



MINISTRY OF HEALTH

# Policy Recommendations Based on the Major Findings of the 2004-05 Uganda HIV/AIDS Sero-Behavioural Survey

September 2007



This report presents key findings of the detailed analysis of the 2004-05 Uganda HIV/AIDS Sero-Behavioural Survey (UHSBS), including the major issues identified and related policy recommendations. It is intended to provide policy guidance to HIV/AIDS stakeholders involved in policy formulation, programme planning, implementation, and monitoring and evaluation. The report was prepared by Alex Opio, Joshua Musinguzi, and Wilford Kirungi of the Uganda Ministry of Health and Vinod Mishra of Macro International Inc. The development of this report was supported by the United States Agency for International Development (USAID) and the President's Emergency Plan for AIDS Relief (PEPFAR) through the MEASURE DHS project (#GPO-C-00-03-00002-00) at Macro International Inc. in Calverton, Maryland, USA. A draft of this report was presented to important HIV/AIDS programme managers, policymakers, and key stakeholders at a national dissemination seminar in Kampala on August 15, 2007.

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Ministry of Health  
Kampala, Uganda

September 2007



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# Contents

Acronyms.....	v
Executive Summary .....	vii
<b>1 Introduction and Background.....</b>	<b>1</b>
<b>2 Data and Methods .....</b>	<b>3</b>
<b>3 Prevalence of HIV.....</b>	<b>5</b>
Introduction.....	5
Major findings .....	5
Major issues .....	7
Policy recommendations.....	7
<b>4 Prevalence of HSV-2 and Syphilis .....</b>	<b>9</b>
Introduction.....	9
Major findings .....	9
Major issues .....	11
Policy recommendations.....	12
<b>5 Data Validity and Comparison with Other Data Sources .....</b>	<b>13</b>
Introduction.....	13
Major findings .....	13
Major issues .....	14
Policy recommendations.....	14
<b>6 Burden of HIV/AIDS in Uganda .....</b>	<b>15</b>
Introduction.....	15
Major findings .....	15
Major issues .....	16
Policy recommendations.....	16
<b>7 Knowledge of HIV/AIDS.....</b>	<b>17</b>
Introduction.....	17
Major findings .....	17
Major issues .....	18
Policy recommendations.....	18

<b>8</b>	<b>Attitudes Relating to HIV/AIDS</b> .....	<b>21</b>
	Introduction .....	21
	Major findings .....	21
	Major issues .....	22
	Policy recommendations.....	22
<b>9</b>	<b>HIV/AIDS-Related Behaviours</b> .....	<b>23</b>
	Introduction .....	23
	Major findings .....	23
	Major issues .....	25
	Policy recommendations.....	26
<b>10</b>	<b>HIV/AIDS-Related Behaviours of Youth</b> .....	<b>27</b>
	Introduction .....	27
	Major findings .....	27
	Major issues .....	29
	Policy recommendations.....	29
<b>11</b>	<b>Factors Associated with HIV Infection</b> .....	<b>31</b>
	Introduction .....	31
	Major findings .....	31
	Major issues .....	32
	Policy recommendations.....	32
<b>12</b>	<b>Orphans and Vulnerable Children</b> .....	<b>33</b>
	Introduction .....	33
	Major findings .....	33
	Major issues .....	33
	Policy recommendations.....	33
<b>13</b>	<b>Programme Coverage</b> .....	<b>35</b>
	Introduction .....	35
	Major findings .....	35
	Major issues .....	36
	Policy recommendations.....	36
<b>14</b>	<b>Conclusion</b> .....	<b>37</b>

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## Acronyms

ABC	Abstinence, Being faithful, and Condom use
AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Care
ART	Antiretroviral Therapy
BCC	Behaviour Change Communication
CBO	Community Based Organisation
CDC	Centres for Disease Control and Prevention
DHS	Demographic and Health Survey
HBV	Hepatitis B Virus
HCT	HIV Counselling and Testing
HIV	Human Immunodeficiency Virus
HSV-2	Herpes Simplex Virus Type-2
IEC	Information, Education, and Communication
IGA	Income Generating Activities
M&E	Monitoring and Evaluation
MOH	Ministry of Health
MRC	Medical Research Council
NGO	Non-Governmental Organisation
OVC	Orphans and Vulnerable Children
PLHIV	People Living with HIV
PMTCT	Prevention of Mother to Child Transmission
RCT	Routine Counselling and Testing
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
TB	Tuberculosis
UAC	Uganda AIDS Commission
UHSBS	Uganda HIV/AIDS Sero-Behavioural Survey
UDHS	Uganda Demographic and Health Survey
USAID	United States Agency for International Development
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation





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## Executive Summary

This report presents a synthesis of key findings from the analysis of the 2004-05 Uganda HIV/AIDS Sero-Behavioural Survey (UHSBS). It includes the major issues identified in the survey and related policy recommendations. The report is intended to provide policy guidance to HIV/AIDS stakeholders involved in policy formulation, programme planning, implementation, monitoring and evaluation.

The major issues identified from analysis of the UHSBS are:

- HIV prevalence in Uganda remains high (6.4 percent) among adults age 15-49. The epidemic is widespread, with some regions and population groups disproportionately affected. In 2005, an estimated 915,400 people were living with HIV/AIDS, 194,900 of whom were eligible for ART.
- Some sociodemographic groups have particularly high levels of HIV infection. These include older men and women, urban residents, married and formerly married persons, and women living in wealthier households.
- In 8 percent of married or cohabiting couples, one or both partners are infected with HIV. Fifty-seven percent of these couples are HIV discordant (i.e., only one of the partners is HIV positive).
- There is a high burden of herpes simplex virus type-2 (HSV-2) in Uganda. Forty-six percent of adults age 15-49 are infected with HSV-2, and HSV-2 infection is strongly associated with HIV-positive status.
- The prevalence of reported sexually transmitted infections (STIs) has been increasing in Uganda, and there is a strong relationship between STIs and HIV infection.
- Respondents' knowledge of their HIV sero-status is low; only 12 percent of adults have ever been tested for HIV and received their results. Twenty-one percent of HIV-positive respondents and 11 percent of HIV-negative respondents were tested at some time and received their results.
- Coverage of prevention of mother-to-child transmission (PMTCT) services remains low. Only 2 percent of female respondents who gave birth in the two years preceding the survey were counselled, offered an HIV test, and received their results.
- HIV/AIDS awareness is high among respondents, as is knowledge of prevention methods—abstinence, faithfulness to one partner, and condom use. However, comprehensive knowledge—identification of two correct HIV prevention methods and rejection of three common misconceptions of HIV transmission—was low.
- Radio (56 percent) and person-to-person communication (35 percent) are the two most important sources of information about HIV/AIDS.
- Knowledge of HIV discordance is low. Three-quarters of both women and men believe that contracting HIV from a partner is inevitable if one partner is infected. Eight to 9 percent believe that the partner is almost always infected. Only 7-8 percent of women and 12-13 percent of men know that if a person is HIV positive, his or her partner is only sometimes infected.

- Risky sexual behaviour is prevalent, including multiple and concurrent relationships, higher-risk sex (sex with a non-marital, non-cohabiting partner) and low condom use during higher-risk sex. However, most people who engaged in these practices perceive themselves to be at low risk of HIV infection. High levels of sexual activity and unprotected sex are reported for HIV-positive respondents, the majority of whom do not know their HIV sero-status.
- There is evidence of deterioration in several indicators of risky sexual behaviour, especially among men. This includes a rise in the number of sexual partners, increase in sex with non-regular partners, and a decline in condom use during higher-risk sex.
- There is a gap between HIV-related knowledge and behaviour. While the level of HIV-knowledge is moderate to high, there has been little change in HIV behaviour.
- There is evidence that higher-risk sex has increased among young people. A significant proportion of youth initiate sex early, that is, before age 15. Multiple relationships and sex with non-marital, non-cohabiting partners are also common, especially among male youth.
- Sexual violence and age disparity in sexual relations is common. A significant proportion of female youth were forced to have sex at their sexual debut and a significant proportion of teenage females had their last sex with a partner who was at least 10 years older than they were. Orphans and vulnerable children age 15-17 were more likely to initiate sex before age 15 than other children.
- The modifiable behavioural and biological factors found to be associated with HIV infection include: infection with herpes simplex virus type-2, history of STIs in the past year, having multiple lifetime sex partners, and not using a condom during higher-risk sex. There is evidence that having fewer lifetime sex partners and being faithful to one regular partner are behavioural changes that reduce the risk of HIV infection.
- A substantial proportion of children are orphans and vulnerable as a result of the HIV epidemic; however, care and support services for them are insufficient.
- UHSBS estimates of HIV infection were similar to those from sentinel surveillance antenatal care (ANC) clinics.
- Response rates for the 2004-05 UHSBS were high. Overall, response rates were 92 percent for the individual interviews and 86 percent for the blood draw. Non-response did not affect the estimates for any of the biomarkers.

The major policy recommendations arising from analysis of the UHSBS data are:

- Strengthen prevention programmes to address the low levels of comprehensive knowledge about HIV/AIDS and the gap between knowledge and sexual behaviour. Design new and appropriate IEC messages and strategies that address specific issues on HIV prevention, and disseminate these messages widely and regularly using all available channels, including interpersonal communication.
- Intensify comprehensive HIV/AIDS prevention interventions to address the factors associated with HIV transmission in Uganda. Such programmes should focus on increasing comprehensive knowledge of HIV prevention as well as promoting preventive sexual behaviour by addressing early sexual initiation, multiple sexual relationships and non-condom use especially during higher-risk sex.

- The Abstinence, Be-faithful, and Condom use (ABC) strategy is still relevant in Uganda. There is need to intensify information-education-communication activities to promote the ABC strategy.
- Design and implement strategies for preventing HIV transmission among HIV-positive persons, focusing on promotion of knowledge of their status and targeting their risky behaviours such as multiple relationships, non-condom use, and sex with partners of unknown status. Design prevention strategies for HIV discordant couples that include promoting knowledge of one's own HIV status and that of one's partner, increasing premarital and couple testing (with disclosure), and promoting consistent use of condoms.
- Design and implement youth-friendly HIV prevention programmes that address the gender disparities in HIV risk, including the disproportionate burden of HIV among girls, forced sex and cross-generational sex. Youth programmes must also address higher-risk sexual behaviour, such as premarital sex, early initiation of sex, multiple relationships and deterioration in these indicators especially among male youth. Programmes should also take into account the special circumstances of orphans and vulnerable children who are disproportionately more vulnerable to unsafe sex and HIV transmission.
- Develop and implement a strategic plan to strengthen and scale up STI control programmes as a major intervention for HIV prevention. This renewed STI control strategy will require updating policy and technical guidelines for STI case management and should pay special attention to the high burden of HSV-2 infection, which is strongly associated with HIV transmission in Uganda.
- Strengthen comprehensive HIV care and treatment interventions to address the high burden of HIV/AIDS and other sexually transmitted infections. Scale up programmes that increase access to HCT, PMTCT, STI treatment, treatment of opportunistic infections, and anti-retroviral therapy. Design care and treatment programmes to maximize opportunities for HIV prevention in these settings. Efforts should be made to avoid complacency in the general population arising from availability of antiretroviral drugs and treatment options.
- Expand and scale up proven cost-effective interventions for HIV prevention and care. Strengthen interventions such as HIV counselling and testing, IEC/BCC (for promotion of: delayed sexual initiation, mutual faithfulness, partner reduction, and condom use especially during higher-risk sex), PMTCT services, and STD prevention. Strengthen interventions promoting the care and greater acceptance of people living with HIV (PLHIV) and the reduction of stigma and discrimination against PLHIV.
- Conduct national population-based studies, such as the UHSBS, every 3-5 years to provide population-level estimates, trend data, and calibration factors for routine surveillance data.



