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HIV Epidemic, Policy and Response Synthesis



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Internet: www.worldbank.org; Telephone: 202 473 1000

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REPUBLIC OF BURUNDI

**SECRETARIAT EXECUTIF PERMANENT
DU CONSEIL NATIONAL DE LUTTE CONTRE LE SIDA
(SEP-CNLS)**

**HIV AND AIDS IN BURUNDI:
AN EPIDEMIOLOGICAL SYNTHESIS**

Lawrence Gelmon MD MPH¹

Jeremy Baziragusenyuka¹

Nicole Fraser-Hurt PhD²

Marelize Gorgens²

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¹ Consultant (World Bank-funded)

² The World Bank Global HIV/AIDS Program



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ACRONYMS and ABBREVIATIONS

AIDS	Acquired immunodeficiency syndrome
ANSS	Association Nationale de Soutien aux Séropositifs et Malades du SIDA
ARV	Anti-retroviral drug
ART	Anti-retroviral therapy
BSS	Behavioural surveillance survey
CBO	Community based organisation
CNLS	Conseil National de Lutte Contre le SIDA
DHS	Demographic and health survey
FHI	Family Health International
FSW	Female sex workers
GDI	Gender development index
GDP	Gross Domestic Product
HDI	Human Development Index
HIV	Human immunodeficiency Virus
HPI	Human Poverty Index
HPV	Human papilloma virus
IDP	Internally-displaced person
IEC	Information, education, communication
IDU	Injection drug user
KAP	Knowledge, attitudes and practice
MARP	Most at-risk population
MC	Male circumcision
MSM	Men who have sex with men
MSW	Male sex worker
MTCT	Mother to child transmission
NGO	Non-governmental organisation
PICT	Provider-initiated counselling and testing



PLWHA	Persons living with HIV/AIDS
PMTCT	Prevention of mother-to-child transmission
QA	Quality assurance
RPR	Rapid plasma regain test
SEP-CNLS	Secretariat Executif National Permanent – Conseil National de la Lutte Contre le SIDA
STI	Sexually transmitted infection
SW	Sex worker
SWAA	Society for Women and AIDS in Africa
VCT	Voluntary counselling and testing
UN	United Nations
UNAIDS	United Nations Joint Programme on HIV/AIDS
UNDP	United Nations Development Programme
UNESCO	United Nations Educational, Social and Cultural Organisation
UNFPA	United Nations Family Planning Association
UNGASS	United Nations General Assembly Special Session on HIV/AIDS
UNHCR	United Nations High Commission for Refugees
UNICEF	United Nations Children's Emergency Fund
USAID	United States Agency for International Development
WHO	World Health Organisation

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EXECUTIVE SUMMARY

In recent years, with the HIV epidemic in East and Southern Africa stabilising and treatment programs in place, questions have arisen as to whether those sub-populations who have traditionally been seen as at risk of HIV transmission are still the main sources of new infections. The importance of “knowing your epidemic” (KYE) and “knowing your response” (KYR) has become evident to target and improve HIV responses. The World Bank, UNAIDS and other agencies have initiated a series of HIV epidemiological, policy and response syntheses in Africa, Asia and Latin America. This report is a summary of an epidemiological analysis conducted in Burundi in early 2010.

The objectives of this study were to:

- Summarize and synthesize available data to provide a better understanding of the HIV epidemic in Burundi and its likely drivers;
- Provide the Ministries of Public Health and the National Centre for HIV/AIDS Control (SEP-CNLS) and other stakeholders with recommendations in terms of priorities in reducing HIV transmission and other aspects of HIV/AIDS programming; and
- Identify gaps in data availability, quality, or analysis and suggest ways by which data collection, analysis, and use could be strengthened

HIV epidemiological data were gathered from as many sources as were available, including the most recent HIV sentinel surveillance data, the 2009 annual report of CNLS, the National Seroprevalence Studies of 2002 and 2007, the National Behavioural Surveillance Survey of 2004, as well as a number of other studies that have been conducted in recent years. Data was also obtained from several NGOs, both local and international, that are working in various areas of the country, as well as from recent reports by several UN agencies. Documents were analysed and compared to obtain an epidemiological synthesis, and while a detailed KYR analysis was not attempted, some aspects of the response were analysed in order to understand the gaps in HIV programming, leading to recommendations as to how the HIV epidemic can be more accurately tracked and prevention responses appropriately improved.

The Burundi Epidemiological Synthesis was conducted from March to June 2010 by a team of two consultants, coordinated and supervised by the Conseil National de la Lutte contre le SIDA (CNLS) and the World Bank Burundi Office. Overall supervision of the international consultant came from the Global AIDS Monitoring and Evaluation Team (GAMET) of the World Bank. A Burundi CNLS Technical Advisory Panel reviewed the draft synthesis report, and their comments and suggestions have been incorporated into the final version.

Burundi, a small densely populated country in East Africa, and one of the poorest in the region, was affected by the primary wave of HIV infection in the 1980s, and had prevalence levels similar to neighbouring countries, with prevalence in the urban centre of Bujumbura of about 15%, and a prevalence of more than 20% in some groups of antenatal clinic clients. The country then suffered through more than a decade of civil strife in the 1990s, which saw the displacement and killing of several hundred thousand people, and normalcy and reconstruction has resumed only in the past half dozen years. One result of this has meant that accurate tracking of the epidemic was lost for about a dozen years, and epidemiological surveillance only resumed with the National Prevalence Survey of 2002.



In recent years, the prevalence levels seem to have remained constant, but detailed longitudinal data is scanty, as compared to other countries in the region. The overall HIV epidemic in Burundi seems to be relatively stable, with the 2007 national survey recording a prevalence of 3.6% in the population aged 15-49, which is essentially the same as in the previous 2002 National Prevalence survey. There has been a marked decrease in the urban and semi-urban prevalence levels, but a slight increase in the prevalence in rural areas, where most of the population lives, and where a high proportion of current HIV incidence is likely to be occurring.

Among adults below 50 years of age, the lowest prevalence levels are found in the rural 15-24 population (2.9%) and the highest in the urban 25-49 population (9.8%). There is some evidence of a shifting balance in the number of infections between men and women, with an increase in the proportion of rural males and a decrease in the proportion of urban females who are infected. The epidemic is more prevalent amongst women, especially in urban areas, but this balance seems to be shifting, with an increasing HIV prevalence in rural areas, especially in men, a decrease in semi-urban areas, especially in men and an increase in urban males with a decrease in urban females. These shifting balances are masked by the overall national prevalence, which has remained constant between 2002 and 2007.

There are significant differences between the HIV prevalence levels in different provinces, with Bujumbura having the highest prevalence in the country, and most of the northern and eastern border provinces also having a higher prevalence.

Neither the prevalence results from antenatal sentinel surveillance nor antenatal VCT sites correlate with the results of the 2007 seroprevalence study. The differences in data may be related to one or all of: an inadequate number of sentinel surveillance sites, high rates of refusal to be tested, or problems with the testing, sample handling or laboratory methods. Laboratory quality assurance (QA) may be lacking in some areas.

The overall stable HIV prevalence in the population masks continuing pockets of higher prevalence and ongoing HIV incidence. There are a number of high-risk populations where the prevalence is higher than the national average. Although the uniformed services and displaced persons are routinely included in the list of high-risk populations, the prevalence in these populations is not much different from that in the general population, which may be attributed to workplace interventions and individuals acting on their own to reduce risk. The prevalence in the displaced persons is only marginally higher than the general population, and there is a question as to whether HIV acquisition in these populations is recent or the result of events in the past during the height of the civil disorder.

Female sex workers have a prevalence level many times higher than the national average, with higher rates among young rural sex workers, perhaps because of a lack of access to condoms. There is a lack of data and more research is needed to determine prevalence levels amongst discordant couples, MSMs, drug users, truck drivers and the lakeside fishing communities. There is also evidence of high levels of STIs in some populations, which may be contributing to HIV transmission, but again, more and better quality data is needed to confirm these assumptions. The low level of male circumcision in Burundi, which may be as low as 20-25% but is certainly not more than 43% is probably a factor contributing to continuing HIV transmission.

Although there is a high level of awareness of HIV, risk factors and the need to use condoms, this has not translated into comprehensive knowledge about HIV prevention or significant changes of practice, either amongst adults or youth. Stigma about HIV



remains widespread, inhibiting people's willingness to take an HIV test. Early onset of sexual activity is common in both rural and urban areas, although there is some indication that the age of first sex may be increasing. As well, there is evidence of high levels of gender-based violence as well as sexual abuse of children. But again, a lack of qualitative and quantitative data about sexual habits – number of casual and regular partners, amount of concurrency, partners outside of marriage, use of condoms, etc. makes it difficult to come to informed conclusions about the likely current drivers of the epidemic or the most important modes of transmission.

There has been a strong response to the epidemic in the past eight years, as evidenced by the increased number of facilities offering care and treatment and PMTCT services, the increased numbers of people on ARVs, and the increased levels of knowledge. However it seems likely that the great proportion of those people in need of care, treatment, counselling and testing are still not being reached. The current National Strategic Plan is mainly based on data gathered in 2002 and 2004. But evidence from the National Prevalence and Behavioural Surveys carried out in 2007 hints that the course and focal points of the epidemic may not necessarily be what was projected or assumed in 2005, and the Strategic Plan may need to be re-examined and revised (these would include not only assumptions about locations of higher transmission, but also the role, or not, of specific most at-risk populations).

It would appear that the main vulnerability and risk factors for HIV in Burundi include population displacement, the after-effects of socio-political insecurity and limited access to HIV and AIDS services, low educational attainment of women and girls, low levels of male circumcision, and low condom use.

A multi-sectoral response to the epidemic is in progress, but many of the performance indicators that are being measured do not necessarily reflect targets that are either realistic or based on good-quality evidence. Evidence-informed decision-making is predicated on both the assumption and the necessity that the evidence being used to make decisions is reliable. The review team for this report found that data collection and reporting in Burundi is often unreliable, and a number of factors that could be causing this have been suggested. This report has identified a number of issues, specific high-risk populations and unanswered questions about the HIV/AIDS epidemic in Burundi, for which data is incomplete, unavailable, or difficult to analyse. It is hoped that some of these will be resolved in the next BSS study, planned for 2010.

Therefore, the recommendations of this epidemiological synthesis are:

- The sentinel surveillance system needs to be improved, not only through an increase in the number of sentinel surveillance sites and increased efforts at mobilising women for testing, but more importantly by improving the mechanics and monitoring of the data collection, reporting and analysis and ensuring laboratory testing quality assurance.
- The methodology and reporting of surveillance and survey data needs to be standardised so that results from different years and different data collection efforts can be more easily compared.
- Although the majority of the population is rural, specific interventions nonetheless need to be targeted at semi-urban and urban areas where the HIV prevalence is substantially higher – these could include programs such as Provider initiated counselling and testing (PICT), prevention for positives programs, programs for youth in and out of school, etc.
- KAP and HIV prevalence studies need to be launched into MARPs that have not previously been targeted, such as MSM, fishing communities, etc. and based on the results, appropriate interventions developed to meet the needs of these groups.



- KAP survey, behavioural surveillance and research instruments need to be broadened to include more detailed questions on sexual behaviour and practice based on internationally recommended standard indicators.
- Interventions aimed at behaviour change need to take the results of KAP and BSS surveys and forthrightly address issues of multiple concurrent partnerships, casual sex, adolescent sexuality, gender violence, and child sexual abuse.
- Condom IEC, promotion, availability and distribution needs to be massively increased, especially in rural areas.
- Interventions need to be implemented to address the low rate of male circumcision. Because of the relatively low prevalence and cultural issues preventing widespread uptake of adult circumcision, it may be more worthwhile to develop a program of neonatal or infant circumcision by trained personnel as a “long-term insurance” against surges of HIV epidemics in the future, in combination with programs on IEC aimed at the adult population and improving existing adult MC services at health facilities to assure quality and increase scale.
- Interventions with sex workers promoting safe sex, use of condoms, regular testing and treatment of STIs and other health issues need to be implemented. Community-based programs using peer leaders and mobilising SW communities should be initiated in urban areas, training peer leaders and trainers who can then be deployed in more widespread programs targeting SWs in semi-urban and rural locations.
- Target-setting in the Annual Strategic Plan should be both evidence-informed and realistic, reflecting not only the size of the problem but also the infrastructure and resources that are available to address the problem.
- Quality assurance mechanisms and improved monitoring and evaluation of testing and reporting systems need to be implemented at all levels of the health system as soon as possible in order to improve the quality and reliability of the data being generated and analysed.

1. BACKGROUND

Burundi is a landlocked country in East Africa on the northern and eastern shores of Lake Tanganyika, bordered by Rwanda, Democratic Republic of the Congo and Tanzania. The population was estimated to be 8.4 million in 2007, but is now thought to be closer to 8.7 million. It is also estimated that two-thirds of the population is less than 25 years of age, with half the population less than 15 years.¹

With a land area of only 27,834 square kilometres, population density is high (265 people per square km., higher than anywhere else in Africa besides Rwanda), and 87-90% are considered to be rural, mainly living off subsistence agriculture.

Figure 1 is a map of Burundi, showing the main highways, as well as the national capital (Bujumbura), the provincial capitals, and other semi-urban places (towns, larger villages):

Figure 1: Map of Burundi



Source: accessed at www.nationsonline.com

¹ The data in this and the following paragraphs are taken from UNFPA's Action Plan 2010-2014, but are the figures quoted in most every recent report reviewed.



Table 1 and **Appendix One** show data from the UNDP Human Development Report 2009, which ranks 182 countries on several development indicators. Burundi's ranking is noted alongside the rankings for its neighbours which demonstrate that Burundi ranks lower than either Tanzania or Rwanda in most categories:

Table 1: Burundi's human development index (HDI) 2007 – from the UNDP Human Development Report 2009				
HDI value	Life expectancy at birth (years)	Adult literacy rate (% ages 15 and above)	Combined gross enrolment ratio (%)	GDP per capita (PPP US\$)
1. Norway (0.971)	1. Japan (82.7)	1. Georgia (100.0)	1. Australia (114.2)	1. Liechtenstein (85,382)
151. Tanzania (0.530)	150. Tanzania (55.0)	111. Tanzania (72.3)	143. Tanzania (57.3)	157. Tanzania (1208)
167. Rwanda (-.460)	161. Burundi (50.1)	118 DR Congo (67.2)	153. Rwanda (52.2)	163. Uganda (1059)
174. Burundi (0.394)	163. Rwanda (49.7)	122. Rwanda (64.9)	160. Burundi (49.0)	168. Rwanda (866)
176. DR Congo (0.389)	168 DR Congo (47.6)	127. Burundi (59.3)	161. DR Congo (48.2)	180. Burundi (341)
182. Niger (0.340)	176. Afghanistan (43.6)	151. Mali (26.2)	177. Djibouti (25.5)	181. DR Congo (298)

Human Poverty Index (HPI-1)	Probability of not surviving to age 40 (%)	People not using an improved water source (%)	Children underweight for age (% aged under 5)
1. Czech Republic (1.5)	1. Hong Kong, China (SAR) (1.4)	1. Barbados (0)	1. Croatia (1)
93. Tanzania (30)	129. Tanzania (28.2)	110. Burundi (29)	96. Tanzania (22)
100. Rwanda (32.9)	138. Burundi (33.7)	122. Rwanda (35)	98. Rwanda (23)
116. Burundi (36.4)	140. Rwanda (34.2)	137. Tanzania (45)	117. DR Congo (31)
120. DR Congo (38)	144. DR Congo (37.3)	144. DR Congo (54)	128. Burundi (39)
135. Afghanistan (59.8)	153. Lesotho (47.4)	150. Afghanistan (78)	138. Bangladesh (48)

Source: UNDP Human Development Report 2009

Burundi is one of the world's poorest countries, ranking near the bottom in most of the indicators of poverty and development. The HDI value is considered to be a better indicator of development than simply the GDP per capita, so that while Burundi is second-to-last in GDP, it is "only" 174/182 in the HDI ranking and in the bottom 20% of the Human Poverty Index.



(In terms of development priorities, it was pointed out during the review that despite the concern about HIV/AIDS in Burundi, a number of issues are probably even more pressing, such as the 39% of children under 5 who are underweight).

Life expectancy which was 52 years in 1990 has fallen (UNFPA rated it as 46 years in 2008, although the UNDP report above states that it is 50.1), and the reasons given for this fall are poverty, infant malnutrition, the consequences of the civil war and the decline in the quality of the health care system².

Burundi has one of the world's higher fertility rates of 6.1. Family planning is not being stressed and information is not freely available (only 11.4% of fertile women were using any form of modern contraception in 2008³), medical termination of pregnancy is illegal, and the government passed a law in 2006 providing free care to women who deliver in a health centre. This has had the effect of further promoting fertility, but also sent the percentage of women having their births attended by a health professional rising from 23% in 2005 to 56% in 2008. However, the maternal mortality rate remains high – approximately 615 deaths per 100,000 live births in 2005⁴.

Compared to other countries in the region, there is not a lot of migration in and out of Burundi. Burundi ranks 88th in emigration, with an emigration rate of 5.4%, ninety per cent of whom go to other countries in Africa⁵. Immigrants number only 81,000 (about 1.1% of the population). And in terms of remittances, the amount returned to Burundi from nationals abroad is negligible.

Burundi's exports are all agricultural products (coffee, tea, cotton, sugar), and more than 90% of the labour force is engaged in agricultural work. There are few commercial agricultural farms, with almost all of the product being produced by small family-run holdings⁶. The main cash crops are tea and coffee (coffee alone accounts for more than 80% of foreign income), but both crops have suffered in recent years due to weather conditions, local plant diseases and the international markets. Little industry exists except the processing of agricultural exports. Inflation has risen in recent years.

The issue of ethnicity is politically charged, has been one of the sources of much of Burundi's problems over the past decades and it is still difficult to raise the subject, much less obtain reliable data⁷. The widely quoted figure which is found in most descriptions of Burundi and states that the country is 83% Hutu, 16% Tutsi and 1% Twa actually comes from a survey conducted by the Belgian colonial administration in 1920, which even then was doubted for its accuracy⁸.

Besides its large population, limited resources, and low manufacturing base, Burundi has suffered through several decades of unstable government. In 1993 more than 100,000 people were killed, marking the beginnings of a prolonged, violent and brutal civil war⁹ which in the end saw an estimated 300,000 deaths. Peace was only restored in 2001,

² UNFPA Action Plan 2010-2014, *ibid*.

³ UNFPA, *ibid*

⁴ UNFPA, *ibid*

⁵ UNDP Human Development Report 2009

⁶ These figures are quoted in most reference sources, including www.intracen.org, www.exxun.com, www.traveldocs.com

⁷ The official position seems to be that there are no differences in Burundi between the different regions or different communities. This makes it difficult to conduct research investigating possible behavioural differences between communities, which is of importance in investigating HIV transmission patterns.

⁸ Economist Intelligence Unit, Country Profile: Burundi, June 2008

⁹ Economist Intelligence Unit, Country Profile: Burundi, June 2008



and thousands of people who fled the country during the violence and who have returned are still housed in several dozen camps which are scattered across the country¹⁰. These years of internal unrest not only impeded development and caused major upheavals in the population, but also interrupted whatever record keeping, census-taking and monitoring of population health and demographics that had been taking place. Research into changes and trends in health and other human development indicators was similarly affected. In many ways, the country is still recovering from these years of crisis.

2. TERMS OF REFERENCE AND METHODOLOGY

In recent years, the World Bank, UNAIDS and other international bodies working in the HIV/AIDS field have supported a series of “epidemiological syntheses” in a number of African and Asian countries. The purpose of these syntheses was to “know the epidemic” better in those countries where the epidemic had matured and become either generalised, stabilised at a low level or concentrated, but well-established in certain segments of the population. It has been noted, both by modelling and by real life examples, that as the epidemic matures, the primary drivers of that epidemic may change. The high-risk populations (such as sex workers, truck drivers, etc.) who were the initial transmitters in the HIV epidemic may not be the ones who are primarily responsible for the current level of HIV transmission.

Data from surveillance reports, epidemiological studies, testing and treatment clinics and any other research papers, taken together, can provide clues about the state of the epidemic and possible “hot spots” or “high risk” populations, who need to be targeted by interventions, or who need more data gathered from them. In many cases, these “know your epidemic” analyses are accompanied by a “know your response” analysis as well, which links the epidemiological information with what is being done in the prevention response by the government and other agencies – determining whether the interventions are indeed targeted at the appropriate populations or communities, where most of the incident (new) HIV infections are occurring and the effects are being most acutely felt.

