Epidemiological Patterns and Trends and their Implications for HIV Prevention

P. D. Ghys, K. Stanecki
Early projections of the AIDS epidemic
(Chin et al projections)

Cumulative (cum.) adult AIDS cases by the Delphi projection of HIV prevalence (scenario 1, with no coordination) and the WHO model for Forecasting AIDS cases, 1980–2000.*

*Only a small proportion of worldwide cumulative adult AIDS cases projected for mid-2000 will occur prior to 1990.

Estimated number of adults and children living with HIV by region, 1986–2005

Source: WHO/UNAIDS, 2006
Global HIV prevalence in adults, 1985

Source: WHO/UNAIDS, 2006
Global HIV prevalence in adults, 1995

Source: WHO/UNAIDS, 2006
Global HIV prevalence in adults, 2005

Source: WHO/UNAIDS, 2006
HIV prevalence (%) in adults in Africa, 2005

In sub-Saharan Africa, national surveys have lead to improved understanding and estimates

<table>
<thead>
<tr>
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</tr>
</thead>
<tbody>
<tr>
<td>Botswana</td>
<td>38.5</td>
<td>25.2 (2004)</td>
<td>38.0</td>
<td>24.0</td>
<td>24.1</td>
<td>Stable</td>
</tr>
<tr>
<td>Burkina Faso</td>
<td>2.5</td>
<td>1.8 (2003)</td>
<td>4.2</td>
<td>2.1</td>
<td>2.0</td>
<td>Decline in urban areas</td>
</tr>
<tr>
<td>Burundi</td>
<td>4.8</td>
<td>3.6 (2002)</td>
<td>6.0</td>
<td>3.3</td>
<td>3.3</td>
<td>Decline in capital city</td>
</tr>
<tr>
<td>Cameroon</td>
<td>7.3†</td>
<td>5.5 (2004)</td>
<td>7.0</td>
<td>5.5</td>
<td>5.4</td>
<td>Stable</td>
</tr>
<tr>
<td>Chad</td>
<td>4.6</td>
<td>3.3 (2005)†</td>
<td>4.9</td>
<td>3.4</td>
<td>3.5</td>
<td>Stable</td>
</tr>
<tr>
<td>Ethiopia</td>
<td>8.5</td>
<td>1.6 (2005)‡</td>
<td>4.4</td>
<td>(1.0–3.5)</td>
<td>(0.9–3.5)</td>
<td>Decline in urban areas</td>
</tr>
<tr>
<td>Ghana</td>
<td>3.1</td>
<td>2.2 (2003)</td>
<td>3.1</td>
<td>2.3</td>
<td>2.3</td>
<td>Stable</td>
</tr>
<tr>
<td>Guinea</td>
<td>4.2</td>
<td>1.5 (2005)</td>
<td>2.8</td>
<td>1.6</td>
<td>1.5</td>
<td>Stable</td>
</tr>
<tr>
<td>Lesotho</td>
<td>28.4</td>
<td>23.5 (2004)</td>
<td>29.3</td>
<td>23.7</td>
<td>23.2</td>
<td>Stable</td>
</tr>
<tr>
<td>Rwanda</td>
<td>4.6</td>
<td>3.0 (2005)</td>
<td>5.1</td>
<td>3.8</td>
<td>3.1</td>
<td>Decline in urban areas</td>
</tr>
<tr>
<td>Senegal</td>
<td>1.9</td>
<td>0.7 (2005)</td>
<td>0.8</td>
<td>0.9</td>
<td>0.9</td>
<td>Stable</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>3.0</td>
<td>1.5 (2005)</td>
<td>-</td>
<td>1.6</td>
<td>1.6</td>
<td>Stable</td>
</tr>
<tr>
<td>South Africa</td>
<td>29.5</td>
<td>16.2 (2005)</td>
<td>20.9</td>
<td>18.6</td>
<td>18.8</td>
<td>Increasing</td>
</tr>
<tr>
<td>UR Tanzania</td>
<td>7.0</td>
<td>7.0 (2004)</td>
<td>9.0</td>
<td>6.6</td>
<td>6.5</td>
<td>Stable</td>
</tr>
<tr>
<td>Uganda</td>
<td>6.2‡</td>
<td>7.1 (2004–5)</td>
<td>4.1</td>
<td>6.8</td>
<td>6.7</td>
<td>Stable</td>
</tr>
</tbody>
</table>


Source: 2006 Report on the global AIDS epidemic, UNAIDS
HIV prevalence (%) by gender and urban/rural residence, selected sub-Saharan African countries, 2001–2005

15–49 years old, by gender

15–24 years old, by gender

15–49 years old, by urban/rural residence

Geographical variation: HIV prevalence by province
Kenya DHS 2003

<table>
<thead>
<tr>
<th>Province</th>
<th>% HIV Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nyanza</td>
<td>15.1</td>
</tr>
<tr>
<td>Nairobi</td>
<td>9.9</td>
</tr>
<tr>
<td>Coast</td>
<td>5.8</td>
</tr>
<tr>
<td>Rift Valley</td>
<td>5.3</td>
</tr>
<tr>
<td>Western</td>
<td>4.9</td>
</tr>
<tr>
<td>Central</td>
<td>4.9</td>
</tr>
<tr>
<td>Eastern</td>
<td>4.0</td>
</tr>
<tr>
<td>North Eastern</td>
<td>0.0</td>
</tr>
</tbody>
</table>

HIV prevalence (%) among pregnant women attending antenatal clinics in sub-Saharan Africa, 1997/98–2004

**Southern Africa**

- Swaziland
- Zimbabwe
- Mozambique
- South Africa

**Eastern Africa**

- United Republic of Tanzania
- Ethiopia
- Kenya

**West Africa**

- Burkina Faso
- Côte d'Ivoire
- Ghana
- Senegal

**Note**: Analysis restricted to consistent surveillance sites for all countries except South Africa (by province) and Swaziland (by region).