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# 1 Introduction and Background

More than a quarter of a century since it was first reported, HIV/AIDS remains a significant public health challenge in Uganda. To date, an estimated 2.6 million people have been infected with the AIDS virus. Of these, about 1.6 million have died, and about 1 million are still living with the infection today. HIV infection has also given rise to an upsurge of opportunistic infections, including tuberculosis (TB). As a result, the epidemic has imposed a severe burden on the meagre resources of the country, as funds are also used for HIV prevention and AIDS care services.

The HIV/AIDS epidemic has also had serious social consequences. The death of individuals in their most productive ages has resulted in a massive burden of orphans and other vulnerable children, now estimated at 2 million in the country. The HIV/AIDS epidemic has also resulted in other social consequences such as a surge in child- and widow-headed households. By affecting economic productivity, the epidemic has contributed to adverse economic consequences at both the micro and macro levels, which has further aggravated the cycle of vulnerability and poverty.

To address the epidemic, Uganda put in place a wide-ranging national response. This response included community mobilization, strong political leadership and commitment, a multi-sectoral strategy, and the dissemination of messages about behaviour change; including primary and secondary abstinence, mutual faithfulness, partner reduction and condom use especially in higher-risk sexual encounters. The approach to prevention known as the ABC strategy (abstinence, being faithful, and condom use) has formed the backbone of HIV prevention in the country. The ABC strategy has since been expanded to ABC+ to include voluntary counselling and testing (VCT), prevention of mother-to-child transmission of the virus (PMTCT), STI control, antiretroviral treatment (ART), and HIV/AIDS care and support services.

Surveillance, monitoring and evaluation systems have been established to obtain data to guide the national response. Routine surveillance data are collected from twenty-five antenatal sentinel surveillance sites geographically distributed throughout the country. Other data are obtained from multiple sources including longitudinal studies, national and sub-national surveys such as Demographic and Health Surveys (DHS) and some special studies. More recently, programme service delivery data from VCT and PMTCT are also collected and analysed to compliment the routine data sources. The 2004-05 UHSBS was conducted to provide population-level estimates of HIV/AIDS and associated factors as well as other programme indicators to complement the above data sources.

As a result of the wide-ranging national response, HIV prevalence has declined in Uganda from a peak of 18 percent in 1992 to 6.4 percent in 2005. However, emerging evidence indicates that although the decline was steady during the 1990s, HIV prevalence has stabilized at 6-6.5 percent over the past 5 years and that some behavioural indicators may be deteriorating.

This document has been developed to provide policy guidance to HIV/AIDS stakeholders involved in HIV/AIDS programme planning, implementation and evaluation. It has been

developed primarily using the results of the analysis of the 2004-05 Uganda HIV/AIDS Sero-Behavioural Survey data, data from the Demographic and Health Surveys, service-related data from Voluntary Counselling and Testing centres and antenatal clinic sentinel surveillance data. This policy document has been developed through a consultative process involving a relationship between the Ministry of Health, Uganda AIDS Commission, USAID, CDC, and Macro International Inc.

This publication is intended to provide guidance in addressing the emerging issues identified in the survey, including the high burden of HIV/AIDS and the high burden of HSV-2 and other STIs, as well as their role in accelerating HIV transmission. The document also addresses the factors underlying the low levels and deteriorating indicators of HIV/AIDS knowledge, attitudes and behaviours. In addition, the document highlights recommendations to address the low levels of programme coverage regarding VCT, PMTCT, ART and social support services for orphans and vulnerable children (OVCs). Finally the document underscores the need for designing and implementing such studies in the future to complement routine data sources.

Following this introduction chapter, this document is divided into 11 chapters. Chapter 2 describes the data and methods used in the analysis. Chapters 3 and 4 present highlights of the magnitude and distribution of HIV infection, HSV-2 and syphilis. In chapter 5 UHSBS data validity and comparisons with other data sources are described. Chapter 6 presents the burden of HIV/AIDS in Uganda based on mathematical modelling. Chapters 7-10 present information on knowledge of HIV/AIDS, attitudes regarding HIV/AIDS, adult HIV/AIDS-related behaviour, and youth sexual behaviour, respectively. In chapter 11, factors associated with HIV risk are discussed while in chapter 12, the burden of and social support services for orphans and vulnerable children are described. Finally, indicators of coverage of HCT and PMTCT services are described in chapter 13 and chapter 14 presents the conclusions.

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## 2 Data and Methods

This policy document is based primarily on data collected in the Uganda HIV/AIDS Sero-Behavioural Survey (UHSBS), conducted in 2004-05. This survey was a large nationally representative, population-based study that collected data on behavioural, social, and demographic indicators. It also collected blood samples for testing for HIV, syphilis, herpes simplex virus type-2 (HSV-2), and hepatitis B virus (HBV).

The survey collected information from 9,529 households in 417 sample enumeration areas. A total of 11,454 women and 9,905 men age 15–59 years were eligible for individual interviews and blood sample collection. The survey also sampled children age 0-59 months. Dry blood spots were collected from the children for HIV testing. Testing for biomarkers was conducted using standard testing and quality-control procedures. The test results for individuals were anonymously linked to questionnaire information through bar codes. To distinguish recent HIV infections from older infections and to obtain an estimate of the incidence rate, the UHSBS also carried out the BED test.

Data for monitoring and evaluation of HIV/AIDS interventions in Uganda are generated from multiple other sources. Since 1989, routine data have been collected from 25 sentinel surveillance antenatal care (ANC) clinics spread throughout Uganda. Other routine data are from two longitudinal studies, namely the Medical Research Council (MRC) and the Rakai Project in the South West of the country. Additional data are generated from national, cross-sectional surveys, such as the UHSBS and the Demographic and Health Surveys (DHS) conducted in 1988-89, 1995, and 2000-01. More recently, programme service delivery data from VCT and PMTCT are also collected and analysed to compliment the routine data sources.

Data from these sources have provided invaluable information in guiding the HIV/AIDS response in Uganda. These data however have some limitations. By design, ANC clinic data exclude men. These data also exclude pregnant women who do not attend ANC clinics, women who use contraception and do not become pregnant, or women who are infertile for various reasons such as STDs and HIV. ANC clinic data also do not provide information on knowledge and behaviours. Data from longitudinal studies, on the other hand, provide both behavioural and biological markers of HIV incidence and prevalence. They are, however, geographically restricted and do not provide information on the rest of the country. Data from the national surveys do provide representative information on HIV/AIDS and related knowledge and behaviours, but the cross-sectional nature of these data limits their usefulness in assessing trends.

To better understand the current status of the epidemic and to provide policy guidance for HIV/AIDS programmes in Uganda, the Ministry of Health and partners, including UAC, Macro International, USAID, CDC, and WHO, have analysed data from the UHSBS and various other sources. The data from these various sources have been triangulated to assess validity, to understand the magnitude and spread of the epidemic, and to identify major issues and policy implications for HIV/AIDS programming. Some of the key findings and issues identified relate to the magnitude and trends in the epidemic, determinants and factors associated with HIV and

other sexually transmitted infections (STIs), and indicators of knowledge, attitudes, and behaviours. These findings have been disseminated in various fora in Uganda in which a number of recommendations have been made as to the future direction of the HIV/AIDS response in Uganda. The major findings and issues arising from this process are presented in this document. The document also presents the policy recommendations to address these findings.

The UHSBS provided nationally representative data on prevalence of HIV, syphilis, herpes simplex virus type-2, and hepatitis B, as well as associated characteristics and risk factors. These data are useful for: identifying geographic regions with elevated rates of HIV and other infections; identifying higher-risk and vulnerable populations; gaining a better understanding of risky and protective sexual behaviours; assessing availability and access to health services; and planning for prevention, care, and treatment programmes. Data from UHSBS are also useful for calibrating prevalence estimates from surveillance systems and improving accuracy of national estimates. However, to provide necessary data on trends of key biomarkers and associated risk factors, it will require carrying out such surveys at regular intervals.



### 3 Prevalence of HIV

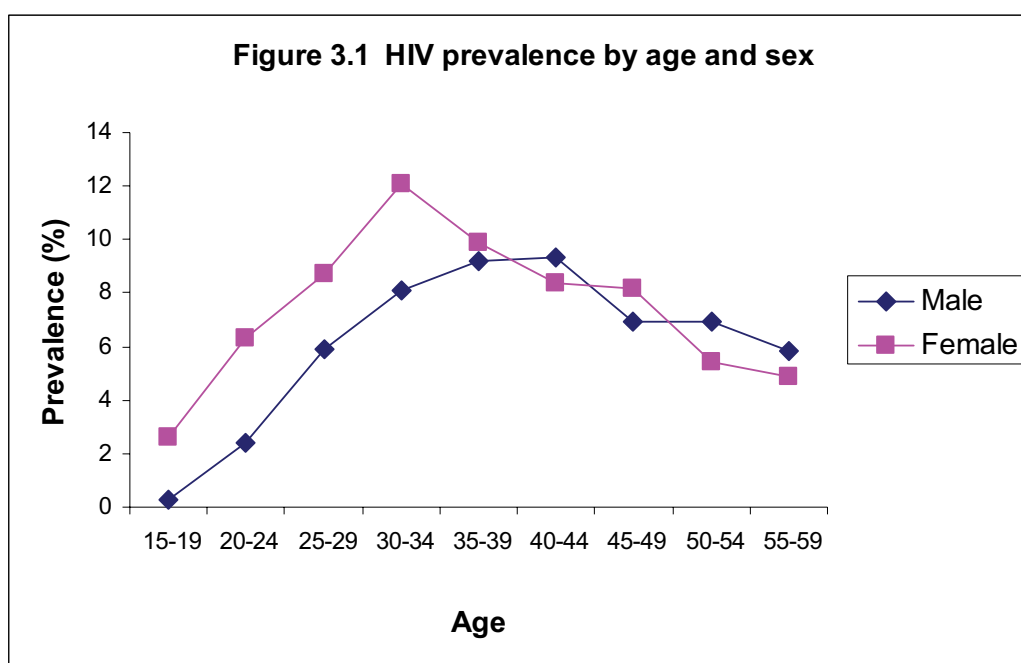
#### Introduction

Uganda has experienced a severe HIV/AIDS epidemic for more than two decades. To monitor the magnitude and distribution of HIV infections in the general population and to plan an effective response to the epidemic and its consequences, reliable data are needed. This section summarizes data on the level and spread of HIV infection among adults and children, based on HIV sero-status measured in the UHSBS. Extent of HIV discordance among cohabiting couples is also discussed.