The World Bank has provided Burundi with a grant of \$15 million for their Second Multisectoral HIV/AIDS Project (2008 – 2011). The Project has four main components, covering both prevention and care, targeted at both the government as well as at the community level:

- Preventive services targeted to high risk groups
- Curative services
- Small grants to families living with HIV and to high risk populations
- Capacity-building for local authorities and key ministries to implement and manage programs.

A mid-term review of the World Bank project is scheduled to be held in 2010, as is another round of Behavioural Surveillance Surveys (BSS). A fresh analysis of the HIV situation in the country was needed to evaluate the status of the epidemic in the context of the World Bank Project and other initiatives, and to determine where best to place the emphasis during the BSS studies and the subsequent years of the project.

¹⁰ UNHCR estimates that by late 2009 some 500,000 people had been repatriated from refugee camps in Tanzania.



Therefore, the objectives of this study were to:

- Summarize and synthesize available data to provide a better understanding of the HIV epidemic in Burundi and its likely drivers;
- Provide the Ministries of Public Health and the National Centre for HIV/AIDS Control (SEP-CNLS) and other stakeholders with recommendations in terms of priorities in reducing HIV transmission and other aspects of HIV/AIDS programming; and
- Identify gaps in data availability, quality, or analysis and suggest ways by which data collection, analysis, and use could be strengthened.

It should be noted that unlike some other recent syntheses in the region, this synthesis did not include a “know your response”, i.e. an analysis of the programmes and interventions (and their cost) being offered in the country both by the government as well as civil society and the private sector. There is some data provided in **Section 9** on the response to the epidemic, but this is mainly to note numbers of condoms being distributed, number of people on care, etc. and a detailed analysis of the national response has not been attempted here.

Two consultants, one local and one international carried out the enquiry. Two visits totalling nine days were made by the international consultant to Bujumbura, where he and the local consultant worked with the staff of CNLS and the World Bank and had some two dozen meetings with a variety of key informants from the multilateral and bilateral donor community, international NGOs and foundations working in the country, government ministries, academia, clinicians, local NGOs and CBOs as well as representatives from persons living with HIV organisations. A list of people met will be found in **Appendix Two**. A large number of documents and reports were collected and reviewed, and it is mainly data from these reviews that is quoted here and annotated. If some information in the report came from interviews, it is noted but not necessarily attributed.

The data and reports that were analysed include the most recent HIV sentinel surveillance data, the annual report of CNLS, the National Seroprevalence Studies of 2002 and 2007, the National Behavioural Surveillance Survey of 2004, as well as a number of other studies that have been conducted in recent years. Data was also obtained from several NGOs, both local and international, that are working in various areas of the country, as well as recent reports from several UN agencies. A complete list of the documentation reviewed is in **Appendix Three**.

One of the most valuable documents for this study was a review conducted in 2008 and 2009 and finalised in July 2009. Supported by the Centre National de Recherche en Matiere du VIH/SIDA, two consultants reviewed most of the studies on HIV that had been conducted in the country from 1994 to 2008¹¹, and in many cases, especially where the original report was not available, their report of the study is quoted here rather than the actual study itself.

No new data was collected for this review, but in some cases further calculations were performed on the data given in the reviewed material.

It needs to be noted that in comparison to many countries in the region, there is a relative scarcity of recent publications about HIV in Burundi, other than the official

¹¹ Mpinganzima D and Manirakiza E; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)



government and UN documents noted above. Whereas there were a number of scholarly articles about the HIV epidemic in Burundi published in peer-reviewed international journals in the late 1980s and 1990s, there has been hardly anything published in the past ten years, presumably due to the after-effects of the civil war and the subsequent years of reconstruction, where research was of lesser priority than restoring the infrastructure. However, this does mean that there were fewer documents available on which to base the research and triangulations that are needed for a detailed epidemiological synthesis.

The national HIV sentinel surveillance data and the periodic National Prevalence Studies are the main sources of information: the most recent National Studies, carried out in 2007 but not reported until late 2008, will be quoted heavily. Most of the documents reviewed were of high quality and provided sufficient information on which to base conclusions. Points where some data is lacking are noted in the text. The main problem with many of these reports are that detailed descriptions of sampling methodology, numbers of refusals (the number of people who answered questionnaires but refused to give a blood sample, or the number who even refused the questionnaire), numbers of indeterminate samples and most importantly, confidence intervals for the data, are usually not quoted. Closer examination, when it is possible, shows that in many cases, percentages are based on a relatively small number of samples, and so it is risky to make generalisations on percentages that might have been quite different had only a few extra samples been included in the calculations.

3. THE COURSE OF THE EPIDEMIC – SUMMARISED

The HIV epidemic in Burundi could be summarised by the following few highlights:

- A period of explosive transmission of HIV in the 1980's leading to a high prevalence by the early 1990's, especially in urban pregnant women, where the prevalence levels were greater than 20% in some strata¹².
- A ten-year gap in surveillance data (caused by the civil war), and since surveillance resumed in the early 2000's, evidence of a greatly reduced HIV prevalence from what was observed in the early 1990's.
- The current National Strategic Plan is mainly based on data gathered in 2002 and 2004. But evidence from extensive National Prevalence and Behavioural Surveys carried out in 2007 hints that the course and focal points of the epidemic may not necessarily be what was projected or assumed in 2005, and the Strategic Plan may need to be re-examined and revised (these would include not only assumptions about locations of higher transmission, but also the role, or not, of specific most at-risk populations, MARPs).
- The reduced overall HIV prevalence in the population masks continuing pockets of higher HIV prevalence and incidence, especially in higher-risk groups (such as female sex workers), some of whom have no accurate data to base any assumptions upon (e.g. MSMs, truck-drivers). There appears to be a stable or even increasing prevalence in the rural areas, where most of the population lives, and this is where a high proportion of current HIV incidence is likely to be occurring.

¹² Data on the 1989 National Seroprevalence studies largely taken from Mpinganzima D and Manirakiza E, *ibid.*



- A multi-sectoral response to the epidemic is in progress, but many of the performance indicators that are being measured do not necessarily reflect targets that are either realistic or based on epidemiological evidence.
- Perhaps most importantly for effective strategic planning, there is a little data on what are considered to be the primary drivers of a generalised heterosexual epidemic – not only data on specific most-at-risk populations, but also detailed information on sexual behaviour patterns amongst the general youth and adult populations, including number of partners, amount of concurrent partnerships, numbers of discordant couples, use (or not) of condoms or other safe sex measures, and other co-factors (such as prevalence of STIs and lack of male circumcision) that contribute to increased HIV transmission.

The following report is therefore an examination of the assumptions upon which the National Strategic Plan is based, comparing the 2007 and more recent data to these assumptions, elaborating what is known and not known about these various factors, and offering some suggestions to explain the findings and their significance to the overall epidemic.

4. A HISTORY OF HIV/AIDS IN BURUNDI

4.1 The History 1983 – 2006

The first case of AIDS was detected in Burundi in 1983, but it was not until 1988 that the government established a National Program to combat HIV/AIDS.

HIV prevalence in three antenatal clinics in Bujumbura in 1986 was found to be 10.5, 28.0 and 11.9% and not much different five years later¹³. The **first national seroprevalence survey** was conducted in 1989/90¹⁴ and detected a seroprevalence of 1% in the rural areas, but a significantly higher prevalence in both the semi-urban (14.7%) and urban (15.2%) centres in the 15-44 age group. Amongst the urban women sampled, the study detected a seroprevalence of 20% in women aged 20-44 and 25% in women aged 25-34. This high level in women of child-bearing age also translated into a seroprevalence of greater than 3% among urban children less than 4 years old. Amongst the urban men, the seroprevalence levels were also high: 15% in the 25-34 year age group, 12% in those aged 35-44, and 13% in those over 45, implying high rates of sexual transmission in all age groups.

Because of the social and political crisis and civil war in the country, there were only scattered data gathered during the 1990's, but they demonstrated a continued high prevalence, at least in the urban areas. Prevalence levels in pregnant women in Bujumbura remained between 20% and 30% during the 1990's, and HIV prevalence in pregnant women in Gitega was reported at 15% in 1997¹⁵.

The **second national seroprevalence survey** was not carried out until 2002. This study, conducted among 5,569 persons aged 12 years and older, stated that the national prevalence was **3.2%**. However, as can be seen from **Table 2** and **Table 3**, this 3.2% figure did not describe the variance in the seroprevalence levels disaggregated by age, sex or place of residence, with urban and semi-urban prevalence of 9.4% and 10.5% being brought lower by the 2.5% prevalence in the rural areas¹⁶:

¹³ Sokal D et al; Geographic and temporal stability of HIV seroprevalence among pregnant women in Bujumbura; AIDS 1993;

¹⁴ Data on the 1989 National Seroprevalence study largely taken from Mpinganzima D and Manirakiza E, *ibid*.

¹⁵ International Program Centre, Population Division, US Census Bureau, HIV/AIDS Surveillance Data Base, June 2000

¹⁶ CNLS/CEFOMI; Behavioural and Surveillance Study – General Population (2002)



Table 2: HIV prevalence levels by age and sex in Burundi (2002)

Age	Male	Female
15-24	1.8%	5.0%
25-34	5.5%	13.0%
35-44	5.9%	10.5%
45-54	4.8%	7.8%
55 and older	3.5%	4.1%
TOTAL (12 years +)	2.6%	3.8%

Table 3: HIV prevalence levels by residence and age in Burundi (2002)

Age	Urban	Semi-urban	Rural
12-14	1.5%	4.2%	0.0%
15-24	4.0%	6.6%	2.2%
25-34	12.6%	15.9%	3.3%
35-44	16.1%	13.8%	4.0%
35-54	12.5%	14.1%	2.4%
55 and older	11.9%	6.7%	2.2%
TOTAL	9.4%	10.5%	2.5%

Source for Tables 2 and 3: Behavioural and Surveillance Study – General Population (2002)

Table 2 and **Table 3** show that the 2002 urban and semi-urban HIV prevalence levels, while lower than the 1989 prevalence, are also being brought down by the 12-24 year age group. The prevalence for men and women are lower than the 1989 prevalence levels. On the other hand, **the rural seroprevalence of 2.5% was two and a half times the level found in 1989**, implying a great increase in the total number of seropositive people in the country, given the preponderance of rural dwellers. It was estimated that there were 250,000 people living with HIV in Burundi in 2003 (range 170-370,000) with 220,000 being adults aged 15-49, of whom 130,000 were women. It was also estimated that there were 200,000 AIDS orphans aged less than 17 years living in the country¹⁷

A large **Behavioural Surveillance Survey (BSS)** without HIV testing was conducted in 2004, and among its many findings were the following regarding the sexual knowledge and behaviour of youth¹⁸:

Table 4: Selected knowledge and behaviour data on youth aged 15-24 in Burundi (2004)

	Females	Males
% of youth aged 15-24 who had their first sexual relations before age 15	42.9%	52.4%
Mean age for first sexual intercourse	16	15
% of youth using condoms with an occasional partner	42.1%	47.6%
% of youth correctly identifying three prevention methods against HIV	2.2%	2.3%

Source: Behavioural Surveillance Survey 2004

One might question these results: given the high level of awareness about HIV that has been achieved over the past twenty years in most populations as a result of public education campaigns. It might be expected that people will respond to some behavioural questions

¹⁷ UNAIDS/WHO/UNICEF Epidemiological Fact Sheets, 2004 Update; accessed on April 22/2010 at www.unaids.org/eng/Country/Responses/Countries/burundi.asp

¹⁸ CNLS Behavioural Surveillance Survey 2004, quoted from the National Strategic Plan on HIV/AIDS Control 2007-2011



with answers that they expect the interviewer want to hear, for example, minimising their number of casual partners or exaggerating their use of condoms (in the same way that smokers and drinkers report less than their actual consumption when asked by their doctors), and there have been some recent studies in the region demonstrating this phenomenon to be widespread¹⁹. So the true age of first sex may well be lower than what respondents reported, while the rate of condom usage might be an overestimate. On the other hand, one can put some credence in the very low level of HIV prevention knowledge among youth, as there were indeed right and wrong answers to that question.

The First National Strategic Plan against HIV/AIDS was implemented 2002-2006, and funded by World Bank, Global Fund and other UN agencies. The plan was ambitious and broad, targeted the general population rather than specific high-risk groups, and depended on some interventions that may not have been the most effective (such as condom promotion in the low risk groups and treatment of STIs). A number of activities were successfully carried out, despite only 30% of the loan being utilised - a great increase in the number of VCT sites, number of women benefiting from PMTCT, numbers of people on ARVs, and numbers of people reporting to use condoms, as well as a modest increase in HIV/AIDS knowledge amongst youth²⁰.

The Second National Strategic Plan 2007-2011 was developed in 2006, based largely on the results of the 2002 and 2004 Prevalence and BSS studies, and was based not only on those results, but also on some assumptions (not necessarily backed up by evidence)²¹, including:

- That Burundi is one of the few countries in the region in which HIV incidence rates are still increasing, probably due to the long conflict.
- That the freedom of movement and population redistribution after the cessation of hostilities substantially increased HIV transmission. There is higher HIV prevalence in border provinces where access to treatment is not yet widespread.
- That the introduction of PMTCT services in 2003 increased HIV prevalence at sentinel surveillance sites because of an increased numbers of HIV positive women being on ARV treatment and living longer.
- That the main factors contributing to vulnerability to HIV in Burundi include low levels of male circumcision, low condom use, displaced and returning populations, low educational attainment of women and girls, socio-political insecurity, conflict and limited access to HIV/AIDS services.

Partly to answer some of these and other questions, the government commissioned CEFORMI to conduct the Third National Seroprevalence Survey in 2007.

4.2 The Third National Seroprevalence Survey 2007

The **Third National Prevalence Survey**, conducted by CEFORMI in 2007²² and reported on in late 2008, sampled approximately 18,000 individuals from all provinces, ranging in age from 18 months to over 50 years. The sample was randomized and was also proportioned to fit the national population, so 87% of the sample was rural, 6% was semi-urban and 7% urban, and almost half were under 14 years of age. The study determined that the overall national prevalence of HIV was **3.0%** (reported as 2.97%), which is very similar to the 3.2%

¹⁹ Repeat survey data in Zambia on age of sexual inception suggested a strong reporting bias with people progressively reporting later sexual inception as they grew older (cited in World Bank, Zambia Epidemiological Synthesis, 2009), and researchers in Zimbabwe studying condom use found substantial levels of discrepant reporting of recent vaginal sex, reported condom use, and a biomarker (Minnis AM et al; Biomarker validation of reports of recent sexual activity: Results of a randomized controlled study in Zimbabwe; American Journal of Epidemiology, 170:918–924, 2009),

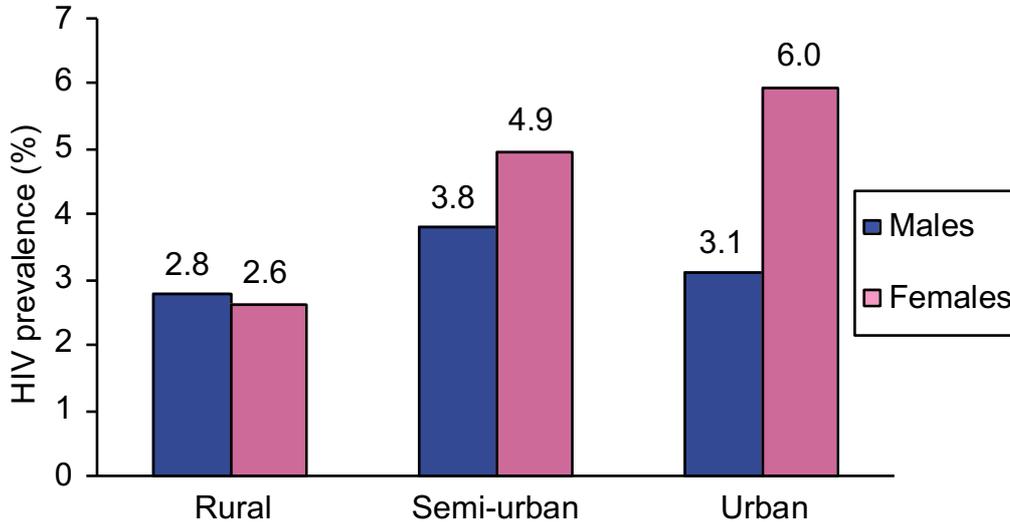
²⁰ Source – World Bank documents 2008

²¹ Source – World Bank documents 2008

²² CNLS/CEFORMI; Behavioural and Surveillance Study – General Population (October 2008)

reported in 2002 (in a somewhat different age group). However, this figure does not describe the variations in prevalence among different groups of the population, as can be seen in **Figure 2** and **Table 5**:

Figure 2: HIV prevalence - general population aged 18 months & over in Burundi (2007)



Source: CEFORMI 2008

Table 5: HIV prevalence - general population aged 18 months & over in Burundi (2007)

	Urban	Semi-urban	Rural	Total
Males	3.1%	3.8%	2.8%	2.8%
Females	6.0%	4.9%	2.6%	2.9%
Total	4.6%	4.4%	2.8%	3.0%

Source: CEFORMI 2008

It can be readily seen that the national seroprevalence of 3.0% is weighted towards the 87% of the sample that was rural, and the higher HIV prevalence levels in the urban and semi-urban settings are masked in the national average because of the predominantly rural population. While there are minor differences between the prevalence levels in rural, semi-urban and urban males, the prevalence level amongst urban and semi-urban females is twice that seen in rural females.

In attempting to see temporal trends, one would want to compare the prevalence levels seen in 2007 with the 2002 figures. Putting the two together, as in **Table 6**, it can be seen that in the urban and semi-urban locations there was a 50% decrease in the 2007 seroprevalence as compared to the prevalence in 2002. In contrast, there was a slight increase in HIV prevalence in the rural areas between 2002 and 2007.

Table 6: Comparison of HIV prevalence in Burundi (2002, 2007)

	Urban	Semi-urban	Rural	Total
2002	9.4%	10.5%	2.5%	3.2%
2007	4.6%	4.4%	2.8%	3.0%

Source: Behavioural and Surveillance Study – General Population (2002) and CEFORMI 2008

When one compares the female/male prevalence ratios between 2002 and 2007, as seen in **Table 7**, the ratio remains similar in rural areas (1.8 versus 1.2), decreases markedly in urban areas (6.3 to 1.2) and increases markedly in semi-urban areas (3.1 to 9.1).

Table 7: Comparison of female-to-male HIV prevalence ratio in Burundi (2002, 2007)

	2002	2007
Rural	1.8	1.2
Semi-urban	3.1	9.1
Urban	6.3	1.2

Source: Behavioural and Surveillance Study – General Population (2002) and CEFORMI 2008

This might imply not only changing infection levels, but also changes in the infection levels between males and females:

- increasing HIV prevalence in rural areas, especially in males
- a large decrease in semi-urban HIV prevalence, especially in males
- a large decrease in urban HIV prevalence, especially in females.

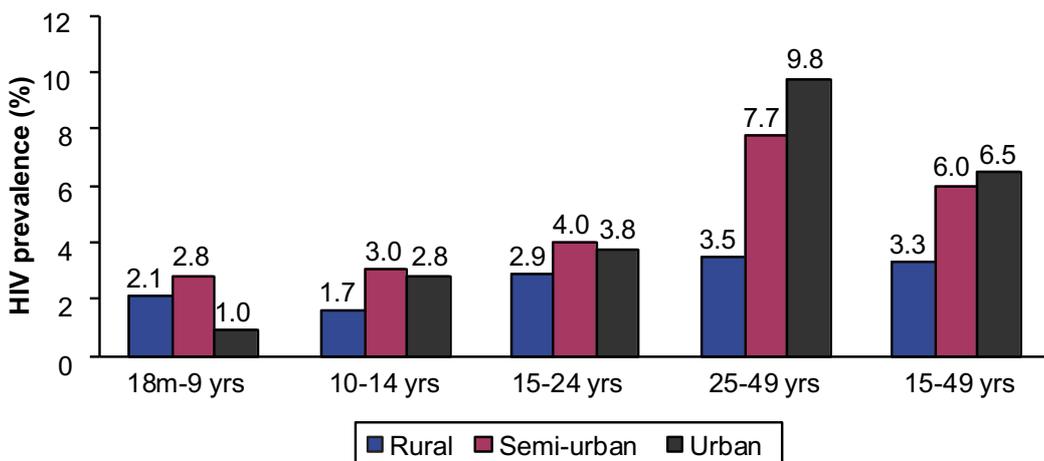
Overall, the survey data from 2002 and 2007 suggest that there might have been a slight decrease in the estimated national HIV prevalence in this time period..

