

HIV prevalence in pregnant women

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“Women remain one of the most important vulnerable groups.... In view of the high prevalence and incidence of HIV amongst women, it is critical that their strong involvement in and benefiting from the HIV and AIDS response becomes a priority [p33]. HIV is transmitted to approximately one third of babies of HIV-positive mothers if there is no medical intervention. Use of antiretroviral drugs, obstetric practices including caesarean delivery, and safe infant feeding practices can reduce transmission to very low levels [p29].”

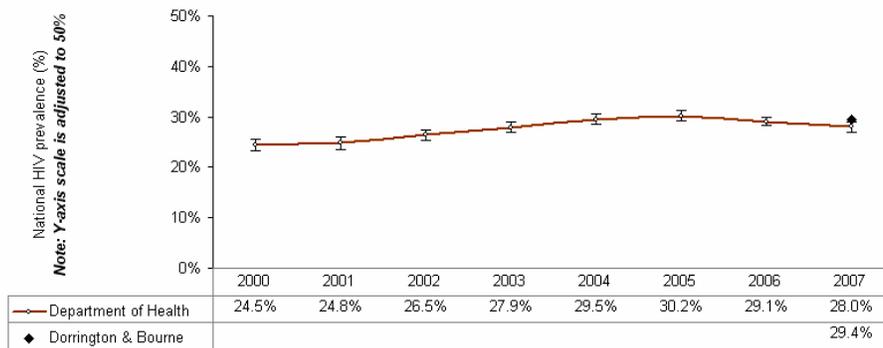
Indicator

HIV prevalence in pregnant women.

Definition

This indicator shows the prevalence of HIV that is measured in a national survey of women attending public sector antenatal clinics for the first time in their current pregnancy.

Fig. 1
HIV prevalence in pregnant women attending public antenatal clinics in South Africa, 2002 – 2007



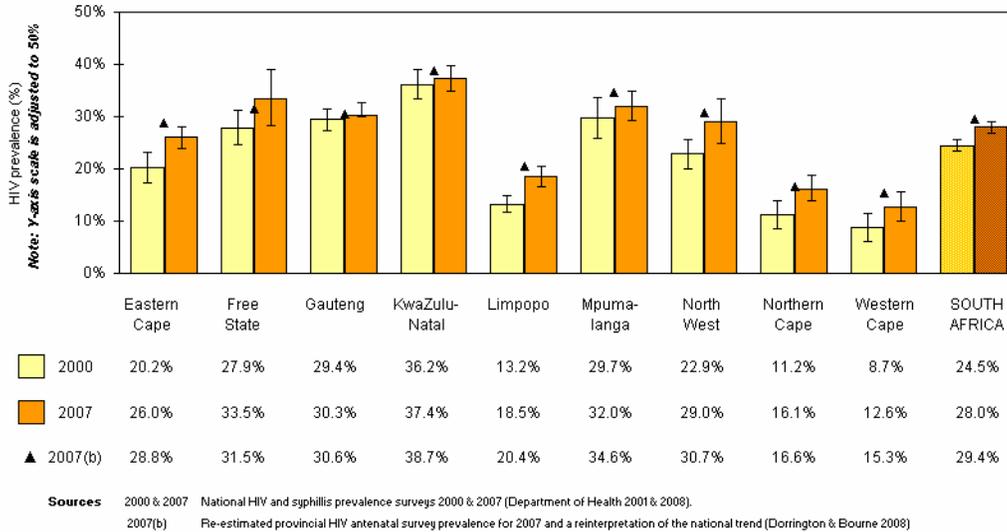
Sources National HIV and syphilis prevalence surveys 2000 – 2007 (Department of Health 2001 – 2008).
Re-estimated provincial HIV antenatal survey prevalence for 2007 and a reinterpretation of the national trend (Dorrington & Bourne 2008)

Notes

1. The scale of the y-axis in the graph has been adjusted to a maximum of 50%, in order to illustrate the trend more clearly.
2. Sample surveys are always subject to error, and the proportions simply reflect the mid-point of a possible range. The confidence intervals (CIs) indicate the reliability of the estimate at the 95% level. This means that, if independent samples were repeatedly taken from the same population, we would expect the proportion to lie between upper and lower bounds of the CI 95% of the time. The wider the CI, the more uncertain the proportion. Where CIs overlap for different sub-populations or time periods we cannot be sure that there is a real difference in the proportion, even if the mid-point proportions differ. CIs are represented in the above graph by the vertical lines around each point.