#### Major findings

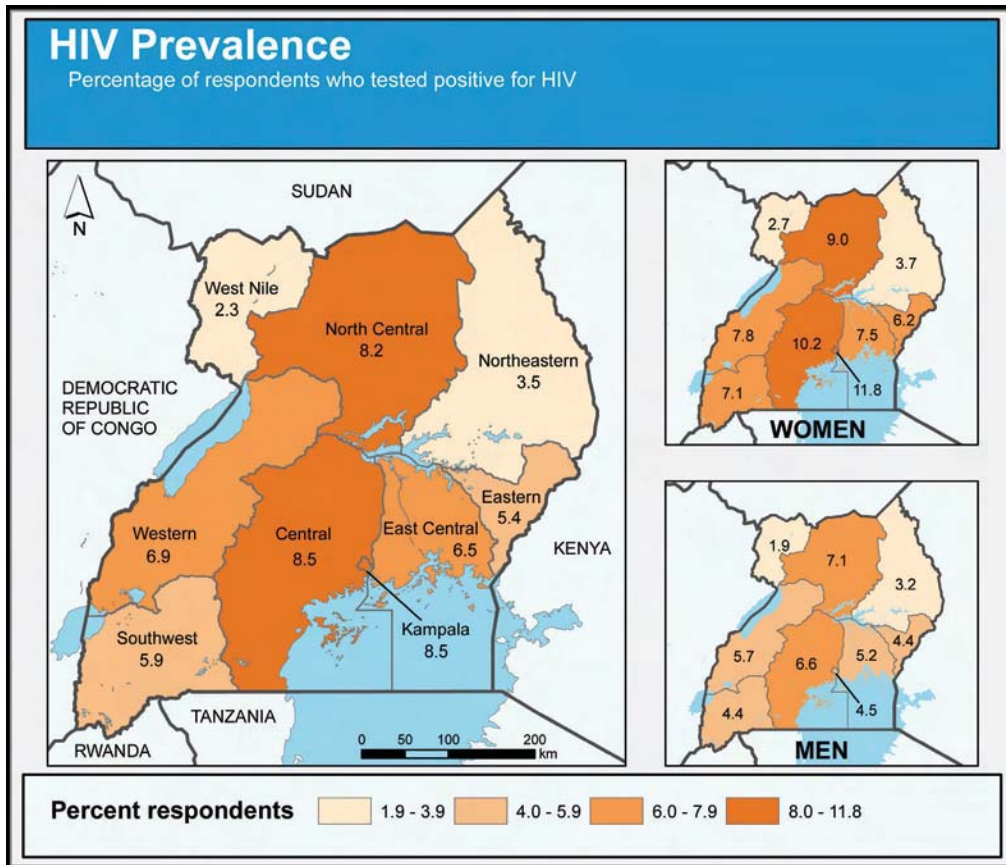
The UHSBS found that 6.4 percent of Ugandan adults age 15-49 are infected with HIV, and the prevalence is higher among women (7.5 percent) than among men (5.0 percent). Urban residents are much more likely to be infected (10.1 percent) than rural residents (5.7 percent). This is true for both sexes, although the urban-rural difference is much greater for women than for men. Prevalence among urban women is 12.8 percent compared with 6.5 percent among rural women, and prevalence among urban men is 6.7 percent compared with 4.7 percent among rural men.

Prevalence of HIV for both women and men increases with age, reaching its peak for women at ages 30-34 (12.1 percent) and for men at ages 40-44 (9.3 percent). Women are more highly affected at younger ages compared with men. Prevalence for women is generally higher than for men at all ages 15-49, except at ages 40-44 where men have marginally higher prevalence than women. At ages 50-59, the pattern reverses, and the prevalence is slightly higher among men than among women (see Figure 3.1).



There are large regional differences in the spread of HIV in Uganda, with Central, Kampala, and North Central regions all having rates of infection above 8 percent. West Nile (2.3 percent) and Northeast (3.5 percent) have much lower rates. In all regions, women have a higher prevalence of HIV infection than men (see Figure 3.2).

**Figure 3.2 HIV Prevalence**



HIV prevalence in Uganda is estimated to have dropped from a peak of about 18 percent in 1992 to 6.4 percent in 2005. However, there is emerging evidence that the HIV sero-prevalence has stagnated at 6.0 to 6.5 percent in recent years. Data generated by the Medical Research Council research group based at Masaka show that HIV-1 prevalence and incidence decreased in this rural surveillance cohort throughout the 1990's. In recent years, the prevalence and incidence rates have levelled off, an observation consistent with data from the cross-sectional ANC surveillance system that Uganda operates.

Among 8.1 percent of cohabiting couples in Uganda, one or both partners are HIV positive. Of these couples, 57 percent are HIV discordant (i.e., only one of the partners is HIV positive). Discordance is more common among urban couples than rural couples and is especially high among couples who disagree as to whether their union is monogamous or polygynous. Discordance is much more common among couples in Kampala than in other regions.

Among youth age 15-24, 2.9 percent are HIV positive. However, there is a sizeable gender gap. Prevalence among female youth is 4.3 percent, while for male youth prevalence is only 1.1 percent. HIV prevalence among youth rises rapidly with age, especially among female youth. Urban youth—both female and male—are more likely to be infected than those in rural areas (4.8 percent versus 2.5 percent). Youth in Kampala, Western, and North Central regions are more likely to be infected with HIV than those living elsewhere, especially those in the West Nile and the Northeast regions.

Seven out of 1,000 children under five years of age in Uganda are HIV positive. HIV prevalence is higher among younger children, among those living in urban areas, and among children of widowed, divorced, or separated mothers, consistent with higher adult prevalence in urban areas and higher prevalence among widowed, divorced, and separated women.

HIV prevalence is particularly high (10.2 percent) among children whose mothers are HIV positive. Because mother-to-child transmission is by far the most likely means of transmission of HIV infection to children, this is hardly surprising. Only a tiny fraction (one-tenth of 1 percent) of children whose mothers are HIV negative are themselves HIV positive. HIV prevalence is also relatively high (4.4 percent) among children whose mothers have died.

### **Major issues**

1. HIV prevalence level in Uganda remains unacceptably high. Thus, the country will continue to face the effects of high disease burden in the coming years.
2. The epidemic is heterogeneous, with some areas and population groups being disproportionately affected. Women, especially at younger ages, urban residents, and those living in Kampala and in Central and North Central regions are more vulnerable.
3. HIV discordance rates among cohabiting couples also remain high, providing opportunities for prevention with the positives.
4. Rates of mother-to-child infections are high, as indicated by very high rates of infection among children of infected mothers and among children whose mothers have died.

### **Policy recommendations**

- High and stagnating HIV prevalence levels call for renewed prevention efforts.
- Given the large heterogeneity in the epidemic, a *one size fits all* approach is not likely to work. There is need to develop targeted programmes for prevention, care, treatment, and support. Programmes should be gender sensitive and youth friendly, and need to target vulnerable groups such as young girls, orphans and vulnerable children.
- There is also an urgent need to design and implement prevention strategies that target discordant couples. These programmes need to promote premarital testing, couple testing with disclosure, condom use with cohabiting partners, and mutual faithfulness in relationships.



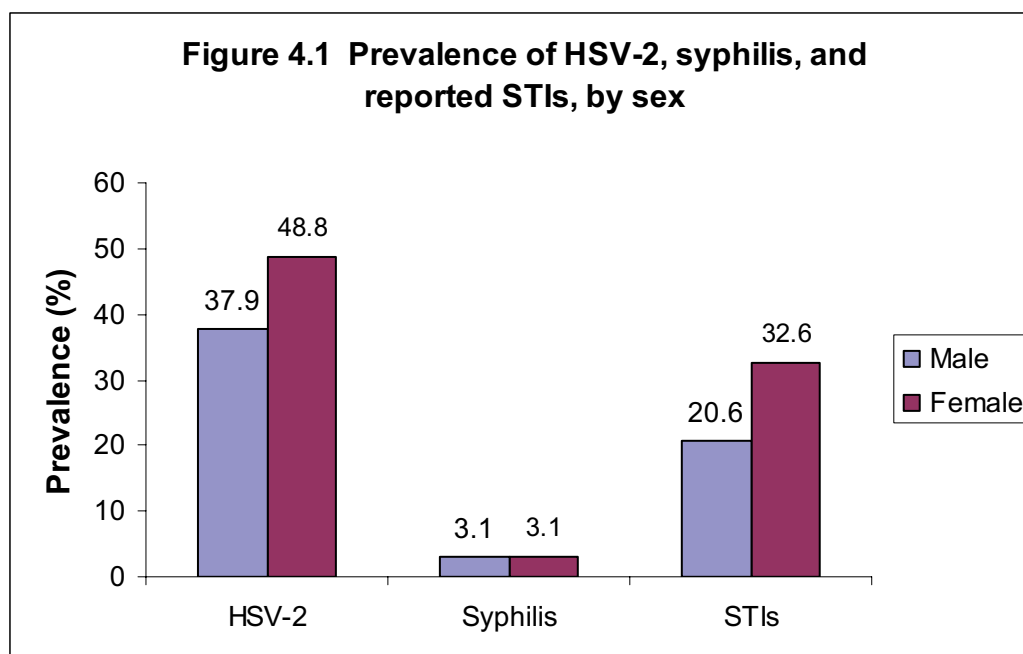
## 4 Prevalence of HSV-2 and Syphilis

### Introduction

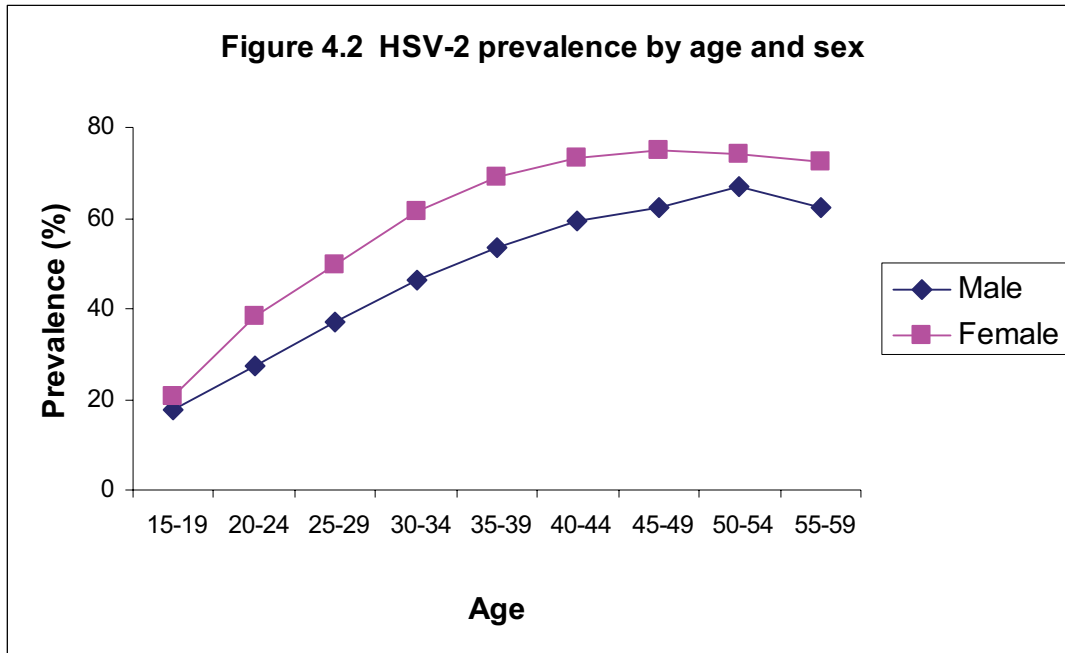
The epidemiological synergy between the transmission of HIV and sexually transmitted infections (STIs) has been previously described in numerous studies. Based on this, Uganda and other developing countries have implemented STI control as an essential component of HIV prevention. The UHSBS collected information on selected STIs, including herpes simplex virus type-2 (HSV-2) infection, syphilis, and self-reported STIs or STI symptoms during the preceding 12 months among sexually active respondents. In this section, we describe the prevalence and factors associated with these STIs.

