

# EPIDEMIOLOGY OF HIV/AIDS IN SOUTH AFRICA

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The Joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organisation (WHO) have estimated that at the end of 1999 there were 33.4 million people (32.4 million adults and 1.2 million children) infected with HIV. Approximately 96% of people with HIV/AIDS live in the developing world and recent estimates suggest that of all people infected with HIV worldwide, 70% (6 out of every 10 men, 8 of every 10 women, and 9 of every 10 children) live in sub-Saharan Africa.

It is estimated that more than 40 million people globally will be HIV-positive by the end of this year, and still no cure has been found. The impact of the epidemic is already being felt in most developing countries, including South Africa. Life expectancy has been significantly reduced as many people in the 15 - 49-year age group are now dying of AIDS.

## Major causes and determinants of the epidemic in South Africa

Both immediate and underlying factors are contributing to HIV transmission in South Africa. Immediate determinants of the HIV/AIDS epidemic include behavioural factors such as the frequency of unprotected sexual intercourse and multiple sexual partners, and biological factors such as the high prevalence of sexually transmitted diseases (STDs).<sup>1</sup> Underlying determinants include socio-economic factors such as poverty, the migrant labour system, the practice of commercial sex, the low status of women, illiteracy, lack of formal education, stigmatisation and discrimination.<sup>1</sup>

## HIV prevalence in women attending antenatal clinics

The South African Department of Health (DOH) has conducted unlinked anonymous HIV seroprevalence surveys of women attending publicly funded antenatal clinics since 1990.<sup>2</sup> The objectives of these surveys include the following: (i) to determine HIV prevalence in women attending antenatal clinics; (ii) to monitor trends in HIV seroprevalence in this population over time; and (iii) to utilise these data to estimate HIV prevalence in the general population. The surveys utilise an unlinked testing methodology in October of each year in order to provide an unbiased estimate of HIV prevalence in pregnant women attending publicly funded antenatal clinics. Data from these annual surveys provide the best estimate of HIV prevalence and trends over time in South Africa. Fig. 1 presents HIV seroprevalence data from the surveys

for the period 1991 - 1999. These data indicate that HIV seroprevalence has risen dramatically from the beginning of the surveys to 1999.

The National HIV seroprevalence rates are similar for women attending antenatal clinics in 1998 and 1999. This may suggest that the efforts of both Government and civil society to prevent HIV transmission are succeeding. It is too early, however, to draw firm conclusions from these statistics. The point prevalence rates for these years are associated with 95% confidence intervals (CIs). Utilising the lower 95% CI for 1998 and the higher interval for 1999 suggests a continuing increase in HIV prevalence, rather than this reaching a plateau. Rising AIDS death rates and declining fertility among HIV-positive women and possible changes in survey methodology can produce variations in HIV prevalence estimates.

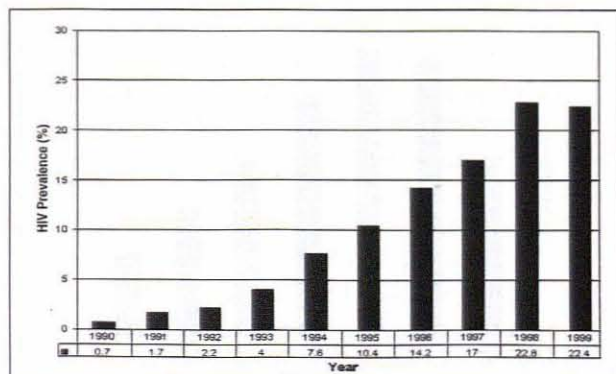


Fig. 1. HIV seroprevalence in women attending publicly funded antenatal clinics, South Africa, 1990 - 1999.

## HIV prevalence in the general population

HIV seroprevalence data in women attending publicly funded antenatal clinics are used to estimate HIV prevalence in the general population. The limitations of this survey include the inability to survey HIV prevalence among pregnant women attending private antenatal clinics; and the inability to provide HIV prevalence rates for children, men, the elderly, those not sexually active, and for individuals who have adopted safer sexual behaviours that also prevent pregnancy.

As a result, HIV prevalence among women attending antenatal clinics may overestimate the general population prevalence for individuals under age 25 years, and underestimate the prevalence in people over 30. In addition, women under 25 years attending antenatal clinics may have a higher HIV prevalence compared with those under 25 who may not be sexually active or who may have adopted safer sexual practices. HIV-infected women over 30 years old may have reduced fertility, and so testing only women who attend antenatal clinics could overestimate the HIV prevalence in the general population.