However, the amount of comparison that can be made between 2002 and 2007 is limited, because **the 2002 seroprevalence figures are based on the population aged 12 years and over, and the 2007 seroprevalence figures are based on a population aged 18 months and over.** Realising that the age ranges are different between the two studies means that the ratios seen in Table 7 may be valid, but the comparisons seen in Table 6 are less reliable.

A better comparison between the 2002 and 2007 figures is the HIV prevalence in the 15-49 population, which are at the same level of 3.6%. So what we can safely say is that the national prevalence between 2002 and 2007 remained essentially unchanged in the 15-49 group.

Just as **Table 2** and **Table 3** showed the differences in seroprevalence by age in 2002, Figure 3 below demonstrates the differences disaggregated both by age and by place of residence:

Figure 3: HIV prevalence by age group and residence in Burundi (2007)



Source: CEFORMI 2008

Bujumbura is the only centre in the country that is considered to be “urban”, and there are about another dozen that are classified as “semi-urban” (see **Figure 1**), so the majority of the population – the rural population - is living in a zone of relatively low seroprevalence and

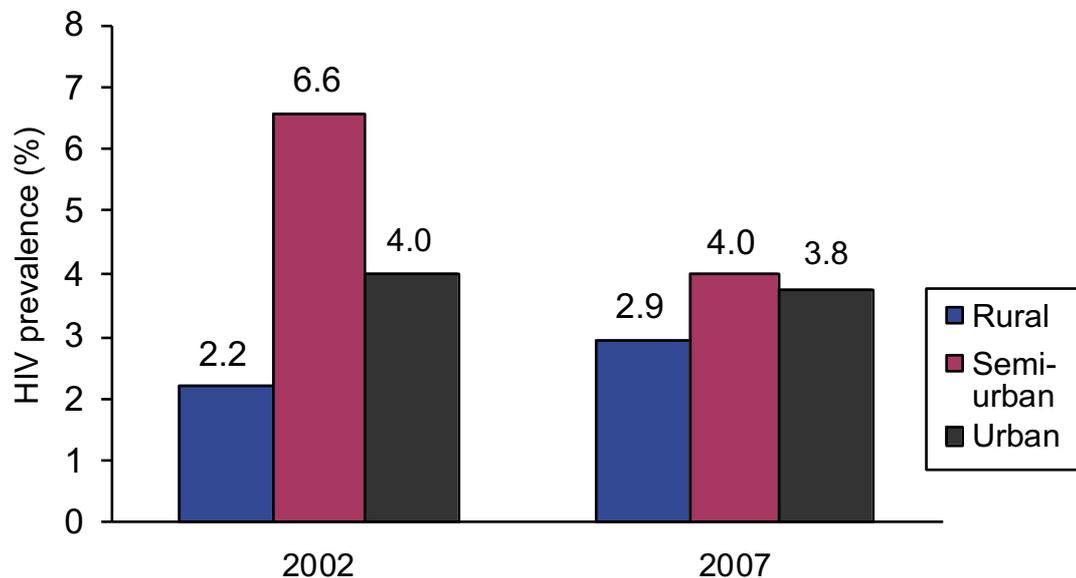
forms the bulk of the contribution to the reported national seroprevalence of 3.0%. However, the urban HIV prevalence of 9.8% and the semi-urban HIV prevalence of 7.7% in the 25-49 age range should be a source of concern.

It might be assumed that most of the HIV infections in children under 9 years of age are the result of mother-to-child transmission (MTCT), and this is probably correct. But there are several possible explanations for the HIV infections in children aged 10-14 years. Four possibilities which suggest themselves are: 1) that these children are long-term non-progressors who were infected as a result of mother-to-child transmission²³, 2) that HIV was contracted before the age of 14 through early initiation of sexual activity, 3) that HIV was also contracted sexually, but as a result of rape or sexual abuse, or 4) that HIV was contracted through contaminated needles, unsafe blood transfusions, or traditional practices. All of these may be contributory. There is some evidence both of high rates of child sexual abuse, including abuse of very young girls (and boys) as well as early initiation of sexual activity (40% of adolescents report sexual activity by the age of 15), so while MTCT may be the main contributor to the prevalence levels in those under 15 years of age, it most probably does not account for all pediatric infections.

Young people aged 15-24, especially females, are regarded as being highly vulnerable to HIV, but it can be seen from **Figure 3** that not only are the HIV prevalence levels for this group fairly close to the national average, but that it is the older age group, over the age of 25, that has the higher seroprevalence

As seen in **Figure 4**, it is noteworthy that the seroprevalence in the 15-24 age group has fallen by over 2 percentage points in the semi-urban residents since the 2002 survey, while the urban prevalence is at a similar level and the rural prevalence has risen slightly. It would be tempting to ascribe this to the success of prevention programs directed to youth, but this may or may not be the case.

Figure 4: HIV prevalence in youth aged 15-24 years in Burundi (2002, 2007)



Source: CEFORMI 2008

²³ Based on South African and Zimbabwean data, Ferrand *et al.* (2009) estimated that 36% of HIV-infected infants are long-term non-progressors with a median survival of 16 years (Ferrand RA *et al.* (2009). AIDS among older children and adolescents in Southern Africa: projecting the time course and magnitude of the epidemic. AIDS, 23(15):2039-2046).



The HIV prevalence data from the 2007 National Prevalence Survey seems to be the most reliable to date. The 2008 UNGASS Report estimated the prevalence in Burundi for adults aged 15-49 years to be approximately 2% (range 1.3% - 2.5%)²⁴ but it is difficult to understand how that figure was derived, given the results of the 2002 and 2007 national studies. That UNGASS report also stated that there were 110,000 people living with HIV (PLHIV) in the country (range 78,000 – 130,000) and that there were 120,000 AIDS orphans aged 0-17²⁵, leaving one with the conclusion that either the 2003 or the 2008 UNGASS data were not accurate, it being difficult to explain why there were fewer than half the number of PLHIV in the country in 2008 as compared to 2003.

The recently completed 2010 UNGASS Report²⁶ has recognised this incongruity, and now estimates there to be approximately 230,000 PLHIV in the country, a figure more in line with the 250,000 estimation in 2003.

It could be that the UNGASS prevalence estimates of 2008 were based on antenatal sentinel surveillance data. The Ministry of Health's 2008 National Surveillance Report (not released until December 2009), which reports on the antenatal sentinel surveillance sites as well as the results from voluntary testing and counseling centres reported the antenatal seroprevalence to be 2.7% and the seroprevalence from VCT to be 4.1%²⁷, but there are questions about the reliability of this data, as will be discussed further in the next section.

To summarise:

- The 2007 National Seroprevalence Study calculated a prevalence of 3.0% in the population aged 18 months and over. The prevalence of 3.6% in the population aged 15-49 is essentially the same as in the previous 2002 National Prevalence survey.
- There has been a marked decrease in the urban and semi-urban prevalence levels, but a slight increase in the rural HIV prevalence.
- In the 15-49 age group, the lowest prevalence levels are found in the rural 15-24 population (2.9%) and the highest in the urban 25-49 population (9.8%).
- There is some evidence of a shifting balance in the level of HIV infection between men and women.

4.3 Geographical variations in the seroprevalence and correlations with the antenatal sentinel surveillance sites

The 2007 National Survey calculated the seroprevalence levels for the various provinces, which produced the map shown in **Figure 5**:

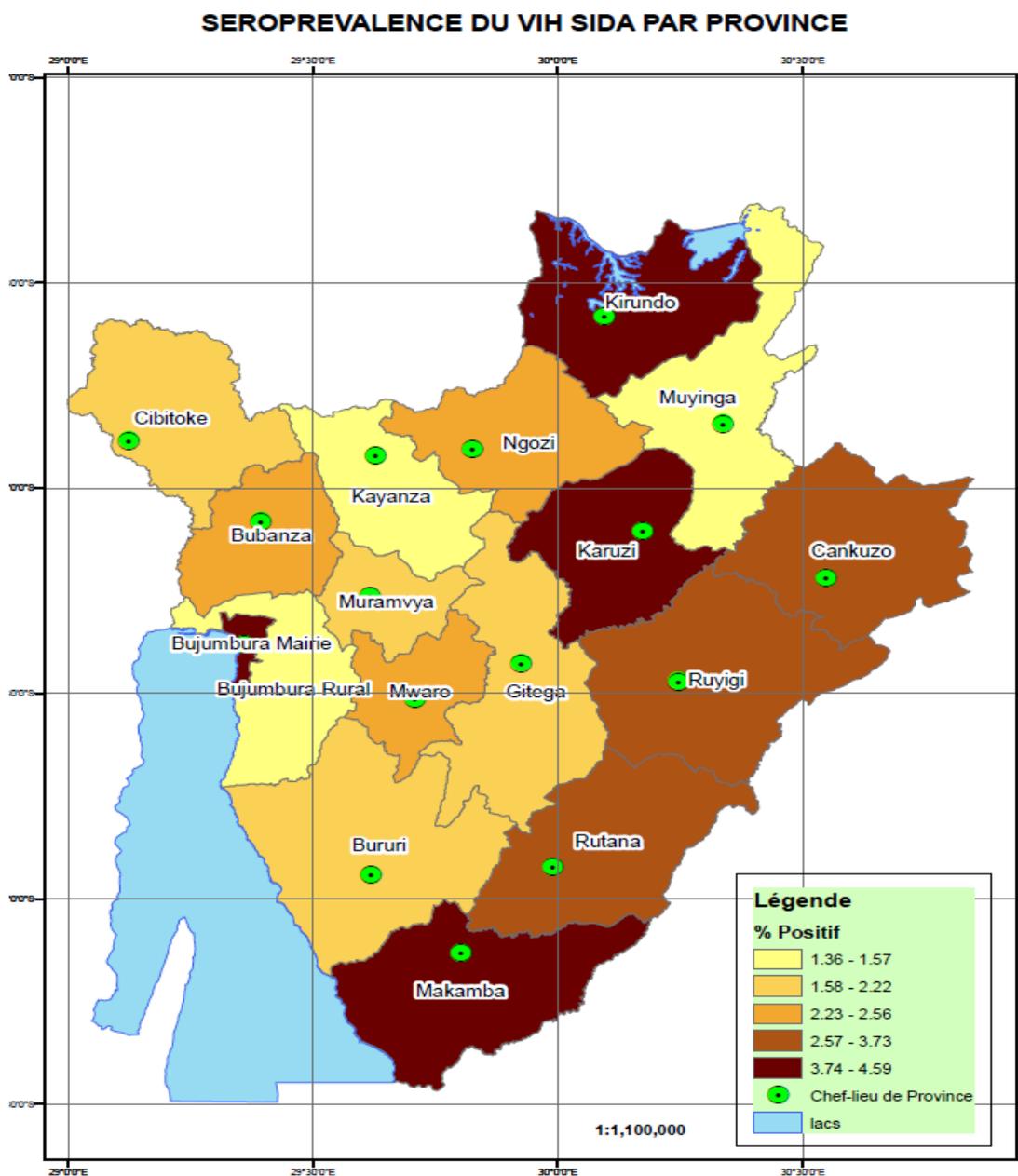
²⁴ UNAIDS/WHO/UNICEF Epidemiological Fact Sheets, 2008 Update; accessed on Feb 12/2010 at www.unaids.org/eng/Country/Responses/Countries/burundi.asp

²⁵ Compare these figures with the UNGASS data for 2003 (cited earlier), which estimated that there were 250,000 people living with HIV in Burundi (range 170-370,000) with 220,000 being adults aged 15-49 and 130,000 being women. It was also estimated that there were 200,000 AIDS orphans less than 17 living in the country

²⁶ Republique du Burundi; 2010 UNGASS Rapport - Mise en Ouvre de la Declaration D'engagement sur le VIH/SIDA; March 2010

²⁷ Ministère de la Santé Publique ; Bulletin Annuel de Surveillance Epidémiologique de VIH/SIDA/IST, 2008; (December 2009)

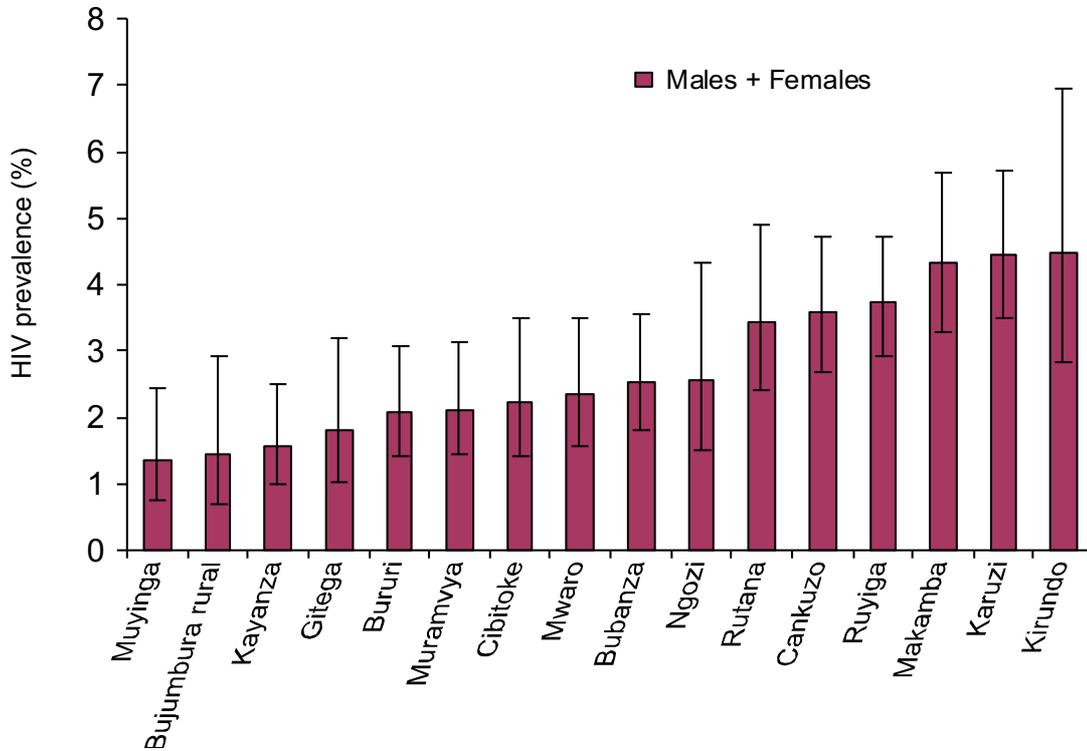
Figure 5: GEOGRAPHICAL VARIATIONS IN HIV PREVALENCE IN BURUNDI (2007)



Source: CEFORMI 2008

It should be noted that the differences in HIV prevalence between the various categories are not very large. However, taking the data on the prevalence levels in the various provinces (see **table 10**) and the number of people sampled in each province (not shown), confidence intervals for each province's prevalence can be calculated, as shown in **Figure 6**. As can be seen, there are significant differences between those provinces with the lowest and highest prevalence levels.

Figure 6: Provincial HIV prevalence levels in Burundi (2007)



Source: calculations based on CEFORMI 2008

Nevertheless, explanations for the variations in the map are not readily forthcoming. Other than urban Bujumbura (prevalence 4.6% not shown in the above figure), the three other provinces with the highest HIV prevalence levels are Kirundo, Karuzi and Makamba, and in general the higher prevalence levels are found along the Eastern and Northern borders with Tanzania and Rwanda. This might be explained by cross-border populations and commerce or perhaps by displaced person movements or socio-culturally different sub-populations. However, the province with the lowest prevalence is Muyinga (1.4%), which is in the Northeast next to Kirundo, the province with highest prevalence (4.5%). Kayanza is another border province with one of the lowest prevalences. And Bujumbura rural has the second-lowest prevalence (1.4%) but is situated next to the capital's prevalence of 4.6%.

As noted earlier, one assumption upon which the National Strategy is based is that higher prevalence levels will be found in the border provinces, partly because of reduced health services but mainly due to cross-border movements, and to some extent the border provinces do have a higher prevalence, with the exceptions noted above.

Are the HIV prevalence levels being reported in the border provinces reliable? Most of Eastern Burundi borders Kigoma province in Western Tanzania. The most recent data from Kigoma comes from the 2003-2004 Tanzania DHS, which gave it the lowest prevalence of any region in mainland Tanzania – about 3.5%. The Kagera region which borders Northeastern Burundi reported a prevalence of 4.7%²⁸. Both of these figures are not markedly different from the prevalences seen in Eastern Burundi.

The latest data from Rwanda comes from the 2008 Epidemic Update, which reports on data gathered in 2005²⁹. Data from 29 antenatal sentinel surveillance sites

²⁸ Tanzania Commission for AIDS, UNGASS Country Progress Report Tanzania Mainland, 2008

²⁹ UNAIDS/WHO/UNICEF; Rwanda Epidemiological Fact Sheet on HIV and AIDS, 2008



include eight that are in the Southern part of the country near the Burundi border³⁰. Seven of these eight sites reported a prevalence of between 1.0 - 4.99% with only one, which was next to the higher-prevalence Kirundo province of Burundi reporting a prevalence in the 5.0 - 9.9% range. Therefore, the HIV prevalence levels in neighbouring border areas to a certain extent give credence to the data in the 2007 National Prevalence Study.

HIV prevalence data from antenatal testing and sentinel surveillance

Like many countries, Burundi conducts national household-based seroprevalence studies every five to seven years, but issues annual surveillance reports based on data from antenatal testing clinics and reports from specific sentinel surveillance sites, in the hope of monitoring more closely changes in HIV seroprevalence. There are eight sentinel surveillance sites in Burundi, located at eight antenatal clinics, one in Bujumbura and seven in other provinces:

Table 8: Antenatal sentinel surveillance sites in Burundi

Urban	Bujumbura (CMC Buyenzi)
Semi-urban	Gitega, Bururi (Rumonge), Kayanza
Rural	Muramvya, Bujumbura Rural (Ijenda), Ngozi (Kiremba), Ruyigi (Butezi)

Source: *Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008*

Based on the map in **Figure 5**, it can be seen that besides Bujumbura urban, only one other sentinel site (Ruyigi) is located in a province with a higher level of HIV prevalence (according to the 2007 national survey).

Do the antenatal surveillance results from 2008 match the 2007 National Seroprevalence data seen in **Figure 5**? Results from 3133 antenatal women³¹ tested in 2008 are seen in **Table 9**:

As can be seen, other than confirming that the highest HIV prevalence estimates in the country are from urban Bujumbura, the 2008 sentinel surveillance prevalence data are equivalent to the levels found in 2007 in only three cases (Gitega, Rumonge/Bururi and perhaps Kayanza). Even if one suggests that the actual figures may not be as important as demonstrating the relative difference between the provinces, it can be seen that the seroprevalence for at least three provinces do not agree with their place in the rankings. It could (and should) be argued that antenatal prevalence rates cannot be directly compared to a random sample of the entire population aged 18 months and above, but nevertheless, one would expect there to be some sort of correlation between the provincial results and a sub-sample of pregnant women from the same population. Besides the variations between the sentinel surveillance seroprevalence and the national results, one is also concerned at the 0% prevalence reported from Muramwa, which raises a number of questions about sampling, reporting, the quality of laboratory testing, and other methodological issues.

Data from 2009 is also now available from antenatal women who accepted VCT at sites throughout the country, and these results are also shown in **Table 9**³²:

³⁰ Compare this with the fact that there are only eight sentinel surveillance sites in Burundi to cover the entire country.

³¹ Ministère de la Santé Publique; *Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008*; (December 2009)

³² This data was taken from raw Ministry of Health data. The prevalence rates were calculated based on the number of women registered at antenatal clinics or VCT centres, the number tested, and the number of positive tests.



Table 9: HIV prevalence from national population survey 2007, ANC sentinel surveillance 2008 and VCT services 2009 in Burundi

State	National Survey 2007 % seroprevalence	Antenatal sentinel surveillance 2008 %seroprevalence	Antenatal VCT 2009 %seroprevalence
Bujumbura	4.6%	6% (urban)	11.7%
Kirundo	4.5%		1.1%
Karuzi	4.4%		0.9%
Makamba	4.3%		2.2%
Butezi (Ruyigi)	3.7%	0.3% (rural)	0.5%
Cankuzo	3.6%		0.9%
Rutana	3.4%		1.3%
Kiremba (Ngozi)	2.6%	0.8% (rural)	2.1%
Bubanza	2.5%		0.7%
Mwaro.	2.3%		0.8%
Cibitoke	2.2%		0.9%
Muramvya	2.1%	0% (rural)	10%
Rumonge (Bururi)	2.1%	2.2% (semi-urban)	3.8%
Gitega	1.8%	1.7% (semi-urban)	1.8%
Kayanza	1.6%	1% (semi-urban)	1.0%
Ijenda (Bujumbura rural)	1.4%	0.9% (rural)	2.2%
Muyinga	1.4%		0.5%
TOTAL	3.0%	2.7%	1.7%

Source: CEFORMI 2008; *Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008*

Once again, there does not appear to be much of a correlation between the 2009 antenatal VCT seroprevalence data, and the general population data reported in 2007. Bujumbura again has the highest prevalence, but the 10% seroprevalence reported from Muramvya and the very low prevalence levels from Kirundo or Karuzi all seem to be anomalous.

