HIV/AIDS AND SOCIETY

1. Terms of Reference

The Policy Unit in the Presidency is conducting a fifteen year review of government business. The main aim of the review is to assess the outcome and impact of policies, programmes and projects as implemented by government since 1994 as well as assess progress towards achieving the 2014 goals.

The Presidency has commissioned the Human Sciences Research Council (HSRC) to provide an overview of the state of the HIV epidemic in South Africa, describe the impact of HIV and AIDS on the society, identify and assess the impact of interventions initiated to address these challenges, reflect on gaps and advice on strategic interventions.

The quantitative analysis of the impact of HIV and AIDS on society covers the entire period since 1994 or as far back as data permit after 1994. Similarly, the quantitative analysis of government's and other interventions covers the entire period since 1994 or as far back as data permit after 1994.

2. State of the HIV epidemic

Sub-Saharan Africa remains the most affected region in the global AIDS epidemic. More than two out of three (68%) adults and nearly 90% of children infected with HIV live in this region, and more than three in four (76%) AIDS deaths in 2007 occurred there. It is estimated that 1.7 million people were newly infected with HIV in 2007, bringing to 22.5 million the total number of people living with HIV in sub-Saharan Africa (UNAIDS 2007).

The scale and trends of the epidemics in sub-Saharan Africa vary considerably, with southern Africa most seriously affected. National adult HIV prevalence exceeded 15% in eight countries in 2005 (Botswana, Lesotho, Mozambique, Namibia, South Africa, Swaziland, Zambia and Zimbabwe). According to the latest UNAIDS estimates, this subregion accounts for almost one third (32%) of all new HIV infections and AIDS deaths

globally in 2007 (UNAIDS 2007). South Africa is still the country with the largest number of HIV infections in the world with an estimated 5.4 million people living with HIV in 2006 (Department of Health South Africa, 2007).

2.1 Antenatal HIV prevalence data

In South Africa, HIV prevalence surveillance among pregnant women attending public health clinics has been conducted on an annual basis since 1990 and served as the primary source for monitoring trends of HIV in the country (Figure 1). HIV prevalence data collected from the latest round of antenatal clinic surveillance suggest that HIV infection levels might be leveling off, with prevalence among pregnant women at 30% in 2005 and 29% in 2006 (Department of Health South Africa, 2007).

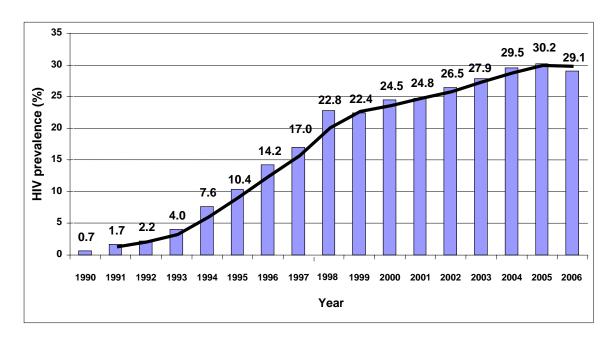


Figure 1: Antenatal HIV prevalence, South Africa 1990 - 2006

In addition, the decrease in HIV prevalence among young pregnant women (15-24 years) usually suggests a possible decline in the annual number of new infections. Figure 2 shows the HIV prevalence trends among young pregnant women since the year 2000.

After years of relative stability, prevalence among 15-19 year olds and among 20-24 years olds showed for the first time a significant decline in 2006. Is this the beginning of the long-awaited downward trend among pregnant youth in South Africa? At least two more survey rounds are necessary to draw such a conclusion. It should also be noted that the sampling frame was expanded in 2006 in order to provide for the first time prevalence estimates for each district in the country (Department of Health South Africa, 2007). This change in methodology might account for the observed small decline.

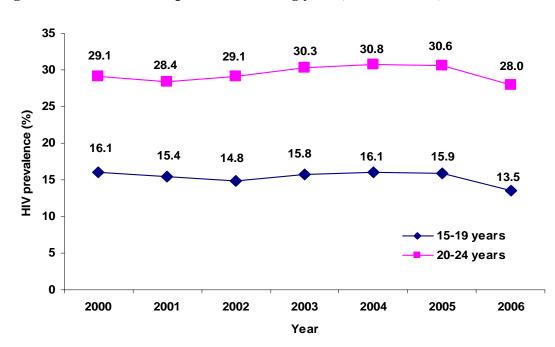


Figure 2: Antenatal HIV prevalence among youth, South Africa, 2000 - 2006

The HIV prevalence levels in antenatal clinic attendees vary considerably between provinces, from 15% in the Western Cape to 39% in the province of KwaZulu-Natal (Figure 3). The variations within provinces are equally wide, e.g., the district level prevalence for KwaZulu-Natal ranges from 27.9% in Umzinyathi to 46.0% in Amajuba (Department of Health South Africa, 2007).

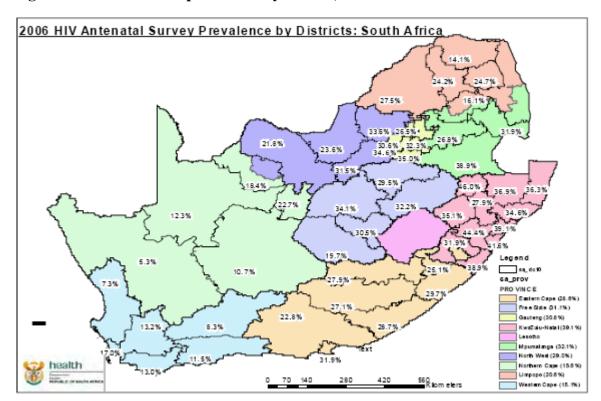


Figure 3: Antenatal HIV prevalence by district, South Africa 2006

Source: Department of Health South Africa, 2007

2.2 National population-based HIV survey data

Data collected in national population-based surveys have certainly improved the accuracy of HIV estimates. While HIV prevalence data from antenatal sentinel surveillance will continue to provide valuable information in terms of the trend in the epidemics, HIV prevalence measured in pregnant women attending public health facilities is not representative of the demographic profile of the country.

Two national population-based HIV surveys have been conducted in 2002 (Shisana and Simbayi, 2002) and 2005 (Shisana et al. 2005). A national HIV prevalence survey among youth aged 15-24 years was also conducted in 2003 (Pettifor et al. 2004).



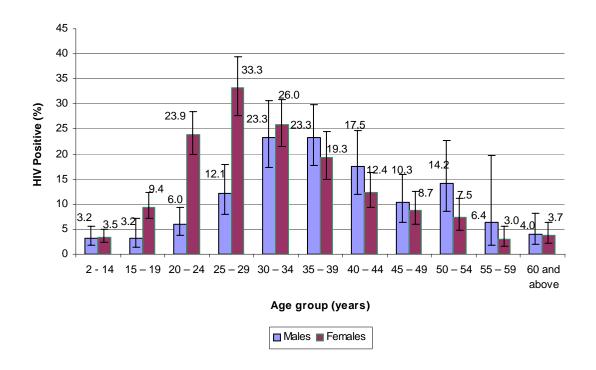
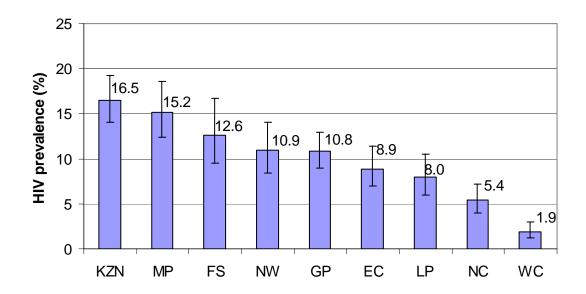


Figure 4 presents the national HIV prevalence profile by age and sex for South Africa in 2005 (Shisana et al. 2005). HIV prevalence increases dramatically among young females and peaks at 33.3% in the 25-29 age group. In males, the increase in HIV prevalence is more progressive, and peaks at a lower level than for females (23.3%) in age groups 30-34 and 35-39. From age group 35-39 onwards HIV prevalence is higher in males than in females.

HIV prevalence by province for the population aged 2 years and older is shown in Figure 5. KwaZulu-Natal, Mpumalanga and Free State have the highest HIV prevalence in South Africa. The lowest HIV prevalence levels were recorded in the Western Cape and Northern Cape.

Figure 5: HIV prevalence among people aged 2 years and above by province, South Africa 2005



The prevalence analysis for the age group 15-49 years and for youth aged 15-24 years is presented separately here to enable a comparison with other studies. The overall HIV prevalence in the age group 15-49 years was estimated to be 16.2%. Prevalence in females is almost twice that of males – 20.2% compared to 11.7% (Figure 6). Among youth aged 15-24 years, overall HIV prevalence was 10.3%. Females, however, have almost four times the HIV prevalence of males, 16.9% vs. 4.4% (Figure 7). The results confirmed the findings of the national youth survey conducted in 2003, which found similar HIV prevalence in females and males, 15.5% and 4.8% respectively (Pettifor et al. 2004). Figure 2.8 presents the analysis of HIV prevalence in youth by sex and by single year of age, which illustrates the extraordinary difference in infection levels – especially from age 19 years onwards – between young males and females in South Africa.

These data confirm that women have become the face of the epidemic, and as in the rest of sub-Saharan Africa, the epidemic in South Africa disproportionately affects women.

