The HSRC's Model for surveillance of HIV prevalence, HIV incidence and key behavioural indicators

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Background

- In recent years there has been a hot debate concerning the validity and reliability of HIV estimates including amongst MS in SADC as well as globally.

- There is a lot of distrust in HIV figures
  - Some countries in SADC which are claimed to have prevalence rates over 30%
  - The Indian HIV prevalence saga
  - Periodic downward adjustments of global and national estimates by UNAIDS/WHO.

- In this presentation we will first introduce the South African HSRC's Model of population-based surveys which allows for estimating national HIV prevalence, HIV incidence rates and behavioural responses to the epidemic and then discuss the issue of surveillance methods further.

Introduction to the HSRC's model of HIV population-based surveys

- Like the DHS+, it is population-based and uses the second-generation surveillance approach recommended by UNAIDS and WHO which combines biological and behavioural surveys

- A major difference is that only one participant is selected in each of three age groups:

  - Children aged 2-14 years,
  - Youth aged 15-24 years and
  - Adults aged 25 years and older

Introduction to the HSRC's model of HIV population-based surveys (contd)

Both DHS+ and the HSRC's models do the following:

- undertake behavioural risks surveys in order to both understand and track behavioural responses to the epidemic.
- recommend that population-based surveys should be repeated at least every 3-5 years if possible as part of M & E to monitor national response to the epidemic.
- enable making more accurate projections by including key behavioural indicators.
- are complementary to ANC-based surveillance
- acknowledge the role of ANC-derived data which must be benchmarked by at least one population-based survey in each country.

A comparison between the HSRC's model and ORC Macro's DHS+ models of HIV population-based surveys (contd)

- The two models differ in three main respects:
  - The DHS+ model focuses on other demographic and health issues while the HSRC model mainly focuses on HIV/AIDS and relates issues
  - The HSRC model also includes children aged 2-14 years and elderly people aged 50 years and above
    - The inclusion of children and elderly has highlighted the existence of hitherto marginalised epidemics amongst these two age groups which must be included in national estimates to have a clearer picture of the magnitude of the problem and to plan better for national responses.
  - In the HSRC model the determination of both behavioural (in individual people) and social (in two or more people) factors associated with HIV status and incidence that are critical for understanding the dynamics underlying the HIV/AIDS epidemic are included in the main reports.

HIV prevalence among various age groups in Botswana, South Africa and Zimbabwe

Age group (years)	Botswana	South Africa	Swaziland
1.5/2-4	6.30%	5.10%	5.10%
4-9	4.20%	4.40%	4.20%
10-14	2.60%	1.70%	2.50%
15-49	25.30%	16.20%	25.90%
50+	13%	5.70%	16.0%

Adaptability of HSRC's model to include other measures for HIV and AIDS surveillance

- The HSRC model is flexible enough to allow for estimating other critical measures at population level as follows:
  - Viral load (The second national survey in South Africa held in 2005 provided a baseline)
  - Incidence rates using laboratory test (The second national survey in South Africa held in 2005 provided a baseline and will be repeated in 2008)
  - In 2008 survey in South Africa we will also include infants aged 0-2 years

Comparisons between HIV prevalence rates based on ANC- and population-based surveys found in some African countries

Country	National ANC-based prevalence rates	UNAIDS 2003 (Source: UNAIDS 2006 update)	Most recent national population-based survey	UNAIDS 2005 (Source: UNAIDS 2006 update)
Botswana	37.3% [2003]	37.3%	25.3% (17.1% Overall for people aged 18 months and older)[2004 BAIS & HSRC Model]	24.1%
Kenya	9.4% [2003]	6.7%	7.0% [2003 DHS+]	6.1%
Lesotho	30.0% (2003]	28.9%	23.6% [2004-5 DHS+]	23.2%
Malawi	19.8% [2003]	14.2%	12.0% [2004 DHS+]	14.1%

Comparisons between HIV prevalence rates based on ANC- and population-based surveys found in some African countries (contd)

Country	National ANC-based prevalence rates	UNAIDS 2003 (Source: UNAIDS 2006 update)	Most recent national population-based survey	UNAIDS 2005 (Source: UNAIDS 2006 update)
South Africa	30.2% [2005]	21.5%	16.2% (10.8% overall for people aged 2 years and older)[2005 HSRC Model]	18.8%
Swaziland	36.6% [2002]	38.3%	25.9% (18.8% overall for people aged 2 years and older)[2006-7 Combined DHS+ & HSRC Model]	33.4%
Zambia	15.6% [2002]	16.5%	16.0% [2001-2 DHS+]	17.0%
Zimbabwe	23.9% [2004]	24.6%	18.1% [2006-7 DHS+]	20.1%

Accounting for the differences between UNAIDS' estimates and SADC member states estimates

- UNAIDS' estimates were based on modelling using an earlier version on the Epidemic Projection Package (EPP) which mainly used data from ANC sentinel surveys conducted among pregnant women only.
- Recently, there has been improvement in the data obtained especially using population-based surveys.
- Better modelling methods has resulted in more accurate estimates especially in countries which have high prevalence rates of over 20%.

Conclusions

- In this presentation, we have introduced the HSRC model of HIV surveillance.
- We compared and contrasted the HSRC model to the DHS+ model of HIV surveillance, both of them population-based and employing the second-generation approach, which lead to similar estimates but are based on targeting different age groups and sampling per household.
  - In addition to the reproductive age groups, the HSRC model also includes both children and adults; it is being extended in 2008 to also include infants from birth to 2 years of age.
  - The HSRC model can be combined with the DHS+ as one done is Swaziland and also BAIS as was done on Botswana.
  - It is also amenable to change to include both incidence and viral load testing.

Conclusions (contd)

- There is a clear need to include incidence testing in surveillance as was done in South Africa in 2005 and will be repeated in 2008 to monitor progress in containing the spread of HIV especially as more PLWHA start taking ARV treatment and HIV prevalence becomes more stable.

- Some evidence is reviewed concerning the apparent disparity between HIV prevalence rates as calculated by UNAIDS which were hitherto based mainly on ANC-data from pregnant women compared to estimates derived from population-based surveys which, although expensive, are gaining in popularity.

- Through better modelling methods estimates have been adjusted which has resulted in more accurate estimates especially in countries which have very high prevalence rates of over 20%.

THANK YOU