# CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>GLOBAL OVERVIEW</strong></td>
<td>3</td>
</tr>
<tr>
<td><strong>REGIONAL OVERVIEW</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>SUB-SAHARAN AF RICA</strong></td>
<td>15</td>
</tr>
<tr>
<td><strong>ASIA</strong></td>
<td>21</td>
</tr>
<tr>
<td><strong>EASTERN EUROPE AND CENTRAL ASIA</strong></td>
<td>26</td>
</tr>
<tr>
<td><strong>CARIBBEAN</strong></td>
<td>29</td>
</tr>
<tr>
<td><strong>LATIN AMERICA</strong></td>
<td>31</td>
</tr>
<tr>
<td><strong>NORTH AMERICA, WESTERN AND CENTRAL EUROPE</strong></td>
<td>33</td>
</tr>
<tr>
<td><strong>MIDDLE EAST AND NORTH AFRICA</strong></td>
<td>35</td>
</tr>
<tr>
<td><strong>OCEANIA</strong></td>
<td>36</td>
</tr>
<tr>
<td><strong>MAPS</strong></td>
<td>37</td>
</tr>
<tr>
<td><strong>Global estimates for adults and children, 2007</strong></td>
<td>38</td>
</tr>
<tr>
<td><strong>Adults and children estimated to be living with HIV in 2007</strong></td>
<td>39</td>
</tr>
<tr>
<td><strong>Estimated number of adults and children newly infected with HIV during 2007</strong></td>
<td>40</td>
</tr>
<tr>
<td><strong>Estimated adult and child deaths from AIDS during 2007</strong></td>
<td>41</td>
</tr>
<tr>
<td><strong>BIBLIOGRAPHY</strong></td>
<td>43</td>
</tr>
</tbody>
</table>
Global summary of the AIDS epidemic
December 2007

Number of people living with HIV in 2007

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>[30.6 – 36.1 million]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>30.8 million</td>
<td>[28.2 – 33.6 million]</td>
</tr>
<tr>
<td>Women</td>
<td>15.4 million</td>
<td>[13.9 – 16.6 million]</td>
</tr>
<tr>
<td>Children under 15 years</td>
<td>2.5 million</td>
<td>[2.2 – 2.6 million]</td>
</tr>
</tbody>
</table>

People newly infected with HIV in 2007

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>[1.8 – 4.1 million]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>2.1 million</td>
<td>[1.4 – 3.6 million]</td>
</tr>
<tr>
<td>Children under 15 years</td>
<td>420 000</td>
<td>[350 000 – 540 000]</td>
</tr>
</tbody>
</table>

AIDS deaths in 2007

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>[1.9 – 2.4 million]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adults</td>
<td>1.7 million</td>
<td>[1.6 – 2.1 million]</td>
</tr>
<tr>
<td>Children under 15 years</td>
<td>330 000</td>
<td>[310 000 – 380 000]</td>
</tr>
</tbody>
</table>

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

- This bar indicates the range around the estimate.
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
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 treatment.