Figure 6: HIV prevalence among adults aged 15 - 49 years by sex, South Africa 2005

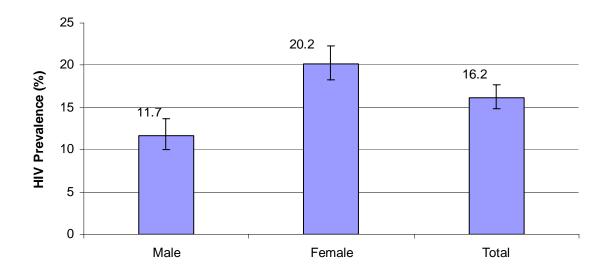
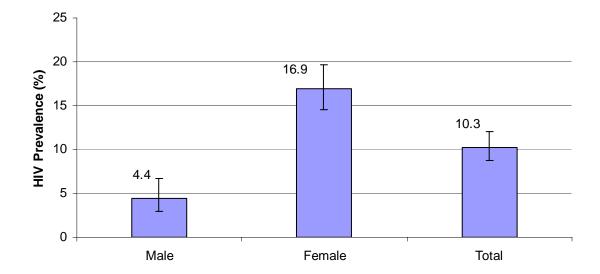


Figure 7: HIV prevalence among youth aged 15 - 24 years by sex, South Africa 2005



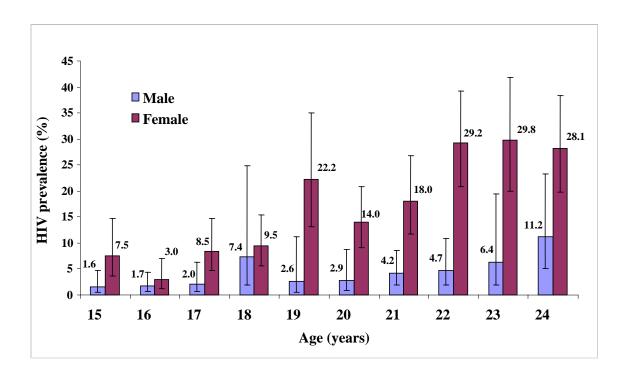


Figure 8: HIV prevalence in youth by single year of age (HSRC 2005)

2.3 National HIV Incidence Measures

The interpretation of HIV prevalence trends in South Africa will be more challenging in the coming years when antiretroviral (ARV) treatment becomes more widely available for infected individuals. Increased access to antiretroviral treatment will increase the survival time of HIV infected persons and, as a consequence, may have multiple, potentially altering effects on HIV transmission by increasing the pool of HIV infected persons (HIV prevalence), by decreasing infectiousness through reduction in viral loads, and possibly dis-inhibiting prevention behaviors. In such a scenario HIV incidence measures are generally more appropriate than prevalence measures for assessing the impact of national prevention programs because HIV incidence is a more timely measure and better reflect the underlying transmission dynamics that are currently at work in South Africa.

True incidence data, however, can only be obtained through large-scale cohort studies. Such studies have many drawbacks, including cost, ethical considerations, participation and/or selection biases and the fact that those included in a cohort will inevitably have more exposure to HIV programs. As a consequence, national HIV incidence estimation was mostly provided by mathematical models (UNAIDS, 2002; Rehle and Shisana, 2003; Dorrington et al. 2004). Indirect HIV incidence estimates can also be derived from prevalence surveys in young people (15-24 years old) using prevalence data by single year of age and assuming that HIV prevalence differences between the age strata represent incident HIV infections (Gregson et al. 1998). However, this method is not applicable in older age groups when AIDS-related mortality has a major impact on HIV prevalence levels.

These complexities and limitations of epidemiological approaches to measure HIV incidence argue strongly for a laboratory-based method that can distinguish recent from established long-term HIV infections, independent of the age of the source population. Several laboratory-based methods have been developed that are based on the events of early HIV-1 infection (Janssen et al. 1998; Parekh et al. 2002; Suligoi et al. 2003). The underlying principle is that the response of a person to HIV during the early infection stage can be timed by the presence or absence of markers in that person's blood. These unique and specific host responses to HIV infection enable the estimation of HIV incidence based on laboratory assays using blood specimens from cross-sectional rather than longitudinal survey designs.

Over the past years, the Centers for Disease Control and Prevention (CDC) introduced the BED capture EIA (CEIA) assay to identify incident infection (Parekh et al. 2002). The BED assay measures the increasing proportion of HIV- specific IgG to total IgG after seroconversion. In December 2005, the UNAIDS Reference Group on Estimates, Modeling and Projections issued a statement in response to preliminary data from population surveys which demonstrated that the BED assay overestimated HIV-1 incidence by misclassifying a number of individuals with long-term infection as recent infection in cross-sectional settings (UNAIDS 2005). In May 2006, an incidence

validation meeting was held at the CDC in Atlanta where new study results were presented from China, Cote d'Ivoire, South Africa, Thailand, Uganda, the United States, and Zimbabwe to address the concerns expressed by the UNAIDS Reference Group. Based on its review of the study results, the working groups developed guidelines with detailed adjustment procedures for the estimation of HIV-1 incidence in cross-sectional, population-based serosurveys (CDC 2006). So far, these adjustments have only been validated for HIV-1 subtypes B and C where the proportion of long-term infection misclassifying as recent infections was quantified (McDougal et al. 2006; Hargrove et al.2008).

Direct HIV estimates from the 2005 national HIV survey

The 2005 South African national household survey on HIV, Behavior and Communication conducted by the HSRC included HIV incidence testing in its survey protocol for the first time. Almost 16 000 specimens tested for HIV provided an unparalleled large sample to estimate HIV incidence on a national scale for South Africa. Using the adjusted BED HIV-1 incidence method, the analysis provided national direct HIV incidence estimates by age, sex, race, province and locality type (Rehle et al. 2007a). Annualized BED HIV incidence calculation applied a window period of 180 days for HIV subtype C specimens, the predominant HIV subtype in South Africa.

Table 1: HIV incidence % and number of new infections by age group, South Africa 2005

| Age group (years) | Weighted sample (n) | HIV incidence % per year [95%CI] | Estimated number of new infections per year (n) |
|----------------------|---------------------|----------------------------------|---|
| ≥ 2 | 44 513 000 | 1.4 [1.0 - 1.8] | 571 000 |
| 2-14 | 13 253 000 | 0.5 [0.0 - 1.2] | 69 000 |
| 15-24 | 9 616 000 | 2.2 [1.3 - 3.1] | 192 000 |
| <u>≥</u> 25 | 21 645 000 | 1.7 [1.1 – 2.3] | 310 000 |
| 15-49 | 24 572 000 | 2.4 [1.7 – 3.1] | 500 000 |

Numbers rounded off to the nearest thousand

Source: Rehle et al. 2007a

Tables 1 presents HIV incidence estimates for South Africa in both relative terms (% per year) and absolute terms (number of new infections per year). HIV incidence amongst persons aged two years and older is calculated at 1.4% (95% CI: 1.0-1.8), with 571 000 new HIV infections estimated for 2005. Our analysis indicates that 500 000 new HIV infections occurred in the 15-49-year age group. 34% of all new HIV infections in the population 2 years and older occurred in young people aged 15-24 years. Among youth aged 15-24 years, females account for 90% of the recent HIV infections in this age group. The incidence of HIV in the children population aged 2-14 years is of concern, a relative incidence of 0.5% (95% CI: 0.0-1.2) translates to 69 000 estimated new infections in this age group. These new infections in children 2years and older are most likely not linked to mother to child transmission, and thus infection would have occurred through other modes of transmission, potentially including child sexual abuse – a research topic that needs urgent attention.

Table 2 shows the calculated HIV incidence by race, province and locality type for the population 2 years and older. HIV incidence in the African race group is nine times higher than the incidence found in the other race groups, 1.8% (95% CI: 1.3-2.3) and 0.2% (95% CI: 0.0-0.3) respectively. Mpumalanga (2.4%, 95% CI: 0.9-3.8), Free State (1.9%, 95% CI: 0.4-3.4), Gauteng (1.9%, 95% CI: 0.8-3.0), KwaZulu-Natal (1.7%, 95% CI: 0.7-2.7), and Limpopo (1.6%, 95% CI: 0.3-2.8) recorded the highest incidence, while North West (1.0%, 95% CI: 0.2-1.8), Western Cape (0.8%, 95% CI: 0.2-1.5), Eastern Cape (0.7%, 95% CI: 0.1-1.2) and Northern Cape (0.2%, 95% CI: 0.0-0.4) showed incidence rates of one percent and lower. In absolute terms however, most new HIV infections occurred in the populous provinces Gauteng and KwaZulu Natal, totalling an estimated 144 000 and 134 000 respectively.

Persons living in urban informal settlements have by far the highest incidence rates, 5.1% (95% CI: 3.2-7.0), compared to those living in rural formal areas (1.6%, 95% CI: 0.7-2.5), rural informal areas (1.4%, 95% CI: 0.1-2.8), and urban formal areas (0.8%, 95% CI: 0.3-1.2). Although only 8.7% of the total South African population 2 years and above

lives in urban informal settlements, 29.1% ($166\,000\,/\,571\,000$) of the total estimated number of new HIV infection in South Africa are found in this type of residence.