Other hints about seroprevalence can be found in the data kept by NGOs and other organizations working in the country. Family Health International operates 64 VCT and PMTCT sites in Kayanza, Kirundo and Muyinga Provinces. Data disaggregated by province is not available but in 2009 these sites tested 63,741 people in the general population and 44,358 pregnant women – the general population seroprevalence was 3% and the prevalence in pregnant women was 1% in these three provinces, of which only Kirundo is thought to be a higher prevalence province with the other two being low prevalence provinces. These prevalence levels have essentially remained unchanged during the past three years that FHI has been keeping track of the data.³³

The Society of Women and AIDS in Africa (SWAA) operates seven VCT clinics in the country, and their 2008 data, compared to the results above, is shown in **Table 10**:

³³ Source – USLS - Santé



Table 10: HIV prevalence from four different data sources including VCT sites of the Society of Women and AIDS in Africa, in Burundi (2007-2009)

State	National Survey 2007 HIV prevalence	Antenatal sentinel surveillance 2008 HIV prevalence	Antenatal VCT 2009 HIV prevalence	SWAA VCT clinics 2008 HIV prevalence
Bujumbura	4.6%	6%	11.7%	5.3%
Butezi (Ruyigi)	3.7%	0.3%	0.5%	1.6%
Kiremba (Ngozi)	2.6%	0.8%	2.1%	9.3%
Muramvya	2.1%	0%	10%	4.2%
Gitega	1.8%	1.7%	1.8%	5.4%
Kayanza	1.6%	1%	0.96%	4.8%
Muyinga	1.4%		0.48%	3.9%

Source: CEFORMI 2008; Bulletin Annuel de Surveillance Epidemiologique ; SWAA

One would expect prevalence levels in VCT centres to be higher than those in the general population: people who come for VCT may be coming for a reason, in that they have possibly engaged in risky behaviour and are concerned about their serostatus. But that still does not explain the discordance between the SWAA results and some of the other data – the 9.3% seroprevalence in Ngozi, or the very low prevalence of 1.6% in Ruyigi.

The 2007 National survey is an example of well-executed population random sampling and its results are probably as accurate as one can hope for, given the difficulties of conducting national level population serosurveys. By contrast, **Table 11** is a summary of nine years of antenatal sentinel surveillance results.

Table 11: HIV prevalence from ANC sentinel surveillance in Burundi (2000-2008)

PROVINCE	2000	2001	2002	2003	2004	2005	2006	2007	2008
Bujumbura	13.9	16.0	16.1	13.2	12.6	18	19.3	12	6
Butezi	--	--	--	--	--	1.7	8.5	0.4	0.3
Kiremba	2.2	1.6	2.0	2	0.2	2.6	3.8	0.4	0.8
Muramvya	3.7	3.5	3.4	4.8	2.2	5.2	3.5	1.8	0
Rumonge	5.0	12.8	7.4	6.8	3.9	7.2	4.9	3.8	2.2
Gitega	11.1	8.7	5.3	3.4	6.5	5.7	20.6	4.5	1.7
Kayanza	11.6	5.6	11.1	5.4	4.8	5	14.8	4.4	1
Ijenda	3.8	1.1	0.8	2.1	0.9	1.7	1.9	0.5	0.9
Non-weighted average	7.3	7.0	6.6	5.4	4.4	5.9	9.7	3.5	1.6

Source: USLS/Santé: 1993-2008; published in Bulletin Annuel de Surveillance Epidemiologique

What these data indicate are very marked fluctuations in the seroprevalence from year to year that suggest either changes in the sampling methodology, or problems in sampling, testing, quality of samples or laboratory procedures.

Practically every surveillance site has data that raises these issues:

- Bujumbura – 50% increase from 2004 to 2005, then 40% reduction from 2006-2007 and a 50% reduction from 2007 to 2008



- Butezi – 2005 to 2006 prevalence increased by 5 times, then fell to ¼ of 2005's figure in 2007
- Kiremba – decrease of 90% from 2006 to 2007
- Muramwa – prevalence increased by 150% from 2004 to 2005, fell by 2/3 by 2007, and showed 0% seroprevalence in 2008
- Rumonge – prevalence doubled from 2004 to 2005, and then reduced by 40% by 2006
- Gitega – prevalence increased threefold from 2005 to 2006 and then fell back to 2005 levels by 2007, and then reduced by 2/3 in 2008
- Kayanza – prevalence tripled between 2005 to 2006, fell back to 2005 level in 2007 and fell by a further 75% in 2008
- Ijenda – prevalence doubled from 2004 to 2005, fell by 2/3 in 2007.

The surveillance results from the last five years do not follow any logical pattern related to what is known about the epidemiology or natural history of HIV, so one begins to suspect the quality of the data.

In any case, one would expect that if the antenatal surveillance results did indeed reflect the overall seroprevalence levels, the antenatal sentinel surveillance results should be **higher** than the national data (assuming that the bulk of transmission in the country is as a result of heterosexual sex), since the national figures are data from the entire population 18 months and older, and antenatal surveillance would be in sexually active fertile women (presumably aged app. 12 -45), who would have a higher prevalence than the national average³⁴. So the antenatal surveillance data is suspect for a number of reasons.

There is evidence for a number of possible reasons behind the disparity in the prevalence data:

- **Location and number of sentinel surveillance sites** – There are too few sentinel sites in the country, and having them located mainly in provinces that have an apparently lower prevalence means that they are not providing a representative picture of the HIV epidemic situation. There is also evidence that the location of surveillance sites in some provinces are not near the population centres, thereby rendering the provincial figures inaccurate.
- **Not enough pregnant women are being tested** – People are fearful of being tested, in case they should turn out to be positive. Government data³⁵ on women tested in PMTCT sites in all seventeen provinces in 2008 show that while 86,736 antenatal women were offered HIV testing, only 34,058 (39,2%) accepted it, and of these, 2.7% were seropositive. The same data for 2009 reports that only 21,576 out of 91,365 (23.6%) accepted antenatal HIV testing³⁶. The National Seroprevalence Survey in 2007 reported that only 17.3% of the population had ever had an HIV test³⁷. This could indeed be due to fear of being tested, or perhaps women who know they are HIV-positive may either be delaying or avoiding becoming pregnant, or are avoiding being tested at PMTCT clinics. But it may also have something to do with the staffing at antenatal clinics, and whether the personnel are doing all they can to counsel and advise their clients about the benefits of antenatal HIV testing (in terms of preventing MTCT).

³⁴ In many countries, ANC HIV prevalence has been found to be higher than the respective adult population HIV prevalence.

³⁵ Source – USLS-Santé Rapport Annuel 2009.

³⁶ By comparison, the 2007 National Seroprevalence Survey reported a very low rate of refusals – except for Baruri, where they collected only 82% of the proposed sample, all other regions collected almost 100% of the sample deemed appropriate for statistical validity

³⁷ CNLS/CEFOMI; Behavioural and Surveillance Study – General Population (October 2008)



- **There may be problems with sample collection, sample storage or the quality of laboratory testing** – a closer look at the data from the Ministry of Health, SWAA and the other agencies monitoring HIV prevalence trends reveal wide variations not only in the number of samples collected as a proportion of number of clients seen and the ensuing HIV seroprevalence results, but also very wide variations in the number of test results reported as “indeterminate” – some sites that collected hundreds of samples report only a handful of indeterminate results, while others report as many as 10% of samples as indeterminate. This needs to be investigated as the cause of an indeterminate sample (besides those that are truly indeterminate) may be related to how the sample was collected and stored, the quality of the reagents used in the test, or the skill and training of the technician reading the results.

To summarise:

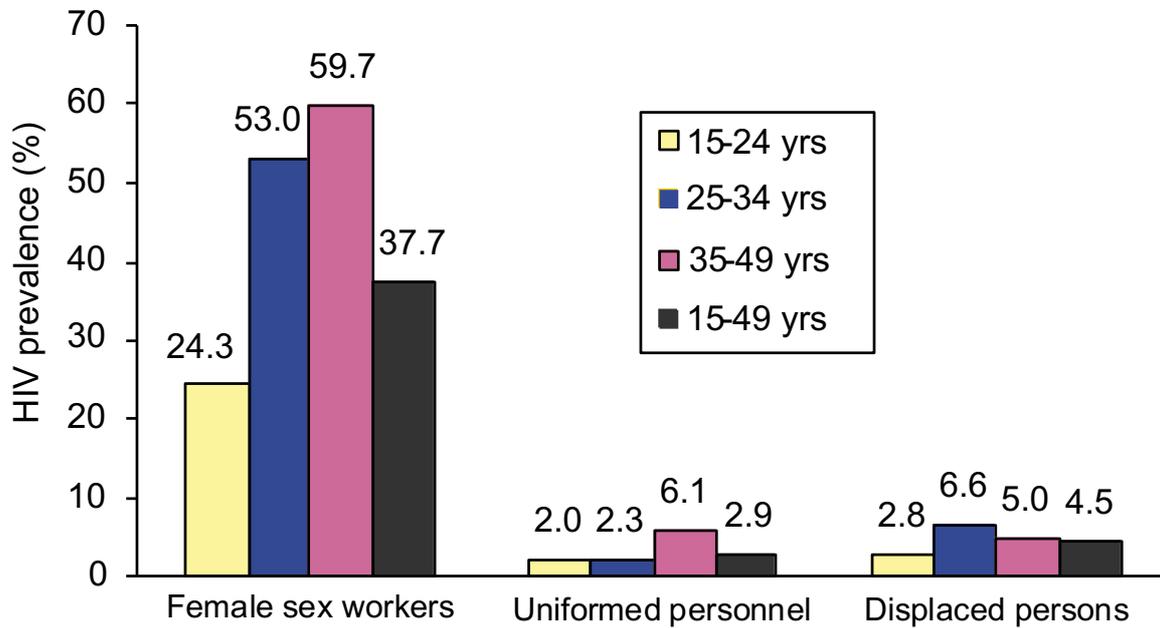
- There are significant differences between the HIV prevalence levels in different provinces, with Bujumbura urban having the highest prevalence in the country.
- Most of the northern and eastern border provinces have a higher HIV prevalence, as expected, but there are anomalies – Muyinga Province has the lowest recorded prevalence.
- Neither the prevalence from sentinel surveillance sites nor results from antenatal VCT sites correlate with the results of the 2007 seroprevalence study. This may be related to one or all of: an inadequate number of sentinel surveillance sites, rates of refusal to be tested by people who know they are HIV-positive, or problems with the testing, sample handling or laboratory methods. Large numbers of “indeterminate” samples are clues that laboratory quality assurance (QA) may be lacking in some areas.

The preceding pages have demonstrated the difficulties in coming to conclusions about the status of the epidemic in the general population. The following pages examine the data that is available on prevalence in specific populations – those currently referred to as **Most at Risk Populations (MARPs)**.

5. EPIDEMIOLOGY – MOST AT RISK POPULATIONS

While carrying out the National KAP and Seroprevalence survey in 2007, CEFORMI also carried out a number of separate studies on specific populations: female sex workers, internally displaced persons (IDPs) and uniformed personnel. These studies form the basis of most of the current knowledge about these MARPs in Burundi.

Figure 7: HIV prevalence in sex workers, uniformed personnel, and internally displaced persons in Burundi (2007)



Source: CEFORMI 2008

5.1. Uniformed services

Military and uniformed services are traditionally considered to be at higher risk and vulnerable to HIV because of various factors that define their work³⁸: they are generally young men, separated for long periods from spouses and partners or denied marriage during enlistment periods, trained not to be deterred by risk and danger (or conditioned to believe that risk-taking is the norm), susceptible to peer pressure, and periods of abstinence while on duty may be followed by “stress-relieving” breaks with sex, alcohol, etc.

The Burundi armed forces were estimated in 2007 to number about 45,500³⁹. The CEFORMI KAP and seroprevalence study in members of the military and police in 2007⁴⁰ repeated a study that they had undertaken in 2004⁴¹. The sample consisted of 769 (418 military and 351 police)⁴² of whom almost two-thirds (62.5%) were 25-34 years of age.

It can be seen from **Figure 7** that the overall HIV prevalence in police and military aged 15-49 (a population that is almost entirely male) of 2.9% is less than the national prevalence of 3.6% for the 15-49 age group. However, this figure is largely influenced by the population aged 15-34, who presumably make up the majority of the active uniformed services. The lower prevalence level in this younger group may simply be due to the fact that HIV tests are now compulsory for new recruits, and so those testing positive would not be accepted into

³⁸ GLIA, World Bank; Rapid analysis of HIV epidemiological and HIV response data about vulnerable populations in the Great Lakes Region of Africa, January 2008

³⁹ GLIA, World Bank. Ibid.

⁴⁰ CNLS/CEFORMI; Behavioural and Surveillance Study – Uniformed Services (October 2008)

⁴¹ CNLS/CEFORMI; Enquete de surveillance de comportements face au VIH/SIDA aupres des homes en tenue, 2003-2004; reported in Mpinganzima D and Manirakiza E ; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

⁴² The investigators calculated a required sample of 668 police and military, and they hoped to sample a total of 800 to take a 20% refusal rate into consideration. That they were able to sample 769 indicates that the sample size was sufficient.



the military. This, however, leads to the possible conclusion that the 2% seroprevalence amongst the younger soldiers are all recently acquired infections, implying a fair level of incidence in this younger group. The seroprevalence of 6.1% (6.7% military and 5.2% police) in the older population aged 35-49 also needs to be considered and addressed. The CEFORMI study states that there were “no significant differences in seroprevalence on the basis of marital status, rank, amount of time absent from family, religion or circumcision status”.

Several possible explanations present themselves, given Burundi’s history. Many of these infections may have been contracted ten or twenty years ago, during Burundi’s years of civil strife, lawlessness and displacement, with all the accompanying breakdowns of civil order and stability which are known to exacerbate HIV transmission patterns (it would be interesting to know how many of these HIV positive service personnel are on ARVs and for how long, but that information is not available due to ethical reasons). On the other hand, if the infections were contracted more recently, a look at the seroprevalence in sex workers may be one explanation. The older and more senior members of the armed forces, with more income, may be more frequent clients of sex workers. However, being more senior would also mean that they are more likely to have wives or steady partners who are at risk of being infected themselves.

5.2. Internally Displaced Persons

A conflict-affected population may become either internally displaced persons (IDPs) or cross an international border to become refugees. Having been displaced, these populations are surrounded by, and interact with, a host community. They also interact with armed forces, peacekeepers, aid workers and sex workers. When possible, IDPs return to their original homes or to other locations. Both when displaced populations are amongst host communities and when they return home or relocate, they are at particular risk⁴³.

A number of factors have been identified that may increase vulnerability to and the risk of acquiring HIV in displaced populations⁴⁴ which include⁴⁵:

Vulnerability factors:

- Dispossessed of land, productive resources, home
- Illegal settlement and resulting expulsion
- War destroys infrastructure (health, education, etc)
- Poor access to comprehensive health services
- Multiple threats to health other than HIV
- Economic situation of women and children
- Migration from rural areas where HIV prevalence and knowledge of HIV low
- Unaccompanied minors lack parental protection
- Psychological trauma
- Potentially, disruption of family and social structures

⁴³ Spiegel PB (2004); HIV/AIDS among conflict-affected and displaced populations: Dispelling myths and taking action. *Disasters*, 28(3):322-339

⁴⁴ “Vulnerability factors” were defined as social and contextual factors describing the individual’s condition in society (e.g. living in gender exclusive environment, low level of empowerment), whereas “Risk factors” were factors which are directly linked – or on the causal pathway – to HIV infection (e.g. concurrent partners, frequent partner change, sharing contaminated instruments, low condom use).

⁴⁵ Fraser N, Görgens-Albino M, Nkongolo J; Rapid analysis of HIV epidemiological and HIV response data about vulnerable populations in the Great Lakes Region of Africa; GLIA/World Bank, 2008



- IDPs: Lack of official status & protection framework

Risk factors:

- Minimum standards in humanitarian interventions may not include HIV prevention
- Barriers to HIV prevention: disruption of health services; testing for HIV may be difficult
- Disruption of sexual partnerships and sexual networks
- Outside habitual norms and social control, persons may adopt new behaviours
- Sexual interaction with military or paramilitary
- Transactional sex, also as “survival strategy”
- Sexual violence, multiple perpetrators
- New sexual relationships with power differentials and inequalities
- Potentially, increased use of alcohol and illicit drugs, and unsafe blood transfusion practices

As a result of the civil war and upheavals during the first decades of Burundi's independence, more than 500,000 people were displaced⁴⁶, with many fleeing to neighbouring countries. During the past years of relative stability and rebuilding, many thousands of those who fled have returned to Burundi, and have been living in “temporary” transit camps which are scattered throughout the country.

A previous study of displaced persons was carried out by CEFORMI in 2005⁴⁷ in 5 sites in Ruyigi province (125 displaced persons aged 15-49 were sampled). It showed a low level of schooling, and a high level of awareness of HIV but a low level of condom utilization, low knowledge of STI symptoms and very low level of HIV testing acceptance (actual numbers were not quoted).

It is not known how many people are currently located in camps within Burundi. As part of the 2007 National Surveillance study, CEFORMI conducted a separate study on ‘displaced persons’⁴⁸. They sampled 672 people aged 15-49 from fifteen sites located in nine provinces, trying to sample a total of 690 persons - 46 per site. The main criterion for inclusion, besides age, was to have been resident in the camp for at least three months, and attempts were made to randomly sample the population. As can be seen from **Table 12**, more than half the camps selected were in provinces that had prevalences below the national average:

⁴⁶ UNHCR estimated in 2009 that 500,000 people had been repatriated to Burundi from Tanzania alone.

⁴⁷ CEFORMI; Enquete de surveillance de comportements face au IST/VIH/SIDA au Burundi aupres des jeunes de 15-24 ans et des deplaces dans la province de Ruyigi 2005; reported in Mpinganzima D and Manirakiza E ; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

⁴⁸ CNLS/CEFORMI; Behavioural and Surveillance Study – Displaced Persons (October 2008)

Table 12: Sites sampled for the displaced persons study in Burundi (2007)

Prevalence level of the province (%)	Number of provinces ranked	Number of provinces sampled	Total Number of sites sampled
3.74 – 4.59	4	3	5
2.57 – 3.73	3	1	1
2.23 – 2.56	3	1	1
1.58 – 2.22	4	2	5
1.36 – 1.57	3	2	3

Source: CEFORMI; Behavioural and Surveillance Study – Displaced Persons 2008

.Almost half the sampled population (47.5%) was in the 15-24 age range. As can be seen in **Table 13**, the overall prevalence was 4.5%, higher than the national prevalence of 3.6% for the 15-49 age group and not much different from the 4.1% for the general population attending VCT clinics cited in the 2008 National Surveillance Report. However, it can also be seen from Table 15 that the 15-24 age group brought the overall seroprevalence levels down, and there is a much higher seroprevalence in the older age group, especially the women 25-49 years of age.

Table 13: HIV prevalence in internally displaced persons in Burundi (2007)

Age	Male	Female	Total
15-24	3.7%	1.9%	2.8%
25-34	5.3%	7.8%	6.6%
35-49	2.9%	7.7%	5.0%
total	3.8%	4.8%	4.5%

Source: CEFORMI; Behavioural and Surveillance Study – Displaced Persons 2008

This could be seen as confirmation that there is a higher prevalence, and perhaps a higher risk of contracting HIV, amongst the displaced populations. One could conjecture as to whether the HIV infection in the older women was recent, or as a result of rape or “survival sex” in earlier years (husband dies of HIV/AIDS and/or transactional sex after the death of the husband). The seroprevalence in those who were “widowed” was 8.5%, which might provide a clue, but that group was small and it is difficult to draw conclusions. Of the men, 25% were circumcised, but there was no relation between male circumcision status and seroprevalence (4.4% in circumcised vs. 3.9% non-circumcised).

