. 30 June. Moscow.
- Lazutkina I (2007). *Vertical transmission and medical-social support to women and children born to HIV-positive mothers in Orenburg oblast. Presentation to regional monitoring and evaluation workshop*. 5–7 June. Regional Centre for Preventing and Combating AIDS and Infectious Diseases. Orenburg.
- Ministry of Health Belarus (2007). HIV epidemic situation in the Republic of Belarus in 2006. *Information Bulletin*, 24. Minsk.

Ministry of Health Kazakhstan et al. (2005). Results of investigation of the real situation with drug abuse in Kazakhstan. Almaty (in Russian).

Ministry of Health Kyrgyzstan (2007). *Report of the Republican AIDS Centre for 2006*. Bishkek.

Ministry of Health Tajikistan (2007). Situation on HIV epidemic in the Republic of Tajikistan, according to the results of sentinel survey for 2006. Presentation to National Conference. 21–22 May. Dushanbe. Available at <http://www.caftar.com/clientzone/aids/> (in Russian).

Ministry of Health of Ukraine (2007). *HIV-infection in Ukraine: information bulletin no. 27*. Kiev. Ministry of Health of Ukraine, Ukrainian AIDS Centre, L.V. Gromashevskogo.

Republican Centre for AIDS Prevention and Control (2005). *Sentinel surveillance for HIV in Kazakhstan*. Almaty.

Russian Federal AIDS Centre (2007). *Officially registered HIV cases in Russian Federation: 1 January 1987—31 December 2006*. 14 February. Moscow, AIDS Foundation East West.

Sanchez JL et al. (2006). High HIV prevalence and risk factors among injection drug users in Tashkent, Uzbekistan, 2003–2004. *Drug and Alcohol Dependency*, 82(Suppl. 1):S15–22.

Ukrainian Institute for Social Research (2007). Linked surveillance Among IDU and MSM, 3rd National Conference on Monitoring and Evaluation in Ukraine, September. Ukrainian Institute for Social Research named after O Yaremenko, Ukrainian AIDS Centre, International HIV/AIDS Alliance in Ukraine.

Volkova GV (2007). *Trends of the HIV epidemic in St. Petersburg*. Presentation to Regional Monitoring and Evaluation Workshop. 18–20 April. Saint Petersburg, City AIDS Center.

WHO (2006a). *Belarus—HIV/AIDS country profile*. Available at [http://www.euro.who.int/aids/ctryinfo/overview/20060118\\_5](http://www.euro.who.int/aids/ctryinfo/overview/20060118_5)

WHO (2006b). *Republic of Moldova—HIV/AIDS country profile*. Available at [http://www.euro.who.int/aids/ctryinfo/overview/20060118\\_34](http://www.euro.who.int/aids/ctryinfo/overview/20060118_34)

## CARIBBEAN

---

AIDS Action (2007). *State facts: HIV/AIDS in Puerto Rico*. Washington.

Allen CF et al. (2006). Sexually transmitted infection use and risk factors for HIV infection among female sex workers in Georgetown, Guyana. *Journal of Acquired Immune Deficiency Syndromes*, 43(1):96–101.

Caribbean Commission on Health and Development (2005). *Report of the Caribbean Commission on Health and Development for the 26th Meeting of the CARICOM Heads of Government: Overview*. 3–6 July. Saint Lucia. Available at <http://www.cpc-paho.org/publications/publication.aspx?id=59>

Cayemittes M et al. (2006). *Enquête mortalité, morbidité et utilisation des services EMMUS-IV: Haïti 2005–2006*. July. Pétiön ville and Calverton, Institut Haïtien de l'Enfance, ORC Macro.

Gaillard EM et al. (2006). Understanding the reasons for decline of HIV prevalence in Haiti. *Sexually Transmitted Infections*, 82(2). April.

Gebre Y et al. (2006). Tracking the course of the HIV epidemic through second generation surveillance in Jamaica: survey of female sex workers. Abstract CDC0313. XVI International AIDS Conference. 13–18 August. Toronto.

Gupta S et al. (2006). Comparison of three methods to detect recent HIV-1 infection in specimens collected cross-sectionally in a cohort of female sex workers in the Dominican Republic. Abstract MOPE0439. XVI International AIDS Conference. 13–18 August. Toronto.