Table 2: HIV incidence % and number of new infections by race, province and locality type (age \geq 2 years), South Africa 2005

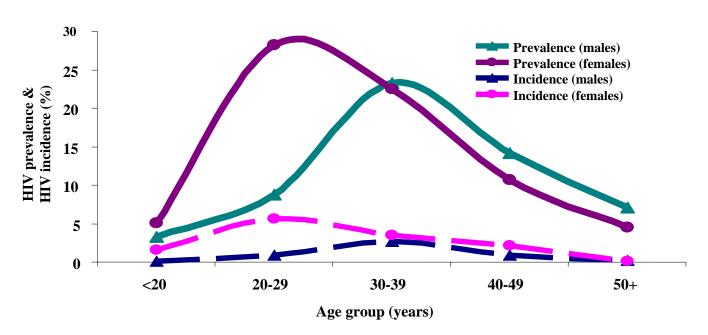
| Variable | Weighted sample (n) | HIV incidence % per year [95%CI] | Estimated number of new infections per year (n) |
|----------------|---------------------|----------------------------------|--|
| Race | | | |
| African | 35 113 000 | 1.8 [1.3- 2.3] | 557 000 |
| Other | 9 337 000 | 0.2 [0.0 – 0.3] | 14 000 |
| Province | | | |
| Mpumalanga | 3 083 000 | 2.4 [0.9 – 3.8] | 63 000 |
| Free State | 2 827 000 | 1.9 [0.4 – 3.4] | 47 000 |
| Gauteng | 8 512 000 | 1.9 [0.8 – 3.0] | 144 000 |
| KwaZulu Natal | 9 213 000 | 1.7 [0.7 – 2.7] | 134 000 |
| Limpopo | 5 207 000 | 1.6 [0.3 – 2.8] | 76 000 |
| North West | 3 642 000 | 1.0 [0.2 – 1.8] | 33 000 |
| Western Cape | 4 382 000 | 0.8 [0.2 – 1.5] | 33 000 |
| Eastern Cape | 6 777 000 | 0.7 [0.1 – 1.2] | 40 000 |
| Northern Cape | 871 000 | 0.2 [0.0 – 0.4] | 1 000 |
| Locality type | | | |
| Urban informal | 3 878 000 | 5.1 [3.2 – 7.0] | 166 000 |
| Rural formal | 3 577 000 | 1.6 [0.7 – 2.5] | 52 000 |
| Rural informal | 16 495 000 | 1.4 [0.1 – 2.8] | 211 000 |
| Urban formal | 20 563 000 | 0.8 [0.3 – 1.2] | 142 000 |

Numbers rounded off to the nearest thousand

Source: Rehle et al. 2007a

Figure 9 compares the HIV incidence and HIV prevalence profile in the South African population by age and sex. The differences in HIV incidence between males and females are especially large in the younger age groups under 30 years of age. HIV incidence among females rises fast and peaks in the 20-29 age group at 5.6% (95% CI: 2.8-8.4), more than six times the incidence found in males in this age group (0.9%, 95% CI: 0.0-1.9). HIV incidence among males increases much slower than in females and peaks at a lower level in the 30-39 age group at 2.7% (95% CI: 0.0-5.7).

Figure 9: HIV prevalence and HIV incidence by age and sex, South Africa 2005



Source: Rehle et al. 2007a

Comparison of adjusted BED HIV incidence with ASSA model

In order to examine the plausibility of our HIV incidence estimates we compared the adjusted BED estimates with estimates derived from mathematical modeling, using the ASSA2003 AIDS and Demographic model (Rehle et al. 2007b). Overall, the estimates by the two methods were similar. BED HIV incidence in the study population aged two

years and older was 1.4%, compared to 1.3% estimated by the ASSA model. A BED HIV incidence rate of 2.4% was found among individuals aged 15-49 years. The modeled HIV incidence was 2.2% for this age group.

The adjusted BED HIV incidence estimates appear to provide valid national HIV incidence estimates for South Africa. Notwithstanding these encouraging results we continue to be actively involved with CDC and NICD in further validation studies that are not limited to the BED-CEIA but will also explore the suitability of testing algorithms involving, for example, antibody avidity testing.

The 2005 national HIV incidence estimates presented in this analysis will serve as benchmark figures for future assessments of the dynamics and trends of the South African HIV epidemic. There is emerging consensus that validated laboratory based HIV incidence tests are the method of choice to provide direct national HIV incidence estimates using blood samples collected in national population-based HIV surveys. Incidence data provide critical new insights into the dynamics of the HIV epidemic and are more appropriate than prevalence measures to assess the impact of national prevention programs.

3. Understanding the determinants of the HIV epidemic in South Africa

Efforts to monitor and respond to the HIV/AIDS epidemic are complicated by the temporal and geographical evolution of the many sub–epidemics at the provincial or even sub-district level. The interpretation of epidemiological trends is made more difficult by an inadequate understanding of how different social, behavioral and epidemiological factors influence the dynamics of the epidemic within different settings (Rehle et al, 2004).

The relationship between HIV incidence and prevalence grows increasingly complex as the epidemic matures and prevention and care efforts try to mitigate it at the same time. The complex interaction between some of the factors facilitating or inhibiting HIV transmission are summarized in Figure 10. An important point to emerge from this diagram is that factors facilitating HIV spread operate not only at the individual level but at the community and societal level too. The determinants of HIV transmission establish the theoretical basis for the current HIV and AIDS prevention efforts. The scientific challenge for program designers lies in trying to identify the most effective ways to decrease HIV transmission by influencing these determinants and to translate this theoretical concept into specific interventions in the field.

Factors facilitating HIV spread •HIV prevalence Mortality Poverty Multiple Concurrent STI Urbanization partners Risky sexual Migration Mixing •ART practices •Gender imbalance patterns •High viral load (prolonging •Cultural context Concurrent •Anal sex survival time) •Stigma partners Basic care Prophylaxis Community level Individual level HIV **D**: Duration C: Number of exposures of **β**: Efficiency of incidence susceptible to infected persons per transmission X of infectious and unit time per contact period prevalence Community level Individual level Intervention •Condom use Abstinence Lack of basic programs Faithfulness Circumcision care Religious and •ART (reduction of Sequential Concomitant cultural norms viral load) sexual partners infections (TB) •Economics Early STI Delayed Politics sexual debut treatment Philosophy Literacy Factors inhibiting HIV spread

Figure 10: Factors influencing the reproductive rate of HIV transmission

Source: adapted from Rehle et al, 2004

The major social, economic and behavioural factors that drive the epidemic in South Africa include culture and social norms, stigma and denial, poverty, labor-related migration, gender-based violence including rape, concurrent multiple sex partners and age mixing patterns. Untreated viral sexually transmitted infections (STIs), especially herpes simplex virus type 2 (HSV 2) infection, and relatively low levels of male circumcision are the key biological drivers of the South African HIV epidemic. Our current understanding of their respective role is presented in the following.

Culture and social norms.

Firstly, gender inequalities inherent in many societies where women are accorded a lower status than men have serious implications for choices that women can make in their lives especially with regards to when, with whom and how sexual intercourse takes place (Meyer-Weitz et al., 1998). Such decisions are frequently constrained by coercion and violence in the women's relationships with men. In particular, male partners either have sex with sex workers or engage in multiple relationships, and their female partners or spouses are unable to insist on the use of condoms during sexual intercourse, often for fear of losing their main source of livelihood. Consequently, many women are left unprotected and are exposed to HIV infection from their male partners. In line with global trends for greater gender equality young women in South Africa are increasingly eager to assert themselves, maximise their interests and forge new identities as modern young women. Doing this within the confines of existing cultural prescriptions for gender, often leads young women to manipulate or exploit their relationships with men in ways that increase their vulnerability and exposure to HIV (Leclerc-Madlala, 2003).

Secondly, there are several sex-related cultural beliefs and behavioural practices such as rites of marriage including premarital sex, virginity testing, fertility and virility testing, fertility obligations, polygamy, and prohibition of post-partum sex and also during breastfeeding, and rites related to death such as levirate (or spouse inheritance) and sororate (a widower or sometimes a husband of an infertile woman marries his wife's sister), or still prevailing beliefs that sex with a virgin can cure AIDS. While these practices may have served a valuable social purpose in the past, today these contribute to the spread of HIV infection (Simbayi, 2002).

Stigma and denial

HIV and AIDS is most likely one of the most stigmatised medical conditions in the world. Stigmas interfere with HIV prevention, diagnosis, and treatment and can become internalized by people living with HIV and AIDS (UNAIDS, 2006). Although still prevalent, at a national level, AIDS stigma appears to be declining in South Africa as shown by the findings of the 2005 national HIV household survey (Shisana et al., 2005a).

A recent large survey conducted among 1054 HIV positive individuals in Cape Town found high levels of internalized stigma, with a large number of study participants not disclosing their HIV-positive status for fear of stigma and discrimination (Simbayi et al., 2007). This is mostly due to the fact that despite the fact that HIV is transmitted during normal sexual acts, HIV infection is widely perceived as an outcome of sexual excess and low moral character, with a consequent strong culture of silence by people living with HIV and AIDS because of fear of rejection and isolation by close relatives and the community at large (Johnston, 2001). The stigma is more severe for women than for men. AIDS stigma has also been shown to be associated with traditional beliefs that AIDS is caused by spirits and supernatural forces (Kalichman & Simbayi, 2004a).

One of the consequences of stigma is denial. Fear of exclusion and discrimination forces people living with HIV and AIDS to hide their condition. This silence and denial about HIV/AIDS is lethal because it prevents people from assessing and accepting their role in infecting their sexual partners (Qwana et al., 2000; Strydom, 2000).

Poverty

Poverty works through a myriad of interrelations, including unequal income distribution (Gie et al., 1993), economic inequalities between men and women which promotes transactional sex (Halperin & Allen, 2001), relatively poor public health education and inadequate public health systems (Mitton, 2000). Poverty-related stressors derived from descriptions of poverty in townships such as housing, transportation, sanitation, insufficient food, HIV and AIDS, unemployment, discrimination, poor education, violence, and crime have also been shown to be associated with HIV transmission risks (Kalichman et al., 2006).

Labor-related migration.

The role played by labor-related migration in fueling the spread of HIV in South Africa is widely accepted (Jochelson et al., 1991; Okee-Obeng, 2001). Migration is a risk factor for HIV because migrant workers are more likely than non-migrants to have additional

partners (Lurie, 2000; Lurie et al., 1997). In particular, circular migration between the mines and places of residence by migrant workers has facilitated the spread of HIV infection in rural areas (Lurie et al., 2003a, 2003b; Schoofs, 1999a, 1999b; Zuma et al., 2003, 2005). Migration of educators has also been shown to be a major risk factor for HIV (Shisana, et al., 2005).