### Major findings

Sexually transmitted infections are widespread in Uganda. Overall, 44 percent of adults age 15-49 years were infected with HSV-2, 3.1 percent had active syphilis, and 33 percent of women and 21 percent of men reported having suffered from an STI or symptoms of STIs in the 12 months preceding the survey (see Figure 4.1).



Infection with HSV-2 among adults age 15-49 years is more frequent among women (49 percent) than men (38 percent) and rises rapidly with age, and by 40 years of age, more than two-thirds of adults are infected. Women are more likely to be infected at every age group, and by 40 years of age, three-fourths of women are already infected. There is virtually no urban-rural difference in the prevalence of HSV-2, but it varies across regions, with the Central, East Central, and North Central regions most severely affected with prevalence of HSV-2 of about 50 percent. The West Nile region is least affected with 29 percent of adults infected. The prevalence of HSV-2 declines with increasing level of education, and it is higher among those who are working (50 percent) than those who are not (34 percent) (see Figure 4.2).

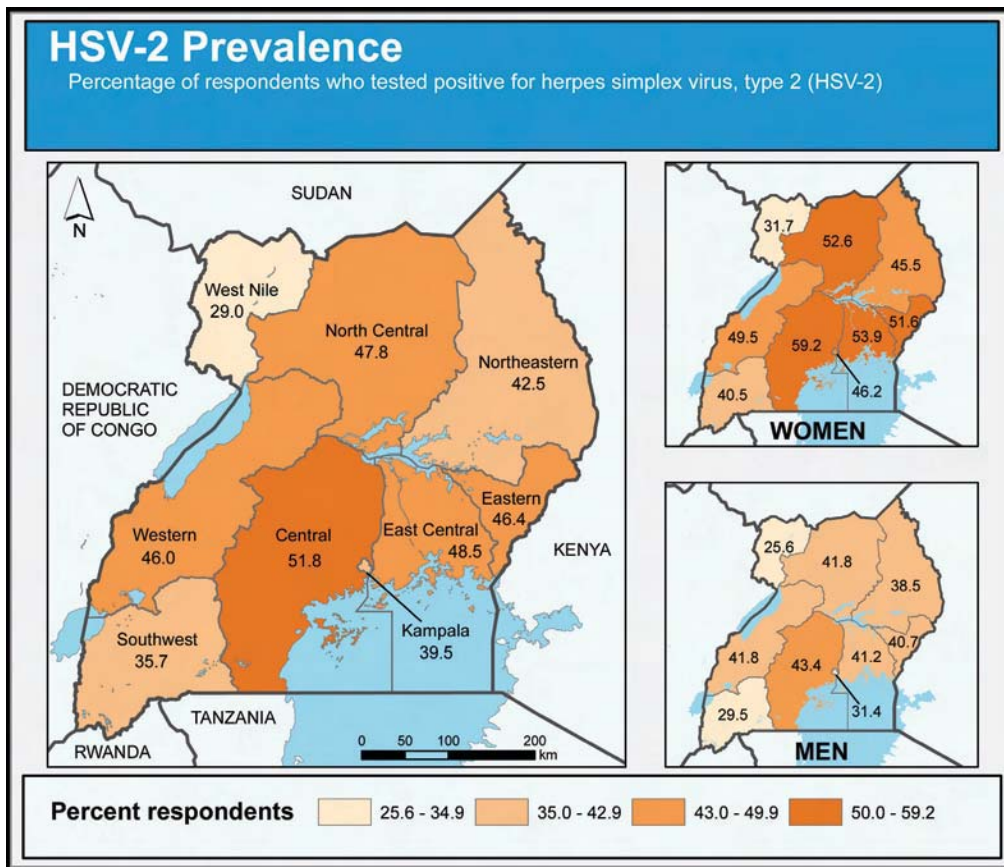


By marital status, HSV-2 prevalence is highest among those who are widowed (78 percent), while those who have never been in union are the least likely to be infected (20 percent). HSV-2 prevalence levels are intermediate among those who are currently in union (52 percent) and those who are divorced or separated (58 percent). Among respondents currently in union, those in a polygynous union are more likely to be infected than those in a monogamous union (60 percent and 49 percent, respectively).

Among approximately one-third of cohabiting couples, neither partner has HSV-2; and for another 40 percent of couples, both partners are infected. The remaining 26 percent of couples are discordant, meaning one partner is infected and the other is not. Among all couples in which one or both partners are infected with HSV-2, 40 percent are discordant. Among HSV-2 discordant couples, 53 percent are also discordant for HIV.

Three percent of adults age 15-49 have active syphilis, with virtually no differences by sex or urban-rural residence. However, syphilis is most common in Northeast and North Central regions (5 percent) and least common in West Nile region (1 percent). Unlike HIV prevalence, syphilis infection declines slightly with increasing education and wealth. Seven percent of cohabiting couples are discordant for syphilis (see Figure 4.3).

**Figure 4.3 HSV-2 Prevalence**



Among respondents who have ever had sex, there has been a marked increase in reporting of symptoms of STIs, from 17 percent to 33 percent among women and from 6 percent to 21 percent among men between 2001 and 2005. In 2005, the likelihood of reporting symptoms of STIs was highest among women age 20-39 and men age 25-49. Never-married women and men were least likely to report symptoms of STIs compared to those who were formerly or currently married. Women in urban areas were more likely to report STI symptoms than those in rural areas. Respondents in East Central region were most likely to report STI symptoms (44 percent of women and 29 percent of men), while those in Northeast region were least likely to do so (14 percent of women and 8 percent of men). Reporting of STI symptoms increased with level of education and with household wealth status. Circumcised men were slightly less likely to report having had an STI than those who were not circumcised.

### **Major issues**

1. The high burden of STIs, especially HSV-2, and reported symptoms of STIs in the previous 12 months, underlies a substantial risk of ongoing HIV transmission arising from risky sexual behaviour and the cofactor role of ulcerative STIs. Of note is that the regional distribution of these STIs correlates well with the distribution of HIV infection and of risky sexual behaviour.

2. The apparent increase in reported STI symptoms during the past five years is also correlated with the reversal in trends of preventive and risky sexual behaviour reported elsewhere in this publication, and this has implications for future trends in the magnitude of HIV transmission.
3. The sub-groups of men and women most disproportionately affected by STIs include older men and women, those currently or formerly married, those living in wealthier households, and urban residents. These population groups currently do not constitute the focus of STI and HIV control programmes in the Uganda, which tend to focus on young and unmarried individuals.
4. The high rate of HSV-2 discordance and also of dual discordance with HIV present situations with highly elevated risks for impending HSV-2 and HIV transmission.

### ***Policy recommendations***

- There is need to strengthen and scale up STI control as a major intervention for HIV prevention. This will require updating technical policies and guidelines for STI control, including case management, as well as developing and implementing strategic plans for rapidly scaling up STI control activities.
- The renewed STI control strategy should pay special attention to the high burden of HSV-2 infection. This will require developing technical guidelines for HSV-2 case management and prophylaxis including acyclovir suppressive therapy, especially among discordant couples. This will also require public health prevention campaigns emphasizing public education, targeted prevention, HSV-2 screening especially prior to marriage, and promoting condom use especially by HSV-2 discordant couples.
- There is need for a shift in strategic focus of prevention programmes to include population groups that are disproportionately affected by STIs. Such groups include older adults, those currently or formerly married, those living in wealthier households, and urban residents.
- Programmes for HIV counselling and testing should consider strengthening couple testing and including HSV-2 screening with the view for early detection of not only HIV discordant couples but also couples who are discordant for HSV-2, and those who are dually discordant for HSV-2 and HIV. A prevention package for these situations should be elaborated and its implementation rapidly scaled up.



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## 5 Data Validity and Comparison with Other Data Sources

### *Introduction*

The design, implementation and evaluation of an effective HIV/AIDS response require good quality data. To achieve this, monitoring and evaluation studies conducted in Uganda have been implemented based on study designs that maximize data validity.

In this section, we present an analysis of data from UHSBS 2004-05 to assess survey participation and response rates both at the household and individual levels. The analysis also evaluates UHSBS estimates for HIV, syphilis, and HSV-2 for potential bias due to non-response. Furthermore, we also present comparisons of UHSBS HIV infection estimates with those obtained from ANC surveillance and VCT collected over the same period of time.

### *Major findings*

The UHSBS obtained high participation rates. Overall household response rates were 97 percent, with response rates of 97 percent in rural areas and 96 percent in urban areas. Response to the individual questionnaires was 89 percent for men and 95 percent for women. Response for blood draw was also high, and blood specimens were collected for 84 percent of men and 90 percent of women. Non-response was found to be higher among men and among urban, better educated, and wealthier respondents, which is typical of most household surveys in developing countries. However, non-response was not necessarily higher among those with higher risk behaviours than among those with lower-risk behaviours.

Analysis to evaluate survey estimates for potential bias due to non-response indicated that non-response in the UHSBS sample did not appear to bias prevalence estimates for HIV, syphilis, and HSV-2. For each of the three infections evaluated, contrary to expectation, untested respondents tended to have lower predicted prevalence rates than the observed rates among the tested, but this bias had virtually no effect on the observed national prevalence estimates.

The UHSBS data were compared with data from the ANC surveillance sites for the same period. This analysis indicated that, overall, estimates of HIV infection at ANC surveillance sites were similar to those from the UHSBS. The ANC clinic-based HIV estimates were also similar to those of UHSBS catchment area female respondents who had a birth in the two years preceding the survey, those who were pregnant and had attended an ANC clinic for their last pregnancy in the two years preceding the survey, and those women who were pregnant at the time of the survey. The analysis also indicated that the ANC clinic data overestimated HIV prevalence in the 15-19 year age group; were similar to the UHSBS for ages 20-29; and underestimated HIV prevalence among those 30 years or older and among urban respondents.

Analysis was also done to compare UHSBS data with data from VCT clients. VCT clients who reported illness as the reason for being tested were excluded from the analysis. It was found that in urban areas, HIV prevalence estimates were similar for UHSBS respondents and VCT clients (9.7 percent for the UHSBS and 9.3 percent for VCT clients). Men and women in urban areas also showed similar HIV prevalence. In rural areas, however, HIV estimates were higher for VCT clients (8.0 percent) than for UHSBS respondents (5.2 percent).

## ***Major issues***

1. The UHSBS provided high-quality, reliable, representative national and sub-national prevalence estimates of HIV, syphilis, HSV-2, and hepatitis B, and associated characteristics and risk factors. There were no biases due to non-response.
2. UHSBS estimates appear to be quite robust and compare well with estimates from ANC sentinel surveillance sites and from urban VCT clients (excluding those who reported illness as the reason for testing). Therefore, UHSBS estimates can be used to calibrate ANC surveillance data.
3. Cross-sectional data from this survey have been useful, but have limitations in providing information on trends.