It is therefore difficult to extrapolate antenatal clinic HIV statistics to the general population, and mathematical models that generate projections produce different results depending on how the limitations of antenatal clinic data are addressed.

Following a 1998 meeting that reviewed the various projections available, the DOH estimated that there would be approximately 3.9 million HIV-infected South Africans in 1999.<sup>3</sup> Based on 1999 antenatal clinic data, the DOH and UNAIDS now estimate that about 4.2 million South Africans are infected with HIV,<sup>3</sup> and a recent independent report estimated that there are currently 3.5 million HIV-infected South Africans.<sup>1</sup>

According to 1999 estimates, more than 1 700 people were infected with HIV each day, leading to a total of more than 550 000 new infections in 1999. The DOH estimates that 10% of the general population and 12% of adults aged 15 - 49 years were HIV-infected in 1999, and that by the year 2005, this will escalate to 6 million infected South Africans, with almost 1 million children under the age of 15 having lost their mothers to AIDS.

## AIDS

AIDS is currently not a notifiable disease in South Africa and voluntary reporting seriously underestimates the number of people with AIDS. The DOH estimates that in 1998 there were approximately 160 000 people living with AIDS and 120 000 AIDS deaths.<sup>3</sup> Projections predict that by the year 2002, 250 000 South Africans will die of AIDS each year, and that this figure will rise to more than 1 million per year by 2008. Average life expectancy is expected to fall from 60 years to 40 years between 1998 and 2008.

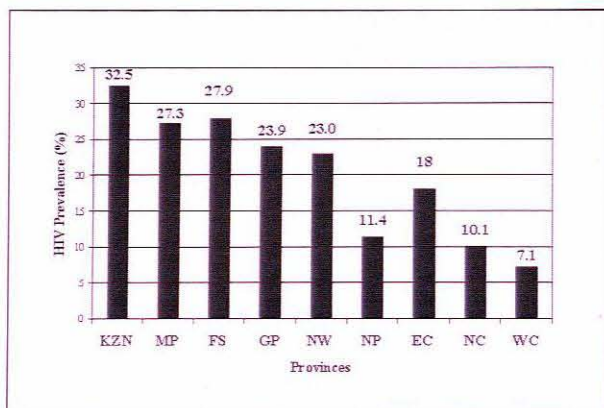


Fig. 2. HIV prevalence in pregnant women attending public antenatal clinics, by province, South Africa, 1999 (KZN - KwaZulu-Natal; MP - Mpumalanga; FS - Free State; GP - Gauteng; NW - North West; NP - Northern Province; EC - Eastern Cape; NC - Northern Cape; WC - Western Cape).

Fig. 2 presents HIV prevalence data by province for women attending antenatal clinics in 1999. These data show that there are geographical disparities in the distribution of the HIV/AIDS epidemic in South Africa. In addition to differences in HIV seroprevalence between provinces, there are also differences within provinces. These geographical differences have persisted since the initiation of the surveys.

Fig. 3 presents HIV prevalence data by age group for women attending antenatal clinics in 1999. These data indicate that the highest HIV seroprevalence is in women aged 20 - 30 years, although prevalence rates are high in all age groups. Because individuals can be HIV-positive for several years before the development of symptoms leading to a diagnosis of AIDS, it is estimated that more than half of all new HIV infections in women occur in those aged under 20 years.

The conclusions that can be reached from assessing the data are: (i) that the HIV epidemic in South Africa is one of the fastest growing epidemics in the world; (ii) that young women aged 20 - 30 years have the highest prevalence rates; (iii) that HIV prevalence varies by province from 7.1% to 32.5%, with lower rates in the Western Cape and higher rates in KwaZulu-Natal; and (iv) that the HIV epidemic is affecting young, black, and economically poor sub-populations of South Africa more severely than other groups in the country.

