South Africa
HIV & AIDS Statistics

The statistics discussed here come from two prevalence studies that estimate how many South Africans have HIV, and two reports on AIDS deaths. Viewed together these sources give an idea of the scale of South Africa's HIV epidemic. If you are looking for statistics from elsewhere, try our statistics index.

The first section is based on the report of the Department of Health "National HIV and Syphilis Sero-prevalence Survey in South Africa 2006", published in 2007. This is the 17th in a series of annual studies which look at data from antenatal clinics and use it to estimate HIV prevalence amongst pregnant women.

The second section is based on the report of the "South African National HIV Prevalence, HIV Incidence, Behaviour and Communiaction Survey, 2005". In this survey, a sample of people were chosen to represent the general population, 55% of whom agreed to give a blood sample to be anonymously tested for HIV. The report contains estimates of HIV prevalence in various groups of people, derived from this general population sample.

Seen together, the two prevalence studies provide a clearer picture of the South African epidemic than either of them viewed alone.

The third section looks at AIDS-related deaths using data from death certificates. Three reports published by Statistics South Africa contain the raw data, while the article "Identifying deaths from AIDS in South Africa" analyses a large sample of death certificates and attempts to estimate how many deaths caused by HIV have been misclassified.

The page goes on to compare the two types of prevalence study and to draw conclusions.

The South African Department of Health Study, 2006

Based on its sample of 33,033 women attending 1,415 antenatal clinics across all nine provinces, the South African Department of Health Study estimates that 29.1% of pregnant women were living with HIV in 2006. The provinces that recorded the highest HIV rates were KwaZulu-Natal, Mpumalanga and Free State.

Until 1998 South Africa had one of the fastest expanding epidemics in the world, but HIV prevalence now appears to have stabilized, and may even be declining slightly. Among teenage girls, the rate fell from 15.9% in the 2005 survey to 13.7% in 2006,

possibly indicating a drop in the rate of new infections. Nevertheless it should be noted that the 2006 study involved twice as many women as previous surveys, and samples were collected from more than three times as many clinics; this rather major change in the study population may have influenced the results, as the newly included clinics may have been located in areas with lower HIV prevalence.

More historical prevalence figures can be found in our AIDS in South Africa page.

Estimated HIV prevalence among antenatal clinic attendees, by province

Province	2001 prevalence %	2002 prevalence %	2003 prevalence %	2004 prevalence %	2005 prevalence %	2006 prevalence %
KwaZulu-Natal	33.5	36.5	37.5	40.7	39.1	39.1
Mpumalanga	29.2	28.6	32.6	30.8	34.8	32.1
Free State	30.1	28.8	30.1	29.5	30.3	31.1
Gauteng	29.8	31.6	29.6	33.1	32.4	30.8
North West	25.2	26.2	29.9	26.7	31.8	29.0
Eastern Cape	21.7	23.6	27.1	28.0	29.5	29.0
Limpopo	14.5	15.6	17.5	19.3	21.5	20.7
Northern Cape	15.9	15.1	16.7	17.6	18.5	15.6
Western Cape	8.6	12.4	13.1	15.4	15.7	15.2
National	24.8	26.5	27.9	29.5	30.2	29.1

Estimated HIV prevalence among antenatal clinic attendees, by age

Age group (years)	2001 prevalence %	2002 prevalence %	2003 prevalence %	2004 prevalence %	2005 prevalence %	2006 prevalence %
<20	15.4	14.8	15.8	16.1	15.9	13.7
20-24	28.4	29.1	30.3	30.8	30.6	28.0
25-29	31.4	34.5	35.4	38.5	39.5	38.7
30-34	25.6	29.5	30.9	34.4	36.4	37.0
35-39	19.3	19.8	23.4	24.5	28.0	29.6
40+	9.8	17.2	15.8	17.5	19.8	21.3

Because infection rates vary between different groups of people, the findings from antenatal clinics cannot be applied directly to men, newborn babies and children. This is why South Africa has sought also to survey the general population.

The South African National HIV Survey, 2005

The National HIV Survey is a "household" survey. This involves sampling a proportional cross-section of society, including a large number of people from each geographical, racial and other social group. The researchers take great pains to try to make the sample as representative as possible, and the findings are later adjusted to correct for likely over- or under-representation of individual groups (according to census data).

The survey's fieldworkers visited 12,581 households across South Africa, of which 10,584 (84%) took part in the survey. Of the 24,236 people within these households who were eligible to take part, 23,275 (96%) agreed to be interviewed and 15,851 (65%) agreed to take an HIV test. This means that only 55% of eligible people were tested.