5.3. Female sex workers

In contrast to the uniformed services data, the data on sex workers comes from an exclusively female population. There is no data on any estimates of the number of sex workers in Burundi. Most of the recent data on sex workers comes from the CEFORMI studies, released in 2008⁴⁹ and a KAP study of sex workers, MSM and drug users that was supported by UNESCO and UNAIDS and executed by ABS at about the same time⁵⁰.

Prior to that, the only other study of sex workers in Burundi was in 1993 in two communes in Bujumbura which found seroprevalences of 45.3% in Bwiza and 56.2% in Musaga⁵¹. The CEFORMI studies in 2007 sampled 603 FSWs from ten sites in Bujumbura (294) and nine sites elsewhere (309). Of those sampled, 56% were aged 15-24 yrs, 30% were 25-34, with only 13% aged 35-49.

⁴⁹ CNLS/CEFORMI; Behavioural and Surveillance Study – Sex Workers (October 2008)

⁵⁰ Mpinganzima D; Connaissances, Attitudes et Pratiques des Homosexuels, des Professionnels du Sexe et des Usagers de Drogues en Matière de VIH/SIDA au Burundi; ABS/UNESCO/UNAIDS (March 2008)

⁵¹ Thaddé B; Résultats de la séroprévalence des prostituées de Bwiza et Musaga (1993) ; Cahiers de Santé : 1997: 7: 35-360



Given the urban-rural differential in the seroprevalence levels seen earlier, it is somewhat surprising to see in **Table 14** that the seroprevalence in all but the oldest age group of FSWs is higher in the rural areas than in the urban areas, but the 68.4% seroprevalence in the older urban sex workers is also noteworthy. It was also found that those who reported having an STI in the past twelve months were two times more likely to be seropositive.

Table 14: HIV prevalence in female sex workers in Burundi (2007)

Age	Urban	Rural	Total
15-24	18%	32%	24.3%
25-34	43%	62%	53%
35-49	68.4%	56.9%	59.7%
Global	29%	46%	37.7%

Source: CEFORMI; *Behavioural and Surveillance Study – Sex workers 2008*

Widely-quoted data in Burundi from the same CEFORMI study states that 82.5 % of the sex workers report to have used a condom during their last sexual contact with a paying partner, and 52% report to have used condoms 100% of the time. The fact that over one-third (37.7%) are seropositive does not necessarily invalidate this data, but it does raise a number of questions into possible ways that the reported figure of 82.5% condom use can be reconciled with the data: almost one-quarter (24.3%) of the sex workers seropositive by the age of 25, more than half (53%) seropositive by age 34, and almost 60% (59.7%) seropositive by age 49.

The most obvious answer is that the sex workers were not being entirely truthful when they stated that they used condoms in four of every five transactions. Given the widespread knowledge about HIV and the protection afforded by a condom, it is conceivable that the sex workers were giving the researchers what they knew to be the “right” answer to the questions they were being asked. But assuming that most of the sex workers were not intentionally dissembling, but perhaps not telling the whole truth, two other possibilities are:

- The infection was contracted many years ago, the sex workers are long-term non-progressors, and they are indeed now using condoms with their clients most of the time. Like the older members of the uniformed services, it is possible that many of the older sex workers’ infections were contracted during Burundi’s years of turbulence, possibly as a result of rape in the midst of the other upheavals and violence.
- The sex workers contracted HIV from their husbands. The CEFORMI study found the seroprevalence highest in those classifying themselves as widows (67%), with divorcees at 43%, married (30%) and single (25%). This could be due to an age factor (widows and divorcees more likely to be older than singles), but it might also point to the widows’ deceased spouses perhaps having died from AIDS, or died during the civil violence, forcing their widows to turn to sex work for survival.

However, neither of these explanations could account for the prevalence level in the younger sex workers, if they are indeed using condoms. Three other possible explanations that could account for the HIV prevalence levels in FSWs would be:

- Many studies with sex workers prevention programs have demonstrated that while sex workers can learn negotiation skills and be trained to insist on the use of condoms with their casual clients, it is more difficult for them to change their behaviour and use condoms with their boyfriends, partners or more regular clients. These regular and “trusted” partners may themselves be having unprotected sex with other women, including other sex workers, and acting as the transmitters of HIV to their sex worker partners, who think they are protecting themselves in the riskier situations.



- Situations arise when a sex worker will use a condom for the first sexual act, but be less assiduous in demanding a condom if the client wants sex for a second time during the transaction. So the sex worker may have answered truthfully if asked if she used a condom with her previous client, especially if she was NOT asked whether she used a condom for every sexual act.
- The CEFORMI studies did not delve in explicit detail about sexual acts performed by the sex workers. There has been evidence in East Africa that anal sex is practiced more often than has been believed (young girls in some communities reportedly engage in anal sex so as to preserve their “virginity” before marriage), and there may well be a higher-than-average practice of anal sex between sex workers and their clients. It is widely believed in the region that HIV is not transmitted anally, and it is not appreciated that anal sex is as dangerous or more dangerous than vaginal sex for HIV transmission, especially for those who are the receptive partner⁵²

Looking again at **table 14**, however, and seeing that among the younger sex workers aged 15-24, the rural HIV prevalence level is almost twice the urban prevalence level (32% vs 18%), one could also conclude that the sex workers in Bujumbura might be the ones who are using the condoms, and that the rural sex workers have less access to HIV education programs and condoms, or have less confidence and skill in negotiating the use of condoms with their clients. As well, the stigma of being seen to purchase condoms in a rural small-town setting (where even family planning is not being encouraged, much less visiting sex workers) may be making condoms less available to the rural sex worker populations.

As in some other BSS and HIV prevalence studies in Burundi, there are some anomalies in the CEFORMI data on sex workers. The seroprevalence is higher in those who have used a condom (45%) than those who have never used a condom (36%), but this may be skewed towards the larger number of younger sex workers in the sample (and the perhaps mistaken assumption that more of the older sex workers have learned to use a condom). A knowledge of HIV prevention methods was not correlated with a lower seroprevalence, and while 71% claim to have had a prior HIV test, there was no difference in seroprevalence in those who report having had a prior test and those who have not.

Another point to mention here is that some of the data on knowledge and practice in sex workers needs to be evaluated in the context of the actual questions being asked. One of the standard UNGASS questions is to determine the level of comprehensive knowledge by asking respondents to identify the three main means of HIV prevention (fidelity, abstinence and use of condoms), and to reject false ideas concerning HIV/AIDS/STIs. The very low levels of comprehensive knowledge seen in sex workers in the 2004 and 2007 studies (3.1% and 0.9%)⁵³ could be used as an indicator of a very low level of knowledge of HIV prevention by sex workers. On the other hand, it could also be seen as a byproduct of using standardized questions inappropriately. The question requires five right answers (identifying three correct methods of prevention and rejecting two wrong ones), and while practically all sex workers will have heard about condoms, to expect sex workers to be thinking about, much less practicing either fidelity or abstinence is somewhat unrealistic. By contrast, the 2010 UNGASS Report⁵⁴ records that 51% of sex workers surveyed could identify the correct methods of HIV prevention and rejected false methods.

5.4. Men Who Have Sex With Men (MSM)

For the first couple of decades of the epidemic, it was widely assumed that transmission as a result of men having sex with men (MSM) was not a factor in most African countries. This

⁵² This is partly the fault of prevention programs that have successfully delivered the messages about the risks of vaginal sex, but never included anal sex in the messaging, either from reticence, local censorship or assuming that it wasn't relevant.

⁵³ CNLS/CEFOMI; Behavioural and Surveillance Study – Sex Workers (October 2008)

⁵⁴ Republique du Burundi; 2010 UNGASS Rapport - Mise en Ouvre de la Declaration Dengagement sur le VIH/SIDA; March 2010



was partly because homosexuality is strictly illegal in many countries in the region, individuals and groups who engaged in MSM activities were not visible as they are in the West, and there was a prevailing attitude that assumed that “such things” did not occur in Africa. However, beginning about ten years ago, researchers in Kenya and elsewhere began to make contact with MSM and to publish reports about the HIV situation in MSM in Africa.

What has subsequently been found in practically every community where it has been studied is that MSM exist in Africa (as they do practically everywhere else in the world), that they are at high risk and often have seroprevalence levels many times greater than the national average. Besides the risks attendant with unsafe sexual practices and multiple concurrent partnerships, MSM are also vulnerable because the stigma that surrounds them means that they are not included in national prevention interventions targeted at other high-risk groups, they may not feel comfortable accessing health services or testing centres, and publicly exposing themselves as MSM could lead to negative repercussions or even violence. It has been noted that the clandestine nature of MSM in most of Africa also means that the majority of them are usually bisexual⁵⁵, married or in stable heterosexual relationships, with their partners usually not knowing about their MSM activities. Nonetheless, clinics in Kenya, South Africa, and elsewhere have been established to serve the needs of MSM, including MSM who are also engaging in transactional sex (MSWs).

Burundi is one of the countries in Africa that has recently increased the penalties for those convicted of acts of homosexuality. Partly due to this and other factors, up to now, hardly any data exists in Burundi regarding MSM. The only study that has looked at MSM in Burundi was part of a KAP study of MSM, drug users and sex workers, carried out in 2007 and 2008 and supported by ABS, UNESCO and UNAIDS⁵⁶. This study identified and interviewed 65 MSMs, 31 from Bujumbura, and 6-10 from each of Ngozi, Kayanza, Gitega, and Rumonge.

The KAP study that was done revealed some data about MSM in Burundi:

- Most MSM interviewed use condoms, especially with a new partner. However, once a partner is known, the condoms are no longer used. Thirty percent admitted to having had unprotected sex in the recent past.
- Most were aware of the risk of HIV and knew some of the symptoms of AIDS, and the majority said that they knew of someone who was HIV positive.
- 63% of respondents felt themselves to be at higher risk of HIV.
- Almost two-thirds (65%) stated that they had received an HIV test. Those that had not had a test were frankly fearful of what the results might be.

The study focused mainly on issues of access to health care facilities, condoms, and the respondents' attitudes towards the health care system (which seem to be mostly favourable) and whether or not they would tell their partners if they were found to be HIV positive (most said they would). The study did not enquire deeply into actual sexual practices, numbers of partners, heterosexual relationships, or other aspects that might have provided more clues into the epidemiology or high-risk behaviours in the Burundi MSM community⁵⁷. Most

⁵⁵ Two recent papers noting the high rate of bisexuality in MSM in Nigeria and Southern Africa: NNaji et al, **Sexual practices of MSM in Nigeria**; International Microbicides Conference 2010, Abstract 155 and 156; Beyrer et al, **Bisexual concurrency, bisexual partnerships and HIV among southern African MSM**, Sex Transmitted Infections, online edition, 10.1136/sti.2009.040162, 2010

⁵⁶ Mpinganzima D; *Connaissances, Attitudes et Pratiques des Homosexuels, des Professionnels du Sexe et des Usagers de Drogues en Matière de VIH/SIDA au Burundi*; ABS/UNESCO/UNAIDS (March 2008)

⁵⁷ Buried in the data from this study are some hints of the need for more prevention education directed at MSMs. For example, while the majority of those interviewed stated that they used lubricants to facilitate anal sex, more than half stated that they used Vaseline while only 20% used water-based lubricants. As is well-known, vaseline is contraindicated in association with condoms.



importantly, no blood samples were taken, so the seroprevalence among Burundian MSM remain unknown.

Humure is a new NGO that has been developed to fight HIV/AIDS among high-risk groups. An interview was held with a representative from Humure who stated that despite the illegality and clandestine nature of the activity, there are “many” male sex workers (MSWs) in Burundi, working in all of the urban and semi-urban centres. Health care for MSM is best delivered through clinics operated by ANSS (Association Nationale de Soutien aux Séropositifs et Malades du SIDA), but he noted the lack of interventions directed at MSM.

Humure conducted a behavioural survey of 175 MSMs aged between 15 and 40 in August 2009, and preliminary results⁵⁸ indicate that more than half the men (58%) identified themselves as bisexual, 60% had had sex with a woman in the past year, and an equal percentage (62%) had ever paid a woman for vaginal sex. Of the men who had reported having sex with another man in the previous month, the average number of liaisons was about 5, which may have been with the same or multiple partners. Most worrying (and in contrast to the KAP study cited above), less than one-third of the MSMs interviewed admitted using condoms for anal sex with either casual or regular partners. Over half the men (53%) had taken an HIV test and of those, 73% had received their results. While 54% of the men believed they were at high risk for HIV, 19% thought they were at low risk and 10% thought they were at no risk at all⁵⁹.

In summary, it appears that MSM in Burundi have similar high-risk behaviour and increased HIV prevalence levels as have been found in neighbouring countries in the region. As well, based on the preliminary results from Humure cited above, the level of knowledge about HIV risks and the uptake of prevention strategies such as condoms remain low. However, until more research studies have been undertaken, including the accumulation of actual prevalence and detailed behavioural data, these assumptions will remain unproven.

5.5. Drug Users

Injection drug use (IDU), with its associated use of unsterilised needles and sharing of equipment, is recognized as one of the most efficient methods of HIV transmission. Like the case of MSM, IDU was long considered to be a relatively insignificant contributor to the epidemic in Africa, with perhaps the exception of some communities in South African cities. However, data gathered in Kenya in the past several years has revealed a community of IDUs in both Mombasa and Nairobi, and data from Mombasa revealed very high HIV seroprevalence in those who were tested. The Kenya Modes of Transmission study estimated that perhaps 3-4% of transmission in Kenya in 2006 was in IDUs, but this may have been as high as 6% in Mombasa⁶⁰.

Also like MSM, the issue of IDUs in Burundi remains essentially unresearched. The ABS/UNESCO/UNAIDS study cited in the previous section on MSM⁶¹ also interviewed 120 “drug users” – 40 from Bujumbura, and twenty each from Ngozi, Kayanza, Gitega and Rumonge. For the purposes of this report, however, this study suffers from the same problems as did the data on MSM – other than questions on condom usage, the bulk of the questions focused on what the respondents knew about HIV, their attitudes about being tested, what they knew about symptoms of HIV and STIs, and the quality of the health

⁵⁸ Summary data from a preliminary assessment carried out by Heartland Alliance for Human Needs and Human Rights in partnership with Humure. Data used with permission.

⁵⁹ Only 2% of the men in the Humure survey claimed to be married, but this could be explained by the fact that although the age range of the sample was 21-40, the average age was 21, implying that the vast majority of the respondents were young men

⁶⁰ Kenya National AIDS Control Council; HIV Prevention Response and Modes of Transmission Analysis, March 2009

⁶¹ Mpinganzima D; Connaissances, Attitudes et Pratiques des Homosexuels, des Professionnels du Sexe et des Usagers de Drogues en Matière de VIH/SIDA au Burundi; ABS/UNESCO/UNAIDS (March 2008)



services. There were no questions asked about numbers of partners or other sexual behaviour, and no blood samples were taken for seroprevalence testing,

Most importantly, the drug users were not asked about what drugs they actually used and their methods of consumption. Other than via injection or other parenteral pathways, the main HIV risk of ingesting psychoactive drugs of abuse (smoking, chewing, swallowing, inhaling, etc.) lies in the possibility of forgetting about or ignoring safe sex lessons when intoxicated, the same risk that occurs with alcohol or other psychoactive substances. Studies in Kenya of heroin users have revealed that many of them routinely smoke it and do not inject, so that even identified heroin users may not be assumed to be IDUs and at risk of contracting HIV because of their drug habit⁶².

That being said, the 2008 KAP study revealed that of the 120 drug users interviewed, about half had undergone at least one HIV test (seroprevalence levels again were not studied). Fear of receiving a positive result inhibited others from taking the test, as well as the fact that the counselors were felt to ask a number of “intimate questions which might lead to a discovery of their mode of life”. It was also felt that if they needed treatment they would be discriminated against because of the prejudice against drug use in the country. About half said that they would use a condom in a sexual relationship, but some also admitted that they might not use one if they were intoxicated.

It is notable, however, that of the drug users interviewed, 39.2% stated that they had had an STI in the preceding twelve months (as compared to 21.5% of the MSMs and 27.2% of the female sex workers)⁶³. Although what was considered to be an STI was not defined, reported levels that high are certainly worrisome, given the close synergy between ulcerative STIs and HIV acquisition.

5.6. Discordant Couples

Recent epidemiological syntheses in other countries in the region have suggested that in mature and relatively stable epidemics, a major source of transmission of new infections is within stable relationships where one partner is seropositive – so-called “discordant couples”. The seronegative partners in these couples are at risk – in many cases they do not know the status of their seropositive partner, and in any case, it is difficult to suggest the use of condoms during sex that is not for contraception, because it raises issues of fidelity, the source and timing of the infection, etc. Both the Kenya Modes of Transmission Study⁶⁴ and the Uganda Modes of Transmission Analysis⁶⁵ found that perhaps 43-45% of HIV transmission was occurring within stable heterosexual relationships, i.e. discordant couples. As well, it was suggested that in perhaps 60% of these couples, partners were not aware of the other’s status.

Unfortunately, while one can assume that there are a large number of serodiscordant couples in Burundi, there is hardly any data upon which to prove this assumption.

SWAA keeps a record of discordant couples tested in their eight clinics. In 2008, out of 18,974 HIV tests, they recorded **147** discordant couples⁶⁶. In the first two months of 2009,

⁶² Deveau C, Beckerleg S; Heroin Use in Kenya and findings from a community-based outreach programme to reduce the spread of HIV/AIDS; *African Journal of Drug and Alcohol Studies* 2006 5(2): 95-107; quoted in Kenya National AIDS Control Council; HIV Prevention Response and Modes of Transmission Analysis, March 2009

⁶³ Mpinganzima D; *Connaissances, Attitudes et Pratiques des Homosexuels, des Professionnels du Sexe et des Usagers de Drogues en Matière de VIH/SIDA au Burundi*; ABS/UNESCO/UNAIDS (March 2008)

⁶⁴ Kenya National AIDS Control Council; HIV Prevention Response and Modes of Transmission Analysis, March 2009

⁶⁵ Uganda AIDS Commission; HIV Prevention Response and Modes of Transmission Analysis, March 2009

⁶⁶ SWAA Burundi; *Report on Activities 2008* (March 2009)



they tested 9,029 people and recorded **110** discordant couples⁶⁷, which would project to more than 200 discordant couples for the entire year. Unfortunately, SWAA does not provide a denominator on how many couples were tested in total. But these data do demonstrate that sero-discordant couples do indeed exist in Burundi, and the challenge of identifying and approaching them, and designing and implementing appropriate interventions, need to be considered in future planning.

5.7. Fishing communities

Research in Kenya and elsewhere around Lake Victoria has revealed that within the fishing communities that reside and work around the lake, there are very high HIV prevalence levels, seemingly as a result of high-risk behaviours that put both fishermen and others at risk⁶⁸. The risk in these communities seems to lie not just in the fishermen, who spend nights away from home and who may be engaging in casual sex, but also in the nature of the fish wholesale business, where women who buy the fish may engage in sex with the fishermen who demand sex in exchange for product. The Kenya Modes of Transmission Study estimated that perhaps 25% of the transmission in Nyanza Province (the province with the country's highest HIV prevalence) may be occurring in these fishing communities⁶⁹.

A similar situation may very well exist in Burundi, with fishing communities in three provinces spread along Lake Tanganyika. A recent study commissioned by the AIDS Unit in the Ministry of Labour⁷⁰ surveyed fishing groups at ten sites in the three provinces, and counted a total population of about 10,000 people who were connected to the fishing industry – this included some 820 boats, their captains and crew, as well as fish wholesalers and the women who clean the fish and cook for the crews. Many of these are seasonal workers who come from inland provinces. Although the study did not gather HIV prevalence data, they did note that not only is there transactional sex occurring between fishermen and the fish wholesalers, but also between the boat captains and the women they hire to cook for the crew. This is in addition to the normal sexual relationships that occur with steady and casual partners and sex workers in the community.

