



## HIV/AIDS Newsletter

**Edition 8  
November 2009**

### **Note from the Editor**



World AIDS Day is just around the corner – A day set aside for the world and our nation to take stock of the epidemic and the positive strides that have been made in winning the war against HIV and AIDS. It is encouraging to note, in the build-up to World AIDS Day, that over the last few weeks some positive steps have been taken on the HIV/AIDS front, both globally and locally.

Just last week in fact, President Obama lifted a longstanding ban on HIV positive individuals travelling to or immigrating to the United States, saying that the ban was a policy “rooted in fear rather than fact”. And on our doorstep, in response to Health Minister Aaron

Motsoaledi’s concerns regarding South Africa not meeting our target of providing treatment to 80% of those in need by 2011, Treasury has made significant additions to the government’s budget for HIV/AIDS programmes. Finance Minister Parvin Gordhan announced last week that an extra R900m has been set aside for providing antiretroviral treatment in state health facilities, which will go a long way in helping to achieve government’s aims. Very promising actions indeed!

The challenges that HIV and AIDS present are far from over, but unlike 10 years ago when denialism was very much in vogue, President Zuma is showing his commitment to “turning the tide” on the battle against HIV and AIDS.

Our first article, written by Lara Wayburne, discusses the noble aims under the ANC’s National Health Plan and the difficulties in achieving those aims in a country with a growing population and one in which severe inequalities exist. HIV/AIDS serves to add a very heavy load to the healthcare needs of South Africans, which will need to be covered and funded within any National Health Insurance System that is implemented over the coming years.

The second article of this feature, written by Professor Rob Dorrington, comments on the findings of the HSRC HIV prevalence survey released earlier in the year. The HSRC surveys provide very valuable information about the state of the HIV/AIDS epidemic in South Africa, but this is not to say that the results are to be accepted without some critique.

It’s a busy time of the year, but if you have a few minutes to spare give your brain a mild workout with our riddles in ‘The Lighter Side’ .... And try not to cheat, they’re easy enough!

Hope you enjoy the read.

Jaqui and Xiao

*The AIDS Committee strives to keep you informed and updated with regards to modelling HIV and AIDS in South Africa. We value any comments or suggestions you may want to share with us. You can send your contributions to the editors, Jaqui Frylinck at [jfrylinck@rgare.com](mailto:jfrylinck@rgare.com) or Xiao Yu at [Xiao@hannover-re.co.za](mailto:Xiao@hannover-re.co.za)*



## *HIV in the Context of Evolving Healthcare Policy*

~ Lara Wayburne, Consulting Actuary, Deloitte & Touche

### **Journey or destination?**

The South African healthcare system has many delivery challenges with a growing population and a quadruple burden of disease resulting in high mortality rates. There are severe inequalities in terms of access to and financing of healthcare and it is the intention of government to address these problems through the creation of a National Health Insurance System.

Transforming and improving the public health sector has been a priority for the Department of Health for some time now. Proposals commenced with the ANC National Health Plan of 1994 which aimed at putting in place a National Health System (NHS) that envisaged free health care to specific groups.

The over-arching goals of healthcare policy are captured in Section 27 of the Constitution of South Africa. This is one of the few constitutions in the world that contains a “genuinely justiciable right to health”<sup>1</sup>. Briefly, Section 27 read as a whole requires the State to develop a systematic, comprehensive programme that is designed to realise these rights progressively within ‘available resources’. Healthcare legislation in the past decade or so has shown strong moves towards a social health insurance (SHI) system aimed at increasing healthcare coverage through medical schemes. However, since the 2009 general elections the focus has notably been on a national health insurance (NHI) system - the exact design, components, funding and operation of which have yet to be detailed and debated.

NHI refers to a health system that is universal and covers the entire population irrespective of whether an individual has personally contributed to the scheme or not. Under NHI, the State is an important provider of health care services but is also responsible for creating a structure that promotes health and the delivery of health care. The aim under the ANC National Health Plan is to attain a “single comprehensive, equitable and integrated National Health System (NHS)”. The intention of this integrated NHS would be to better co-ordinate and manage service delivery, improve access to health care services and the re-allocation of responsibilities for funding. The latter is so that individuals can be empowered to make decisions about funding and resource distribution in the areas and facilities in which they work.