The main reasons given for refusing HIV testing were fear of having a blood sample taken (58%); religious objections to having a blood sample taken (16%) and not wanting to learn HIV status (7%). A further 13% of people who refused were, for various reasons, afraid or mistrustful of the survey. The report of the survey claims that people at high risk for HIV infection were more likely to take part, and the results were adjusted to compensate for this perceived bias.

The response rate is considered "good" by the standards of this type of survey, but is considerably lower than that found in other parts of sub-Saharan Africa.[1] [2] White people and those of Indian origin were the least cooperative.

Based on this survey, the researchers estimate that 10.8% of all South Africans over 2 years old were living with HIV in 2005. Among those between 15 and 49 years old, the estimated HIV prevalence was 16.2% in 2005.

Estimated HIV prevalence among South Africans aged 2 years and older, by sex and race and by province

Sex and Race	Number surveyed	Prevalence %
Male	6,342	8.2
Female	9,509	13.3
African	9,950	13.3
White	1,173	0.6
Coloured	3,382	1.9
Indian	1,319	1.6
National	15,851	10.8

Province	Number surveyed	Prevalence %
KwaZulu-Natal	2,729	16.5
Mpumalanga	1,224	15.2
Free State	1,066	12.6
North West	1,056	10.9
Guateng	2,430	10.8
Eactern Cape	2,428	8.9

Limpopo	1,570	8.0
Northern Cape	1,144	5.4
Western Cape	2,204	1.9
Total	15,851	10.8

The results of this study suggest that KwaZulu-Natal, Mpumulanga and Free State have the highest HIV prevalence. However, the relatively small sample sizes limit precision, and in several cases the ranges of uncertainty overlap.

Estimated HIV prevalence among South Africans, by age

Age (years)	Male prevalence %	Female prevalence %
2-4	4.9	5.3
5-9	4.2	4.8
10-14	1.6	1.8
15-19	3.2	9.4
20-24	6.0	23.9
25-29	12.1	33.3
30-34	23.3	26.0
35-39	23.3	19.3
40-44	17.5	12.4
45-49	10.3	8.7
50-54	14.2	7.5
55-59	6.4	3.0
60+	4.0	3.7
Total	8.2	13.3

Among females, HIV prevalence is highest in those between 25 and 29 years old; among males, the peak is in the group aged 30-39 years. According to these results, males aged 15-49 years old are 58% as likely to be infected as are females in the same age group (11.7% in men versus 20.2% in women).

Studies of AIDS deaths

All reported deaths

In June 2007, Statistics South Africa published the report "Mortality and causes of death in South Africa, 2005". This large document contains tables of how many people died from each cause according to death notification forms.

This report, alongside a previous edition published in May 2006, reveals that the annual number of registered deaths rose by a massive 87% between 1997 and 2005. Among those aged 25-49 years, the rise was 169% in the same nine-year period. Part of the overall increase is due to population growth. However, this does not explain the

disproportionate rise in deaths among people aged 25 to 49 years. In 1997, this age group accounted for 30% of all deaths, but in 2005 it accounted for 42%.

Reported deaths from all causes, 1997 to 2005

Year of death	Age (years)					Total
	0-9	10-24	25-49	50+	Unspecified	
1997	35,441	22,636	92,796	160,058	5,574	316,505
1998	41,172	25,799	114,215	178,763	5,104	365,053
1999	41,834	27,686	129,881	178,877	2,704	380,982
2000	42,802	29,463	150,149	189,118	2,204	413,736
2001	44,876	31,408	172,963	201,738	1,911	452,896
2002	50,741	34,381	200,844	211,504	2,024	499,494
2003	56,593	37,363	228,819	227,280	2,770	552,825
2004	62,212	38,054	242,066	222,231	2,925	567,488
2005	67,559	38,221	250,043	232,168	3,222	591,213
Increase 1997-2005	91%	69%	169%	45%	-42%	87%

The influence of population growth can be removed by looking at death rates per 100,000 people, which are provided by Statistics South Africa in another report called "Adult mortality (age 15-64) based on death notification data in South Africa: 1997-2004". These data show that between 1997 and 2004, the death rate among men aged 30-39 more than doubled, while that among women aged 25-34 more than quadrupled. The changes are even more pronounced when deaths from natural causes only are examined. Over the same period there was relatively little change in the death rates among people aged over 55 and those aged 15-20. In their report, Statistics South Africa call such developments "astounding", "alarming" and "disturbing".

Misclassification

In 2004, HIV was recorded as a cause of death in only 13,590 cases. However, according to researchers from the Medical Research Council of South Africa (MRC), this figure is a massive underestimate, because the majority of deaths due to HIV are misclassified.