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Fig. 2
HIV prevalence in pregnant women attending public antenatal clinics, by province (2002 & 2007)



Commentary

Adult HIV prevalence is critical for children, since children born to HIV-positive mothers are at risk of being born HIV positive or contracting HIV after birth, unless adequate and appropriate interventions and resources are available. The indicator is also relevant to children because children with HIV-positive mothers are at risk of their mothers becoming ill and dying unless they have access to appropriate treatment.

As measured by the annual South African antenatal survey, HIV prevalence in pregnant women increased steadily from 24.5% in 2000 (95% CI: 23.4 – 25.6%) to 30.2% in 2005 (95% CI: 29.1 – 31.2%). The 2006 and 2007 survey results suggest a slight decline in HIV prevalence in recent years, but these results need to be interpreted with caution. The sampling protocol changed in 2006 to include a much larger number of clinics, and it is possible that some of the change that was observed between 2005 and 2006 was due to the change in the sampling rather than a change in the true prevalence of HIV in pregnant women. It has also been argued that the results of the 2007 survey were incorrectly weighted, and that the use of the 2006 weights would in fact have resulted in an increase in prevalence between 2006 and 2007.¹ Alternative prevalence estimates were calculated², based on applying the 2006 weights to the 2007 data. These are shown in the figures above, together with the 2007 estimates published by the Department of Health³.

There are substantial differences in HIV prevalence between the provinces. KwaZulu-Natal has consistently had the highest prevalence of HIV – in excess of 35% since 2002. In

contrast, the Western Cape has had an HIV prevalence of around 15% in recent years. Other provinces with relatively low HIV prevalence are the Northern Cape and Limpopo, with HIV prevalence levels in recent years around 17% and 20% respectively.

These inter-provincial differences are partly a reflection of differences in HIV prevalence between different racial and cultural groups. For example, male circumcision is believed to be a major factor explaining inter-regional differences in HIV prevalence within Africa.⁴ Male circumcision is widely practised among the Pedi, the largest cultural group in Limpopo province, but is uncommon among the Zulu, the largest cultural group in KwaZulu-Natal.⁵ The observed difference in HIV prevalence between Limpopo and KwaZulu-Natal is consistent with the protective effect of male circumcision at the individual level, although this alone cannot explain all the provincial differences. Other factors such as differences in urbanisation, migration, socio-economic status and access to HIV prevention and treatment services could also explain some of the differences in HIV prevalence between South Africa's provinces.

Technical notes

The surveys are conducted in October of each year. The 95% confidence intervals reflect the random variation in prevalence, as well as the variation attributable to the stratified cluster sampling methodology. As noted in the commentary, concerns have been raised about the validity of the published 2007 prevalence estimates, and revised estimates of HIV prevalence in 2007 are likely to be published by the Department of Health.

Strengths and limitations of the data

South Africa's antenatal clinic data are among the best in Africa. In most other African countries, HIV-prevalence levels are reported in individual clinics or districts, and there is no attempt to draw a nationally representative sample of clinics, from which a national antenatal clinic prevalence can be calculated. The South African surveys follow a stratified cluster sampling methodology, with clinics being sampled on a probability proportional to size (PPS) basis. The overall sample sizes are very large, making this HIV-prevalence dataset one of the largest in the world.

The survey does not include pregnant women who attend private health facilities, or women who deliver at public health facilities without having made a booking visit. Women seeking antenatal care in the private health sector have a relatively low prevalence of HIV⁶ and thus the surveys over-estimate HIV prevalence in pregnant women generally. It would also be expected that there would be differences in sexual behaviour between pregnant women and non-pregnant women, and the levels of HIV prevalence observed in the antenatal clinic surveys should therefore not be seen as representative of those in the general female population or the male population. After controlling for age differences, HIV prevalence in pregnant women tends to be substantially higher than that in women in the general population.⁷

It should also be noted that – in accordance with UNAIDS guidelines⁸ – women are tested using a single ELISA antibody test, and there is no confirmatory testing of positive specimens. This may bias the results slightly, as the test can produce false HIV-positive results in a small proportion of HIV-negative women. Although this bias is generally thought to be of minimal significance when the population prevalence exceeds 10%, recent South African studies have suggested that the false positive rate could be around 2%.⁹ This would imply over-estimation of the true HIV prevalence in pregnant women by about 2%.

References

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