### **AIDS in the system**

Since 1994 the course of healthcare policy and legislation in South Africa has taken place against a backdrop of increasing HIV prevalence which is ranked as the most significant burden of disease in the country. This is followed by TB, trauma and chronic conditions associated with lifestyle. The distribution of these diseases differs between the public and private sectors, with the lifestyle diseases being more prominent in the private sector.

HIV/AIDS is a factor outside of the health care delivery system that directly impacts on the demand for health care goods and services. It is a long-term disease, which is not notifiable and requires ongoing commitment to treatment – medication and other health-related goods and services for a sustained period of time. HIV/AIDS therefore presents a double blow to the health care sector, since it strikes hardest where health systems are weakest. The public health sector in South Africa is already strained with over-crowding in many hospitals, shortages of medical professionals and a high HIV infection rate amongst its staff. Current primary care facilities are insufficient to meet health care commitments and as a result, the working conditions are unpleasant. In addition to these problems, patients without HIV/AIDS who require hospitalisation or other treatment are being compromised, as there are insufficient resources to cater for all patients presenting for treatment.

Private health sector spend per beneficiary is significantly higher than in the public sector. In addition, there are significant resource differences. By virtue of these characteristics alone, the private health sector is possibly more capable of absorbing some of the impacts of HIV. The private sector however has made extensive strides to provide appropriate coverage for HIV/AIDS in tandem with initiatives in the public sector. Through the Prescribed Minimum Benefits (PMB), as per the Medical Schemes Act (131 of 1998), HIV/AIDS has been included as a PMB under code 168S of Annexure A to the Act.

Through Social Health Insurance reforms that were proposed before the current NHI debate, the Department of Health had intended to increase the number of people in the private medical scheme risk pool by introducing risk-related and income-related cross-subsidisation of contributions and eventually, mandating medical scheme participation to those earning above a threshold income level. One of the

<sup>1</sup> Bilchitz, D (2005). ‘Health’ in Stuart Woolman et al (eds), Constitutional Law of South Africa, 2<sup>nd</sup> ed, December 2005, Chapter 56A A-5



ways in which access to coverage is being increased is through the Government Employees Medical Scheme (GEMS) and the subsidies offered. Current medical scheme contributions are, in many instances, too expensive for lower income earners. Unfortunately, it is these lower income earners who are experiencing higher levels of HIV prevalence and who require access to quality and timely treatment as a result. Processes were embarked on to develop benefit options that are affordable to lower income families with the aim of increasing the number of young and previously uncovered people entering the system, which may in turn increase the HIV prevalence in the medical scheme industry. The extent to which these uncovered lives are absorbed into the medical scheme risk pool remains to be seen.

Current medical scheme HIV prevalence is lower than the HIV prevalence in the general South African population. This relationship can be attributed to medical scheme members being in higher socio-economic classes by virtue of educational attainment and employment and are possibly more educated about HIV/AIDS and health. These members also have improved access to medical facilities and preventative care. While higher income earners are by no means immune to the disease, statistics show that the correlation between income and HIV/AIDS is roughly negative (and possibly reducing over time). This argument extends to those in the medical scheme risk pool, in that those on comprehensive-type benefit options are assumed to experience lower levels of HIV prevalence. However, the selection of a benefit option is subject to more complexity than mere income levels. The choice of benefit option can vary according to family stage and health status whereby migration to more comprehensive options may be evident as people age.

Before the onset of HIV and AIDS, healthcare demand was typically higher for neonates, the elderly and chronically ill members. Demand was characterised by low spending at young adult ages and increased significantly as a member approached retirement and death. With the onset of HIV and AIDS, the profile of health care demand has changed somewhat. An increased proportion of younger lives, who are expected to be healthy, are consuming healthcare goods and services when they are young and dying before reaching retirement.