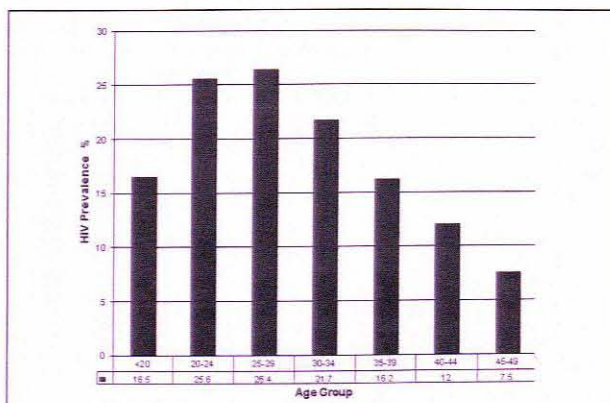


Fig. 3. HIV seroprevalence in women attending antenatal clinics, by age group, South Africa, 1999.

## Tuberculosis and HIV/AIDS

Closely linked to the HIV/AIDS epidemic is the tuberculosis (TB) epidemic in South Africa. HIV increases the risk of developing active TB for those who have been infected with TB earlier in life. The 10% lifetime risk of developing active TB increases to a 10% annual risk in HIV-infected individuals. In 1998, the annual South African incidence of TB was 283/100 000 - among the highest incidence rates in the world. Currently about half of all TB cases are thought to be attributable to underlying HIV infection. In South Africa, TB is the most frequent cause of death for people infected with HIV. In some hospitals in South Africa, the HIV prevalence rate among TB patients has been found to be as high as 70%.

## STDs

There is compelling evidence of the importance of both ulcerative and non-ulcerative STDs as major determinants of HIV transmission.

Currently there is no national STD surveillance system, but estimates derived from the 1998 South African Demographic and Health Survey (SADHS)<sup>4</sup> that was based on a nationally representative sample selected from the 1996 census data, project that there are approximately 11 million STD episodes treated annually in South Africa, with around 5 million of these managed by private general practitioners. Even in the absence of the HIV epidemic, STDs pose an important public health problem. Table 1 presents data on symptoms of STDs in men. These data indicate that almost 12% of adult men in South Africa reported STD symptoms within the 3 months preceding the survey.

| Age group (yrs) | Men with painful urination or discharge (%) | Men with genital sores (%) | Men with both (%) | Number of men |
|-----------------|---|----------------------------|-------------------|---------------|
| 15 - 24         | 10.4  | 5.6                        | 12.1              | 1 816         |
| 25 - 34         | 11.6  | 6.0                        | 13.9              | 1 123         |
| 35 - 44         | 10.4  | 5.3                        | 12.0              | 1 005         |
| 45 - 54         | 9.2   | 5.0                        | 10.6              | 701           |
| 55 - 64         | 10.1  | 2.6                        | 10.3              | 518           |
| 65+             | 9.2   | 3.2                        | 10.1              | 507           |
| <b>Total</b>    | <b>10.4</b>                                 | <b>5.0</b>                 | <b>11.9</b>       | <b>5 671</b>  |

Table 1. Percentage of men aged 15 years and over who reported having had painful urination or penile discharge, genital sores or both in the 3 months preceding the survey, by age, South Africa, 1998.



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## Future Directions in HIV/AIDS Epidemiology

Estimating the number of persons with HIV infection and AIDS is important for programme planning, monitoring, and evaluation. The National HIV seroprevalence survey of women attending antenatal clinics provides important information for this purpose. There is a need to supplement these data with additional information in order to characterise the HIV and AIDS epidemics more accurately, and to monitor and evaluate current interventions. The HIV/AIDS/STD Strategic Plan, South Africa 2000 - 2005 describes several objectives in this area, including: (i) describing the incidence of new HIV infections; (ii) determining national changes in HIV and STD risk behaviour (for both sexual and drug-use risk behaviours); (iii) determining HIV prevalence in HIV-related public health indicators, such as clients attending STD and TB clinics; (iv) determining HIV prevalence in selected general populations; (v) describing AIDS-related morbidity and mortality; and (vi) developing national STD surveillance.<sup>5</sup>

## Conclusion

HIV/AIDS is the most important threat to the reconstruction and development of South Africa. Best available information indicates that in 1999 there were approximately 3.2 - 4.2 million South Africans infected with HIV and 160 000 people living with AIDS, with 120 000 AIDS-related deaths. The numbers of HIV-infected South Africans and AIDS-related deaths are expected to continue to rise over the next 5 years. HIV/AIDS represents a significant emergency facing South Africa. There is a need to develop additional efforts to characterise the HIV/AIDS epidemic and to accelerate the implementation of prevention, treatment, and care programmes.

## REFERENCES

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