Table 1

<table>
<thead>
<tr>
<th>Region</th>
<th>Adults and children living with HIV</th>
<th>Adults and children newly infected with HIV</th>
<th>Adult prevalence (%)</th>
<th>Adult and child deaths due to AIDS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Saharan Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>22.5 million (20.9 million–24.3 million)</td>
<td>1.7 million (1.4 million–2.4 million)</td>
<td>5.0% (4.6%–5.5%)</td>
<td>1.6 million (1.5 million–2.0 million)</td>
</tr>
<tr>
<td>2001</td>
<td>20.9 million (19.7 million–23.6 million)</td>
<td>2.2 million (1.7 million–2.7 million)</td>
<td>5.8% (5.5%–6.6%)</td>
<td>1.4 million (1.3 million–1.9 million)</td>
</tr>
<tr>
<td>Middle East and North Africa</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>380 000 (270 000–500 000)</td>
<td>35 000 (16 000–65 000)</td>
<td>0.3% (0.2%–0.4%)</td>
<td>25 000 (20 000–34 000)</td>
</tr>
<tr>
<td>2001</td>
<td>300 000 (220 000–400 000)</td>
<td>41 000 (17 000–58 000)</td>
<td>0.3% (0.2%–0.4%)</td>
<td>22 000 (11 000–39 000)</td>
</tr>
<tr>
<td>South and South-East Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>4.0 million (3.3 million–5.1 million)</td>
<td>340 000 (180 000–740 000)</td>
<td>0.3% (0.2%–0.4%)</td>
<td>270 000 (230 000–380 000)</td>
</tr>
<tr>
<td>2001</td>
<td>3.5 million (2.9 million–4.5 million)</td>
<td>450 000 (150 000–800 000)</td>
<td>0.3% (0.2%–0.4%)</td>
<td>170 000 (120 000–220 000)</td>
</tr>
<tr>
<td>East Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>800 000 (620 000–960 000)</td>
<td>92 000 (21 000–220 000)</td>
<td>0.1% (&lt;0.2%)</td>
<td>32 000 (28 000–49 000)</td>
</tr>
<tr>
<td>2001</td>
<td>420 000 (350 000–510 000)</td>
<td>77 000 (4900–130 000)</td>
<td>&lt;0.1% (&lt;0.2%)</td>
<td>12 000 (8200–17 000)</td>
</tr>
<tr>
<td>Oceania</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>75 000 (53 000–120 000)</td>
<td>14 000 (11 000–26 000)</td>
<td>0.4% (0.3%–0.7%)</td>
<td>120 000 (&lt;500–2700)</td>
</tr>
<tr>
<td>2001</td>
<td>26 000 (19 000–39 000)</td>
<td>3800 (3000–5600)</td>
<td>0.2% (0.1%–0.3%)</td>
<td>&lt;500 (1100)</td>
</tr>
<tr>
<td>Latin America</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1.6 million (1.4 million–1.9 million)</td>
<td>100 000 (47 000–220 000)</td>
<td>0.5% (0.4%–0.6%)</td>
<td>58 000 (49 000–91 000)</td>
</tr>
<tr>
<td>2001</td>
<td>1.3 million (1.2 million–1.6 million)</td>
<td>130 000 (56 000–220 000)</td>
<td>0.4% (0.3%–0.5%)</td>
<td>51 000 (44 000–100 000)</td>
</tr>
<tr>
<td>Caribbean</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>230 000 (210 000–270 000)</td>
<td>17 000 (15 000–23 000)</td>
<td>1.0% (0.9%–1.2%)</td>
<td>11 000 (9800–18 000)</td>
</tr>
<tr>
<td>2001</td>
<td>190 000 (180 000–250 000)</td>
<td>20 000 (17 000–25 000)</td>
<td>1.0% (0.9%–1.2%)</td>
<td>14 000 (13 000–21 000)</td>
</tr>
<tr>
<td>Eastern Europe and Central Asia</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1.6 million (1.2 million–2.1 million)</td>
<td>150 000 (70 000–290 000)</td>
<td>0.9% (0.7%–1.2%)</td>
<td>55 000 (42 000–88 000)</td>
</tr>
<tr>
<td>2001</td>
<td>630 000 (490 000–1.1 million)</td>
<td>230 000 (98 000–340 000)</td>
<td>0.4% (0.3%–0.6%)</td>
<td>8000 (5000–14 000)</td>
</tr>
<tr>
<td>Western and Central Europe</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>760 000 (600 000–1.1 million)</td>
<td>31 000 (19 000–86 000)</td>
<td>0.3% (0.2%–0.4%)</td>
<td>12 000 (&lt;15 000)</td>
</tr>
<tr>
<td>2001</td>
<td>620 000 (500 000–870 000)</td>
<td>32 000 (19 000–76 000)</td>
<td>0.2% (0.1%–0.3%)</td>
<td>10 000 (&lt;15 000)</td>
</tr>
<tr>
<td>North America</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>1.3 million (480 000–1.9 million)</td>
<td>46 000 (38 000–68 000)</td>
<td>0.6% (0.5%–0.9%)</td>
<td>21 000 (18 000–31 000)</td>
</tr>
<tr>
<td>2001</td>
<td>1.1 million (390 000–1.6 million)</td>
<td>44 000 (40 000–63 000)</td>
<td>0.6% (0.4%–0.8%)</td>
<td>21 000 (18 000–31 000)</td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2007</td>
<td>33.2 million (30.6 million–36.1 million)</td>
<td>2.5 million (1.8 million–4.1 million)</td>
<td>0.8% (0.7%–0.9%)</td>
<td>2.1 million (1.9 million–2.4 million)</td>
</tr>
<tr>
<td>2001</td>
<td>29.0 million (26.9 million–32.4 million)</td>
<td>3.2 million (2.1 million–4.4 million)</td>
<td>0.8% (0.7%–0.9%)</td>
<td>1.7 million (1.6 million–2.3 million)</td>
</tr>
</tbody>
</table>
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 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 [49,000–130,000] 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