#### Integrated infrastructure

HIV disease management is pivotal in addressing HIV/AIDS within any healthcare environment. The underlying philosophy is that of management of the disease rather than risk avoidance or risk shifting. The latter refers to exclusions, risk-selection through benefit design and contribution loading which were permitted under prior medical scheme legislation. Disease management implies the treatment of HIV-positive individuals with appropriate medication, the outcomes of which are monitored throughout the life cycle of the condition, with the aim of keeping the member as healthy as possible for as long as possible. In order to do so, HIV disease management draws on a variety of tools that should subscribe to the latest medical standards and protocols.

Voluntary counselling and testing (VCT), the process whereby individuals elect to be tested for HIV, with pre-test and post-test counselling, is fundamental to both prevention and entry to treatment. VCT can also pave the way for behavioural change and as such strengthens the impetus for much needed reductions in the number of new infections in the country. Expansion of access to VCT and improved diagnosis receives much attention within the HIV & AIDS and STI Strategic Plan for South Africa<sup>2</sup>.

The availability of antiretroviral therapy (ART) may well be a means to encourage the extensive use of VCT to counter the stigma and discrimination associated with HIV/AIDS. In doing so, it can hopefully encourage HIV-positive people to know their status and to act accordingly. Stigma within communities has been cited as a fundamental problem associated with HIV/AIDS and this may be a strong factor for HIV-positive individuals not coming forward for treatment and care.

Not only in South Africa but also globally, the numbers of people who require ART and those who actually have access are still too far apart. According to the Minister of Health, Dr Motsoaledi<sup>3</sup>, South Africa is now covering 700,000 people who are in need of treatment; this is only 50% of the targeted number requiring treatment. The target for coverage was set at 80%. In addition, the funding shortfall for this programme is estimated at R1 billion.

ART requires well co-ordinated organisational elements, health care workers and health infrastructure. Patients using the drugs require diagnosis, prescription, dispensing and adherence monitoring, together with continued care and support, follow-up and re-examination of their condition and medication. Currently, the medical scheme and disease management industry in South Africa as well as the National Antiretroviral Programme offered in the public sector offer HIV-positive people requiring ART access to the full cycle of treatment. ART requires high levels of adherence in order for it to be effective. Concerns have been raised that widespread use of ART in developing countries could lead to viral resistance if adherence levels are insufficient. The use of standardised and simplified regimens that allow for a limited pill burden can reduce the impact of poor adherence.

<sup>2</sup> Broad Framework for HIV & AIDS and STI Strategic Plan for South Africa, 2007 – 2011. November 2006. Available on [www.doh.gov.za](http://www.doh.gov.za)

<sup>3</sup> SA won't meet ARV roll-out target, says Motsoaledi. Mail & Guardian Online, available at [www.mg.co.za/2009-09-15-sa-wont-meet-arv-rollout-target-says-motsoaledi](http://www.mg.co.za/2009-09-15-sa-wont-meet-arv-rollout-target-says-motsoaledi)



Despite significant reductions in the prices of ART, the costs of these much-needed medicines are still high. This is a large barrier to access, particularly in the least developed and developing countries since a daily intake of a combination of drugs is required on an ongoing basis. Generic equivalents are available at cheaper prices than the brand drugs and this goes some way in alleviating the price burden of ART. The costs of treatment are higher if drug resistance develops and other medicines are required. To exacerbate these issues, the procurement of ART is by no means a simple matter and involves co-ordinated efforts in supply chain management and laboratory infrastructure, with service delivery and education to providers, patients and communities. Intellectual patent legislation of such medicines is a critical factor that affects what products can be procured from which suppliers and the scope for negotiation of prices. Whilst drug prices have fallen we also know that treatment failure will become more apparent giving rise to opportunistic diseases that need to be treated and the need to move to alternative more expensive second-line and salvage treatments. At the same time advances in treatment have been occurring at a rapid rate and it is very likely that there is more to come.