Sources: Ministry of Health (Mozambique); Department of Health (South Africa); Ministry of Health and Social Welfare (Swaziland); Ministry of Health and Child Welfare (Zimbabwe); Adapted from Asamoah-Odei, et al. HIV prevalence and trends in sub-Saharan Africa: no decline and large subregional differences. Lancet, 2004 (Ethiopia); Ministry of Health—National AIDS/STD Control Programme (Kenya); Ministry of Health (United Republic of Tanzania); Conseil national de lutte contre le sida et les IST (Burkina Faso); Centers for Disease Control and Prevention (CDC)—GAP—Côte d'Ivoire (Côte d'Ivoire); Ghana Health Service (Ghana); Conseil National de Lutte Contre le SIDA (Senegal).
HIV prevalence (%) in adults in Asia and Oceania, 2005

# HIV prevalence among men who have sex with men in selected parts of Asia, 2003–2005

<table>
<thead>
<tr>
<th>Country</th>
<th>Location</th>
<th>Year</th>
<th>HIV Prevalence</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAMBODIA</td>
<td>Phnom Penh (2005)</td>
<td></td>
<td>8.9%</td>
</tr>
<tr>
<td></td>
<td>Provinces (2005)</td>
<td></td>
<td>0.8%</td>
</tr>
<tr>
<td>CHINA</td>
<td>Beijing (2004)</td>
<td></td>
<td>0.8%</td>
</tr>
<tr>
<td></td>
<td>Beijing (2005)</td>
<td></td>
<td>4.6%</td>
</tr>
<tr>
<td>NEPAL</td>
<td>Kathmandu (2005)</td>
<td></td>
<td>4.7%</td>
</tr>
<tr>
<td>THAILAND</td>
<td>Bangkok (2003)</td>
<td></td>
<td>17.3%</td>
</tr>
<tr>
<td></td>
<td>Bangkok (2005)</td>
<td></td>
<td>28.3%</td>
</tr>
<tr>
<td></td>
<td>Chiang Mai (2005)</td>
<td></td>
<td>15.3%</td>
</tr>
<tr>
<td></td>
<td>Phuket (2005)</td>
<td></td>
<td>5.5%</td>
</tr>
<tr>
<td>VIET NAM</td>
<td>Khanh Hoa province  (2005)</td>
<td></td>
<td>0.0%</td>
</tr>
</tbody>
</table>

Recent steep rises in HIV infection among drug injectors has been followed by a rise in HIV among sex workers in parts of China, Indonesia and Vietnam.

Source: National surveillance reports. [AIDS in Asia, Face the Facts. 2004 MAP Report]
Estimated number of new HIV infections in Thailand by year and changing mode of transmission

New HIV infections (number of people, in thousands)

IDU: HIV transmission through injecting drug use; MTCT: mother to child transmission of HIV
Spouse: heterosexual transmission of HIV in cohabiting partnerships; SW: HIV transmission through sex work

HIV prevalence (%) trends in India among injecting drug users and pregnant women, selected areas, India, 1998–2004*

*Data from consistent surveillance sites only.

HIV prevalence (%) in adults in Eastern Europe and Central Asia, 2005

Increase in reported HIV cases in the Russian Federation and Ukraine, 1987–2005

Reported HIV cases in the Russian Federation

Reported HIV cases in Ukraine

Sources: Russian Federal AIDS Centre; Ukrainian AIDS Centre and Ministry of Health of Ukraine. [2006 report on the global AIDS epidemic, UNAIDS]
HIV prevalence among injecting drug users, sex workers and men who have sex with men in Central Asia, 2005

- **Injecting drug users**
  - Kazakhstan: 10.4%
  - Uzbekistan: 52.5%

- **Sex workers**
  - Kyrgyzstan: 2.0%
  - Kazakhstan: 15.0%
  - Uzbekistan: 4.5%

- **Sex workers who were injecting drug users**
  - Kazakhstan: 44.0%
  - Uzbekistan: 52.5%

- **Sex workers who were not injecting drug users**
  - Kazakhstan: 2.0%
  - Uzbekistan: 4.5%

- **Men who have sex with men**
  - 0.3%

* *Kazakhstan, Kyrgyzstan, Tajikistan and Uzbekistan*

Sources: CDC Central Asia offices (Almaty & Tashkent), National and City HIV/AIDS centers [XVI International AIDS Conference abstract]
HIV prevalence (%) in adults in Latin America and the Caribbean, 2005

HIV prevalence (%) among female sex workers and men who have sex with men in Latin America, 1999–2002

Trends in ART treatment

Percentage of people in sub-Saharan Africa on antiretroviral therapy among those in need

Number of people on antiretroviral therapy in low- and middle-income countries, 2002–2006