## ***Policy recommendations***

- Population level surveys such as UHSBS should be conducted every 3 to 5 years to complement other data sources; to provide information on trends on HIV/AIDS indicators and risk factors; and to calibrate ANC sentinel surveillance data.
- ANC sentinel surveillance remains the mainstay for the generation of annual HIV infection estimates.
- As part of second-generation surveillance, along with data from ANC sentinel surveillance sites and other sources, VCT data can be used to monitor the HIV/AIDS epidemic in areas where coverage is high, such as the urban areas in Uganda.

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## 6 Burden of HIV/AIDS in Uganda

### *Introduction*

Data on the burden of HIV/AIDS and on the potential impact of HIV control interventions are vital for strategic planning and evaluation of HIV/AIDS prevention, care, treatment and support programmes. Currently, in Uganda, these data can best be obtained from triangulation of HIV surveillance and population survey data with demographic parameters using computer projection models. ANC, HIV surveillance, and UHSBS estimates were triangulated with census and demographic parameters and obtained a broad range of estimates. This section presents these data for 2005, along with emerging issues and recommendations for programme planning and policy guidance.

### *Major findings*

**HIV Incidence:** In 2005, there were about 135,300 new HIV infections (twice the number of people enrolled in ART since 2000), and of these about 14 percent were due to MTCT. These substantial ongoing HIV transmissions in Uganda, coupled with population growth, imply that the burden of HIV/AIDS will continue to grow, outstripping treatment and complicating attainment of universal access to ART.

**Burden of HIV/AIDS:** We estimate that in 2005, about 915,400 people (adults and children) were living with HIV, 80 percent of whom, (647,000) have never tested for HIV and were not aware of their HIV infection. Furthermore, about 109,000 children age < 15 years were living with HIV. A total of 194,900 PLHIV (160,400 adults and 34,500 children) were eligible for ART in 2005, however only 67,000 or 35 percent were receiving treatment. The need for ART is projected to reach 245,400 people by 2010.

**AIDS Morbidity and Mortality:** In 2005, under the existing ART programme 88,131 people developed AIDS, and 76,300 died as a result of AIDS, thereby leading to a cumulative total of 1.37 million AIDS deaths since the onset of the epidemic. Because of this premature mortality, adult life expectancy in Uganda is estimated at 48.9 years; short of 56.9 years that it would have been if there were no AIDS.

**Orphan Burden:** The total number of orphans in Uganda in 2005 was 2.18 million, of whom 1,009,345 were due to AIDS. Dual orphans (children who have lost both parents) were estimated at 567,700, 81 percent of them due to AIDS.

**Impact of ART prophylaxis for PMTCT:** It is estimated that at current levels of coverage, nevirapine prophylaxis for PMTCT averted 1,030 new infant HIV infections during 2001-2004 and 780 in 2005. A 100 percent nevirapine uptake at the 2005 level of PMTCT coverage would have averted another 5,700 vertical HIV infections, while the planned expansion to 80 percent of health facilities above the health centre level 3 will avert 13,000 new infections during 2005-2010. At the same time, the current ART programme covering an estimated 27,500 women in 2005 averted 840 vertical transmission—more than nevirapine prophylaxis, and if scaled up as planned will avert 9,800 more HIV infections during 2005-2010.

**Impact of cotrimoxazole prophylaxis:** In 2005, cotrimoxazole prophylaxis for HIV-infected newborns averted 820 deaths compared to a possible 13,000 had the programme achieved universal coverage. A full-scale cotrimoxazole prophylaxis programme for all adults could avert 55,800 adult AIDS deaths during 2005-2010, although the benefit of cotrimoxazole in the absence of ART is only short-lived.

**Impact of ART:** The current levels of ART programme coverage averted 14,400 AIDS deaths in 2005, and the planned scale up to 135,000 ART clients by 2010 will avert a further 78,000 deaths. Universal ART coverage from 2005 would prevent 356,600 children from becoming orphans by 2010.

## ***Major issues***

This analysis reveals several prevention opportunities for consideration in the next phase of HIV control in Uganda.

1. Foremost, a quarter of a century into the HIV epidemic in Uganda, HIV/AIDS continues to be a leading cause of adult disease and death, substantially affecting the quality of life indices and aggravating the already heavy burden of orphans.
2. There are missed opportunities for HIV prevention in Uganda. A large number of PLHIV do not know their positive HIV status and therefore may not take advantage of prevention, treatment and care services including ART, prevention with positives, and prophylaxis and treatment of opportunistic infection.
3. Although prevention and treatment programmes can potentially have a substantial impact on the burden of HIV/AIDS, the sub-optimal coverage of these services also leads to missed opportunities to avert HIV transmission and death. Furthermore, at current and planned levels of coverage, HIV prevention and treatment services, while averting substantial mortality and morbidity, will not achieve a declining trend or sustain a lower level of HIV/AIDS-related deaths unless they are massively scaled up in the near future.
4. The persisting high HIV incidence, coupled with population growth, continues to aggravate the burden of HIV/AIDS in Uganda, complicating the attainment of universal access to ART.

## ***Policy recommendations***

- There is a need for rapid expansion and scale up of prevention services including, counselling and HIV testing, PMTCT, STD control, and information and education campaigns to promote delayed sexual debut, mutual faithfulness, and condom use. Prevention programmes should explore and implement innovative ways to rapidly expand these services, including routine counselling and HIV testing (RCT) in health facilities, home-based VCT, community-based PMTCT services, and prevention of HIV transmission by HIV-positive persons.
- There is also urgent need for rapid scale up of treatment services including cotrimoxazole prophylaxis, treatment of opportunistic infections, and ART, to achieve universal access as soon as possible. These actions will reduce the levels of HIV/AIDS morbidity and mortality, and the associated social and economic consequences.

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## 7 Knowledge of HIV/AIDS

### ***Introduction***

People's knowledge can influence their actions towards adopting risk-reduction behaviours such as abstinence, reduction in premarital sex, reduction in number of sexual partners, avoidance of non-spousal sex, and condom use during non-spousal sex. Knowledge is also an important prerequisite for health-seeking behaviours, utilization of HIV prevention, care and support services as well as fighting stigma and discrimination against people living with HIV. In light of this, analysis of the level and trends of HIV-related knowledge was carried out using data of the 2004-05 UHSBS and the 1989, 1995, and 2000-01 UDHS. This section highlights the main results of the analysis, the policy implications identified and policy recommendations.

### ***Major findings***

**Source of HIV information:** Radio and person-to-person communication were the two most important sources of information about HIV/AIDS, identified by 56 percent and 35 percent of respondents, respectively. The most important messages obtained from the sources cited were related to the ABC strategy, namely, abstinence, being faithful to one partner, and using condoms, with condom use being slightly more commonly mentioned than the other two messages, especially among men. More than half of women (53 percent) and three-quarters of men (77 percent) age 15-24 reported knowing a source for condoms. Never-married youth who have ever had sex were most likely to know a source for condoms.

**Awareness of the modes of HIV transmission:** Awareness of the modes of HIV transmission is high with almost 90 percent of adults knowing that having only one uninfected, faithful partner can reduce the chances of getting AIDS. Knowledge of HIV prevention methods is also widespread, with 80 percent of women and 90 percent of men aware that the chances of getting the AIDS virus can be reduced by limiting sex to one partner who is not infected and who has no other partners. Sixty-eight percent of women and 77 percent of men say that people could reduce their chances of getting the AIDS virus by using condoms every time they have sex. As expected, the proportion of both women and men who know that abstaining from sex reduces the chances of getting the AIDS virus is high—87 percent among women and 85 percent among men. Men are slightly more knowledgeable on most indicators than women.

**Comprehensive knowledge of HIV/AIDS:** Comprehensive knowledge of HIV/AIDS was low and remained unchanged among women, 27 percent in 2001 and 28 percent in 2005, but declined slightly among men from 39 percent in 1995 to 36 percent in 2005. The same pattern was seen when data were disaggregated by sex and urban-rural residence, with higher levels of comprehensive knowledge found among urban residents and male respondents than among rural residents and female respondents, respectively.

**Trends of HIV-related knowledge:** Overall, HIV/AIDS knowledge increased between 1995 and 2001, and remained stable thereafter or showed a slight decline. While there was improvement in the proportion of respondents age 15-49 years who know that HIV can be avoided by abstaining from sex and in the proportions of women who know that HIV cannot be transmitted by insect bites, there was deterioration in knowledge of "having one sexual

partner” as a prevention measure and in the knowledge that a healthy-looking person can have the AIDS virus. Although, overall knowledge of condoms remained stable and high, it decreased slightly in women. The level of knowledge remained higher in urban areas than in rural areas.

**Knowledge of HIV discordance:** Knowledge of HIV discordance is low. Three-quarters of both women and men believe that acquisition of infection from a partner is inevitable if one partner is infected. Between 8 and 9 percent believe that the partner is almost always infected. Only 7-8 percent of women and 12-13 percent of men believe that if a person is HIV-positive, his or her partner is only sometimes infected.

**Misconceptions about HIV:** Misconceptions about HIV are still prevalent. Twenty-six percent of women and 16 percent of men do not know that a healthy-looking person can have the virus that causes AIDS, and considerably higher proportions of respondents (44 percent of women and 42 percent of men) do not know that the AIDS virus cannot be transmitted by mosquito bites. Twenty-three percent of women and 20 percent of men do not know that people cannot get the AIDS virus by sharing food with a person who has AIDS. The vast majority of Ugandans reject the idea that people could get the AIDS virus because of witchcraft or other supernatural means (85 percent of women and 88 percent of men). Looking at these three beliefs together, 39 percent of women and 46 percent of men have correct knowledge on all these issues. Over the past five years, there has been little change in these indicators.

**Knowledge of PMTCT:** Knowledge of PMTCT is reasonably high but has declined slightly in recent years. During the period 1995-2005, the proportion of respondents age 15-49 who reported knowing that HIV can be transmitted from mother to child decreased from 85 percent to 81 percent among women, while remaining unchanged at 85 percent among men. Forty-seven percent of women and 52 percent of men in 2005 reported knowing that there are special drugs that can reduce mother-to-child transmission. The combined indicator shows that only 35 percent of women and men know that HIV can be transmitted through breastfeeding and that the risk of transmission can be reduced by special drugs.

### ***Major issues***

1. HIV/AIDS awareness is high, but comprehensive knowledge is still low. There is need to address the low level of comprehensive knowledge.
2. HIV/AIDS knowledge increased between 1995 and 2001 but remained unchanged or declined slightly between 2001 and 2005.
3. Person-to-person communication was identified as the second most important source of information about HIV/AIDS.
4. Knowledge of drugs to reduce mother-to-child transmission remains low.

### ***Policy recommendations***

- The ongoing efforts in HIV prevention need to be further strengthened, using all strategies known to reduce HIV transmission.
- Efforts should be taken to address the low levels of comprehensive knowledge about

HIV/AIDS and low knowledge about MTCT.

- New and appropriate IEC messages that address specific issues on HIV prevention should be designed. These should be disseminated widely and regularly using all available channels.
- Interpersonal communication channels, such as IEC through health workers, community and political leaders, peer groups, and skills building, should be scaled up rather than focusing exclusively on mass media programmes. Mass media programmes need to use interactive communication to facilitate internalisation of HIV risk awareness and clarification of misconceptions.





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## 8 Attitudes Relating to HIV/AIDS

### *Introduction*

Reducing the stigma of HIV/AIDS and changing the negative attitudes are important for fighting discrimination against persons living with HIV (PLHIV). To gauge people's attitudes about HIV/AIDS and PLHIV, the survey assessed respondent's attitudes towards teaching children condom use to avoid HIV infection, people's perceptions of their risk of getting HIV, the level of stigma about AIDS, and attitudes towards negotiating safer sex.