### Taking count

According to the 2008 South African National HIV Prevalence, Incidence, Behaviour and Communication survey, national HIV prevalence was approximately 10.9% in 2008. There are, however, encouraging signs that the change in HIV prevalence and HIV incidence is now occurring:

- HIV prevalence has decreased among youth aged 15-24 from 10.3% in 2005 to 8.6% in 2008.
- There has been a decrease in the HIV incidence in 2008 in comparison to 2002 and 2005, particularly for the single age groups 15, 16, 17, 18 and 19.
- Among individuals (male and female) aged 15+ years, awareness of HIV status doubled between 2005 and 2008.
- Increased condom usage among youth has been reported.

Despite these improvements, there are a number of areas that require serious attention:

- HIV prevalence among females continues to be disproportionately high in comparison to males. One in three females in the age group 25-29 years was found to be HIV-positive in 2008.
- A quarter of males in the age group 30-34 years were found to be HIV-positive.
- Sexual patterns such as the young age of sexual debut, high turnover of sexual partners and increases in the number of people who reported having partners that were five or more years older than themselves.

The existence of HIV/AIDS as a medical condition presents the healthcare sector with significant risks and costs. The costs directly (and indirectly) related to HIV/AIDS must be covered and funded appropriately within any proposed National Health Insurance system. It is therefore important that the design of the system provides adequately for the full spectrum of care, treatment and support that is required for this condition as well as the consequential impacts on service delivery and infrastructure requirements for other healthcare conditions.

---

## *Some comments on the third South African national household HIV prevalence survey*

~ Professor Rob Dorrington, Director of the Centre for Actuarial Research

In July this year the HSRC (together with a few collaborators) released the report<sup>4</sup> on the third roughly triennial survey of the prevalence of people living in households and hostels. These are mammoth undertakings which provide invaluable information about the state of the HIV/AIDS epidemic in South Africa in terms of the number of people infected and who they are, in broad terms, and the 'knowledge, attitudes and practices' of people.

In terms of estimates of prevalence, the household survey has the distinct advantage of being subject to less selection bias than the annual survey of women attending public antenatal clinics. For this reason the national household survey results are important for estimating the total number of people infected and calibrating HIV/AIDS models.

However, this is not to say that the results of the survey (the reporting of which is less extensive this time than for previous surveys) are to be accepted without criticism. The survey is subject to its own biases, the extent of which are often difficult to measure. Additionally, the results are sometimes presented less completely, and the analysis with more slant, than is desirable. It is the purpose of this

---

<sup>4</sup> Shisana O, Rehle T, Simbayi LC, *et al.* *South African National HIV Prevalence, HIV Incidence, Behavioural and Communications Survey, 2008*. Cape Town: HSRC, 2009.



article to compare the results of the survey to those from the ASSA2003 model and to consider to what extent the results from the survey may be debateable<sup>5</sup>.

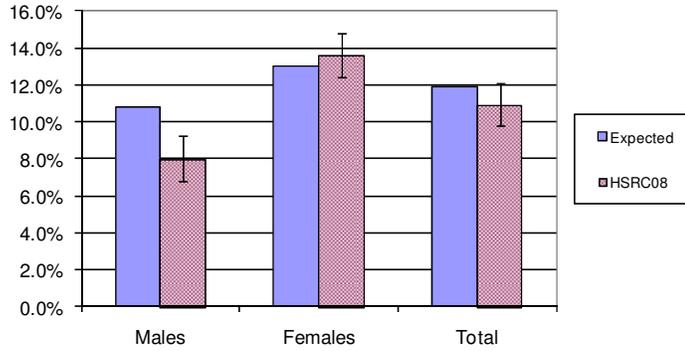


Figure 1. Prevalence of males and females aged 2+ as estimated from the 2008 HSRC survey compared with those expected from the ASSA2003 model

The estimate of overall prevalence of females (aged 2+) is very similar to that from the ASSA2003 model while that for males is significantly lower than the model, resulting in a national estimate (10.9%) that is nearly statistically significantly lower than the ASSA2003 estimate (11.9%). In part the differences may simply be due to the way the HSRC has computed their estimates, since estimating the rate as a weighted average of their age-specific prevalence rates in the report produces estimates of overall prevalence that are about 1% higher for males and 0.6% lower for females than the published overall prevalence rates. Which is why, as is shown in Figure 2, the age specific prevalence rates match more closely than the results for all ages (2+) combined.

