REGIONAL OVERVIEW

SUB-SAHARAN AFRICA

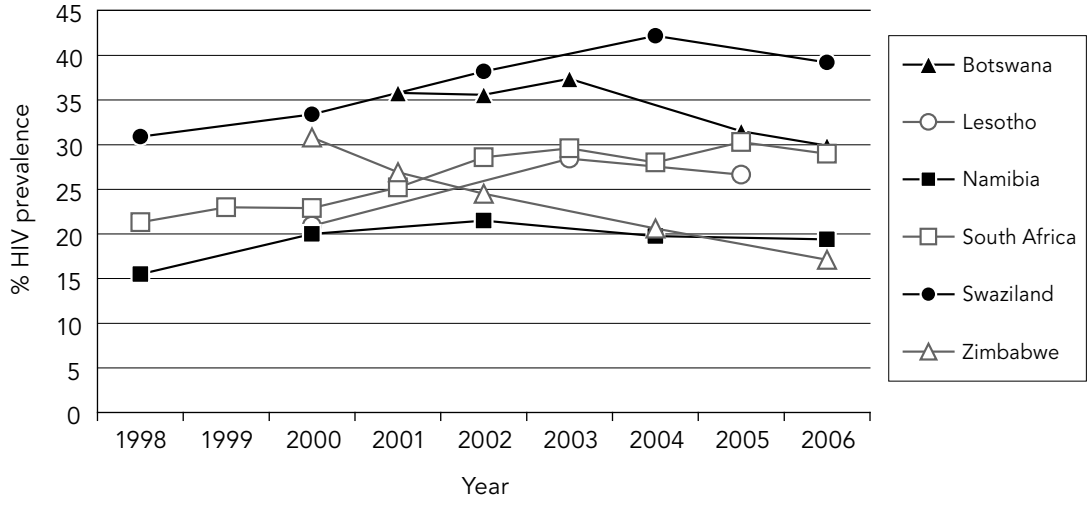
Sub-Saharan Africa remains the most affected region in the global AIDS epidemic. More than two thirds (68%) of all people HIV-positive live in this region where more than three quarters (76%) of all AIDS deaths in 2007 occurred. It is estimated that 1.7 million [1.4 million-2.4 million] people were newly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

Southern Africa

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

Figure 6

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



Sources: Various antenatal clinic surveys.

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

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

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

According to preliminary data from a new population-based survey in **Swaziland**, aproximately one in four (26%) adults (15-49 years) are infected with HIV. Both antenatal and population-based survey data show little difference in HIV prevalence between regions, but there is a significant difference in infection levels between men and women: 20% of adult men tested HIV-positive, compared to 31% of women (Ministry of Health and Social Welfare Swaziland, 2007; Central Statistical Office Swaziland & Macro International, 2007).

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

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

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

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

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

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

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

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

East Africa

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

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

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

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

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

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

HIV prevalence has declined also in the **United Republic of Tanzania**. The most recent information shows HIV prevalence among antenatal clinic attendees in Zanzibar ranging from 0.7% in Unguja to 1.4% in Pemba (Salum et al., 2003), while in mainland Tanzania it was 8.7% among women using antenatal services in 2003-2004, down from 9.6% in 2001-2002 (Swai et al., 2006). On the mainland, a national population-based HIV survey in 2003-2004 found adult HIV prevalence of 7% in 2003-2004 (Tanzania Commission for AIDS, National Bureau of Statistics & 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 Assab in the far south, to 4.2% in the capital, Asmara, and 3.3% in Massawa, another port city (Ministry of Health Eritrea, 2006).

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

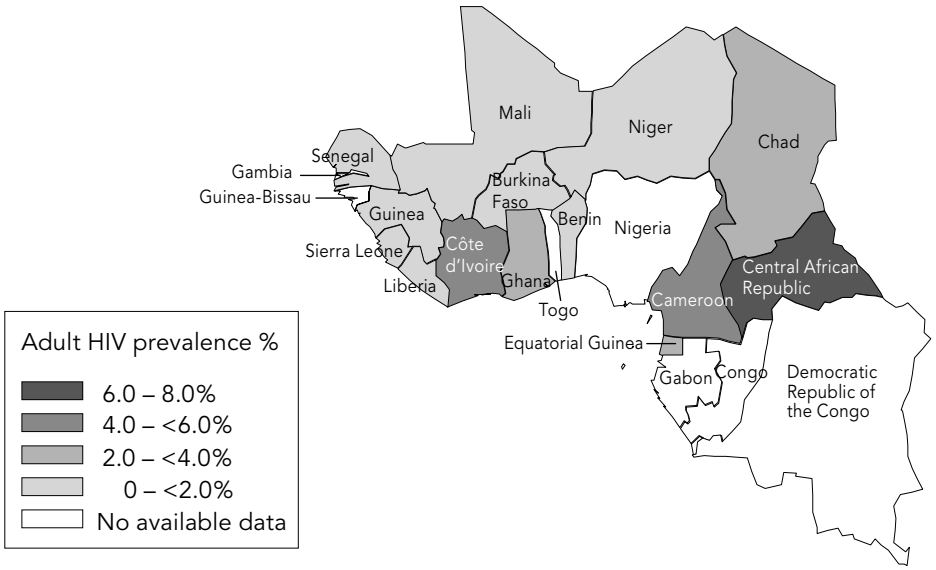
West and Central Africa

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

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

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

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



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

Figure 7

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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