### *Major findings*

**Women's ability to negotiate safer sex:** Seventy-two percent of Ugandan women and 82 percent of men feel that a wife is justified in refusing sex with her husband if she knows he has a sexually transmitted infection. Similarly, 71 percent of women and 83 percent of men believe that a wife is justified in asking her husband to use a condom if she knows that he has a sexually transmitted infection.

**Teaching children about condom use to avoid HIV:** Six in 10 adults believe that children age 12-14 years should be taught about condom use to avoid AIDS. Men are more likely than women to believe that children should be taught about condom use. There are few differences in this belief by background characteristics. Older respondents (those in their 40s) are less likely to support condom education for youth, as are those with no education, and those in the lowest wealth quintile.

**HIV risk perception:** HIV risk perception is low. About one in five adults (21 percent of women and 23 percent of men) believes that it is very likely he or she will get HIV. Risk perception varies with age, marital status, and urban-rural residence. Younger and older respondents have lower risk perception than respondents in their twenties and thirties; those who have never married are less likely to think they are at high risk of getting HIV; and urban respondents, especially women, are more likely than rural respondents to say they are very likely to get HIV. Finally, women and men perceive roughly equal risks of getting infected with HIV.

**Accepting attitudes towards PLHIV:** Almost 9 in 10 Ugandans age 15-49 say they would be willing to care for a relative who is sick with AIDS in their own household. Fifty-nine percent of women and 72 percent of men say they would buy sugar or fresh vegetables from a vendor if they knew that he or she is HIV-positive. Forty-five percent of women and 53 percent of men say that if a member of their family got infected with the AIDS virus, they would not necessarily want it to remain a secret. Asked whether a female teacher with AIDS who is not sick should be allowed to continue teaching, the proportion of women age 15-49 saying yes increased from 43 percent in 2001 to 60 percent in 2005, and for men, it increased from 43 percent to 66 percent during the same period.

A composite indicator combining all the above four indicators of accepting attitudes is, however, very low. Only 19 percent of women and 28 percent of men express positive attitudes on all four indicators of accepting attitudes towards PLHIV. The indicator varies with respondent's urban-rural residence, education, wealth quintile, and region of residence. Urban

and better educated respondents are more likely than rural and less educated respondents to express accepting attitudes. Those in the highest wealth quintile are also more likely to express accepting attitudes. Kampala residents appear to have less accepting attitudes towards PLHIV than those in other regions.

**Partner communication and knowledge of partner status:** Substantial proportions of women (44 percent) and men (31 percent) report never discussing HIV/AIDS with any of their sexual partners. The vast majority of adults (89 percent) do not know the HIV status of any of their partners. These percentages are similar for women and men. Adults in urban areas, those who are better educated, and those who live in wealthier households are more likely to have discussed HIV/AIDS with their partners and more likely to know the HIV status of their partners than those in rural areas, those who are less educated, and those in poorer households.

### ***Major issues***

1. While the accepting attitudes towards PLHIV are improving, they are still low, particularly among women, who are the usual caregivers. This finding has implications for stigma, discrimination, and care provision.
2. Poor communication about HIV/AIDS between partners and the low level of knowledge of partners' HIV status—especially in the context of high rates of HIV discordance among couples—are a hindrance to HIV prevention and care.
3. A large proportion of adults believe that women can negotiate safer sex, however only a small proportion know their partner's HIV status. This situation raises concerns about power relations in negotiating safer sex and reducing future transmission of HIV.

### ***Policy recommendations***

- IEC/BCC programmes should be strengthened to promote greater acceptance of PLHIV and to reduce stigma and discrimination against PLHIV.
- Programmes should take into account gender factors, for instance, the relatively low acceptance of PLHIV among women, who are usually the primary caregivers.
- Design and implement programmes to improve communication between couples. Better partner communication can facilitate mutual disclosure of HIV status and prevent HIV transmission, especially in discordant couples.

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## 9 HIV/AIDS-Related Behaviours

### *Introduction*

Uganda's HIV epidemic is predominantly heterosexual and largely driven by risky sexual behaviour. HIV prevention programmes in Uganda promote reduction of higher-risk sexual behaviour while encouraging uptake of preventive sexual behaviour in the general population and by specific high-risk groups. The major strategies comprise risk reduction and risk avoidance measures including promotion of abstinence among youth, fidelity in marriage, and condom use with non-regular sexual partners. This section describes patterns in HIV/AIDS-related sexual behaviours of Ugandan adults, including multiple sexual relationships, non-spousal sex, and condom use. Sexual behaviours of HIV-positive adults are also discussed.

### *Major findings*

**Multiple sexual relationships:** Multiple sexual relationships remain common in Uganda. Among adults age 15-49 who ever had sex, mean number of lifetime sex partners is 6.7 for men and 2.2 for women. Overall, 67 percent of men and 31 percent of women report having had three or more lifetime sex partners. Having multiple sex partners starts early and increases with age, as might be expected. Thirty-six percent of men and 16 percent of women age 15-19 already have had three or more sex partners. These proportions rise to 76 percent for men and 34 percent for women at ages 30-34. Multiple sexual relationships are more common among urban and wealthier adults. Women with more education also tend to have more lifetime sexual partners, but there is no clear relationship among men.

Among respondents who were sexually active in the 12 months preceding the survey, 29 percent of men and 4 percent of women age 15-49 reported having had two or more sex partners. Having two or more sex partners in the past year was more common among sexually active, never-married and formerly married women than among currently married women. It was also more common among urban, better educated, and wealthier adults, and among those living in Kampala, Central, East Central, and Eastern regions. The proportion of sexually active adults age 15-49 who reported having two or more sexual partners in the past 12 months increased from 7 percent in 2001 to 15 percent 2005 (from 2 to 4 percent for women and from 25 to 29 percent for men).

**Higher-risk sex:** Fifteen percent of women and 37 percent of men age 15-49 who were sexually active in the past 12 months reported having sex with a non-marital, non-cohabiting partner, thus, having had higher-risk sex. Between 2001 and 2005, the proportion of men engaging in higher-risk sex increased from 29 percent to 37 percent, but for women it remained stable, 14 percent in 1995 and 15 percent in 2005. The proportion of men who engaged in higher-risk sex was, however, twice as high as that of women. When these data were disaggregated by age and residence, higher-risk sex was more common in the younger age group (15-24) and among urban residents than in the older age group (25-49) and among rural residents.

Among currently married adults, the proportion who reported sexual intercourse with a non-marital, non-cohabiting partner in the 12 months preceding the surveys was 3 percent for

women, both in 1995 and 2005. For married men, this proportion increased from 14 percent in 1995 to 29 percent in 2005, indicating a substantial increase in extramarital sex among men.

**Condom use at last sex:** Only 9 percent of women and 15 percent of men who had sexual intercourse in the past 12 months reported using a condom at last sex. The proportion not using a condom at last sex was even lower among those who were older, currently married, rural, less educated, or live in poorer households. Never-married adults and teenagers stand out as groups that were most likely to have used a condom at last sex. Almost 9 out of 10 adults whose last sexual partner was a spouse or cohabiting partner did not use a condom at last sex.

Among women whose last sexual intercourse was with a non-regular partner, about equal proportions (23-24 percent) cited dislike of condoms, trust that their partner does not have a disease, and partner's refusal to use condoms as the main reasons for not using a condom. Among men whose last sexual intercourse was with a non-regular partner, the main reason for not using a condom was that they did not have a condom (34 percent); this was followed by trust that their partner does not have a disease (31 percent).

The proportion of adults who used a condom at last sex with a non-regular partner increased significantly among women age 15-49, from 39 percent in 2001 to 48 percent in 2005, while in men age 15-49, it decreased significantly from 61 percent in 2001 to 53 percent in 2005.

Thirty-two percent of women and 28 percent of men age 15-49 had sex in the past year when the respondent and/or the partner had consumed alcohol.

**Sexual behaviour and HIV risk perception:** Fifty-three percent of men and 25 percent of women who have had three or more lifetime sexual partners considered themselves at low or no risk of HIV infection. 63 percent of men and 61 percent of women who had sex with a non-marital, non-cohabiting partner, and who did not use a condom during their last higher-risk sex considered themselves to be at low or no risk of HIV infection.

**Sexual behaviour of HIV-positive adults:** Among HIV-positive adults age 15-49, 32 percent of infected men and 22 percent of infected women reported sex with a non-regular partner in the past year. Among sexually-active, HIV-positive adults, 34 percent of men and 5 percent of women reported two or more sex partners in the past year; and only 16 percent of men and 17 percent of women reported using a condom at last sex. Among HIV-discordant couples, only 5 percent reported using a condom at last sex with spouse.

**Factors associated with knowledge of HIV status:** A multivariate analysis to identify factors associated with knowing HIV status revealed that, of 1,092 HIV-positive adults age 15-59 years, only 23 percent had previously been tested for HIV, and only 9 percent knew their partners' HIV status. Those who had had an HIV test were three times more likely to have used a condom during their last sexual encounter than those who did not; and those who knew their partners' HIV status were 2.3 times more likely to have used a condom than those who did not.

**STI treatment seeking:** STI treatment seeking was found to be still low with only 56 percent of women and 61 percent of men seeking treatment for an STI or STI symptoms in the last 12 months. Most respondents sought treatment from a health facility as opposed to a shop,

pharmacy, or a traditional healer.

**Male circumcision, skin cutting, and tattooing:** One in every four Ugandan men reports being circumcised. Moreover, 44 percent of women and 34 percent of men report that they have undergone traditional tattooing or cutting of skin. Male circumcision is more common in urban areas, whereas tattooing and skin-cutting are more common in rural areas. As expected, there are large regional and ethnic differentials in these traditional practices.

**Blood transfusion, blood contact, and medical injections:** Five percent of women age 15-49 reported having received a blood transfusion at some time, 8 percent had contact with the blood of other persons, and women received an average of 2.5 medical injections in the past year. The corresponding levels for men were 2 percent for blood transfusion, 7 percent for contact with the blood of others, and an average of 1.9 medical injections in the past year.

### ***Major issues***

1. Multiple lifetime sexual relationships and concurrent relationships remain common in Uganda. Substantial proportions of men report having higher-risk sex and extramarital sexual relationships.
2. A significant proportion of adults who engage in higher-risk sex perceive themselves to be at low risk or no risk of HIV infection.
3. In recent years, there has been deterioration in several indicators of risky sexual behaviour among men. These include a rise in the number of sexual partners, an increase in sex with non-regular partners, and a decline in condom use both for any sex and for higher-risk sex.
4. Refusal by male partner and dislike of condoms are the main reasons given by women for not using condoms with non-spousal partners. Among men, the main reason is lack of access to condoms at the time of non-spousal sex.
5. Levels of sexual activity and unprotected sex are high among HIV-positive adults, most of whom do not know their sero-status.
6. Knowledge of one's own HIV status and knowledge of a partner's HIV status are associated with increased condom use. However, overall, partner communication about HIV and knowledge of a partner's HIV status remain low.
7. Many discordant couples continue to have unprotected sex, putting spouses and other partners at risk.
8. Wealthier adults and those living in urban areas are more likely to have multiple sexual partners and more likely to engage in non-spousal sex.
9. A substantial proportion of adults do not seek treatment for their STIs or STI symptoms from any source.
10. A large majority of Ugandan males are not circumcised.
11. Blood transfusions, contact with other people's blood, unsafe injections, and tattooing and skin-cutting practices expose people to non-sexual modes of HIV transmission.