The study also alluded to higher HIV prevalence levels being seen at VCT clinics near the fishing ports, and there is some circumstantial evidence of higher prevalences in the fishing communities that warrant further study. **Table 9** demonstrated the following results for Bururi province:

- National Seroprevalence Survey 2007 – seroprevalence 2.1%
- Sentinel surveillance results 2008 - seroprevalence 2.2%
- Antenatal VCT 2009 – seroprevalence 3.8%

Although Bururi province was ranked 13th in prevalence in the National Seroprevalence study, it ranks second only to Bujumbura in the sentinel surveillance and antenatal VCT data. What is of interest is that the antenatal VCT and sentinel surveillance sites are not in Bururi, the provincial capital (which is inland) but in Rumonge, which is on the lakeside. These higher-than-average results in Rumonge may or may not be a reflection of the higher prevalence in the local fishing communities. There is also the possibility that the high prevalence in Kirundo Province may be related to the fishing on Lake Rweru and Lake

⁶⁷SWAA Burundi ; Report on Activities January–July 2009 (August 2009)

⁶⁸ Kissling et al, Fisherfolk are among groups most at risk of HIV: cross country analysis and people affected, 2005; and Bukusi E et al; HIV/STI seroprevalence and risk among fishermen in Kisumu, Kenya 2006; quoted in Kenya National AIDS Control Council; HIV Prevention Response and Modes of Transmission Analysis, March 2009

⁶⁹ Kenya National AIDS Control Council; HIV Prevention Response and Modes of Transmission Analysis, *ibid*

⁷⁰ Ministry of Public Works, Labour and Social Security; Plan d'Action de Lutte Contre le Sida en Milieu de Peche Sur le Lac Tanganyika; preliminary report (January 2010), used with permission



Cohoha which border Rwanda, but this is unlikely, as there is a very small commercial fishing population along these lakes. More research is required to answer these questions.

5.8. Long distance truck drivers

Long-distance truckers plying the regional highways in East Africa have been identified as people at high risk since the early years of the epidemic, and more recent studies have confirmed the presence of high-risk behaviours, the presence of a transactional sex industry at truck stops and border crossings and a continued risk and vulnerability for long-distance truckers in the region⁷¹.

Although small, Burundi has a number of major highways passing through it, with traffic coming and going in and out of the country to Tanzania and Rwanda, and to a lesser extent, the DR Congo, and so it would seem likely that long-distance truckers based in Burundi but traveling frequently outside the borders might be a group at higher risk of contracting and transmitting HIV.

Unfortunately, this is another area where data is lacking. Any studies that have been done looking at cross-border issues have not specifically looked at truckers, and no information was forthcoming about any health facilities that might exist along the highways catering to either the truck drivers or the sex workers who work along the highway and at the truck stops.

To summarise:

- The HIV prevalence levels in the uniformed services are higher than the national average only amongst the older ranks
- Female sex workers continue to have a prevalence level many times higher than the national average – almost 25% by age 25 and 50% by age 35. Young rural sex workers have a higher HIV prevalence than their urban counterparts, perhaps because of a lack of access to condoms.
- Displaced persons have a HIV prevalence only slightly higher than the national average, but significantly higher amongst the older women.
- There is a lack of data and more research is needed to determine HIV prevalence levels amongst discordant couples, MSM, drug users, truck drivers and the lakeside fishing communities.

6. ARE THERE OTHER POSSIBLE CO-FACTORS CONTRIBUTING TO THE EPIDEMIC IN BURUNDI?

6.1. Sexually transmitted infections

The close relationship between HIV and STIs, especially ulcerative STIs, is well-known. As well, high rates of STIs in a population can also be an indicator of a high level of multiple partnerships as well as a low level of condom use. Some data on the more common STIs does exist in Burundi.

⁷¹ Ferguson A and Morris C; Estimation of the sexual transmission of HIV in Kenya and Uganda on the Trans-Africa highway: the continuing role for prevention of transmission in high-risk groups; Sex Trans Infections 2006



6.1.1. Syphilis

The 2008 Sentinel Surveillance Bulletin⁷² reported the number of RPR-confirmed cases of syphilis in antenatal clinic surveillance in 2008 was only 43 cases out of 3133 samples tested (1.4% prevalence). However, 33 of those cases came from Kiremba (Ngozi) (33 cases out of 570 tested), Kayanza had six cases while the other provinces that reported had 0-2 cases each. This implies either a nidus of syphilis in Kiremba or some issues with sample collection and the testing procedure⁷³. Eighteen of those cases, however, were in the 15-24 age group, with a further 14 in the 25-29 age range.

6.1.2. Urethral Discharge and Genital Ulcer

The 2008 Surveillance report⁷⁴ provides data on the notifications of both urethral discharge and genital ulcer in seventeen provinces and disaggregated by age. 13,153 cases were reported, as shown in **Table 15**, but the data needs to be weighed carefully:

Table 15: Urethral discharge data by province and age in Burundi (2008)

Province	0-4 yrs	5-14 yrs	15-24 ys	25-44 yrs	45 yrs +	TOTAL
Bubanza	6	24	268	575	168	1041
Bujumbura city	1	52	171	125	33	382
Bujumbura rural	2	20	361	821	325	1511
Bururi	0	0	0	0	0	0
Cankuzo	0	0	32	64	13	109
Cibitoke	2	8	283	483	108	884
Gitega	7	10	295	496	82	883
Karusi	2	20	432	651	100	1205
Kayanza	13	16	552	1076	230	1887
Kirundo	3	2	148	346	92	591
Makamba	25	9	221	535	130	1109
Muramvya	2	1	11	133	36	180
Muyinga	9	3	237	855	349	1450
Mwaro	4	1	23	78	27	133
Ngozi	10	28	558	851	126	1544
Rutana	6	6	130	245	52	419
Ruyigi	0	0	3	17	6	26
TOTAL	92	200	3705	7351	2077	13153

Source: USLS/Santé Bulletin Annuel de Surveillance Epidemiologique

While eight provinces each reported more than 1,100 cases, with Kayanza reporting 1,887, urban Bujumbura reported only 382 and Bururi either did not report or detected absolutely zero cases. As well, 292 cases were in children 0-14. Surprisingly, twice as many 0-4 year boys as girls (60 vs. 32 cases) had urethral discharge – assuming the discharges in this group were not venereal, one would expect many more young girls to be contracting urinary tract infections, which are uncommon in boys.

⁷² Ministère de la Santé Publique; Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008; (December 2009)

⁷³ USLS/Santé Rapport 2008

⁷⁴ Ministère de la Santé Publique; Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008; (December 2009)



The same variation is seen in the reports for genital ulcer (a differential diagnosis between herpes, chancroid, syphilis etc. was not made). 9,151 cases of genital ulcer were reported, with the same variations – Kayanza again reported the most cases (1,097), nine other provinces (including Bujumbura) reported 500-1000 cases each, but Ruyigi reported only 37 and Baruri again reported zero. It was also troubling to note that 158 cases were reported in the 0-4 year group, and another 56 in the 5-14 year group – there are a limited number of pathogens that can cause genital ulcers, and even fewer that are non-venereal, so more information is needed about the cause of these ulcers in children.

The variations in notifications of STIs diagnosed syndromically also reflect the same large fluctuations seen in the antenatal surveillance over the years (see Table 11):

Table 16: Reporting of syphilis and gonorrhoea in Burundi (2003-2008)⁷⁵

	2003	2004	2005	2006	2007	2008
Syphilis	2760	2120	9392	8133	15591	9151
Gonorrhoea	17751	17681	12778	6923	26217	13153

Source: USLS/Santé: 1993-2008; published in *Bulletin Annuel de Surveillance Epidemiologique*

Incidentally, the same variations are seen in the eight clinics run by SWAA around the country. 637 cases of STI were treated in these clinics in 2008, and they range from 180 in Bujumbura, 132 and 118 in Ngozi and Kayanza respectively, in the 60's in three others, to only 19 in Muramvya⁷⁶ – whether this is a true reflection of differences in STI incidence, problems in reporting, or issues in diagnosis and treatment is not known.

6.1.3 Human Papilloma Virus (HPV)

Although it has not been implicated as a co-factor in HIV transmission, HPV like HIV is transmitted sexually, and certain strains have been implicated as a cause of cervical cancer. A high rate of HPV in the population would be a marker of sexual activity.

The following data from the Ministry of Health⁷⁷ certainly demonstrates a link between HIV seropositivity and both the presence of HPV antibodies as well as cervical dysplasia:

- Prevalence of cervical dysplasia (CIN) (45 patients) : 16%
 - CIN+/HIV+ 41/144 28,5%
 - CIN+/HIV- 4/145 2,8%
- Prevalence of HPV 134/289 : 46,4%
 - HPV+/HIV+ 93/144 69,4%
 - HPV+/HIV- 41/145 30,6%

6.2 Other blood borne infections

The 2008 surveillance report quotes a report stating that out of 24,272 donated blood samples, 0.4% tested positive for HIV, 2.7% were positive for Hepatitis B antibody or antigen, and 1.2% were positive for Hepatitis C antigen or antibody (the RPR for syphilis was only 0.07%).⁷⁸

⁷⁵ Ministère de la Santé Publique; Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008; (December 2009)

⁷⁶ SWAA Burundi, Report on Activities 2008 (March 2009)

⁷⁷ Ministère de la Santé Publique; Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008; (December 2009)

⁷⁸ Ministère de la Santé Publique; Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008; (December 2009)



However, one might assume that people who know they are HIV positive would self-select NOT to be blood donors, the figures of blood borne infections in blood donors may therefore not be representative of the general population.

Another recent study demonstrated somewhat higher prevalence of Hepatitis B and C antigen in the general population over the age of twelve. However, if these prevalence data are disaggregated by age and residence, it can be seen that the prevalence levels are not uniform across the population:

Table 17: Prevalence of Hepatitis B & C in the general population in Burundi (2008)

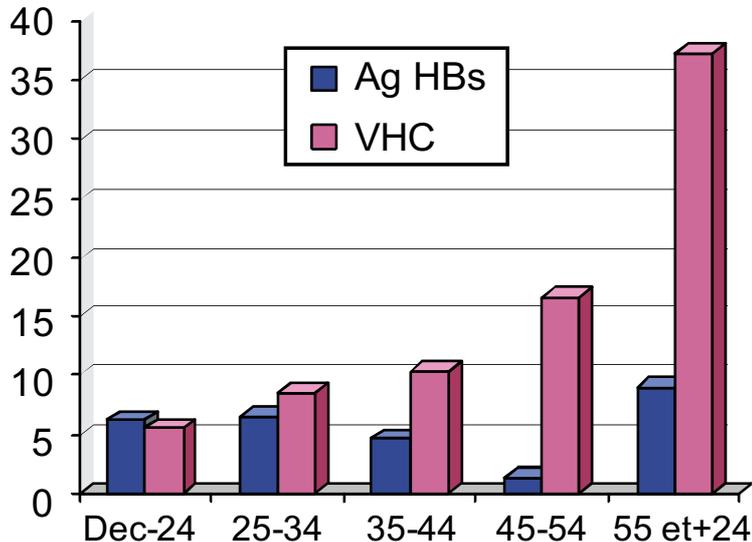
	Total	Bujumbura	Semi-urban	Rural
Hep B	4.6 (5.4 m, 3.9 f)	5.9	4.3	4.2
Hep C	8.2 (8,3 m, 8.1 f)	10.	9	7.2

Source: Centre National de Reference

The higher levels seen in Bujumbura and the semi-urban populations might be linked to the higher levels of HIV in these populations. There is some evidence of sexual as well as parenteral transmission of Hepatitis B.

Interestingly, when the rural and urban prevalence levels of Hepatitis B and Hepatitis C are disaggregated by age, as seen in the following **Figure 8** and **Figure 9**, it can be seen that whereas the level for Hepatitis B is fairly steady across all age groups (implying that the Hepatitis B may be acquired in childhood) the level for Hepatitis C increase with age, implying a continuing transmission, which may be sexually related.

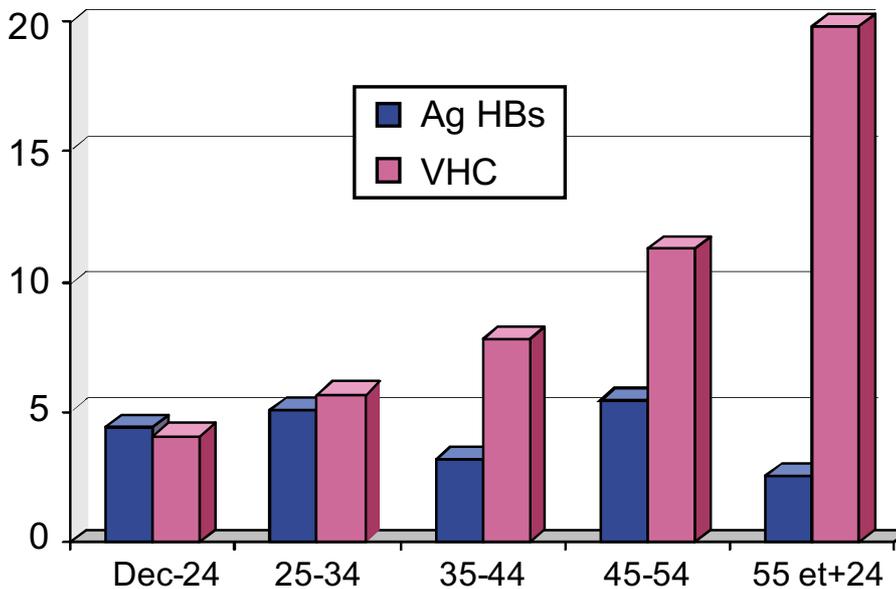
Figure 8: Urban prevalence of Hepatitis B and Hepatitis C in Burundi (2008)



Source: Centre National de Reference

It can also be seen that while the levels for Hepatitis C differ between the urban and rural populations, the epidemic curve for both populations follows an almost parallel line, rising to its highest level in the older population over 55 years of age.

Figure 9: Rural prevalence of Hepatitis B and Hepatitis C in Burundi (2008)



Source: Centre National de Reference

6.3 Male Circumcision

The relationship between the lack of male circumcision and HIV transmission was decisively demonstrated in recent years through simultaneous randomized controlled trials in Kenya⁷⁹, Uganda⁸⁰ and South Africa, which showed a reduction of HIV incidence of up to 60% in men who were circumcised. As a result of these trials, WHO and UNAIDS have added male circumcision to their list of recommended interventions to prevent HIV, and a number of countries in the region are contemplating the introduction of mass male circumcision campaigns to reduce the future spread of HIV infection.

Burundi has traditionally been thought to have one of the lower rates of male circumcision in Africa – most of the literature states that only about 15%-20% of the male population are circumcised. When one considers the fact that about 10% of the population is Muslim, this would mean that the vast majority, perhaps 90%, of the non-Muslim male population of Burundi is not circumcised. The National Seroprevalence Study in 2007 confirmed the low rate of circumcision – 78% of their sample were not circumcised. Interestingly, the seroprevalence in the circumcised men was only minimally lower than in the non-circumcised population (2.59% and 2.88% respectively)⁸¹, which proves only that circumcision or the lack of it is not the only co-factor that is responsible for HIV transmission. There is no data available regarding at what age the non-Muslim male population were circumcised (if they were not circumcised until their late adolescence or adulthood, there is the possibility that those who were HIV positive contracted their infection prior to being circumcised).

However, SEP/CNLS conducted a study in late 2009 to determine not only the prevalence of male circumcision in the population, but also people's knowledge and attitudes⁸². Of the

⁷⁹ Bailey R et al; Male circumcision for HIV prevention in Kisumu, Kenya: a randomised controlled trial 2; Lancet 2007: 369(9562):643-56

⁸⁰ Gray RH et al; Male circumcision for HIV prevention in Rakai, Uganda: a randomised trial; Lancet 2007: 369 (9562): 657-666

⁸¹ CNLS/CEFORMI; Behavioural and Surveillance Study – General Population (October 2008)

⁸² SEP/CNLS; Etude d'Acceptabilite et de Faisabilite de la Circoncision Masculine au Sein de la Population Sexuellement Active du Burundi ; September 2009



1135 men from ten provinces who were interviewed, a surprising 43% reported to be circumcised. However, there is some reason to doubt this statistic, given the preponderance of the literature that claims a low level of circumcision, which was also confirmed anecdotally by assorted key informants⁸³. For example, it is not noted in the report whether these answers were actually validated by visual inspection. And whereas 90% of the Muslim men who were interviewed could correctly define circumcision, they only made up 7% of the sample. Of the other 93% of the sample who were not Muslim, almost two-thirds - some 63% - could not correctly define what circumcision was, which makes one again suspicious that the interviewees were providing answers that they thought the interviewers wanted to hear. The study did note a regional variation in circumcision, as shown in **Table 18**:

Table 18: Regional variations on men reporting circumcision in Burundi (2009)

Region	Number of men interviewed	Percentage of men reporting to be circumcised
Bujumbura City	60	67%
Centre West	237	69%
Centre East	250	35%
North	399	28%
South	189	42%
TOTAL	1135	43%

Source: SEP/CNLS; *Etude d'Acceptabilite et de Faisabilite de la Circoncision Masculine 2009*

The National Strategic Plan on HIV/AIDS Control 2007-2011⁸⁴ does not mention male circumcision as a prevention strategy, but it was published in 2006, before the results of the male circumcision randomized trials were announced. The study done in 2009 – which looked at the prevalence of circumcision, people's attitudes towards the practice as well as the feasibility and cost of introducing the intervention - suggested that there is an interest in Burundi in adding male circumcision to the country's HIV prevention strategies

To summarise:

- There is evidence of high levels of STIs in some studied populations in Burundi, which may be contributing to HIV transmission.
- High prevalence of Hepatitis C and HPV antibodies in the population are indicators of high levels of unprotected sexual activity
- The relatively low level of male circumcision in Burundi is a factor contributing to continuing HIV transmission

7. HIV, GENDER ISSUES AND GENDER-BASED VIOLENCE

The Human Development Index (HDI) measures average achievements in a country, but it does not incorporate the degree of gender imbalance in these achievements. The gender-related development index (GDI) measures achievements in the same dimensions using the same indicators as the HDI but captures inequalities in achievement between women and men. The greater the gender disparity in basic human development, the lower is a country's GDI relative to its HDI.

⁸³ See Appendix Two

⁸⁴ Conseil National de Lutte Contre le SIDA (CNLS); **National Strategic Plan on HIV/AIDS Control 2007-2011** (December 2006)



Table 19 shows Burundi's rankings in gender-related issues, comparing it to its neighbours. As with the Human Development Index indicators seen in **Table 1**, Burundi ranks better than the DR Congo, but not as well as Tanzania or Rwanda in most of the other indicators. Burundi's GDI value of **0.390** is 99.0% of its HDI value of **0.394**. Out of the 155 countries with both HDI and GDI values, 79 countries have a better ratio than Burundi's. It can be seen that whereas Burundi's women have a longer life expectancy than men, school enrollment of girls is less than 90% that of boys, and adult female literacy is 77.6% that of men.

Table 19 – Gender Development Index values in Burundi (2004)

GDI as % of HDI	Life expectancy at birth(years) 2004	Adult literacy rate (% ages 15 and older) 2004	Combined primary, secondary and tertiary gross enrolment ratio 2004
	Female as % male	Female as % male	Female as % male
1. Mongolia (100.0%)	1. Russian Federation (121.7%)	1. Lesotho (122.5%)	1. Cuba (121.0%)
16. Rwanda (99.8)	68. Rwanda (107.3%)	102. Rwanda (83.7%)	98. Rwanda (100.7%)
54. Tanzania (99.4)	81. DR Congo (106.8%)	103. Tanzania (83.4%)	126. Tanzania (96.1%)
79. Uganda (99.2%)	116. Burundi (105.9%)	115. Burundi (77.6%)	143. Burundi (89.3%)
80. Burundi (99.1%)	176. Tanzania (102.9%)	125. DR Congo (66.8%)	167. DR Congo (72.4%)
151. DR Congo (95.1)	190. Swaziland (98.0%)	145. Afghanistan (29.2%)	175. Afghanistan (55.6%)
155. Afghanistan (88.0%)			

Source: UNDP Human Development Report 2009

During the interviews conducted for this report, it was repeatedly noted that it is widely believed that sexual violence and violence within marriage is common in Burundi, but it is one of the subjects that is not easily discussed publicly.

SWAA's eight clinics around the country registered 721 cases of rape or sexual violence in 2008. They were variously given post-exposure prophylaxis, emergency contraception, STI treatment, HIV counselling and testing, and psychological support⁸⁵.

However, the actual number of cases is probably much higher, due to the same reporting issues surrounding much of the data collection in the country – of the 721 SWAA cases, 313 came from Musinga, three other centres (including Bujumbura) each reported 103-138 cases, while three other centres had only a dozen, and Bururi reported only four cases in the entire year. It is unlikely (given the repeated claims that there are few regional cultural differences in Burundi), that these variations in cases of sexual violence are due to anything other than issues in reporting.