Gender-based violence and rape

South Africa has among the highest rates of violence against women, with over 53,000 rapes reported to police in 2000, translating into a rape reporting rate of 123 women per 100,000 population (Jewkes & Abrahams, 2002). This figure excludes those who were raped but the incident was not reported to police. Sexual violence is linked with a culture of violence involving negative attitudes (e.g., deliberate intention to spread HIV) and reduced capacity to make positive decisions or to respond appropriately to HIV prevention campaigns. More significantly, the experience of sexual assault has also been linked to risks for HIV infection (Ajuwon et al., 2002; CADRE/DoH, 2003; Dunkle et al., 2004b; Jewkes et al., 2006; Hink & Thomas, 1999; Wojcicki, & Malala, 2001; Wood & Jewkes, 2002).

Two recent studies conducted among men in a township community and in an STI clinic showed that men with a history of sexual assault were also at significantly higher risk for HIV transmission than their non-sexually assaultive counterparts (Kalichman et al., 2007; Simbayi et al., 2006). Since these men are HIV high risk groups and tend to rape women, it is very likely that they transmit HIV to their victims. In South Africa, the gender system fosters power imbalances that facilitate women's risks for sexual assault and sexually transmitted infections (Farmer et al., 1996; Jewkes et al. 2001).

Women with the least power in their relationships are at the highest risk for both sexual assault and HIV infection, both stemming from the inability of women to control the actions of their sex partners (Ajuwon et al., 2001; Jewkes & Abrahams, 2002; Kalichman & Simbayi, 2004b; Wojcicki & Malala, 2001). Men who have limited resources and lack opportunity for social advancement often resort to exerting power and control over

women (Boonzaier, 2005). Importantly, sexist beliefs and negative attitudes toward women are held by men who have not been sexually violent as well as men who have a history of sexual violence (Simbayi et al., 2006). In fact, negative attitudes toward women are so pervasive there is evidence that they are often held by women as well (Kalichman et al., 2005). Power and control disparities in relationships create a context for men to have multiple concurrent partners and fuel their reluctance to use condoms. Unfortunately, men's attitudes toward women impede HIV preventive actions and can culminate in the acceptance of violence against women. Qualitative studies in South Africa consistently show that men believe they are more powerful than women and that men are expected to control women in their relationships (Jewkes et al., 2001; Morrel, 2002). Simbayi et al. (2006) reported that men often held attitudes that accept violence against women including beliefs that women should be held responsible for being raped. The widespread and normative acceptance of sexual violence and male sexual irresponsibility plays a significant role in perpetuating high-risk behaviours and continued high rates of HIV.

Concurrent multiple sex partners and age mixing pattern

Sexual networking patterns, especially concurrent sexual partnerships, are thought to be a key factor driving the HIV epidemic throughout the Southern African region including South Africa (SADC, 2006). This practice is partly supported by the patriarchal system which manifests itself through the macho image nurtured among men to perceive themselves as superior to women and this therefore allows them to have multiple partners with the attendant number of sexual conquests being generally equated with the concept of masculinity (Caldwell et al., 1994; Campbell, 1997; Meekers, 2000; Gubrium, 2000). Concurrent partnerships also have resonance with the customary practice of polygamy and may be one way in which the system has evolved over time. The situation is further compounded by the economic inequality found between men and women and the reliance of women on men as breadwinners (Caldwell et al., 1994).

Inter-generational sex is common practice in South Africa. What distinguishes the HIV risk between young females and young males is the age group with which each has sex

(see also Figure 2.8 in section 2). Young females are more likely to have sex with older male partners. The 2005 national HIV household survey found a high HIV prevalence of 29.5% among females aged 15-19 years who had male partners who were at least 5 years older than themselves (Shisana et al., 2005a). The inter-generational age disparate sexual relationships are usually based on the economic dependence on older men by the younger females (Pettifor et al., 2004). A growing number of studies indicate that even relatively well-off young women will seek older male partners for 'top-up' income, or for social and emotional reasons (Leclerc-Madlala, 2008). It is however suggested that the stereotypical affluent "sugar daddies" are not the only players here, and that even impoverished men play a larger role than often recognized (SADC, 2006).

HSV-2 infection

Sexually transmitted infections, especially those causing genital ulcerative disease (GUD), are known to facilitate the transmission of HIV (Fleming & Wasserheit, 1999). Herpes simplex virus type 2 (HSV 2) infection is now been identified as the major cause of genital ulcer disease in Africa (O'Farrell et al. 2007). Prevalent HSV 2 infection is associated with a 2-to 4- fold increased risk of HIV acquisition as well as HIV transmission and there is increasing evidence which demonstrates the substantial link between the epidemics of HIV and HSV 2 (Corey et al. 2004). A study among youth in a South African mining town found that 80% of HIV-positive youth had also an HSV 2 infection, while only 20% of HIV-negative youth was coinfected with HSV 2 (Auvert et al. 2001).

These data suggest that greater attention to the diagnosis and treatment of HSV 2 infection is warranted, in particular among HIV infected persons. Although the syndromic treatment algorithm was successful in reducing the incidence of bacterial genital ulcer diseases (e.g., chancoid, syphilis), with the emergence of HSV-2 as the most frequent cause of genital ulcer disease a reassessment of the effectiveness of current STI treatment strategies is needed (O'Farrell et al. 2007).

Male circumcision

There is now compelling evidence about the protective nature of circumcision to men following three successful trials. One was held in Orange Farm, an informal settlement in Johannesburg, South Africa, where it was shown that circumcision was 60% effective in reducing HIV infection among those who were circumcised compared to those who were not (Auvert et al. 2006). The results of the other two trials conducted in Kisumu in Kenya and in Rakai in Uganda showed a reduction of HIV infection of 53% and 48% respectively (US National Institute of Allergy and Infectious Diseases 2006).

The idea that male circumcision might be protective against HIV infection is not new as it was first suggested over two decades ago by Fink (1986). Since then several studies have examined this issue and produced mixed results (Moses et al., 1994; De Vincenzi & Mertens, 1994; Moses et al., 1998; Van Howe, 1999; Weiss et al., 2000; Bailey et al., 2001; Siegfried et al., 2006). In particular, both Caldwell and Caldwell (1996) and, more recently, Williams et al. (2006) have shown through spatial mapping the close relationship between male circumcision and HIV prevalence. For example, some countries especially in West Africa, which have significantly higher male circumcision rates, have significantly lower HIV prevalence rates compared to countries in Eastern and Southern Africa with lower rates of male circumcision but higher HIV prevalence.

The only available empirical data on circumcision in South Africa on a national level was that obtained from the 2002 national HIV/AIDS household survey which found that 35% of all adult and young males were circumcised (Shisana and Simbayi, 2002). These findings suggest that South Africa is typical of countries in Southern Africa where male circumcision prevalence rates are relatively low compared to most countries in both West Africa and North Africa which are predominantly Muslim in character (Williams et al., 2006). Preliminary analysis of the 2002 national HIV/AIDS household survey showed that male circumcision was more protective among other races such as Whites, Indians and Coloureds than among Africans. However, a recent more in-depth follow-up analysis controlling for some confounding variables showed that male circumcision was found to be associated with age, race, socio-economic status, religious affiliation, home language and province; most circumcisions among Whites, Coloureds and Indians were

performed mainly in hospital settings during childhood while those among Africans were mainly conducted outside hospitals when they were adolescents - 40.5% of all circumcisions took place after sexual debut, and 66.5% of men who were circumcised after their 17th birthday were already sexually active by then (Connolly et al., 2007 under review). More importantly, the study revealed that male circumcision undertaken at prepubertal age rather than later at post-pubertal age appeared to be protective. These findings clearly have implications for the possible adoption of the mass male circumcision strategy both as a public health policy and an HIV prevention strategy in South Africa.

Successful models for working with traditional circumcisers to perform safe medical circumcisions in the context of traditional initiations for men have been developed and implemented in East Africa. We need to learn more from experiences around the continent for integrating traditional and medical circumcision for HIV prevention.

4. Impact of HIV and AIDS on society

Demographic

Having emerged a little later than most other HIV epidemics in sub-Saharan Africa, South Africa's epidemic has now reached the stage where increasing numbers of people are dying of AIDS. The latest official mortality data show total deaths (from all causes) in South Africa increased by 79% from 1997 to 2004 (from 316 505 to 567 488) (Statistics South Africa, 2006). Death rates from natural causes for women aged 25–34 years increased fivefold between 1997 and 2004, and for males aged 30–44 they more than doubled over that period. A large proportion of the rising trend in death rates is attributable to the AIDS epidemic (Anderson and Phillips, 2006; Actuarial Society of South Africa, 2005; Bradshaw et al., 2004), and the increasing death toll has driven average life expectancy below 50 years in four provinces (Eastern Cape, Free State, Mpumalanga and KwaZulu-Natal) (Actuarial Society of South Africa, 2006).

The demographic impact of HIV/AIDS on the South African population is also apparent in statistics such as the under-5 mortality rate, which has increased from 65 deaths per 1000 births in 1990 to 75 deaths per 1000 births in 2006. Mortality rates in 1990 suggested that a 15-year old had a 29% chance of dying before the age of 60, but mortality rates in 2006 suggest that 15-year olds have a 56% chance of dying before they reach 60. Other estimates provided by the Actuarial Society of South Africa for 2006 include:

- 1.8 million AIDS deaths had occurred in South Africa, since the start of the
 epidemic. While the impact of this huge death burden may be difficult to measure
 there are indications that HIV/AIDS is a factor in the increasingly reckless
 behaviour of youth, including use and abuse of drugs and alcohol as well as
 increasing suicide rates (Leclerc-Madlala, 2006).
- Around 740 000 deaths occurred in 2006, of which 350 000 were due to AIDS (approximately 950 AIDS-related deaths per day).
- 71% of all deaths in the 15–49 age group were due to AIDS. This is the prime work-productivity sector of society. Death in this age-group means lost of incomes, shrinking tax bases, increased labour costs, plus decreased productivity that all conspire to threaten economic growth that is thought necessary to sustain democracy (Mattes and Manning 2005). Sharpely decreasing life expectancy may remove incentives for large sections of the population to participate in democratic politics or comply with the rules of the democratic state.
- Approximately 230 000 HIV-infected individuals were receiving antiretroviral treatment, and a further 540 000 were sick with AIDS but not receiving antiretroviral treatment. It is questionable whether South Africa can afford to treat all those who currently need treatment, and highly doubtful that the country will be able to afford an adequate level of treatment should the current high rates of new HIV infection remain unchanged. This gives a special urgency to the need for intensifying our HIV prevention efforts.
- 300 000 children under the age of 18 experienced the death of their mother.
 Studies suggests that an increasing number of orphans will lead to an increasing

number of children who are likely to grow up under conditions of poor supervision and poor nurturance, leading to emotional instability and being ill-equipped to contribute as productive members of society. This would not unlikely lead to increasing levels of crime and social instability (Schonteich 2000)

• 1.5 million children under the age of 18 were maternal or double orphans (i.e. had lost a mother or both parents), and 66% of these children had been orphaned as a result of HIV/AIDS.