Hallett TB et al. (2006). Declines in HIV prevalence can be associated with changing sexual behaviour in Uganda, urban Kenya, Zimbabwe and urban Haiti. *Sexually Transmitted Infections*, 82(Suppl. 1):i1–i8.

Inciardi JA, Syvertsen JL, Surratt HL (2005). HIV/AIDS in the Caribbean Basin. *AIDS Care*, 17(Suppl. 1):S9–S25.

Kerrigan D et al. (2006). Environmental-structural interventions to reduce HIV/STI risk among female sex workers in the Dominican Republic. *American Journal of Public Health*, 96(1):120–125.

Ministère de la Santé Publique et de la Population (2007). Etude de sérosurveillance 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, 2006/2007. July. Port-au-Prince.

Ministry of Health The Bahamas (2006). Follow-up to the Declaration of Commitment on HIV/AIDS (UNGASS) Country Report. April. Nassau.

Ministry of Health Barbados (2007). *The 2006 epidemiological overview of HIV in Barbados*. Working draft. July. Bridgetown.

Ministry of Health Guyana (2007). *Guyana HIV antenatal care seroprevalence survey, 2006*. Georgetown.

Ministry of Health Jamaica (2007). *HIV and AIDS in Jamaica National Strategic Plan 2007–2012*. July. Kingston, National HIV/STI Programme, Ministry of Health.

Ministry of Health Trinidad and Tobago (2007). *HIV/AIDS morbidity and mortality report, Quarter 1 Report*. 22 May.

PAHO (2007). *AIDS in the Americas: the evolving epidemic, response and challenges ahead*. Washington, DC.

PAHO, WHO (2006). Assessment report for the evaluation of national services for the prevention of mother to child transmission of HIV and syphilis, 2000–2005. Washington, DC.

Secretaría de Estado de Salud Pública y Asistencia Social de República Dominicana (2007). *Resultados Preliminares de las Estimaciones de VIH/SIDA Nacionales de la República Dominicana 2006*. June. Santo Domingo.

Secretaría de Estado de Salud Pública y Asistencia Social de República Dominicana (2005b). *Encuestas de vigilancia del comportamiento sobre VIH/SIDA/ ITS en RSX y HSH del Área V de Salud*. January. Santo Domingo.

## LATIN AMERICA

---

Cohen J (2006). Up in smoke: epidemic changes course. *Science*, 313:487–488.

Dourado I et al. (2007). HIV-1 seroprevalence in the general population of Salvador, Bahia State, Northeast Brazil. *Cadernos de Saúde Pública*, 23(1):25–32.

IDES, et al. (2005). *HIV, HBV, HCV prevalence related to sexual behavior and drug use in 200 injecting drug users in Montevideo, Uruguay*. Ministry of Health. Montevideo.

Martínez GP, Elea NA, Chiu AM (2006). Epidemiology of HIV infection and acquired immune deficiency disease syndrome in Chile. *Revista Chilena Infectología*, 23(4):321–329.

Ministerio de Salud del Perú (2006). *Análisis de la situación epidemiológica del VIH/SIDA en el Perú – Bases Epidemiológicas para la Prevención y el Control*. Lima.

Ministerio de Salud y Deportes, ONUSIDA (2007a). *Diagnóstico situacional, monitoreo y evaluación de la implementación del compromiso UNGASS sobre el VIH/sida*. La Paz.

Ministerio de Salud y Deportes, ONUSIDA (2007b). *Plan para Alcanzar el Acceso Universal a la Prevención, Atención y Tratamiento del VIH/Sida en Bolivia 2006–2010*. La Paz.

Ministry of Health Honduras (2006). *Honduras: follow-up report to the Commitment on HIV/AIDS*. Tegucigalpa.

Montano SM et al. (2005). Prevalences, genotypes and risk factors for HIV transmission in South America. *Journal of Acquired Immune Deficiency Syndromes*, 40(1):57–64.

National AIDS Program Argentina (2005). *Epidemiological surveillance report. December*. Buenos Aires.

National AIDS Program Paraguay (2007). *Epidemiological surveillance report. February*. Asunción.

National AIDS Program Paraguay (2006). *HIV/STI sentinel prevalence and behavioral study on women after delivery*. Asunción.

National AIDS Program Uruguay (2007). *Epidemiological surveillance report February*. Montevideo.

Sanchez J et al. (2007). HIV-1, sexually transmitted infections, and sexual behavior trends among men who have sex with men in Lima, Peru. *Journal of Acquired Immune Deficiency Syndrome*, 44(5):578–585.