Seruka is an NGO that was established specifically to deal with issues of rape and gender-based violence. They have only one centre, in Bujumbura, but they receive

⁸⁵ SWAA Burundi, Report on Activities 2008 (March 2009)



clients from all over the country, asking that victims try to get to the centre within 72 hours of the incident. Clients who arrive at the centre receive ARVs, psychosocial care and tetanus injections, are offered emergency contraception and an HIV test, and very young children are given Hepatitis B vaccination. In 2009⁸⁶, 1490 clients were registered, which included 74 males.

As would be expected, 60% of the clients were from Bujumbura and another 16% from Bujumbura rural, but 24% of the clients came to the Centre from more outlying areas around the country. It may also be noteworthy that approximately half the cases in Bujumbura came from only four of the city's thirteen communes (Kamenge, Cibitoke, Kanyosha, Musaga). The Annual Report notes that 61% of the aggressors were known by the victims and 33% were not known. Seruka also reports that 5% of the aggressors were identified as "men in uniform" with 80% of those known by the victim. More than 90% of the cases involved only one aggressor, with most of the remainder being 2-4 aggressors.

Perhaps the most disturbing data from the Seruka Centre are the ages of the victims who came or were brought to the Centre in 2009. As can be seen from **Table 20**, more than one-third (34%) of all victims were less than 12 years, almost half of whom were less than five years. More than half of all victims were less than 17 years of age.

Table 20 Reported cases of gender-based violence and rape at Seruka, Bujumbura (2009)

Age	Number of reported cases (%)	Cumulative percentage
Less than 5 years	218 (15%)	15%
5 – 12 years	281 (19%)	34%
13-17 years	325 (22%)	56%
18-45 years	647 (43%)	99%
45+ years	19 (1%)	100%

Source: Centre Seruka; Rapport Annuel 2009

Although the number of male victims was only 5% of the total number, 70/74 of these cases were single males with an average age of 10.7, suggesting that most of these cases were in very young boys.

Table 21: Reported male cases at Seruka, Bujumbura (2009)

	Number of reported cases	Average age (years)
SINGLE	70	10.7
MARRIED	4	26.7

Source: Centre Seruka; Rapport Annuel 2009

Seruka encourages their clients to return for follow-up visits, completion of Hepatitis B vaccine regimens and repeat HIV tests. Unfortunately, victims from up-country usually fail to return and the follow-up from within Bujumbura is also low – while 40% of clients are seen after one month, the number seen after six months is less than 25%, so possible data on seroconversion incidence in victims who initially test negative is not available.

⁸⁶ The following data and tables from Centre Seruka; Rapport Annuel 2009



8. KNOWLEDGE, ATTITUDES AND PRACTICE – WHAT IS KNOWN ABOUT SEXUAL BEHAVIOUR

While there is a dearth of information in Burundi on a number of factors related to HIV transmission and specific risk factors, there have been many Knowledge, Attitudes and Practice (KAP) studies. However, these seem to have focussed more on the “K” and “A” and less on the details of the “P”. It must also be noted that religion⁸⁷ could have a significant impact on use of condoms or other family planning measures, as well as on government policy towards their promotion.

8.1 Studies in adults

A KAP study in women of child-bearing age in 1993 (published in 1999)⁸⁸ demonstrated low knowledge of HIV and a high level of knowledge of MTCT, but less than 20% of the women interviewed were prepared to have an HIV test. CEFORMI conducted a KAP study in disaster victims in December 2000⁸⁹, and demonstrated a high level of knowledge but low rate of condom usage.

Three national KAP studies were conducted in 1999, 2001 and 2004. Mpinganzima and Manirakiza⁹⁰ note that all three of these studies revealed a widespread awareness of HIV and AIDS, but that this knowledge does not seem to have an impact on behaviour, in that there is a low rate of use of condoms. They also suggested that the war, civil strife and the large number of IDPs were contributing to this. As well, they suggest that “the youth are starting sexual activity at a younger and younger age”.

ACORD conducted a KAP study in five communes in Cankuzo Province in 2006⁹¹. Among the findings was the fact that while there were few testing centres in the province, these were not being well utilised. “Most respondents stated that they were afraid to be tested because of the fear of stigmatisation by the rest of the community should their positive serostatus become widely known”.

The study also noted several factors that promoted HIV transmission, including “proximity to Tanzania”, polygamy, multiple partnerships, and traditional practices such as *gutera intobo* (have sex with the daughter-in-law), *gucura* (widow inheritance), and *gusanura izasambutse* (“consoling” the widow). It is not known whether these traditional practices in the Cankuzo area are widespread in Burundi and widely practiced, or limited to the area of the study. (The National Strategic Plan 2007-2011 notes that “consensual marriage of crisis widows” is one of the conducive factors for HIV transmission⁹²). It was noted that Cankuzo, besides being on the border of Tanzania, is among the most isolated provinces in the country, but also has one of the higher HIV prevalence levels. It does not receive as much information from the

⁸⁷ approximately 65% of Burundians consider themselves to be Catholics,

⁸⁸ Nicephore N, Tharcisse B; KAP Study in women of child-bearing age 1999, reported in Mpinganzima D and Manirakiza E; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

⁸⁹ reported in Mpinganzima D and Manirakiza E ; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

⁹⁰ Mpinganzima D and Manirakiza E; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

⁹¹ Mpinganzima D, Thaddee M, Pierre S; Enquete sure les comportements, attitudes et pratiques relatives au VIH/SIDA en province Cankuzo July 2006 ; reported in Mpinganzima D and Manirakiza E ; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

⁹² Conseil National de Lutte Contre le SIDA (CNLS); National Strategic Plan on HIV/AIDS Control 2007-2011 (December 2006)



outside, and the rural communities remain isolated, carrying on traditional practices which may favour the transmission of HIV.

The CEFORMI studies for the National Prevalence Survey in 2007 collected information in the general population⁹³, as well as in the specific sub-populations already mentioned – the uniformed services⁹⁴, displaced persons⁹⁵, and female sex workers⁹⁶. Among the findings were:

- 17.2% of the general population reported having had an HIV test by 2007. There was no significant difference between the numbers of men and women who had been tested (although more women had been tested, probably because of PMTCT testing). The numbers of IDPs who had been tested were only slightly lower (16.5%). 76% of the military had had an HIV test (but between 1995 – 2000 an HIV test was compulsory for enrolment in the military)
- The number of adults aged 25-49 who reported using condoms with sex workers was 18.6% in 2007 (compare this with the sex workers who stated that they used condoms more than 80% of the time with their clients!).
- Knowledge of male condoms was high in 2007 – 94% in males and 85% in females. Knowledge of the female condom was also relatively high (78% in males and 65% in females), but few had ever used one.
- However, less than 20% of the respondents stated that they used a condom for casual sex in 2007. This level was even lower in the IDPs - only 15% of men and 4.5% of the women reported to ever have used a condom (but the handful of men who used a condom had a very high seroprevalence, which makes one suspect that a few of those men knew they were seropositive).
- In all populations studied, there was a high knowledge of the existence of STIs but poor knowledge of the actual symptoms.
- There was a wide knowledge of HIV/AIDS, but less knowledge on the specifics of prevention. Only 10% of the general population sample could identify three methods of prevention. In the IDPs, only 8% of males and 4% of females could name three methods of prevention (abstinence, condom, fidelity). This dropped to only 1% in the military.
- The vast majority of the populations over the age of 25 had had sex in the previous thirty days.

What is noteworthy is that the questions that are being asked in behavioural surveys tend not to include details on the sexual activities and types of partners – number of partners in the last year or six months, whether those partners were consecutive or concurrent, visits to sex workers, etc.

8.2. Studies in Youth

KAP studies in youth in Burundi began twenty years ago. A study in 1994⁹⁷ among youth aged 10-19 (sample size not known) found the level of knowledge about HIV and AIDS was higher in the urban youth than the rural, that boys knew more than girls, and that the 15-19

⁹³ CNLS/CEFORMI; Behavioural and Surveillance Study – General Population (October 2008)

⁹⁴ CNLS/CEFORMI; Behavioural and Surveillance Study – Uniformed Services (October 2008)

⁹⁵ CNLS/CEFORMI; Behavioural and Surveillance Study – Displaced Persons (October 2008)

⁹⁶ CNLS/CEFORMI; Behavioural and Surveillance Study – Sex Workers (October 2008)

⁹⁷ Bacinoni D; Enquete sur les connaissances, attitudes, croyances et pratiques sur le SIDA et les MST chez les jeunes de 10 a 19 ans ; July 1994 ; reported in Mpinganzima D and Manirakiza E ; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)



group was more knowledgeable than the 10-14 year group, but that all groups had high levels of false information about HIV transmission (such as mosquitoes and public toilets transmitting the virus). The study also found that radio and print were more important sources of information than parents, who were reported to “never” talk about HIV/AIDS or other issues of sexuality.

There has been evidence for many years that youth in Burundi begin to have sex at an early age. A study in 1990⁹⁸ showed that 52% of students aged fifteen years and older were sexually active. Another study in 1997⁹⁹ indicated that 36% of the students in the fifth and sixth year of school in Gitega were sexually active¹⁰⁰.

CEFORMI conducted a study in 2004 with the support of USAID¹⁰¹, surveying 6,341 unmarried young people aged 15-24 in both urban and rural settings. In total, about one-third of the sample admitted to being sexually active (37% of the young men and 30% of the young women). Of those sexually active, the median age for commencement of sexual activity was 15 years for boys and 16 for girls, with only slight differences between the rural and urban figures: by the age of 15, 52% of the boys and 43% of the girls had had sex.

While awareness of HIV was very high (98-99%), knowledge of means of protection against HIV was much less, with only 60% of the boys and 38% of the girls mentioning condoms, and less than 10% mentioning sticking to one partner. Of the sexually active group, only 22% of the boys and 30% of the girls stated that they had used a condom during their first sex, although 48% and 42% respectively said that they had used a condom during their last sexual act. But less than 3% of either the men or the women were able to correctly identify three means of prevention. Knowledge of the signs of STIs was very low, with only 22% of the women and 28% of the men able to identify any symptoms in their own sex, and 16-17% able to identify symptoms in the opposite sex. That being said, 8% of the young men and 12% of the young women stated that they had had symptoms of an STI in the preceding 12 months. Furthermore, 10-12% of the sample said that they had ever had an HIV test.

GTZ supported a similar study in Ruyigi province in 2005, surveying 420 non-married young people aged 15-24¹⁰². Although actual numbers aren't quoted, the results were similar – a high level of knowledge about condoms but low rates of utilization, as well as little knowledge about STI symptoms, and low uptake of HIV testing. The report suggests that sexual relations in young people are “frequent” and begin at a young age.

The 2007 National Prevalence Study¹⁰³ revisited many of these same questions. The rate of condom usage with a sex worker in the 15-24 age group had remained at around 22% (not much better than the 18.6% in the over 25 group; one can assume that the rate of condom usage with someone not identified as a sex worker would be even lower). The median age for commencement of sex had also not changed significantly, although there were some

⁹⁸ Ntirampeba Caritas, Etude des attentes des adolescents scolarisés vis-à-vis de quelques aspects de l'information - Education sexuelle, Bujumbura, 1990

⁹⁹ Ntabangana S.C, Contribution à l'étude des connaissances, attitudes et pratiques en matière de contraception orale, Bujumbura, 1990

¹⁰⁰ Quoted in CEFORMI; Enquete de surveillance de comportements face au IST/VIH/SIDA au Burundi aupres des jeunes (December 2004)

¹⁰¹ CEFORMI; Enquete de surveillance de comportements face au IST/VIH/SIDA au Burundi aupres des jeunes (December 2004) ; actual report reviewed and also reported in Mpinganzima D and Manirakiza E ; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

¹⁰² CEFORMI; Enquete de surveillance de comportements face au IST/VIH/SIDA au Burundi aupres des jeunes de 15-24 ans et des deplaces dans la province de Ruyigi 2005; reported in Mpinganzima D and Manirakiza E ; Resume des Etudes Menees aupres de Beneficiaires et des Acteurs de la Societe Civile sure les Services Offerts en Matiere de Lutte Contre le VIH/SIDA, Centre National de Recherche en Matiere du VIH/SIDA; (July 2009)

¹⁰³ CNLS/CEFORMI ; Behavioural and Surveillance Study – General Population (October 2008)



important differences between the urban and rural populations, as seen in **Table 22**. These differences may be a contributor to the higher urban HIV prevalence levels:

Table 22: Median age at first sex among sexually active youth aged 15-24, Burundi (2007)

	Males	Females
Urban	15	16
Semi-urban	17	17
Rural	18	18

Source: CEFORMI 2008

Some have argued that there are indications that the percentage of young people who are commencing sex at an early age may be decreasing slightly, but there is little evidence to suggest that there has been much of a change between the data gathered in 2004, and the data from 2007 (see **Table 4**).

Comprehensive knowledge of HIV/AIDS and prevention measures remains low. There has been some increase amongst young people aged 15-24 between 2004-2007, as seen in **Table 23**:

Table 23: % of young people 15-24 years who correctly identify three means of prevention of sexual transmission of HIV/STIs (condom, one partner, abstinence) and reject false ideas concerning HIV/AIDS/STIs in Burundi (2004, 2007)

	2004	2007
Males aged 15-24	2.3%	5.3%
Females aged 15-24	2.2%	5.3%

Source: Behavioural Surveillance Survey 2004, CEFORMI 2008

This again is the UNGASS question which requires three right answers on means of prevention and two right answers on false knowledge. Nonetheless, the similar level of approximately 5.3% for both men and women is unacceptably low. There is, however, evidence of increasing levels of knowledge. The 2010 UNGASS Report¹⁰⁴ states that the percentage of young people aged 15-24 who can identify correct methods of prevention and reject false methods has risen to 35%, citing data from 2007 but not identifying the source. If this were even partly true, it would denote a marked improvement in knowledge about HIV prevention.

8.3. Studies in Sex workers

Section 5.3 describes some of the KAP data from the 2007 CEFORMI study on 603 sex workers, most importantly, the contradictions between their claims of high rates of condom use with clients versus their high levels of seroprevalence.

In their 2008 KAP study of sex workers, MSMs and drug users¹⁰⁵, Mpinganzima and colleagues interviewed 125 female sex workers, 45 from Bujumbura and 20 each from four other locations (Ngozi, Kayanza, Gitega and Rumonge). Among their findings:

- All sex workers studied agreed that condoms would never be used with all clients 100% of the time, because the cost of a transaction is negotiated around the use or not of a condom. That said, almost two-thirds (62.4%) stated that they always tried to negotiate

¹⁰⁴ Republique du Burundi; 2010 UNGASS Rapport - Mise en Ouvre de la Declaration Engagement sur le VIH/SIDA; March 2010

¹⁰⁵ Mpinganzima D; Connaissances, Attitudes et Pratiques des Homosexuels, des Professionnels du Sexe et des Usagers de Drogues en Matiere de VIH/SIDA au Burundi; ABS/UNESCO/UNAIDS (March 2008)



the use of a condom with clients. They thought there was a tendency towards more use of condoms, except among their older clients.

- One-third had tried the female condom and thought it provided better protection. The two problems with the female condom were that it was more difficult to dispose of discreetly in the community, and clients were not accepting of it.
- Although it was agreed that they would never discuss their serostatus with anyone, it being a taboo subject, two-thirds stated that they knew someone in their community who was seropositive.
- 85% of the respondents considered themselves to be at increased risk of contracting HIV, because of the number of partners they had, and their difficulty in negotiating condom use.

Like other KAP studies, this one did not ask the most important questions of these sex workers – the actual number of clients they had, precise records of condom utilization and actual sex acts performed, information about who their clients were, the number of STIs they had had in recent months, and whether they used condoms or not with their steady partners or boyfriends.

To summarise:

- Although there is a high level of awareness of HIV, this has not translated into comprehensive knowledge about prevention, either amongst adults or youth.
- There is similarly wide knowledge about condoms, but their usage is low.
- Stigma about HIV remains widespread, inhibiting people's willingness to take an HIV test
- Early onset of sexual activity is common in both rural and urban areas, although there is some indication that the age of first sex may be increasing
- There is evidence of high levels of GBV, as well as sexual abuse of children
- There is a lack of information about sexual behaviours and practices – number of casual and regular partners, amount of concurrency¹⁰⁶, partners outside of marriage, etc.

9. RESPONSE TO THE EPIDEMIC

The following are some brief statistics, demonstrating the increased response to HIV/AIDS in Burundi over the past several years. As can be seen from **Table 24**, the number of VCT, MTCT and ARV treatment sites have all increased dramatically over the past five years.

¹⁰⁶ It is important when discussing multiple sexual partnerships to distinguish between **consecutive** and **concurrent** partnerships, the latter being where there is overlap between different partners, greatly increasing the risk of establishing a network of transmission. For further discussion of this, see Halperin D, Epstein H; Concurrent sexual partnerships help explain Africa's high HIV prevalence: implications for prevention; Lancet 2004: 364:4-6

Table 24: Sites for HIV testing and treatment in Burundi (2006-2009)

Site ¹⁰⁷	2006	2007	2008	2009
MTCT	27	37	63	119
ARV	36	46	68	75
VCT	151	180	266	319

Source: RBP+ Annual Report 2009

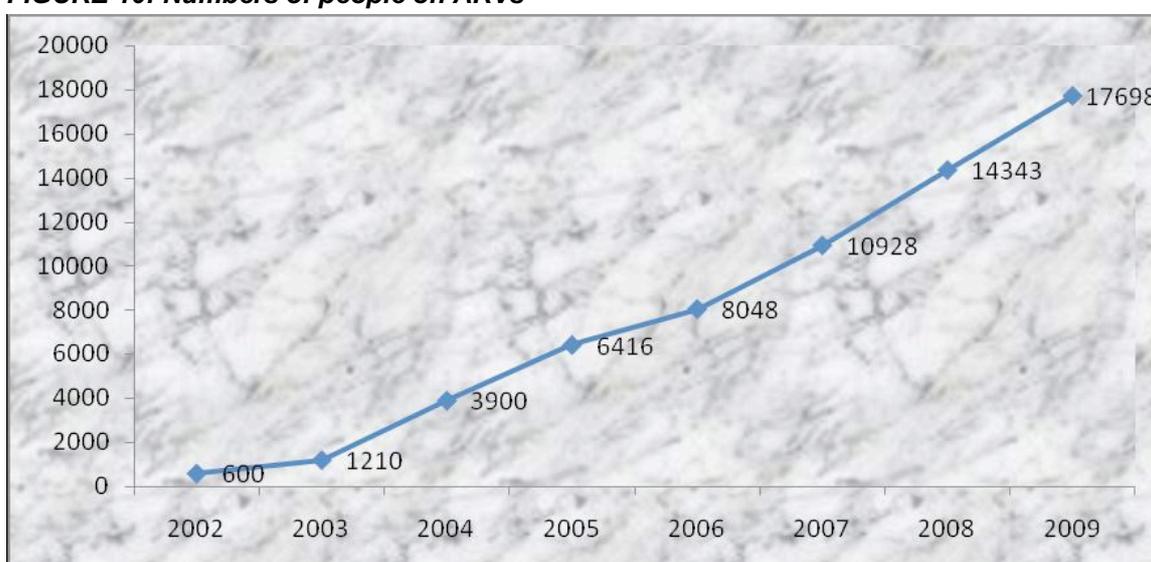
Forty-eight new ARV treatment centres were established in 2009 alone. While 10,928 people were on ARVs in 2007, by the end of 2009, this number had increased to 17,661 (reported as 17698 in the 2010 UNGASS Report), of whom 1452 were under the age of 14 years, as shown in **Table 25** and **Figure 10**:

Table 25: Number of people on ARV treatment in Burundi (by December 2009)¹⁰⁸

On ARV treatment				On Bactrim
age	Deaths	Active cases	Cumulative TOTAL	
0-4 years	12	255	267	1558
5-14years	20	1197	1217	2074
15+ years	398	16216	16614	17278
TOTAL	431	17661	18115	21279

Source: Bulletin Annuel de Surveillance Epidemiologique

FIGURE 10: Numbers of people on ARVs



Source: 2010 UNGASS Report

However, there is no firm answer to the question of ART coverage, i.e. what proportion of PLHIV with advanced HIV infection and in need of ART are actually receiving treatment? The 2010 UNGASS report estimates that there are approximately 230,000 people living with HIV in Burundi¹⁰⁹. Spectrum estimations in other countries such as Mozambique used a ratio between PLHIV and “in need of ART/cotrimoxizole” as 3.3, so

¹⁰⁷ RBP+; Annual Report 2009

¹⁰⁸ Source – USLS/Santé

¹⁰⁹ RBP+ in their reports are still citing the 2003 estimate that there are 250,000 PLHIV in Burundi, of whom 130,000 are women and 30,000 children



if the figure of 230,000 PLHIV is accurate, this would mean that approximately 70,000 PLHIV in Burundi would benefit from ART/cotrimoxazole. Therefore, the 17,661 people on ARVs and the 21,200 with access to opportunistic infection treatment are only a small proportion of the people in the country who would be eligible and in need of treatment¹¹⁰.