Economic

The AIDS epidemic affects almost every facet of life (Ashford, 2006). The ILO demonstrated in 2004, and again with more recent data in 2006, that the rate of economic growth in countries heavily affected by HIV and AIDS has been reduced by the epidemic's effects on labour supply, productivity and investment over the last decade or more (ILO, 2006). According to the ILO assessment, 3.7 million labour force participants aged 15 to 64 years were living with HIV or AIDS in South Africa (ILO, 2006). Households experience the immediate impact of HIV and AIDS, because families are the main caregivers for the sick and suffer AIDS-related financial hardships. During the long period of illness caused by AIDS, the loss of income and cost of caring for a dying family member can impoverish households (Ashford, 2006).

Orphans and vulnerable children

As indicated above, an estimated 1.5 million children under the age of 18 were maternal or double orphans (i.e. had lost a mother or both parents), and 66% of these children had been orphaned as a result of HIV/AIDS. The crisis of orphans and vulnerable children will persist for years, even with the expansion of prevention and treatment programmes (UNESCO, 2005). Studies in several districts in South Africa found that the majority of orphans are being cared for by grandparents, family members or through self-care in child-headed households (Letlape et al., 2006; Jooste et al., 2006). Orphans and vulnerable children are at higher risk for HIV infection, as they face numerous material, emotional and social problems (Skinner, 2006). They also face:

- Discrimination and stigma, as they are often shunned by society, lack affection and are left with few resources:
- Many of them drop out of school due to inability to pay school fees;
- They also often suffer from malnutrition and ill health and are in danger of exploitation and abuse (UNICEF).

Education system

With regards to the educator sector, there is broad consensus on the actual and likely impacts of the epidemic (Kelly, 2000; Coombe, 2001; Bennell, 2005, Kelly, 2006). The epidemic affects the supply and demand for primary and secondary schooling. On the supply side, infected teachers will eventually become chronically ill, with increased absenteeism, lower morale and productivity. A South African education sector study found a sero-prevalence of 12.7% among teachers and significant gender, racial and geographical differences (Shisana et al., 2005b). On the demand side, children orphaned or otherwise made vulnerable by AIDS may not attend school because they have to look after the household, care for younger siblings or because they cannot afford the fees (UNICEF, 2005).

Health care system

HIV and AIDS affect both the supply and demand of health care systems. On the 'supply' side of health systems, the human resource effects of HIV are two-fold: the stress and morale impacts of rapidly changing epidemiological, demand and mortality profiles in patients caused by HIV and AIDS, and HIV infection in providers themselves. In a survey of 512 public sector workers in four provinces, 16.3% were HIV infected (Shisana et al, 2003) An HIV prevalence study at Helen Joseph and Coronation Hospitals with a 91% response rate, found that 13.7 % of 644 nurses were HIV infected (Veriawa et al, 2005). Schneider et al found that the impacts of HIV on staff in four Gauteng Provincial health facilities appear to relate principally to increased workplace burdens (in particular workload, increased severity of illness and perceived indifference from management) and the consequent experience of burnout. This is especially significant in hospital facilities, and within hospitals, in medical and paediatric services (Schneider et al, 2005).

It is clear that the country's health system is already under considerable strain due to HIV/AIDS. As the system continues to weaken under this strain more health workers will likely seek job opportunities abroad, while those who remain will become increasingly overworked, frustrated and demotivated. There will likely be increasing reluctance among medical students to specialise in areas where they perceive a potential high exposure to HIV. Health facilities focused predominantly on managing the HIV/AIDS pandemic will likely contribute to the country's overall out-migration and brain-drain.

TB control

No assessment of the impact of HIV and AIDS in South Africa would be complete without considering tuberculosis (TB). Although TB was already an important health problem in South Africa before 1994 and before HIV became widespread, the coinfection of large numbers of people with HIV and *Mycobacterium tuberculosis*, the bacterium that causes TB, has had an important impact on TB control. People living with HIV (PLHIV) have an increased risk of developing TB because the damage to their immune system brought on by HIV interferes with the body's ability to fight TB. TB is the most common opportunistic infection among PLHIV, and is the leading cause of AIDS-related death in South Africa.

There may be a need to re-visit and re-instate community control methods for managing TB which involve institutional confinement for a pre-determined period. Such methods are in place in most other countries around the world and are not considered to be inconsistent with democratic principles and constitutional ideals. It may soon be the case that countries will require certificates of all travelers from South Africa to prove that they do not have TB. The question of how to reconcile the need to protect public health rights and the need to protect individual rights in the context of our TB crisis may require a serious national-level rethinking.

TB/HIV co-infection is a serious public health problem in South Africa. South Africa not only has the largest number of people living with HIV of all countries in the world, but also has the largest number of cases of TB among PLHIV, accounting for 19 percent of the global total of cases of TB in adult HIV-positive people in 2005 according to World Health Organisation (WHO) estimates. In 2005 South Africa ranked first in the African region in terms of the number of new cases of TB. TB incidence and case-fatality rates have increased threefold in South Africa over the past decade (WHO, 2007).

TB is more difficult to diagnose among people with dual HIV and M. tuberculosis infection because PLHIV who develop TB are less likely to be sputum positive and are more likely to develop extra-pulmonary disease. Another relatively new threat to PLHIV is extensively drug-resistant tuberculosis (XDR-TB). In 2005 the world's largest outbreak of XDR-TB occurred in Tugela Ferry in rural KwaZulu-Natal. Almost all the initial cases detected in the outbreak occurred among PLHIV who had been treated at one hospital. By November 2007, a total of 266 people in Tugela Ferry had been diagnosed with XDR-TB, and an additional 205 cases of multiple drug resistant (MDR) TB had been discovered in the district (Moll, 2007). To date, 84 percent of all XDR-TB patients detected in this outbreak have died, and eight health care workers working at a hospital in Tugela Ferry have died of MDR-TB or XDR-TB since 2005. Cases of XDR-TB have now been detected in nearly all provinces of South Africa, mostly among PLHIV. This recent emergence of XDR-TB in South Africa constitutes a public health emergency because of the high death rate, the potential for transmission to others, and a lack of effective drugs to cure the infection. In view of this, improving TB control needs to continue to be a high priority for the government in the foreseeable future in order to achieve better control of the HIV epidemic in South Africa.

5. South Africa's response to the HIV and AIDS epidemic

5.1. Profile of HIV/AIDS interventions in South Africa, 1994-2006

This section presents a profile of HIV and AIDS interventions in South Africa during the 1994-2006 time period. The section is organized into three sector-specific sections, namely, the public, not-for- profit, and for-profit sectors. Within each sector-specific section, the analysis groups interventions according to specific categories of interventions (e.g., policy development, health system change, health communication and health behaviour modification). For each category of interventions, the analysis describes progress toward their full implementation, and, where applicable, highlights barriers to successful implementation of selected interventions.

5.1.1 HIV and AIDS interventions in the public sector

Beginning in the early-1990s, several national or Cabinet level structures have been established to coordinate South Africa's response to HIV and AIDS within the public sector and among the public, not-for-profit, and for-profit sectors. These structures include the National AIDS Coordinating Committee of South Africa (circa 1992), the Ministerial Taskforce (circa 1998), and the South African National AIDS Council (circa 2000). The latter structure, the South African National AIDS Council (SANAC), appears to have been subsequently established for the purpose of consolidating the functions of the other structures and for subsequently serving as a vehicle for the 'Declaration of the Partnership Against AIDS', a declaration made by the President of South Africa challenging all sectors of society to be involved in the response to HIV and AIDS. In 2000 and partly in response to this declaration, the national Department of Health (DoH) released the HIV/AIDS/STI Strategic Plan for South Africa, 2000 – 2005. According to the DoH, the strategic plan was 'designed to guide the country's response as a whole to the epidemic' and was not intended only for the health sector.

To date various partnerships have been coordinated among government, civil society and business in response to the HIV and AIDS epidemic, particularly in the areas of funding and delivery of HIV/AIDS education campaigns and treatment programmes. The exact role of SANAC in the coordination of various inter-sectoral interventions, as well as progress in the implementation of the national HIV/AIDS strategic plan, is difficult to

assess. Nonetheless, at the policy level, it is clear that considerable progress has been made towards the achievement of the stated goal(s) of coordinating interdepartmental and inter-sectoral responses to the HIV/AIDS epidemic. Notwithstanding this apparent progress at the national policy level, however, available evidence suggests that HIV and AIDS activities at the municipal level are still characterized by a lack of coordination between government agencies, civil society and business. This is in spite of the fact that the proportion of the national health budget that is devoted to HIV/AIDS has been increasing over the last several years.

In the health policy arena, the earliest and most prominent legislation that had the potential to positively contribute to the prevention and control of HIV and AIDS in South Africa was the 'Rendering of Free Healthcare Services Notice' of 1994. The Notice authorized the provision of free healthcare services to children under the age of 6 and to pregnant or breastfeeding women. The relevance of this policy to HIV/AIDS prevention and control is that it is likely to have brought many poor women of childbearing age into the healthcare system, thus ensuring early establishment of HIV sero-prevalence, and hence, early initiation of prevention of mother-to-child transmission of HIV, where adequate resources existed. Additionally, this policy should have contributed to the improved tracking of the HIV epidemic through the annual antenatal sero-prevalence surveys conducted by the national Department of Health (DoH). Available evidence suggests that the overall impact of this policy has been an increase in the utilization of antenatal healthcare services but not necessarily a reduction of disparities in quality of care (e.g., immunizations and STI screening and testing).