People whose deaths are caused by HIV are not killed by the virus alone, but HIV should be recorded as an underlying cause if it "initiated the chain of morbid events leading directly to death". In other words, if someone contracts tuberculosis and dies from it because their immune system has been weakened by HIV then HIV should be included among the underlying causes. The MRC researchers claim that in many cases, this does not happen; instead, the doctor records only the immediate cause of death such as tuberculosis or respiratory infection. This could be because the doctor does not know the deceased person's HIV status. Alternatively, they may seek to conceal HIV infection to spare stigmatisation of relatives, or to avoid invalidating life insurance claims. As The Lancet notes, authorities are largely to blame:

“Social stigma associated with HIV/AIDS, tacitly perpetuated by the Government's reluctance to bring the crisis into the open and face it head on, prevents many from speaking out about the causes of illness and deaths of loved ones and leads doctors to record uncontroversial diagnoses on death certificates.... The South African Government needs to stop being defensive and show backbone and courage to acknowledge and seriously tackle the HIV/AIDS crisis of its people.”[3]

The MRC team analysed a 12% sample of death certificate data from the year 2000-2001, and compared it to all the data from 1996. When they looked at deaths for which HIV was a reported cause, they saw that rates (deaths per thousand) had increased according to a distinctive age-specific pattern. The greatest increases were in the age groups 0-4 and 25-49 years, while death rates among teenagers and older people remained more or less unchanged.

The researchers observed that nine other causes of death had increased substantially according to the same distinct age pattern as HIV. They then estimated how much of the increases were likely to be caused by HIV, and concluded that 61% of deaths related to HIV had been wrongly attributed to other causes in 2000-2001. In adults, tuberculosis accounted for 43% of misclassified deaths, and lower respiratory infections for another 32%. Among infants, most of the excess deaths had been misclassified as lower respiratory diseases or diarrhoeal diseases. According to the MRC results, HIV caused the deaths of 53,185 men aged 15-59 years, 59,445 women aged 15-59 years, and 40,727 children under 5 years old in the year 2000-2001.

The MRC estimates come very close to those made by a computer model of the Actuarial Society of South Africa, called ASSA2003. According to ASSA2003 calculations, HIV caused 108,170 deaths in 2000 and 147,525 deaths in 2001.

Statistics South Africa have analysed the MRC study and found that its methods and conclusions are generally sound.

Other recent estimates

The head of the MRC has stated that AIDS killed around 336,000 South Africans between mid-2005 and mid-2006.[4]

The ASSA2003 provincial model calculates that 345,640 people died because of AIDS in 2006 - comprising 47% of all deaths. Among adults aged 15-49 years, it estimates that 71% of all deaths were due to AIDS.[5]

UNAIDS/WHO estimate that AIDS claimed 320,000 lives in 2005 - more than 800 every day.[6]

Comparing the prevalence studies

It is possible to compare the results of the National HIV Survey 2005 with those of the Department of Health Study 2005.

HIV prevalence according to the Department of Health Study 2005:

- 29.1-31.2% amongst antenatal clinic attendees (30.2% is the best estimate)

HIV prevalence according to the National HIV Survey 2005:

- 9.9-11.6% in the whole population (10.8% is the best estimate)
- 14.9-17.7% amongst all people aged 15-49 years old (16.2% is the best estimate).

The rates found among pregnant women are significantly higher that those found among all adults - so why could this be?

Limitations of the Department of Health Study

Antenatal surveillance is internationally recognised as the most useful way of assessing HIV prevalence in countries with generalised epidemics. Pregnant women are sexually active and constitute an easily identifiable, accessible and stable population. They are more likely than any other single group to be representative of the general adult population. Nevertheless, there are a number of limitations to the Department of Health's technique.

The greatest difference between the two studies concerns prevalence among women aged 15-19 years old, for which the antenatal survey produces a rate much higher than the household survey (15.9% compared to 9.4%). This is, at least in part, probably because not all young women are sexually active, and those represented in the antenatal data are by definition engaging in unprotected sex, which puts them at higher risk of HIV infection. Overestimation of HIV prevalence in this age group is a known bias in antenatal studies.

It is possible that overestimation occurs in older age groups as well, particularly as those who use condoms or abstain from sex stand less chance of both HIV infection and pregnancy. On the other hand, underestimation might also occur: for example, studies have shown that HIV lowers fertility.