## ***Policy recommendations***

- There is a need to re-invigorate the promotion of risk-reduction behaviours. Design and disseminate IEC messages to promote risk-reduction behaviours, including discouraging multiple and casual sexual relationships, cross-generational sex, transactional and commercial sex, and promoting condoms use by increasing accessibility and acceptability of condoms.
- Programmes need to be gender sensitive and take into account the relatively low status of women in negotiating safe sex with male partners.
- Design and implement prevention strategies aimed at persons living with HIV and strategies that target discordant couples. There is need to scale up HCT/VCT services to facilitate knowledge of HIV sero-status; increasing premarital testing and couple testing with disclosure; reducing multiple partnering; promoting faithfulness to regular partners; and increasing protected sex.
- There appears to be a shift in the balance in programme emphasis from prevention to treatment, care, and support programmes. Some of this shift is due to changing priorities of HIV/AIDS funding agencies. There is a need to re-evaluate this shift and reemphasize and integrate prevention efforts into other HIV/AIDS programmes and services.
- The prevention programmes should take into consideration the changing social and epidemiological context and increasing availability of treatment.
- Programmes to promote blood and injection safety need to be strengthened.

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## 10 HIV/AIDS-Related Behaviours of Youth

### *Introduction*

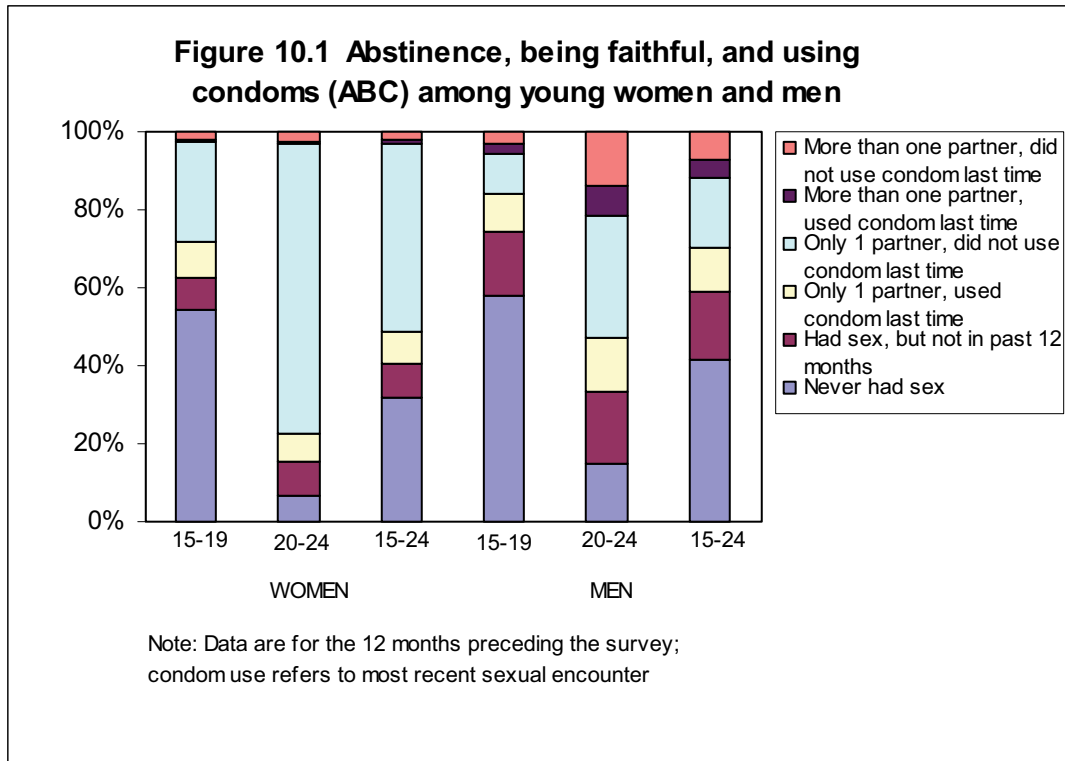
Youth is a time of both risk and opportunity for HIV prevention programmes. Early initiation of sex and unprotected sex put many youth, both males and females at risk of HIV infection and other sexually transmitted diseases. Youth is also a time of vulnerability for HIV infection. Many young women are forced to have sex or are sexually exploited by wealthier and older males, increasing their HIV infection risk. Orphans and vulnerable youth are likely to be at greater risk in various aspects of life. This section describes sexual debut, abstinence, multiple sexual relationships, and condom use practices among young men and women in Uganda. The prevalence of forced sex and cross-generational sex among teenage girls is also discussed.

### *Major findings*

**Age at first sex:** Fourteen percent of both women and men age 15-24 initiated sexual activity before age 15. The proportion of youth age 18-24 who had sex before age 18 is much higher, at 63 percent for women and 47 percent for men. Seventeen percent of women and 23 percent of men age 15 at the time of the survey had already had sex. This proportion rises steadily to 98 percent of women and 92 percent of men by age 24. At ages 15 and 16, men are more likely to have ever had sex than women, but at ages 17-24 women are more likely to have ever had sex than men. Between 1995 and 2005, the median age at first sex among youth age 15-24 increased from 16.1 to 16.8 years for women and from 17.4 to 18.4 years for men. A similar trend was observed in both urban and rural areas. There was however no change between 2000 and 2005.

**Primary abstinence:** Among all youth age 15-24, 32 percent of young women and 42 percent of young men have never had sex (see Figure 10.1). The proportion abstinent drops substantially between the 15-19 and 20-24 age groups, more so for young women than for young men. Among never-married youth age 15-24, one-half of men and about two-thirds (64 percent) of women reported never having had sex. This primary abstinence was less common among older, urban, and better educated youth. The proportion of never-married youth age 15-24 who have never had sex has increased significantly over time. For female youth, the proportion in primary abstinence increased from 23 percent in 1989 to 32 percent in 2005; and for men it increased from 32 percent in 1995 to 42 percent in 2005. Among youth age 15-19, primary abstinence increased steadily for women, from 39 percent in 1995 to 48 percent in 2001 and to 54 percent in 2005, while for men primary abstinence increased from 53 percent in 1995 to 61 percent in 2001 but then decreased slightly to 58 percent in 2005.

**Secondary abstinence:** Nine percent of young women and 17 percent of young men have had sex but not in the past year. The proportion of sexually-experienced women age 15-19 who reported no sex in the 12 months preceding the surveys rose from 4 percent in 1989 to 6 percent in 1995, and to 8 percent in 2005. For men, this proportion in secondary abstinence decreased from 16 percent in 1995 to 11 percent in 2001 and then increased to 17 percent in 2005. Overall, the proportion of sexually experienced women and men age 15-19 who reported no sex in the past 12 months was significantly lower in urban areas than in rural areas.



**Multiple sexual relationships:** Multiple sexual relationships are common among Ugandan youth; 36 percent of young men age 15-19 and 57 percent of those age 20-24 report having had three or more lifetime sexual partners. The corresponding figures for young women are 16 percent and 23 percent, respectively. Men age 15-24 report having an average of 3.8 lifetime sex partners, and women age 15-24 report an average of 1.8 lifetime sex partners. Three percent of young women and 12 percent of young men reported having more than one sex partner in the past year.

**Higher-risk sex:** Among youth age 15-24 who had sex in the past 12 months, 26 percent of women and 74 percent of men reported having sex with a non-marital, non-cohabiting partner. Such higher-risk sex in the past 12 months was more common among urban, better educated, and wealthier youth. The proportion of sexually active youth age 15-24 who had higher-risk sex in the past 12 months increased from 22 percent to 26 percent among women and from 59 percent to 74 percent among men between 2001 and 2005.

**Condom use:** Twenty-nine percent of women and 33 percent of men age 15-24 who have initiated sexual activity said they used a condom the first time they had sex. Among youth who had higher-risk sex in the past 12 months, a little more than one-half of young women (53 percent) and men (55 percent) reported using a condom at last higher-risk sex. Both condom use at first sex and condom use during higher-risk sex were more common among urban, better educated, and wealthier youth. Not surprisingly, knowledge of source of condoms was strongly associated with greater use of condom, both at first sex and in the context of higher-risk sex. The proportion of young women who used condoms during last higher-risk sex increased from 45 percent in 2001 to 55 percent in 2005, while in men, it decreased from 65 percent in 2001 to 55 percent in 2005.



**Forced sex and intergenerational sex:** Nine percent of all women age 15-24 reported that they were forced to have sex the first time they had sex. Ten percent of women age 15-19 had higher-risk sex in the past year with a man who was 10 or more years older.

**Alcohol use:** Fourteen percent of women age 15-24 had sex in the past year when the respondent and/or her partner had consumed alcohol. Rural residence, lower education, and lower wealth status were associated with greater likelihood of having had sex in the past year while drinking.

**Orphans and vulnerable youth:** Orphans and vulnerable youth (those who experienced an adult death in the household in the past 12 months) age 15-17 were slightly more likely to have sex by age 15 than other youth. Female orphans and vulnerable youth age 15-17 were 1.5 times more likely and male OVCs were 1.1 times more likely to initiate sex before age 15 than non-orphaned youth.

### ***Major issues***

1. There has been consistent increase in primary abstinence among youth in Uganda, yet substantial proportions of youth continue to start sexual activity at very young ages and engage in premarital sex. For teenage male youth, there has been some decline in primary abstinence in recent years.
2. The practice of secondary abstinence among youth remains low, and its level has not increased much in recent years.
3. Most youth, especially male youth, have multiple sexual partners, and substantial proportions have sex with non-marital, non-cohabiting partners. There is evidence of increasing higher-risk sex among male youth.
4. Condom use among youth remains low, both at first sex and in the context of higher-risk sex. Condom use by young males during higher-risk sex has declined in recent years.
5. Unacceptable proportions of female youth are forced to have sex, and substantial proportions engage in sex with much older males. Orphans and vulnerable youth, especially female youth, are exposed to sexual activity at younger ages than non-orphaned youth.

### ***Policy recommendations***

- There is a need to strengthen IEC programmes that promote risk-reduction behaviours among youth. The ABC Plus strategy should be promoted.
- Design and implement prevention programmes targeting male youth. These programmes should be youth-friendly and emphasize expanding the use of peers to influence behaviour change.
- Design and implement programmes that address the vulnerability of young women, including programmes to empower women through education and employment opportunities. Enforce laws that protect young women from forced sex and from financial and other forms of exploitation.

- Strengthen programmes that encourage condom use at every sexual encounter, and discourage cross-generational and transactional sexual practices.
- Target orphans and vulnerable youth through IEC/BCC programmes and other programmes that offer opportunities for education, employment, and income generating activities (IGA).

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## 11 Factors Associated with HIV Infection

### *Introduction*

Planning effective HIV prevention programmes among others requires current data on risk factors for HIV infection that are based on the country-specific epidemiology of the epidemic. In a mature but changing HIV/AIDS epidemic, such as the one in Uganda, risk factors driving the epidemic may also change. A detailed analysis, using data on risk factors for HIV that were collected during the 2004-05 UHSBS, identified socio-demographic and modifiable behavioural and biological factors associated with HIV prevalence and incidence in Uganda. In this section, we present these findings, major issues that arise and the recommendations for policy guidance.