The next major development in the healthcare arena was the 'Clinic Upgrading and Building' programme that began in the late 1990s. This programme sought to expand access to primary healthcare (PHC) services in South Africa. According a to a recent progress report for the social cluster of the Government's Programme of Action, new clinics have been built throughout the country, and plans are apparently underway to employ large numbers of new health professionals to strengthen their capacity. It is estimated that approximately 35% of facilities that were operational in 2003 had been

built in the previous 10 years and that 4,350 PHC access points were available throughout South Africa by 2003. However, the full benefits of the expansion of the primary healthcare system are likely to be limited in the fight against HIV and AIDS given the well- documented lack of adequate numbers of key healthcare personnel at the national level and the inequitable distribution of available healthcare personnel among South Africa's provinces.

In an effort to address the inequitable distribution of healthcare personnel between urban and rural areas, the national DoH has developed and implemented a community service requirement for medical doctors (circa 1998). The main objective of the compulsory community service was 'to ensure improved provision of health services to all citizens of South Africa.' During the first year of implementation (1999), an estimated 1088 medical doctors were apparently distributed amongst community health centres, health district hospitals, regional hospitals and tertiary or specialized hospitals across all of South Africa's 9 provinces. By and large, health facilities that had received community doctors are said to have reported positive effects, with surprisingly beneficial results for the health district system as a whole.

Logically, the rendering of free health care services for women and children, the upgrading and building of clinics along with the deployment of medical doctors and interns to rural and other underserved areas of South Africa should have expanded access to primary care services for HIV and AIDS. Thus, it appears that in an effort to build on the gains that were anticipated in the expansion of access to primary care, the government has also sought to standardize HIV and AIDS care, management and treatment across the country through a series of laws and policies, namely, the 'National Policy for HIV Testing' (1999), 'The Primary Health Care Package for South Africa: A Set of Standards and Norms' (2000), the National Health Laboratory Service Act (2000), the Essential Drug List (1998 and 2003), National Health Act (2003), and the Operational Plan for Comprehensive Care, Management, and Treatment of HIV/AIDS for South Africa (2003). Currently, there is no evidence that a systematic assessment of the impact of

these various policies on the quality of HIV/AIDS care has been undertaken or is underway.

The most widely acknowledged shortcoming in South Africa's response to the HIV/AIDS epidemic has been the country's delay in availing treatment for the prevention of mother-to-child transmission (PMTCT) of HIV as well as antiretroviral therapy (ARV) for those with advanced HIV infection. Following a Constitutional Court ruling mandating the government to provide PMTCT treatment to all pregnant South African women who need it, the government began implementing the expanded PMTCT programme towards the end of 2002. It is estimated that by August 2005, PMTCT services were available to HIV-positive pregnant mothers at 2 525 sites nationwide. A widely-cited challenge has been the integration of PMTCT into general maternal and child health services.

The next development in the area of treatment was the national ARV roll-out programme, a key component of the Operational Plan for Comprehensive Care, Management, and Treatment of HIV/AIDS for South Africa (2003). Implementation of the ARV roll-out programme began in June 2004 and is largely the responsibility of the nine provincial departments of health with support in key areas from the national DoH. Thus, progress in the implementation of the plan is likely to vary across provinces. At the national level, it is estimated that by April 2006, 231 public heath facilities had been accredited with Comprehensive HIV and AIDS Care, Management and Treatment, 70% of hospitals were offering CMT services, 100% of districts and 63% of sub-districts were offering the services, with 138 336 patients on ARV treatment. The National Strategic Plan requires that the government provide ARV treatment to 80% of the eligible people by 2011.

Additional programmes that may improve the uptake of PMTCT and ARV services in South Africa exist at present, namely, the programme for integrated tuberculosis (TB) and HIV/AIDS care, the home-based and community-based care programme, and the programme for the integration of traditional healers into HIV/AIDS care. According to government reports plans are underway to assist health districts to develop supervision

and monitoring systems for the implementation of the TB and HIV package of care during 2006-2007. With regard to the home-based and community-based care programme, it is estimated that the home- and community-based care sector has about 2 500 full-time caregivers and 20 000 volunteers, with only a quarter of these volunteers receiving stipends of any kind. It is envisaged that trained community health workers participating in the programme will work closely with health care professional teams at local primary care facilities in an effort to ensure improved access to treatment by persons living with HIV/AIDS in the community. Finally, a training manual for integrating traditional healers and community health workers and nurses has been developed based on the results of a pilot study conducted in KwaZulu-Natal and plans for national implementation of the training are currently underway at the national DoH. In an effort to lessen the negative effects of poverty on HIV/AIDS care, management and treatment, the South Africa government has in recent years increased funding for social assistance interventions such as social grants and food parcels to adults and children affected by HIV/AIDS. In addition to ensuring food security, social assistance programmes aim to provide psychosocial support, life skills and HIV/AIDS training, and expanded treatment for orphans and children infected or affected by HIV. It is estimated that by February 2004, some 26 900 additional children who were vulnerable owing to HIV and AIDS had been identified. The number of such children identified since the inception of the programme in 2000 stood at more than 75 000.

The national Department of Social Development (DoSD) recently organized a conference to discuss the national policy framework for addressing the needs of orphans and other vulnerable children (OVC) affected by HIV/AIDS. Reports from the conference suggest that there are still major challenges to the successful implementation of OVC services, in particular the lack of capacity and coordination for the various social assistance interventions aimed at assisting OVCs. Detailed information on the status of implementation as well as how specific challenges figure in individual social assistance interventions was not readily available.

Prevention has figured prominently in South Africa's overall response to HIV and AIDS. As a consequence, many resources have been devoted to educating all South Africans about HIV and AIDS as well as providing information for those at risk or with the disease. One of the earliest interventions in this regard was the National AIDS Helpline, which was initiated in 1991 by the national DoH. The Helpline had relied on volunteers from a non-governmental organization known as Lifeline until 2001, when it was modernized and re-launched to handle up to 200,000 calls per month with financial assistance from the United States Agency for International Development (USAID). It has been estimated that calls to the Helpline had increased from 5,000 per month in 1998 to 20,000 per month in 2001. (No data were readily available on the number of calls per month or on the breakdown of characteristics of callers to the Helpline).

The most prominent health communication interventions in South Africa include Soul City (1994), loveLife (1999), and Khomanani (2002). The three are multi-media social campaigns that seek to reduce the spread of HIV infection through increasing knowledge about HIV/AIDS and high-risk behaviours as well as through influencing the social environment to be more tolerant and supportive towards persons with HIV and AIDS.

Estimates of the individual and combined reach of the three interventions suggest that they are reaching the vast majority of South African residents. Thus far, positive trends have apparently been observed in the areas of HIV infection knowledge, attitudes and safe-sex behaviours as well as in the acceptance and support of persons living with HIV/AIDS (i.e., anti-stigmatization of persons living with HIV/AIDS). However, a review of available impact studies suggests that these health communication interventions have not been able to significantly reduce the spread of the HIV infection; however the methodology for evaluating impacts of individual intervention programmes is yet to be refined.

HIV/AIDS has also featured in various television entertainment programmes developed out of inter-sectoral collaborations (e.g., government, foreign donor organizations, and academic research institutions). They include *Takalani Sesame* (2000), *Tsha Tsha* (2003),

Gazlam (2003), and Phamokate (2006). Takalani Sesame aims to improve life skills and HIV/AIDS knowledge among preschoolers while Tsha Tsha seeks to influence youth behaviour by presenting HIV/AIDS-related issues in young people's lives. Gazlam educates through experiences of HIV-positive characters while Phamokate tackles stigmatization in an effort to promote an accepting and supportive environment for individuals living with HIV/AIDS. Results of published impact assessments suggest that Takalani Sesame contributed to improved life skills among children under age 5 and that Tsha Tsha viewers have experienced improved attitudes towards HIV/AIDS and commitment to safe-sex behaviour.

In addition to these various health communication interventions, the government's strategic plan for HIV and AIDS for the years 2000-2005 had also called for the implementation of a 'Life Skills and HIV/AIDS Programme' to improve knowledge about HIV and AIDS and safe-sex behaviours among South Africa's youth. Accordingly, HIV/AIDS was supposed to be integrated into the high school curriculum. Information on the extent to which this programme has been implemented was not readily available. Another related intervention is the 'Health Promoting Schools Initiative' which had reportedly reached a total of 1 250 primary schools and 9 835 crèches by April 2006, with a communication strategy for the programme still under development. The goals and objectives of the programme are not widely known.

A survey conducted by four organizations - Johns Hopkins Bloomberg School of Public Health's Center for Communication Programs (CCP), Health Development Africa representing Khomanani, CADRE, and Soul City - including more than 8,000 respondents across South Africa examined how exposure to more than 20 AIDS communication interventions shaped people's knowledge and behaviour, found that the combined efforts of many AIDS communication campaigns in South Africa showed positive impacts on HIV prevention behaviours, increased positive attitudes towards people living with HIV and AIDS, and increased community involvement in response to the epidemic (Center for Communication Program, 2006). The survey specifically measured exposure to AIDS programmes on television. Less than 10% of respondents in

the 2006 AIDS Communication Survey 2006 reported that they had exposure to AIDS television programmes.