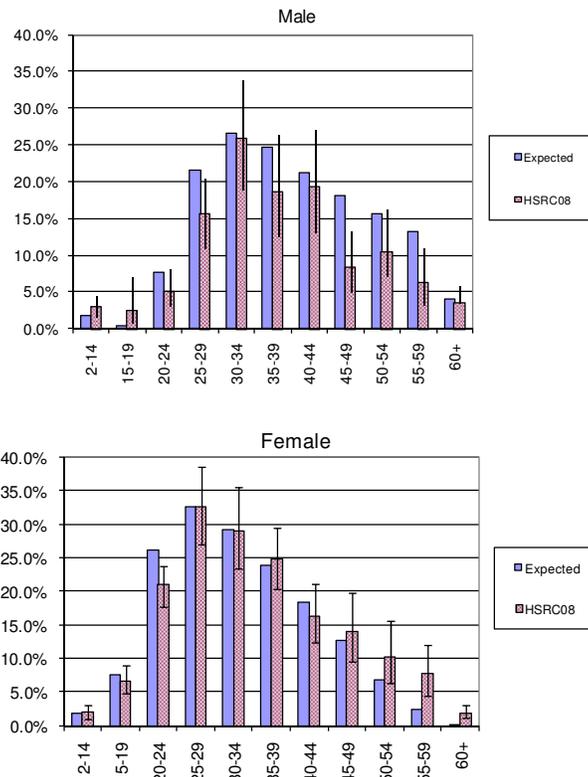


Figure 2. Age-specific prevalence rates from the 2008 HSRC survey compared with those expected from the ASSA2003 model

<sup>5</sup> Some of these points together with a response from the HSRC can be found in the September issue of the SAMJ.



While it is possible that the ASSA model is exaggerating the prevalence in men to some extent (particularly at the young and older ages), it is also possible that some of the remaining difference is due to bias in the survey as a result of not capturing some high-risk individuals. There are several reasons why this could happen

- Firstly, some high-risk individuals are expressly excluded (e.g. those in prisons and the military)
- Secondly, some high-risk individuals live the kinds of lives which make them unlikely to participate in such a survey (e.g. no fixed abode or preference for antisocial behaviour)
- Thirdly, and this applies to the survey as a whole, is that the overall response rate (52%) is low, and lower still for males (46%). This coupled with the fact that many adults report having been tested for HIV (25% adults aged 15-49 report that they were tested in the previous 12 months and know their results) probably has led to some people who knew they are HIV positive electing not to participate in the survey<sup>6</sup>.

When questioned about the potential for bias in the survey, the HSRC has defended the survey results using two arguments.

The first is to refer the challenger to work by Mishra et al<sup>7</sup> which concludes that the bias in household HIV prevalence surveys undertaken as part of the national Demographic and Health surveys (DHS) is not statistically significant. However, there are a number of reasons why Mishra et al's conclusions are not applicable to the HSRC survey. First, Mishra et al assume that the responses are "missing at random". But, even if they hadn't, the lowest response rate in the DHS surveys they considered was 67% (which is significantly higher than that of the HSRC survey), and although they don't report what percentage of the population knew their status, one can assume that this was probably negligible. Finally, they estimated the bias by using a multi-factor regression to impute the prevalence of those who refused testing from the results of those who did test, which explained "only about 20% of variation in HIV prevalence ... in most countries"; and, it would appear, that they ignored any bias that might arise due to those who did not participate in the DHS as a whole.

The second argument offered by the HSRC is that, a comparison of the profiles of those who answered the questionnaires but did not test against those who did test shows minimal differences. Apart from the fact that this ignores the significant number which did not answer the questionnaire, it is apparent, as indicated above, that the variables captured in such questionnaires are not very highly correlated with prevalence.