Secretaria de salud de Honduras et al. (2007a). *Estudio Centroamericano de vigilancia de comportamiento sexual y prevalencia de VIH/ITS en poblaciones vulnerables: Trabajadoras Sexuales, Agosto*. Tegucigalpa.

Secretaria de salud de Honduras et al. (2007b). *Estudio Centroamericano de vigilancia de comportamiento sexual y prevalencia de VIH/ITS en poblaciones vulnerables: Hombres que tienen sexo con hombres (HSH), Julio*. Tegucigalpa.

Silva ACM, Barone AA (2006). Risk factors for HIV infection among patients infected with hepatitis C virus. *Revista de Saúde Pública*, 40(3):482–488.

Soto RJ et al. (2007). Sentinel surveillance of sexually transmitted infection/HIV and risk behaviours in vulnerable populations in five Central American countries. *Journal of Acquired Immune Deficiency Syndromes*. Ahead of print.

UNAIDS, WHO (2006). *AIDS epidemic update*. Geneva.

## NORTH AMERICA, WESTERN AND CENTRAL EUROPE

---

Anderson JE, Mosher WD, Chandra A (2006). Percentage of persons aged 22–44 years at increased risk for human immunodeficiency virus (HIV) infection, by race/ethnicity and education – National Survey of Family Growth, United States, 2002. *Morbidity and Mortality Weekly Report*, 55(46):1255.

Boulos D et al. (2006) *Estimates of HIV prevalence and incidence in Canada, 2005*.

Canadian Communicable Disease Report, 32:165–174.

EuroHIV (2007). *HIV/AIDS surveillance in Europe: end-year report 2006*, No 76. Saint-Maurice, Institut de Veille Sanitaire. Available at <http://www.eurohiv.org>.

Hamers FF (2006). HIV/AIDS in Europe: trends in EU-wide priorities. *Eurosurveillance*, 11(11).

Health Protection Agency (2007). HIV and AIDS in the United Kingdom update: data to the end of March 2007. Health Protection Report, 1(17).

Public Health Agency of Canada (2006). *HIV and AIDS in Canada: surveillance report to June 30, 2006*. Ottawa. Available at: [www.phac-aspc.gc.ca/aids-sida/publication/index.html#surveillance](http://www.phac-aspc.gc.ca/aids-sida/publication/index.html#surveillance).

UNAIDS (2006). *Report on the global AIDS epidemic*. Geneva.

US Centers for Disease Control and Prevention (2007a). *HIV/AIDS surveillance report: cases of HIV infection and AIDS in the United States and dependent areas, 2005*. Vol. 17. Revised June 2007. Atlanta.

US Centers for Disease Control and Prevention (2007b). HIV/AIDS among blacks—Florida, 1999–2004. *Morbidity and Mortality Weekly Report*, 56:69–73.

US Centers for Disease Control and Prevention (2006). Revised Recommendations for HIV Testing of Adults, Adolescents, and Pregnant Women in Health-Care Settings. *Morbidity and Mortality Weekly Report*, 55 (14):1–17.

## MIDDLE EAST AND NORTH AFRICA

---

Obermeyer CM (2006). HIV in the Middle East. *British Medical Journal*, 333:851–854.

## OCEANIA

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Ministry of Health New Zealand (2007). *AIDS—New Zealand*. Issue 59. Auckland. Available at <http://www.moh.govt.nz/moh.nsf/indexmh/aids-nz-issue59>

National AIDS Council Secretariat Papua New Guinea (2007). *The 2007 consensus report on the HIV epidemic in Papua New Guinea*. Port Moresby.

National Centre in HIV Epidemiology and Clinical Research (2007). *Australian HIV Surveillance Report*, 23(1). January.

National Centre in HIV Epidemiology and Clinical Research (2006). *HIV/AIDS, viral hepatitis and sexually transmissible infections in Australia: annual surveillance report 2006*. Sydney.

Prestage G et al. (2006). Trends in unprotected anal intercourse among Sydney gay men. Abstract WEPE0721. XVI International AIDS Conference. 13–18 August. Toronto.







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UNAIDS  
20 AVENUE APPIA  
CH-1211 GENEVA 27  
SWITZERLAND

T (+41) 22 791 36 66  
F (+41) 22 791 48 35

[www.unaids.org](http://www.unaids.org)