# CRITICS SAY HIV SURVEY POTENTIALLY BIASED

*Professor Olive Shisana.*

A leading virologist and an actuarial authority have challenged a national HSRC report that turns provincial HIV statistics upside down by claiming far lower prevalence.

Professor Alan Smith, KwaZulu-Natal's chief virologist at UND and Professor Rob Dorrington, Director of the Centre for Actuarial Research at UCT, cautioned against 'jumping to any policy conclusions based on the potentially biased study' by lead investigator Professor Olive Shisana.

The study by the former Health Director General was completed in July and estimates the overall HIV prevalence in the population over age 2 to be 11.4% - about 1% less than Dorrington's extrapolations of the antenatal survey results. Prevalence results from saliva tests are half or two-thirds less than the provincial antenatal prevalence figures.

Shisana's study, when compared with the antenatal one, puts the Free State and Gauteng ahead of KwaZulu-Natal and Mpumalanga as the provinces with the highest HIV/AIDS prevalence.

The HSRC study has prevalence (in rounded figures) highest in the Free State and Gauteng at 15%, Mpumalanga at 14%, KZN at 12%, the Western Cape at 11%, North West Province and Limpopo at 10%, the Northern Cape at 8% and the Eastern Cape at 7%.

This is in dramatic contrast to the 2001 antenatal clinic survey results (the 2002 ones have yet to be released) which show KZN topping the prevalence charts at 34%, Mpumalanga and Gauteng at 30%, the Free State at 29%, North West at 25%, the Eastern Cape at 22%, the Northern Cape at 16%, Limpopo at 15% and the Western Cape at 9%.

The major difference in approach is that the HSRC attempts to paint an overall picture of sex, age and race groups, while the more selective annual survey of antenatal clinics looks at predominantly lower- income black and sexually active women.

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If taken seriously by government, the research could have profound implications for development planning. Shisana has however warned against any resource shifting without first multiplying prevalence ratios by the provincial populations.

She said her sampling methods were designed to secure participation across age ranges, adding that an expert, multi-sectoral review panel had expressed satisfaction with response rates and quality control.

Dorrington said that while the new study was 'a potentially valuable and important piece of research in helping us get to grips with the epidemic', it failed to portray 'obvious shortcomings in both its executive summary and its representations to the media'.

Both men pointed out the potential for bias given the low response rate, the wide confidence intervals resulting from the small samples, and the lack of age standardisation.

The HSRC study covered 14 450 'potential subjects' nationally, comprising 4 000 children (2-14 years old), 3 720 youths (15-24 years old) and 6 729 adults (25 years and older). Of these, only 9 963 were interviewed and 8 428 results were usable.

Respondents were chosen from households selected from the 2001 census. The critics also raised questions around the timing of the visits to the households, since disproportionate numbers of old women and children and the sick are at home during weekdays.

Smith described the HSRC study as 'seriously flawed when it comes to the KwaZulu-Natal sampling because of seriously skewed racial demographics'. He had learned that nearly half of those interviewed in KZN were Indian, a group that makes up only 3% of the province's population.

Shisana's national sampling was 48% black, 22% white, 18% coloured and 12% Indian, compared with the 1996 census which had the country's population at 77% black, 11% white, 9% coloured and 3% Indian. She confirmed that this bias had been reweighted according to overall racial distribution in the population.

Dorrington said, as the report points out, surveying only households excluded high-risk prevalence groups such as those in the military, prisons, hospitals, university hostels, people of no fixed abode and truck drivers. 'This makes it difficult to assert that the results represent the whole country.'

Most interviewees quoted in the HSRC research said they had only one partner in the past six to 12 months - another bone of contention for the two critics, who cited contradictory earlier research.

Smith and Dorrington said splitting the study into gender, age and racial groups meant the numbers became much smaller, making the confidence intervals wider and creating far less reliable results.

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Professor David Stoker, who designed South Africa's census, developed Shisana's master sample and analysed her study. He countered that precision was achieved at the 95% level of confidence, but admitted that smaller sample sizes in 'some domains' created wide confidence intervals. However, this 'in no way' invalidated the findings or made them unscientific.

Smith argued that the antenatal clinic surveys dealt only with women aged

15 - 45, making his data far more reliable for that target group. 'It is crucial to look at how the pandemic is affecting women of reproductive age in terms of future population dynamics,' he emphasised.

These two critics said their requests to review the raw data were being refused by Shisana and her staff, who say it is the exclusive property of the Nelson Mandela Children's Trust.

Smith said that one of the reasons he wanted to see Shisana's raw data was that he suspected a predominance of people over 50 or 60, which would dilute the results.

However Shisana said no substitution was allowed and interviewers had to return to homes three times, recording absence of selected persons as a refusal or non-contact.

Shisana said any careful reading of her methodology would provide a 'more than adequate understanding' of the data, adding that it was not common practice to make datasets public immediately after surveys. 'The national antenatal dataset is also not available in the public domain,' she said. Dorrington countered that the Health Department was not a research organisation.

Smith's impression was that the entire HSRC study, which had only one medical doctor among the 15 collaborators, was 'shabbily done' - a comment which Shisana found 'surprising'.

The doctor is a respected Durban-based epidemiologist, Mark Colvin, while the 14 other collaborators were highly qualified social scientists.

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Shisana's study found that the HIV prevalence rate for children aged 2-14 was 'unexpectedly high' at 6% and could not adequately be explained by heterosexual intercourse or vertical transmission. Sexual abuse and unsterile needles were offered as possible factors.

Her survey also encouragingly found that condom use at last sexual intercourse had more than tripled from 8% in 1998 to 29% among women aged 15-49 and increased from 14% to 47% among women aged 20-24.

She found that 19% of respondents over 15 had previously had an HIV test and were aware of their status.

An alarming finding was that nearly two-thirds of those who tested positive did not believe they had been at risk of HIV infection.

While there was a high awareness of voluntary counselling and testing, only one in five had made use of such services. Concerns included confidentiality, cost and quality of services.

Government resource allocation was perceived to be 'inadequate' by the majority of respondents, with 97% of those over 15 supporting antiretroviral therapy for prevention of mother-to-child transmission, and 95% saying the government should provide antiretrovirals for all people who needed the drugs.

Smith conceded that Shisana's research would be useful in addressing the deficiencies of an antenatal survey, such as probing the prevalence among men and those in the private health sector. However, he said until one was able to determine the extent of bias that might have been introduced into the study, it would be foolish to draw conclusions.

He thought 'the sociological side of her results are important - but I'd be happier if there were paediatricians and other medics on her panel rather than just one medical epidemiologist'.

Shisana challenged him to produce 'rigorous scientific evidence, rather than just commentary'.

**Chris Bateman**

*Professor Alan Smith*