### *Major findings*

**Association between HIV and socio-demographic factors:** The socio-demographic factors associated with increased HIV risk among men and women were older age and lower education. Additional factors among men were urban residence, unemployment and not being a Moslem. Being currently married was associated with a three-fold increased risk among men and a two-fold increased risk among women while the elevated risk among formerly married respondents was five-fold among men and four-fold among women. Wealth was associated with increased HIV risk due to the risky sexual behaviour of wealthy men and women, with a significant two-fold elevated risk among older women (25-59 years) in the highest wealth quintile. In addition, circumcised men were less likely to be HIV positive (4 percent) than uncircumcised men (6 percent), but the added risk of not being circumcised was not significant.

**Modifiable factors:** Modifiable behavioural factors associated with significant risk of HIV infection among men and women were: having more than one lifetime sexual partner, where the elevated risk was three-fold among men and two-fold among women; and inconsistent condom use (assessed based on no condom use at last sex), where the elevated risk among men and women was two-fold. Men who initiated sex after age 20 years had an associated two-fold elevated risk. Having more than two recent sexual partners was associated with a more than two-fold elevated risk of recent HIV infection while among married couples, extramarital sex without condom use was associated with more than three-fold elevated risk of recent HIV infection.

Sexually transmitted infections were highly prevalent; 33 percent of women and 21 percent of men who have ever had sex reported symptoms of STIs in the past 12 months; and 51 percent of women and 40 percent of adult men were infected with HSV-2. STI symptoms and HSV-2 infection were associated with a significantly elevated risk of HIV infection, with the elevated risk among men and women being more than four fold in the case of HSV-2 infection.

The regional heterogeneity of the HIV epidemic in Uganda was found to be associated with modifiable risk factors including multiple relationships, HSV-2 infection and other STIs. These factors were more prevalent in regions with high HIV prevalence. Among young children, HIV risk was associated with maternal HIV status; HIV prevalence was very high (10 percent) among children whose mothers were also HIV positive and also relatively high (4 percent) among children whose mothers had died.

## **Major issues**

1. The HIV epidemic in Uganda is driven by several modifiable behavioural and biological factors. The factors—HSV-2 infection, and multiple lifetime and recent sexual relationships—are highly prevalent and are associated with a substantial increase in the risk of HIV infection. These modifiable factors are potential opportunities for prevention of HIV transmission.
2. The wide scope of factors associated with HIV infection has implications for HIV prevention strategies necessary to contain the epidemic.
3. The association between HIV and socio-demographic factors underlies the population groups where substantial transmission may be occurring. The fact that these population groups (such as older men and women, urban residents, those who are currently married and formerly married, and women living in wealthier households) are not specifically targeted by HIV prevention programmes. This has implications for targeting HIV prevention programmes in the next phase of HIV prevention in Uganda.
4. Only 25 percent of men age 15-49 are circumcised, although there is evidence from this survey, and growing evidence from randomized clinical trials, that male circumcision can be protective against HIV transmission.

## **Policy recommendations**

- An expanded prevention approach that includes targeting HIV prevention programmes to include older groups, those who are currently or previously married, urban residents, and those living in wealthier households, are urgently needed to address the wide range of risk factors identified in this analysis.
- The expanded framework should use a comprehensive approach regarding the modifiable behavioural factors identified in this analysis. Evidence-proven interventions such as the *ABC plus* strategy should be enhanced through emphasis on: promoting lifetime mutual faithfulness in sexual relationships; reducing the number of sexual partners; promoting condom use, especially with non-spousal partners; delaying sexual debut; promoting couples' testing with mutual disclosure; promoting prevention of HIV transmission by those who are HIV-positive; and increasing HIV counselling and testing in clinical and community settings.
- Strengthening and scaling up STI treatment, especially management of HSV-2, should be an important part of the expanded HIV prevention framework. Acyclovir suppressive therapy, which is currently under clinical trials, should be implemented on a wide scale if found to be effective.
- Consideration should be given to adopting medically conducted circumcision as an HIV prevention strategy. This will require development of standards, policies, and technical guidelines, as well as a framework for scaling up the intervention.
- To address gender disparities and the disproportionate HIV burden borne by women (and those who are formerly married), specific interventions to reshape social norms should be undertaken. In the expanded HIV prevention framework, these interventions should focus on the power differentials between men and women in sexual intercourse and reproductive preferences, the social expectations associated with sexual intercourse, access to economic resources, education, and sexual violence.

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## 12 Orphans and Vulnerable Children

### ***Introduction***

Data on Uganda's national burden of orphans and vulnerable children (OVCs) are essential for the design of programmes for their care and support. These data are also useful for the design of early HIV/AIDS prevention programmes for OVCs as they may be at increased risk of HIV infection. In this section, we present data on OVCs obtained from analysis of household information from the UHSBS. The analysis also presents data on care and support of orphaned and vulnerable children. Finally, we also present policy recommendations for the design of comprehensive programmes for OVCs.

### ***Major findings***

UHSBS data indicate that 14 percent of children under age 18 have lost one or both biological parents and are therefore orphans. The level of orphanhood has not changed much in recent years. Twelve percent of children under 18 have lost their biological fathers, 6 percent have lost their mothers, and 3 percent have lost both parents and are double orphans.

Orphaned children are more disadvantaged than other children in accessing social services, such as education. Among children age 10-14 years, the ratio of school attendance among orphaned to non-orphaned children is 0.9. Among children whose parents are both alive and who are living with one or both parents, 94 percent are in school, compared with 89 percent of double orphans.

Data show that care and support services for OVCs are not widespread in Uganda. Fewer than one in four OVCs (23 percent) receive any kind of free, external support. Only 14 percent of OVCs receive assistance with schooling, while only 11 percent receive medical assistance. Only 5 percent receive social or emotional support, 3 percent receive material support, and less than 1 percent receive practical support. Paradoxically, social support services are more prevalent in rural areas than in urban areas.

Data also indicate that young women classified as OVCs are 1.5 times more likely to have had sexual intercourse by age 15 than non-OVC young women.

### ***Major issues***

1. A large majority of orphans and vulnerable children in Uganda do not receive care and support services.
2. Orphans and vulnerable children are more likely to engage in early sex, which could increase their risk of HIV infection.

### ***Policy recommendations***

- There is a need to increase coverage of care and support services for orphans and vulnerable children. This could best be implemented through the support of NGOs and CBOs.
- Targeted youth-friendly IEC/BCC programs should be implemented for OVCs to prevent risky behaviour that may result in their becoming infected with HIV.



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## 13 Programme Coverage

### *Introduction*

The Uganda health sector response to the HIV/AIDS epidemic consists of a comprehensive strategy for HIV/AIDS prevention and control. Components of the response include IEC for BCC, HCT, PMTCT, ART, treatment of opportunistic infections, general care and support services. However, these services can only have meaningful impact if their coverage is wide. To shed light on programme coverage, the survey collected information on care of chronically ill persons as well as HIV counselling and testing among the general public and during pregnancy.

### *Major findings*

**Coverage of prevention services:** Coverage of HIV prevention services was found to be low. Only 13 percent of women and 11 percent of men age 15-49 reported that they had ever been tested for HIV and received their results. In the 12 months preceding the survey, 4 percent of women and men were tested for HIV. There is, however, an increasing trend in HCT among women. For instance, between 2001 and 2005, the proportion of women age 15-49 who had ever been tested for HIV (regardless of whether they received results) increased from 8 percent to 15 percent, while the proportion of men who had ever been tested remained unchanged at about 12 percent.

**Reasons for not getting tested for HIV:** The major reasons cited by respondents for not having been tested for HIV included lack of perceived need for getting tested, low perceived risk of having HIV, not knowing where to go, not wanting to know the test results, and high cost of HIV testing. About one-third of women and almost one-half of men said that they had never been tested for HIV because they do not need to get tested or because they have a low risk of HIV. About 20 percent of women and men said they did not know where to go; and 18 percent of women and 13 percent of men said the cost was too high. Sixteen percent of women and 9 percent of men said that they did not want to know their test results.

**HIV counselling during pregnancy:** Counselling on HIV during pregnancy was found to be low. Twenty-eight percent of women age 15-49 who gave birth in the two years preceding the survey said they were counselled on HIV during ANC. Only about 6 percent of those counselled were offered and received an HIV test, but 1 in 7 women who were tested did not receive their test result. Only 2 percent of women who gave birth in the past two years were counselled, offered an HIV test, received the test, and found out their test results. Prevalence of these services varied by region and residence. Urban residents and respondents in Kampala were much more likely to receive counselling than respondents from rural and other regions. Seventy-six percent of respondents in Kampala received counselling compared with only 19 percent in the Northeast region.

**HIV counselling among youth:** Fourteen percent of young women and 11 percent of young men who have had sex in the previous 12 months had been tested for HIV in the previous year and received their test result. Youth age 20-24 were more likely to have been tested for HIV than

those age 15-19. For example, 15 percent of women and 13 percent of men age 20-24 had been tested compared to 3 percent of women and 7 percent of men age 15-19.

**Support for chronically ill people:** Support for chronically ill adults is very low in Uganda. Only 20 percent of chronically ill adults live in households that receive medical support for them. Types of support include social and emotional support (19 percent), material support (6 percent), and practical support (4 percent). Less than 1 percent receive all four types of support.

### ***Major issues***

1. The vast majority of Ugandans have never been tested for HIV and do not know their HIV status, and yet awareness of HIV status can motivate individuals to further protect themselves against infection or protect their partners from acquiring the disease.
2. Only a minority of HIV-positive adults were aware of their HIV infection status.
3. HIV counselling and testing during pregnancy is very low, and yet all women should be counselled about HIV during pregnancy and offered a test.
4. Without HCT, there will be missed opportunities for averting sexual transmission, PMTCT, ART, and positive living by persons living with HIV/AIDS.
5. Support for chronically ill adults is very low in Uganda. Although the majority of the chronically ill persons referred to are not AIDS-related, this level of support could be a proxy measure of the level of care available for terminally ill AIDS patients.

### ***Policy recommendations***

HCT/VCT and PMTCT have proven to be effective interventions. To optimize their impact, the following should be done:

- Expand and scale up HCT/VCT services so that more Ugandans can find out their HIV sero-status.
- Strengthen HIV counselling during pregnancy.
- Expand and scale up PMTCT services to maximize prevention of vertical transmission of HIV infection.
- Improve service coverage to support chronically ill adults.



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## **14 Conclusion**

This report summarizes the policy recommendations developed from the findings of the 2004-2005 UHSBS and further analyses of the UHSBS data. The recommendations provide useful information for HIV/AIDS policy formulation, programme planning, implementation, and monitoring and evaluation. The information on HIV/AIDS policy recommendations is timely because Uganda is facing major challenges in the fight against HIV/AIDS. Foremost among these are the levelling off of HIV prevalence rates and inadequate funding of HIV/AIDS information, education and communication (IEC) programmes.

Uganda needs substantial additional funding to expand and scale up services for HIV counselling and testing, PMTCT, ART, and care and support for OVCs. This report is a major resource for HIV/AIDS stakeholders, programme planners, and policymakers. The results presented and the policy recommendations put forward should be considered in the design of future HIV/AIDS programme activities.