Limitations of the National HIV Survey

The advantage of the National HIV Survey is that it can give a better idea of HIV prevalence levels among men, children and non-sexually active women. The survey also recorded a vast amount of other data besides the age and location of respondents (most of which is beyond the scope of this page), including information on race, wealth and education. Participants were also interviewed about factors that might influence their risk of HIV infection, such as behaviour, knowledge and risk awareness.

Although the study attempted to survey as representative a population sample as possible, it recognises that some groups were excluded. Only people living in homes or hostels were contacted, so there was no representation of homeless people and those living in police and army barracks, prisons, hospitals and educational institutions. This probably resulted in underestimation of some prevalence figures. Additionally, by excluding all children below 2 years of age (because they cannot be

reliably tested for HIV using antibody tests), the survey missed a significant proportion of children who acquired HIV from their mothers.

The study is also limited by the accuracy of its many assumptions about South Africa's demographics - based on census data, aerial photographs and field surveys - and by the representativeness of its selected sample. To improve the precision of racial data, the surveyors deliberately chose disproportionately large samples from the smaller racial groups, and then weighted the results accordingly. However, some groups that may be of particular interest for the understanding of the epidemic could not be captured in sufficient numbers, including men who have sex with men, injecting drug users and sex workers.

The effect of non-response on accuracy is uncertain. It is difficult to conclude whether those who refuse to be tested are more or less likely to have HIV. The only certain effect of the low response rate is that it increases uncertainty.[7]

The National HIV Survey is the the second of its kind to be conducted across the whole of South Africa.

What one study says about the other

The National HIV Survey claims that women of African ethnicity are over-represented in the Department of Health Study. It argues that the antenatal data should be compared with its own estimates relating to African women only. The two sets of estimates do indeed look similar, especially in the age groups 25-29, 30-34 and 35-39 years.

The location of clinics may also be an issue. For example, a lot of clinics in KwaZulu-Natal are sited near major transport routes, where prevalence is known to be unusually high.

The National HIV Survey reports that of those African women who were surveyed and had been pregnant in the last 24 months - 630 in total - somewhere between 21.9% and 32.3% were HIV-positive (26.8% is the best guess, but the small sample size limits precision). This range includes the Department of Health result of 30.2%.

Conclusion of the comparison

Neither prevalence study sets out to mislead or to contradict the other. Each uses a standard surveillance technique and clearly explains all of its methods and calculations. Most of the observed differences are the result of choosing different groups of people to be tested, since these groups differ in how well they are able to represent the general population.

In such a large and diverse country as South Africa, no-one can know exactly what the true figures are. What is essential is that the limitations of each study are acknowledged whenever their results are interpreted. To illustrate why this is so important, this page has suggested a few reasons why the figures might vary, though this is by no means an exhaustive list.

UNAIDS and WHO recommend that antenatal and population-based studies should both be conducted at regular intervals. In countries with generalised epidemics, antenatal clinic attendees are thought to represent the adult population with good accuracy. Moreover, when conducted regularly such surveys can reveal long-term trends in prevalence. On the other hand, household surveys tell us more about the nature of the epidemic by providing prevalence data according to gender, race, wealth and other characteristics. Such information informs better interpretation of antenatal data.

National estimates based on all surveys

Based on a wide range of data, including the household and antenatal studies, UNAIDS/WHO in mid-2006 published an estimate of 18.8% prevalence in those aged 15-49 years old at the end of 2005. Their high and low estimates are 16.8% and 20.7% respectively. According to their own estimate of total population (which is another contentious issue), this implies that around 5.5 million South Africans were living with HIV at the end of 2005, including 240,000 children under 15 years old.

In mid-2007, following the latest antenatal survey, the Department of Health, in collaboration with UNAIDS, WHO and other groups, published an updated estimate of 18.34% prevalence in people aged 15-49 years old in 2006. This equates to around 5.41 million people living with HIV in 2006, including 257,000 children.

The ASSA2003 model produces a similar estimate of 5.4 million people living with HIV in mid-2006, or around 11% of the total population. It predicts that the number will exceed 6 million by 2015, by which time around 5.4 million South Africans will have died of AIDS.[8]

Conclusion

What is clear from every study is that there is an exceptionally severe epidemic of HIV/AIDS in South Africa. This epidemic affects all parts of the population, though women are more likely to be infected than men. Many tens of thousands of people are dying.

For South Africa there are tremendous challenges remaining in the fields of HIV education, prevention and care. To read more about what has already happened and what is being done now, take a look at the page HIV & AIDS in South Africa.

AVERT.org has more HIV and AIDS statistics pages and a general guide to understanding HIV & AIDS statistics.

Written by Rob Noble.

Main sources:

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