The key HIV/AIDS behaviour change interventions in South Africa have involved the promotion of condom use as well as voluntary counselling and testing (VCT) for HIV. The national DoH introduced female condoms in 1998 at selected family planning service points and later expanded their distribution beyond the pilot sites to include sites that provide services to various high-risk groups. By 2001, over 267 million free condoms were distributed at public health facilities across South Africa and more than 95.1% of South African youth, 92.6% of persons aged 25-49 years and 72.8% of adults aged 50 years and older had access to condoms when they needed them. Nelson Mandela/HSRC survey (Shisana and Simbayi, 2002). In comparison to many neighboring countries condom coverage in South Africa is relatively high. In spite of this infection rates have continued to grow, pointing to the need to expand our range of HIV prevention strategies and interventions.

In 2002, VCT was still regarded as being in its infancy in South Africa and was reportedly being used primarily for diagnostic purposes [among probable cases of HIV/AIDS]. It is estimated that by 2003, 53 percent of public PHC facilities were voluntary counselling and testing (VCT) sites. Given the grim HIV/AIDS scenario for South Africa, it is rather surprising that yet a large proportion of South Africans do not believe they are at risk of becoming infected with HIV. Until now, most persons have declined to take an HIV test because they felt they were at no risk of infection. Overall, half of the 2005 survey respondents who were found to be infected with HIV had reported that they felt they were at no risk of acquiring HIV (Shisana et al., 2005a). Approximately two million South Africans living with HIV did not know that they were infected and believe they face no danger of becoming infected—and therefore were unaware that they can transmit the virus to others. In the absence of an increase in HIV testing uptake, HIV-infected persons typically would only become aware of their status when they become symptomatic, which can also limit the potential benefit of antiretroviral treatment.

5.1.2 HIV and AIDS interventions in the not-for-profit sector

Efforts to establish a favourable socio-political environment for HIV/AIDS prevention and treatment programmes in South Africa have not been limited to the work of the national or Cabinet level structures described earlier. The South African not-for profit sector consists of a large number of HIV and AIDS organizations whose activities range from advocacy and programme planning to research and evaluation.

These organizations include, but are not limited to, the AIDS Consortium, the AIDS Foundation of South Africa, the Centre for AIDS Development Research and Evaluation (CADRE), the Centre for the Study of AIDS (University of Pretoria), the Centre for HIV/AIDS Networking (University of Natal), the Institute for Democracy of South Africa (IDASA), the South African Red Cross Society and the Health Systems Trust. Together, these not-for-profit organizations have played a critical role in discussions of national HIV/AIDS policy alternatives and specifically contributed to the processes that led to the expansion of the PMTCT programme as well as the implementation of the national ARV roll-out programme.

As is typical of most not-for-profit organizations, the scope of the HIV/AIDS interventions conducted in the not-for-profit sector in South Africa tend to be localized, with the reach of interventions targeted to residents of defined geographic locations. However, in a country like South Africa, best practices from successful local/regional HIV/AIDS interventions should be able to inform national strategies and policies in certain areas. Therefore, an impact assessment of South Africa's overall response to HIV and AIDS should seek to thoroughly examine the contributions of HIV/AIDS organizations with a focus on those that have influenced national strategies and policies or have achieved significant results in their catchment areas, particularly if they are high-risk areas.

5.1.3 HIV and AIDS interventions in the for-profit sector

The South African government has passed several laws that have the potential to positively influence the role of the private sector in national efforts for the prevention and treatment of HIV and AIDS. Such laws include, but are not limited to, the Mine Health Safety Act (1996), the Medicines and Related Substances Control Amendment Act (1997), the Medical Schemes Act (1998), the Employment Equity Act (1998), Policy Guidelines for HIV/AIDS and Sexually Transmitted Disease at the Workplace (2000), and the National Health Act (2003). Taken together, these laws do indeed go a long way toward establishing a non-discriminatory workplace environment for persons with HIV and AIDS as well as toward ensuring that persons with HIV and AIDS would realize their constitutional right to have access to affordable and timely medical services. In addition to the government efforts, the private sector has also produced workplace policies for HIV and AIDS.

The mining industry began discussing the development of internal workplace programmes for HIV and AIDS as early as 1993. The resulting workplace policies tended to not only set guidelines for how employees with HIV/AIDS should be treated in the context of work, but also included guidelines for the prevention and control of HIV/AIDS among employees. To date, interventions in the mining industry include training programmes for nurse counselors and peer educators, free condom distribution, awareness and education campaigns, prevention of mother-to-child transmission for pregnant employees, free STI treatment, and treatment of opportunistic infections, particularly TB; HIV and AIDS interventions are also availed to surrounding communities in partnership with the State.

More recently, the South African Business Coalition on HIV/AIDS (SABCOHA) has launched a toolkit that is aimed at assisting small and medium-sized businesses to formulate and implement workplace programmes for HIV/AIDS. The toolkit is based on best practices from Unilever and Standard Bank. Other equivalent companies that have workplace policies for HIV and AIDS include Metropolitan Life, Daimler Chrysler of South Africa, Heineken International, Eskom, Illovo Sugar of South Africa, Woolworths, and SAB-Miller.

5.2 Impact of the intervention period 1994-2006

The epidemiological analysis presented in section 2 underscores the disproportionate impact of the HIV epidemic on women in this country. The findings also suggest that, so far, the prevention campaigns did not produce the desired impact on decreasing the HIV infection levels in the country. Lack of political will or commitment has often been cited as a key explanatory factor for the limited progress that has been made in the prevention and control of HIV/AIDS in South Africa. This review focused largely on assessing concrete actions that have been taken within South Africa's government, civil society and business sectors to address the HIV/AIDS epidemic.

A genuine assessment of political commitment would have to go beyond the documents reviewed herein and would have to include examinations of how political leaders and public heath officials (i.e., opinion makers) have publicly identified with the epidemic or have shown a willingness to mobilize resources and expedite implementation of HIV/AIDS interventions.

On paper, it appears as if a lot of resources have been devoted to fighting HIV/AIDS in South Africa; however, the extent to which what is on paper reflects what is taking place on the ground is difficult to assess without a detailed analysis of budgetary expenditures related to HIV and AIDS. Nontheless studies indicate that HIV incidence, prevalence and AIDS related morbidity and mortality has continued to rise sharply over the past decade, despite government efforts to fight the epidemic. In addition to commitment, the next element in assessing a country's response to HIV/AIDS is capacity. This review suggests that lack of capacity in various areas may actually be limiting the impact of the multitude of interventions that have been implemented in South Africa to date. Thus, secondary data analyses should be conducted with the goal of ascertaining the extent to which capacity for realizing the objectives of HIV/AIDS prevention and care programmes exists in South Africa.

6. The way forward

6.1 The National Strategic Plan 2007-2011

While the severity of the HIV and AIDS epidemic is well recognized, the epidemiological profile and sectoral impact overview shows that there is no scope for complacency and program implementation must be geared for achievement of maximum impact. The complexity of the epidemic necessitates a multi-sectoral approach that is contained the new National Strategic Plan (NSP) 2007-2011.

The National Strategic Plan 2007-2011 is not a plan for the health sector alone. Instead, it seeks to be relevant to all agencies working on HIV and AIDS in South Africa, within and outside government. As HIV/AIDS is a matter of extreme national importance, active and visible leadership is essential to ensure the full and active participation of civil society and the private sector.

The NSP is designed to guide South Africa's response to HIV, AIDS and STI control in the next five years, and sets ambitious targets to meet the broad aims of the national response to HIV and AIDS and STIs.

The new NSP seeks to strengthen and improve the efficiency of existing services and infrastructure and introduce additional interventions based on recent advances in knowledge. The Strategic Plan 2007-2011 is structured according to the following four key priority programme areas, shown in Table 3 below.

Table 3: The priority programmes in the NSP

| Programme area | Examples | |
|--------------------------|----------|--|
| Prevention | 8 | Education, information, communication |
| | 8 | ABC (abstinence, be faithful and Condom promotion |
| | | and use) |
| | 8 | Voluntary counseling and testing |
| | 8 | Prevention of mother to child transmission programme |
| | 8 | Life-skills education in schools |
| | 8 | Workplace programmes |
| | 8 | Post-exposure prophylaxis |
| Treatment, care and | 8 | Anti-retroviral therapy in health care facilities |
| support | 8 | Care for orphans and vulnerable children |
| | 8 | Home-based care (through CBOs, NGOs, FBOs) |
| Human and legal rights | 8 | Position of women in society |
| | 8 | Existing legislation |
| | 8 | Anti-discrimination |
| | 8 | Anti-stigma campaigns |
| | 8 | Right-based approach to care and treatment |
| Monitoring, research and | X | Research on new prevention methods |
| surveillance. | 8 | Ante-natal care and household surveillance |
| | X | M and E |
| | | |

6.2 Turning the tide – key strategic interventions

A successful response to the epidemic will depend largely on changing the social norms, attitudes and behaviours that contribute to the spread of HIV in South Africa. However, in order to be epidemiologically significant, the extent of these behavioural and societal changes has to be very substantial and more wide spread. Acknowledging the value of social capital for health as a mediating mechanism for lowering risk for HIV infection in our communities will facilitate collective action and provide the social context for support and prevention programmes.

As HIV continues to spread, and neither a vaccine nor cure exists, prevention remains the key strategy for curbing the epidemic in the country. Prevention works - as evidence from Uganda, Kenya and Zimbabwe demonstrated that behavior change was the main factor

for the observed decline in HIV infection levels in theses countries (SADC 2006, UNAIDS 2007).

• Know Your Status Campaigns: HIV Counselling and Testing

There is an urgent need to implement a large-scale, sustained national "Know Your (HIV) Status" campaign. At the Third South African AIDS Conference, held in Durban in June 2007, implementing a national Know Your Status campaign topped of the list of commitments made by conference delegates in the Conference Declaration. All persons who are at risk of HIV infection, which includes the majority of the South African population, need to know their HIV Status. Ensuring that people know their HIV status is central to achieving the two main goals of the National Strategic Plan, that is reducing HIV incidence by 50 percent, and providing treatment for 80 percent of persons infected with HIV by 2011. This cannot be achieved without a major scale-up of HIV counseling and testing services in South Africa, and the expansion of the types of services available and the types of people who provide these services.