In addition to not acknowledging the potential for bias, the reporting on the 2008 HSRC survey is problematic in two other respects. It draws certain conclusions about changes in prevalence over time using the results of the 2002 HSRC survey as base, and often makes assertions without considering the uncertainty around the point estimates.

Using the 2002 survey as a base leads the authors to conclude, inter alia, that:

- HIV prevalence at national level has decreased among children aged 2 - 14 years, from 5.6% in 2002 to 2.5% in 2008, and
- HIV prevalence among adults aged 15 - 49 years has declined between 2002 and 2008 in the Western Cape, Gauteng, Northern Cape and the Free State, "with the largest decline of 7.9 percentage points in the Western Cape"<sup>8</sup>

Unfortunately due to numerous inconsistencies with other measures of the epidemic at the time and subsequently the 2002 survey appears to be less reliable than the subsequent surveys. Two examples of the kinds of problems with the survey are: the implausibly high prevalence in children aged 2-14 (5.6% when the expectation was around 1%); and the implausible ranking of the provinces by prevalence, with KwaZulu-Natal (highest according to the antenatal survey) only fourth highest and Western Cape (lowest according to the antenatal survey) the fifth highest. Neither of these conclusions from the 2002 report stands up to scrutiny. The prevalence in children was found to be much lower in the 2005 survey when blood rather than saliva was tested, with much of the drop being due to a change in method of testing. Apart from not being in accordance with our understanding of the epidemic at a

<sup>6</sup> Reniers, G. and Eaton, J. 2009. "Refusal bias in HIV prevalence estimates from nationally representative seroprevalence surveys", *AIDS* 23:621-629

<sup>7</sup> Mishra V, Barrere B, Hong R, Khan S. Evaluation of bias in HIV seroprevalence estimates from national household surveys. *Sex Transm Inf* 2008; 84: i63-i70, and Mishra V, Hong R, Khan S, Gu Y, Liu Li. 2008. *Evaluating HIV Estimates from National Population-Based Surveys for Bias Resulting from Non-Response*. DHS Analytical Studies No. 12. Calverton, Md: Macro International Inc.

<sup>8</sup> HSRC Media Brief. Third national HIV survey shows SA's epidemic has stabilised, with promising signs of a declining epidemic among children and teenagers. [http://www.hsrc.ac.za/Media\\_Release-379.phtml](http://www.hsrc.ac.za/Media_Release-379.phtml) (accessed 10 June 2009)



provincial level, the fall in prevalence in the four provinces is not borne out by the trends from the annual surveys of public antenatal clinics<sup>9</sup>.

Ignoring the uncertainty of the results, the report suggests that prevalence has fallen in the youth (aged 15-24) from 10.3% in 2005 to 8.6% in 2008, and in particular there has been a “substantial decrease in incidence in 2008 in comparison with 2002 and 2005, especially for the single-year age groups 15, 16, 17, 18 and 19”. In the case of the youth, the confidence interval spans over 3% in each survey. A quick inspection of the size of the confidence intervals for the 15-19 combined age group in Figure 2 shows that it is questionable to assert declining incidence on the basis of prevalence at individual ages in this age group.

## Upcoming Events

18 - 20 November:	The Select Modelling Course (Cape Town)
1 December:	World AIDS Day

## The Lighter Side

1. I am a three digit number. My tens digit is five more than my ones digit. My hundreds digit is eight less than my tens digit. What number am I?
2. If you have three oranges and you take away two, how many will you have?
3. The ages of a father and son add up to 66. The father's age is the son's age reversed. How old could they be? (there are 3 possible solutions)
4. I am the owner of a pet store. If I put in one canary per cage, I have one bird too many. If I put in two canaries per cage, I have one cage too many. How many cages and canaries do I have?



Answers:

1. 194 2. Two, you took two! 3. 51 & 15 or 42 & 24 or 60 & 06 4. 3 Cages and 4 Canaries

<sup>9</sup> Dorrington R E. 2009. Professor Dorrington responds: National population-based HIV surveys - the method of choice for measuring the HIV epidemic. *SAMJ* 99(9): 636-637