---

1 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.
Deaths due to AIDS among children had increased from 330,000–560,000 in 2001 to 360,000–540,000 in 2005, but have now begun to decline to an estimated 330,000–380,000 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. 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 1100 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.
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

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

* 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


<table>
<thead>
<tr>
<th>Country</th>
<th>Analysis in 2006/2007</th>
<th>Prevalence trend*</th>
<th>Age at sexual debut**</th>
<th>Sex with non-regular partner***</th>
<th>Condom use during sex with non-regular partner****</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Urban</td>
<td>Rural</td>
<td>Females</td>
<td>Males</td>
</tr>
<tr>
<td>Angola*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Bahamas</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Benin**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Botswana</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Burundi</td>
<td>2006/2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cameroon*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Central African Republic**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chad*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Congo*</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Côte d’Ivoire</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Democratic Republic of the Congo*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Djibouti**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ethiopia**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gabon**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gambia**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ghana**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Haiti**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Kenya</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lesotho*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberia**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malawi*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mozambique**</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Namibia</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nigeria*</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rwanda</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sierra Leone*</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>South Africa*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sudan*</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Swaziland</td>
<td>2007</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Togo*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Uganda**</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>United Republic of Tanzania</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zambia*</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>2006</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

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

**Legend:**
- Consistent sites used in the analysis of median prevalence by year for a minimum of three years. Significance test based on H, slope=0
- Analyses of countries with more than three years of data based on the following number of consistent urban and rural sites: Botswana (7), Namibia (10); [Burundi (3,3)], Côte d’Ivoire (9 urban), Kenya (2013), Malawi (11,8), Mozambique (5 South, 8 Central, 7 North), Rwanda (6 urban), United Republic of Tanzania (11,8), Zimbabwe (7).
- 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.
- Insufficient data, i.e. less than three years of data received for prevalence analysis.
- 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 WGS process; analyses based on data in South Africa surveillance report.
- No data received in response to WGS process; analyses based on data reported in Zambia 2003 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 proportion 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.
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 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 & and 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 Asab 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


**Figure 7**


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 4.0% 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’Hygiéne 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.
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

![HIV prevalence among pregnant women in Viet Nam, 1994–2005](source)
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 STDs (NCHADS), 2007).

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

---

**Figure 10**

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

![HIV prevalence graph](image-url)

Source: National Center for HIV/AIDS, Dermatology and STDs (NCHADS).
HIV prevalence among various groups in Myanmar, 1992–2006


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 8,700 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, Nikolaiv 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

<table>
<thead>
<tr>
<th>Number of registered cases</th>
<th>&lt; 1000</th>
<th>1000 – 3999</th>
<th>4000 – 8999</th>
<th>&gt; 9000</th>
</tr>
</thead>
</table>

* 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.


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 attributed 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 Tenirtau 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).
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.
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).
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

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
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).

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).
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.
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).
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
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

Total: 33.2 (30.6–36.1) million
Estimated number of adults and children newly infected with HIV during 2007

Total: 2.5 (1.8 – 4.1) million
Estimated adult and child deaths from AIDS during 2007

Total: 2.1 (1.9 – 2.4) million
BIBLIOGRAPHY

GLOBAL OVERVIEW


SUB-SAHARAN AFRICA


Hargrove JW et al. (2005). Declining HIV prevalence and incidence in women attending maternity clinics in greater Harare, Zimbabwe. (Submitted for publication)


Ministère de la Santé du Rwanda (2005). Suveillance 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.


**ASIA**


**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.


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.


CARIBBEAN


**LATIN AMERICA**


Secretaría 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)*. Tegucigalpa.


NORTHERN AMERICA, WESTERN AND CENTRAL EUROPE


MIDDLE EAST AND NORTH AFRICA


OCEANIA


UNAIDS, the Joint United Nations Programme on HIV/AIDS, brings together the efforts and resources of ten UN system organizations to the global AIDS response. Cosponsors include UNHCR, UNICEF, WFP, UNDP, UNFPA, UNODC, ILO, UNESCO, WHO and the World Bank. Based in Geneva, the UNAIDS secretariat works on the ground in more than 80 countries worldwide.
The annual AIDS epidemic update reports on the latest developments in the global AIDS epidemic. With maps and regional summaries, 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.