Knowing your (HIV) status requires repeated testing of those who have ongoing risk of exposure to HIV. At present there are no national guidelines about how often people should be tested. The National Department of Health is in the process of developing guidelines. This process needs to be accelerated and national guidelines on HIV counseling and testing need to be released as soon as possible to complement a national know your status campaign. HIV counseling and testing has become increasingly available in South Africa in recent years, but uptake remains low. Less than 20 percent of youth know their HIV status. Knowledge of HIV status among adults in South Africa is also low. Self-perception of HIV infection risk is low. A national household survey conducted by the HSRC and partners in 2005 (Shisana et al., 2005a) found that, 66 percent of all participants aged 15 years and older, and 51 percent of those who tested HIV positive, reported before the test that they did not consider themselves to be at risk of being infected with HIV. The proportion of survey participants who did not know

their HIV status was even higher than the proportion who did not consider themselves to be at risk.

The scope of the HIV epidemic in South Africa calls for the simultaneous use of multiple different approaches and strategies for expanding the uptake of HIV testing. Currently, client-initiated counseling and testing, better known as VCT, is the predominant approach to providing HIV counseling and testing services in South Africa. Provider-initiated HIV testing has not been widely used other than the testing of pregnant women as part of prevention of mother-to-child (PMTCT) programmes. Internationally there is a trend towards the greater use of provider-initiated testing strategies as a means of increasing the proportion of people who know their HIV status. There has been a massive scale-up of HIV testing in several other African countries with severe HIV epidemics, mostly through VCT programmes. The World Health Organisation recently released guidelines on provider-initiated testing (WHO/UNAIDS, 2007). Some national governments such as those in Botswana, Kenya, and Malawi, have recently placed an increased emphasis on promoting provider-initiated testing and counseling in health-care settings. A working group of experts convened in May 2007 before the Third South African AIDS Conference, concluded that polarisation between advocates of client-initiated counseling and testing, and provider-initiated counseling and testing, is not helpful and stands in the way of reaching the objectives of the National Strategic Plan.

The lack of capacity nationally to counsel and test the large number of people in South Africa who do not currently know their HIV status needs to be given urgent attention. There is a need to increase the number of people who are able to provide HIV counseling and testing services. This will require an expansion of training programmmes, as well as a broadening of the range of trained personnel who are permitted to deliver appropriate VCT services. Currently lay counselors are widely used to prepare clients for HIV testing before a professional nurse does the HIV test. More resources are needed for HIV counseling and testing services and the scope of testing practice needs to be reviewed. Consideration needs to be given to providing additional training to lay counselors and

expanding the scope of their practice to include HIV testing as well as counseling, as there are not enough professional nurses to meet the need for HIV counseling and testing services in South Africa. There is currently a high turnover in lay counselors, largely because of poor remuneration for their services. The poor remuneration of people providing HIV testing and counseling services needs to be addressed. There is a need for greater uniformity and national standards in the training of counselors. The National Department of Health is in the process of standardising training and career-pathing.

Scientific evidence from other countries has shown that, among HIV-negative people, risk-reduction counseling coupled with HIV testing can reduce one's risk of acquiring HIV infection (Kamb et al., 1998; CDC, 2007). Ensuring that the counseling provided with HIV testing is based on models that have been scientifically evaluated, and that the counseling is focused on risk-reduction among those with negative HIV test results, would contribute to the NSP goal of reducing the incidence of new HIV infections by half by 2011. A scientifically evaluated risk reduction counseling model is already being implemented as standard of care in KwaZulu-Natal. Other provincial health departments should follow the lead set by KwaZulu-Natal and implement risk-reduction counseling as standard of care.

There is also a need to move HIV testing and counseling beyond the health care system and to make it more readily accessible in communities where people live, particularly in rural areas where access to health services is limited. One method of making HIV testing and counseling services more accessible, that is currently being evaluated in a major trial conducted in rural KwaZulu-Natal and Soweto (Project Accept), is the use of mobile HIV counseling and testing services. HIV testing and counseling services also need to be expanded in other settings such as workplaces, youth centres, and higher educational institutions.

Women tend to be tested for HIV largely at antenatal clinics as part of prevention of mother-to-child transmission (PMTCT) programmes. Non-pregnant women are more likely to be tested for HIV than men. Innovative strategies are needed to increase the use of HIV counseling and testing services among men and among youth. Special outreach services are needed for "most at risk populations" such as sex workers and men who have sex with men (MSM).

Real and perceived stigma remains the biggest barrier to knowing one's HIV status. Stigma around HIV and AIDS is likely to decrease as more people make use of HIV testing and counseling services. Fear of disclosing one's HIV status to one's sexual partners, family and friends is another important barrier that prevents people from seeking HIV testing. Difficulties with disclosure could be countered by providing couples counseling or by testing family members as a family unit. Couples counseling services and family counseling services are currently only available in the context of a few research studies and small pilot projects. As part of a national scale-up of HIV counseling and testing services, consideration needs to be given to expanding the availability of couples counseling and family counseling services.

There needs to be a simplification and standardization of the language used to describe different approaches to HIV testing. Ethicists and human rights advocates agree that all HIV testing should be voluntary and that the results should be kept confidential, irrespective of whether the testing is initiated by a health care provider or the client (the individual being tested). In order to meet the objectives of the NSP of getting HIV-infected people into treatment, and to ensure that those who have a positive HIV test result are assessed to see whether they meet the criteria for initiating ART, it is important to ensure that HIV counseling and testing services have integrated linkages with treatment, support and care services.

• improved effectiveness and coverage of prevention of mother-to-child transmission (PMTCT) programmes

One of the ambitious aims of the South African National Strategic Plan (NSP) on HIV & AIDS and Sties is to reduce the rate of new HIV infections by 50% by 2011. Within the key priority area of prevention, the objectives are to reduce Mother-to-child transmission (MTCT) of HIV through broadening existing MTCT services to include other related services and target groups and to scale up coverage and improve quality of PMTCT to reduce MTCT to less than 5%. An encouraging development is the finalisation of the new guidelines for dual therapy in the PMTCT programme in South Africa.

The last few years have seen considerable efforts to introduce and expand PMTCT programmes. However, these interventions rely heavily on functioning maternal and child health services. Despite feasibility and cost-effectiveness of PMTCT, implementation and expansion in resource-constrained settings remains sub-optimal. By 2005, only 9% of HIV pregnant women globally were receiving ARV prophylaxis for HIV, with a striking variation in coverage between countries (UNAIDS, 2006).

Implementation of the PMTCT programme remains a challenge, especially in poor, rural areas. The National Department of Health (DOH) found that human resource issues remain a key challenge, together with sustainable drug procurement; transport and interdepartmental collaboration. In many areas, record-keeping systems are inadequate to enable the follow-up of HIV-infected pregnant women, serving as an additional barrier to PMTCT program implementation.

• Positive prevention

There is a need for the development and/or cultural adaptation and evaluation of theory-based behavioural risk reduction interventions targeting PLWHA who are aware of their status. The main goal of such interventions which are known as positive prevention approaches is to prevent both the infection of their uninfected partners (primary

prevention) and themselves from being re-infected with another strain of the virus (secondary prevention). The latter issue is especially important if people are on ARV treatment because of treatment optimism which often leads to an increase in risk behaviour (this phenomenon is also known as risk compensation or behavioural disinhibition). Indeed as more people access ARVs there is a need to reaffirm the need for people to continue practicing safer sex in order to reduce new infections.

• Male circumcision preparedness

There is a need to both culturally contextualize the issue and undertake some action research that promote male circumcision as a male sexual health issue. It is therefore important to investigate about the attitudes and beliefs people from various cultures hold regarding both traditional and medical male circumcision as well as the acceptability of either practice. This will help to inform both policy and programme development concerning scaling up of male circumcision as a method to reduce HIV prevention whilst also addressing gender issues and responsible parenting among men.

♣ *Improved integration of programmes*

There is a need for HIV prevention to be better integrated into programmes that address gender-based violence in all its forms from child sexual abuse to sexual violence and rape. Efforts against gender-based violence must be strengthened within communities, by leadership at all levels, as well as through legislation.

4 Targeting men

There remains a need to work more effectively and more directly with men of all ages. There is a special need to design programmes that reach and speak to the experiences of older men, not just the more conservative traditional men but also the more educated, well-resourced men. All evidence suggests a great need for developing and promoting

new cultural markers of manhood and new peer-norms among boys and men. More vigorous effort should be put into changing men's behaviour and attitudes while simultaneously empowering women. There remains a great need to speak more openly and frankly about the every-day sexual behaviours of ordinary people, especially men, that are putting everyone at risk and driving this epidemic.

Livil society partners

The alcohol industry as well as media and advertising should be encouraged and even compelled to commit themselves to helping to create an enabling environment for HIV prevention. In many ways these far-reaching and influential role players are contributing to the creation of a disenabling environment by undermining messages aimed at promoting responsible sexual behaviours and other health-inducing habits.

♣ Family first

The faith-based sector, schools and other community structures need to accelerate their efforts to address the breakdown in the institution of the family. Compromised domestic and social environments are a major underlying factor in the spread of HIV, and their repair needs to be addressed as part of, and beyond, a poverty-reduction strategy.

Accelerate prevention

Evidence from other sub-Saharan countries strongly suggests that changes in behaviours were a major factor in the reversal of HIV trends. Behavioural change should remain the centerpiece of HIV prevention, with positive prevention and partner limitation programming being major focuses of a new, intensified approach to prevention.

Along with the need for a radically new approach to AIDS is the need for AIDS to become a government priority One way to start could be through the calling of a national

summit whereby scientists, NGOS, the private sector, development agencies and other key stakeholders all contribute to the creation of new momentum, to the identification of new ways of working, and to the fostering of a new commitment to implement the new National Strategic Plan.

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