Of those who are fortunate enough to be on ART, Ministry of Health figures indicate that there is a high rate of adherence 87.6% for women and 91.7% for men. A cohort that was followed showed a one-year survival rate of over 90% and a level of drug resistance of around 1%.

The projections for increasing ARV coverage call for a very rapid increase from the current 17,661:

Table 26: Projected numbers of people on ARV treatment in Burundi (2010-2013)¹¹¹

Year	Projected numbers on ARVs
2010	21,000
2011	25,500
2012	30,000
2013	34,500

Source: *Bulletin Annuel de Surveillance Epidemiologique*

There are 707 health centres in the country that offer antenatal care services. Of these, only 74 offer PMTCT services¹¹². As noted, over 90,000 women were registered at antenatal clinics in 2009. However, the data (not presented here) shows that in practically all the provinces, no matter how many women they register, there are uniformly high drop out rates from the number of women reporting to the centres to those tested for HIV, and then another drop off to the number of HIV positive women who actually delivered at the clinics, the number of infants registered and the number of infants tested at 18 months.

Table 27: Antenatal testing and MTCT uptake in Burundi (2008)

# women coming to ANC	# pregnant women tested at ANC	# testing HIV+	# under MTCT	Delivery according to MTCT protocol	# infants on MTCT	Infants tested at 18 mo.	Infants testing HIV+ at 18 mo.
91.365	21.576	1183	1837	1272	1332	352	22

Source: *Bulletin Annuel de Surveillance Epidemiologique*

The actual number of condoms being distributed in Burundi is another statistic that is not entirely clear. UNFPA state that 10,374,024 male condoms were distributed in 2008 (plus 63,446 female condoms)¹¹³. However, The Ministry of Public Health's figure for 2008 is 10,281,820 condoms (8,675,404 from PNSR and 1,606,416 by PSI)¹¹⁴. The 2010 UNGASS report¹¹⁵ states that 8,444,184 condoms were distributed in 2008 and 7,274,580 in 2009 which, given the above data, seems like an underestimate.

¹¹⁰ RBP+; Annual Report 2009

¹¹¹ Conseil National de Lutte Contre le SIDA (CNLS); Annual Report on the Achievements under the National Strategic Plan 2009

¹¹² UNFPA Report 2010-2014

¹¹³ UNFPA Data

¹¹⁴ Ministère de la Santé Publique ; Bulletin Annuel de Surveillance Epidemiologique de VIH/SIDA/IST, 2008; (December 2009)

¹¹⁵ République du Burundi; 2010 UNGASS Rapport - Mise en Ouvre de la Déclaration D'engagement sur le VIH/SIDA; March 2010



But these figures of approximately 10.3 million condoms may not include the 456,932 that SWAA distributed (plus 10,190 female condoms)¹¹⁶, or the 264,813 distributed by RBP+ (RBP+ states that in 2009 they distributed 1.5 million). So there may have been close to 11 million condoms distributed in 2008. However, when one considers that the number of sexually active men in the country may number two million, and conservatively suggesting that only half of them may need to use a condom, that still works out to less than one condom per month per man.

In their annual report for 2009¹¹⁷, CNLS lists several pages of the target service delivery indicators under the strategic plan, and noting the achievement for each (there are a number for which data is missing), giving the target for 2009, what was realized, and a percentage figure of what was achieved against the year's target. For example:

Table 28: Selected indicators from the CNLS Annual Report in Burundi (2009)¹¹⁸

Indicator	Annual projections 2009	Actual 2009	% of target achieved
Number of male condoms distributed	7 500 000	7 204 329	96,1%
Number of female condoms distributed	45 000	70 251	156,1%
Number of centres providing VCT	300	319	106,3%
Number of persons counselled and tested	300 000	308 827	102,9%
Number of STI cases treated syndromically	17 148	38 358	223,7%
Number of blood donations tested for HIV	30 000	25 479	84,9%
Seroprevalence of donated blood samples	0,35%	0,5%	
Number of exposed persons benefiting from preventive treatment	1 000	101	10,1%
Number of sites providing PMTCT services	68	119	175%
Number of seropositive pregnant women who completed a course of ARVs to prevent mother to child transmission	3 810	1 582	41,5%
Number of newborns of seropositive mothers who received prophylactic ARV treatment	3 810	1 477	38,8%
Number of opportunistic infections treated	43 730	102 163	233,6%
Number of PLWHA receiving palliative care	15 000	11 988	79,9%
Number of PLWHA receiving nutritional supplements	1 580	5 009	317%

Source: CNLS; Annual Report on the Achievements under the National Strategic Plan 2009

For most of the indicators, targets for the year were reached or exceeded, demonstrating that the National Strategic Plan is successfully being implemented on a number of fronts. However, there are several examples that reflect possible inadequacies in the current response. In the above list, the fact that almost

¹¹⁶ SWAA Burundi, Report on Activities 2008 (March 2009)

¹¹⁷ Conseil National de Lutte Contre le SIDA (CNLS); Annual Report on the Achievements under the National Strategic Plan 2009

¹¹⁸ Conseil National de Lutte Contre le SIDA (CNLS); Annual Report on the Achievements under the National Strategic Plan 2009



40,000 cases of STI were treated is laudable, but the target of 17,000 was a very modest one, not reflecting the expected case numbers. The figure of 119 centres providing MTCT, almost fifty more than targeted, is also laudable, but given the seroprevalence among child-bearing women, if only 1582 women and 1477 newborns received prophylactic ARVs, that connotes a problem in the program.

Over 100,000 opportunistic infections were treated in 2009, which is more than twice as many as was predicted, but it also suggests that the 2008 UNGASS estimate of only 110,000 PLHIV in the country was an underestimate, and should not have been used for program planning. Even so, the low target-setting for reaching PLHIV with palliative care and nutritional supplementation, or the small number of orphans that were targeted to be reached, needs to be reviewed in the light of the HIV prevalence data reviewed in this report.

10. DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

If the preceding pages can be concisely summarized, it is that two issues seem to be clouding a clear perception of the status of the HIV epidemic in Burundi:

- There are problems with the data that is available
- There are important factors that may be contributing to the epidemic for which no data is available.

As has been noted, a proper understanding of the HIV prevalence in Burundi is difficult to obtain, due to different methodologies involved in tabulating the data, lack of standardization in the numerators and denominators used (which makes comparisons more difficult) as well as problems in the sampling, the sample size and the quality of HIV testing in the country.

It is certain that the high seroprevalence levels seen in the country in the 1990's have indeed fallen over the past decade and the epidemic in Burundi seems to be in a relatively stable state, with a steady rate of new HIV infections occurring each year to maintain the seroprevalence at the same levels. There seems to be a decline in the HIV prevalence in the urban and semi-urban settings, but the increasing prevalence in this largely rural country has maintained the prevalence in the 15-49 year old population at approximately the same level, using the 2002 and 2007 National Seroprevalence Surveys as the most accurate sources of national seroprevalence.

Aside from the basic issues of using antenatal seroprevalence data as a surrogate marker for the general population (given the assumptions made when using sexually active fertile women of child-bearing age as representative of the entire adult population), there are a number of reasons why the antenatal surveillance data for Burundi may not be an accurate reflection of the actual seroprevalence levels. The deficiencies of the antenatal sentinel surveillance system have been noted: the prevalence figures that are cited do not seem to reflect data gathered from other surveys, and the problems with the sentinel data may be due to a combination of factors, including issues of sampling in the sentinel surveillance and VCT sites, high rates of refusal to be counseled, tested or to submit a blood sample, problems in reporting, and possibly issues with laboratory technique and quality control. The fluctuations in the sentinel surveillance data from year to year do not demonstrate any temporal trends, and



one is left with depending more on the less frequent National Prevalence Studies, which do not demonstrate much a difference between the prevalence figures in adults aged 15-49 between 2002 and 2007.

The actual location of sentinel sites may also be influencing the ability of sentinel surveillance to be an accurate monitor of the epidemic. In any case, the number of sentinel surveillance sites needs to be greatly increased.

The problems with the current surveillance system have been recognized. In the 2008 Surveillance Report, the following reasons were given for the system not being an optimum source of accurate information¹¹⁹:

- The status of USLS/Santé – the AIDS unit in the Ministry of Health - does not allow it to mobilize the funds necessary to implement all or even most of its planned activities.
- Stock-outs and lack of reagents, equipment for voluntary testing, medications for treatment
- Defects in the reporting system, reports not being transmitted to the central level.
- Lack of standardized reporting methods
- Problem of coordination of various interventions and intervention partners
- Problem of accessing those funds that are available – prolonged administrative procedures
- Lack of quantity and quality of trained personnel to carry out the daily activities of the ministry.

At least five of those reasons could be addressed by reviewing management systems, aspects of quality control and quality assurance, and strengthening of human resource capabilities. None of the reasons touch on the possibilities of methodological issues being the cause of the problems. The need for an increased number of sentinel surveillance sites cannot be overemphasized (the CNLS intended to have 40 sentinel surveillance sites operational in 2009, but only eight were operational).

But it is arguable as to whether HIV incidence, the rate of new HIV infections, is increasing or not. As shown, the prevalence in the 15-49 year age group was the same in the 2002 and 2007 surveys. In countries with an established epidemic, the prevalence may be stable or even increase despite a decreasing incidence because of the number of HIV seropositive people going on ARVs and surviving for many years – more people would be added to the “pool” of PLHIV each year despite a falling HIV incidence. Given the relatively small number of people on ARVs in Burundi, this is probably not a factor maintaining the prevalence levels, although it might have a greater effect in the coming years as the roll-out of ARVs continues.

One possible scenario, which would fit with the observed data, but which needs to be confirmed by further research is that HIV incidence is increasing in rural areas, especially in men (which is of key importance because the majority of the population is rural). At the same time, it may be decreasing in semi-urban areas, especially in men, and in urban females, but increasing in urban males. The factors that would lead to such varied incidence changes would need to be investigated. The lack of incidence estimations in Burundi is to a certain extent due to the lack of accurate population and prevalence data, and those that have been attempted have had such wide confidence intervals as to make them unhelpful in understanding the epidemic.

¹¹⁹ Ministère de la Santé Publique; Bulletin Annuel de Surveillance Épidémiologique de VIH/SIDA/IST, 2008; (December 2009) page 38



Besides a belief that HIV incidence was increasing, another assumption that was made in crafting the current national strategy was that the prevalence was higher in the border areas, and that the effects of war and repatriation were contributing to the higher prevalence. The National Prevalence study in 2007 on displaced persons¹²⁰ states that “the impoverishment of displaced persons, the promiscuity in the camps and limited access to condoms are factors which favour multiple partnerships and non-protected sex”, implying that these factors have led to increased HIV transmission in the camps, although the data showed that the seroprevalence in the displaced populations were slightly higher than the general population, but that their answers to behavioural questions and attitudes was not that different.

As has been seen, some border areas do indeed have a slightly higher prevalence that is similar to the other side of the border, but these aren't necessarily the highest prevalence areas in the country. Indeed some border regions have a lower than average prevalence, which may be related to their relative isolation. As well, while the seroprevalence in the individuals sampled in the displaced persons study in 2007 was higher than the national average, they were sampled from locations all over the country, and it was not possible to date the time of their acquisition of HIV, so the contribution of displaced persons to ongoing transmission is unclear.

There are other factors that need to be considered to account for the continuing incidence of HIV in Burundi, such as the low level of male circumcision, early onset of sexual activity by a significant proportion of the adolescent population, high levels of HIV seropositivity among sex workers, and evidence of high prevalence levels of STIs.

In terms of co-factors that may be maintaining or exacerbating transmission rates, one issue that needs to be addressed is that of male circumcision, or rather, its absence in Burundi. The majority of men in Burundi are not circumcised, and while countries or regions in Africa that have similar high rates of non-circumcision (such as Botswana or Western Kenya) are rolling out interventions to make circumcision more accessible and acceptable, the planning for such interventions is only just beginning to be considered in Burundi.

The lack of male circumcision may also be in a synergistic relationship with the relatively high levels of STIs that have been reported in several of the studies cited. It could be that the combination of the two is increasing transmission, especially in the urban areas, among younger sex workers and MSM.

The lack of data about the MSM population, a population that does indeed exist in Burundi, is an example of a MARP where more data is urgently needed in order to develop possible interventions and programs. A small population has already been identified, which probably means that the total population is much larger, given the stigma attached to revealing oneself as MSM, and also may include male sex workers.

The fishing populations, transport workers and possibly IDUs are other potentially significant MARPs for which more bio-behavioural data is needed.

The evidence of early onset of sexual activity also needs to be addressed. There is some evidence that the median age of first sex has increased slightly, but the percentages of young people who have had sex by age fifteen – approximately one-third – is higher in Burundi than in most countries of the region. A review of the 2008

¹²⁰ CNLS/CEFORMI; Behavioural and Surveillance Study – Displaced Persons (October 2008)



UNGASS reports on young people indicate that the share of young people globally reporting sexual intercourse before age 15 fell from 14% to 12% between 2002 and 2007¹²¹. So Burundi's prevalence level, while not the highest reported (Sao Tome 60%, Chad 35%, Brazil 45.3%) is still significantly above average. Early onset of sexual activity is not confined to the developing world. The Netherlands reported that by age 17, 50% of the population is sexually active. The 2008 UNAIDS Global AIDS Report confirms this, noting that "age of first sexual activity in sub-Saharan Africa is comparable to high-income countries", eg. USA where "47% of young people have initiated sex by the time they finish high school."¹²²

Figure 3 showed HIV prevalence levels for all segments of the population, including children under the age of 15. It might be assumed that the prevalence levels seen in the children under 9 years are the result of MTCT, and that is probably correct. But the HIV prevalence levels seen in the 10-14 year olds might be the result of early onset of sexual activity. However, data also suggests a high rate of childhood sexual abuse against both young girls as well as young boys. Planned interventions will have to address the somewhat unpleasant realities of child sexual abuse and precocious sexual activity in the population.

One of the points that was repeatedly raised during the interviews for this report was that Burundians did not like to talk about issues of HIV/AIDS and sexuality in general, and that public discussion about topics such as sexual behaviour were considered to be taboo by many. This reticence to talk about the specifics of sexuality has undoubtedly inhibited research in the country that would provide more insight into the epidemic, and what research has been done needs to be evaluated in the context that people may not be providing truthful answers to questions whose answers they would consider invasive, embarrassing or compromising.

For example, it is widely believed that multiple concurrent partnerships are one of the major drivers of the epidemic in most of the East and Central African countries¹²³, and that small changes in the number of partners within a sexual network can greatly influence the spread of the virus^{124, 125}. But one cannot learn about multiple concurrent partnerships by asking vague questions about number of partners in the past year – one needs to know not only the number of partners but whether they were concurrent or consecutive, what were the periods of overlap between partners, whether condoms were used, etc, and to date these questions have not been asked in Burundi.

Detailed sexual behaviour research is strongly indicated, asking discreet but necessary questions about sexual partnering and practices. BSS and KAP studies in Burundi seem to have relied strongly on the questionnaire approach, often utilising the standard questions found in UNGASS and other reports, and focusing more on programmatic questions relating to health services, etc. than the more critical questions on sexual practices, partner acquisition and other sexual behaviours.

¹²¹ 2008 UNAIDS Global Aids Report

¹²² 2008 UNAIDS Global AIDS Report pg. 105

¹²³ Halperin D, Epstein H; Concurrent sexual partnerships help explain Africa's high HIV prevalence: implications for prevention; Lancet 2004: 364:4-6

¹²⁴ Morris M, Kretzschmar; Concurrent partnerships and the spread of HIV; AIDS 1997; 11:641-48

¹²⁵ Mah TL et al; The evidence for the role of concurrent partners in Africa's HIV epidemics: a response to Lurie and Rosenthal; AIDS Behav. 2010: 14-25-28



However, the reticence to ask questions may also be reflected in a reticence to answer sensitive questions truthfully. There are many examples in the various reports reviewed for this report where there is a lack of internal consistency in the data being reviewed – surveys where those people who claim not to be sexually active have higher STI and HIV prevalence rates than those who do, the differing rates of condom utilisation being reported by sex workers and their clients, and presumably a lack of forthrightness over the age of onset of sexual activity or the number of extra-marital partners one has. The seroprevalence levels in female sex workers, prevalence of STIs in different populations, as well as the number of pregnancies in young women are all evidence that there is more unprotected sex occurring in Burundi than is being admitted to in the questionnaires being administered in the majority of the KAP studies that are taking place.

This reticence to discuss sexuality and intimate personal details is not unique to Burundi, but the initiative of researchers in other countries to explore these issues does not seem to have occurred yet in Burundi. There are a number of small-group and individual interview approaches that could shed light on these questions. But in the absence of data, much of the perception of the epidemic in Burundi is based on traditional points of view or assumptions that may no longer be the case.

Perhaps most difficult to identify, especially given the reticence to talk freely about sexual activity, is the issue of sexual behaviour in discordant couples, another MARP for which there is little data. Evidence from other countries in the region indicate that at this point in the epidemic, discordant couples are the source of the largest share of new infections. Discordant couples, by definition, are discordant because one partner was HIV-positive when the relationship began, or has had a second partner at some point after the relationship commenced. Therefore, the person at risk is the HIV-negative partner, who may have no reason to assume that he or she is at risk. How to elicit data of this nature will require a re-examination of some of the traditional data-gathering methods in the country.

Differences in sexual behaviour, attitudes and practices between different groups or communities in the country is a factor that may be of importance in Burundi as it is in so many countries in the region, but Burundi's politics and history may not make research into this domain possible or acceptable. Given Burundi's recent years of turbulence, the official view put forward is that because Burundi is such a small country, there aren't any great differences between any of the communities anywhere in the country. This may be true, but there is some evidence of practices such as widow inheritance and "consoling" in one area of the country of relatively high HIV prevalence, and it is an area that needs to be researched more fully.

Besides those factors already discussed, some others that have been postulated to be contributing to the vulnerability to HIV in Burundi have included the low educational attainment of women and girls, socio-political insecurity, conflict and limited access to HIV/AIDS services. Overriding all of these, conflict and its aftermath had confounded attempts to determine the specific weight of each of the other factors to the epidemic.

Based on this, the recommendations that lead from this report are few, but vitally important if a clearer understanding of the current status of the HIV/AIDS epidemic in Burundi is to be realised:



Therefore, the conclusions and recommendations of this epidemiological synthesis are:

- The overall HIV epidemic in Burundi seems to be relatively stable, with the prevalence of 3.6% in the population aged 15-49 in 2007 essentially the same as in the previous 2002 National Prevalence survey. However, there has been a marked decrease in the urban and semi-urban prevalence levels, with a slight increase in the rural prevalence. In the 15-49 age group, the lowest prevalence levels are found in the rural 15-24 population (2.9%) and the highest in the urban 25-49 population (9.8%). There is some evidence of a shifting balance in the number of infections between men and women, with an increasing proportion of rural males and a decreasing proportion of urban females becoming infected.
- There are significant differences between the HIV prevalence levels in different provinces, with Bujumbura having the highest prevalence in the country, and most of the northern and eastern border provinces also having a higher prevalence. Neither the prevalence results from sentinel surveillance sites nor results from antenatal VCT sites correlate with the results of the 2007 seroprevalence study.
- Differences in data may be related to one or all of: an insufficient number of sentinel surveillance sites, high rates of refusal to be tested, or problems with the testing, sample handling or laboratory methods. Laboratory quality assurance (QA) may be lacking in some areas.

The sentinel surveillance system needs to be improved, not only through an increase in the number of sentinel surveillance sites and increased efforts at mobilising women for testing, but more importantly by improving the mechanics and monitoring of the data collection, reporting and analysis and ensuring laboratory testing quality assurance.

The methodology and reporting of surveillance and survey data needs to be standardised so that results from different years and different data collection efforts can be more easily compared.

Although the majority of the population is rural, specific interventions nonetheless need to be targetted at semi-urban and urban areas where the HIV prevalence is substantially higher – these could include programs such as provider initiated counselling and testing (PICT), prevention for positives programs, programs for youth in and out of school, etc.

- There are a number of high-risk populations where the prevalence is higher than the national average. Although the uniformed services and displaced persons are routinely included in the list of high-risk populations, the prevalence in these populations is not much different from that in the general population, which may be attributed to workplace interventions and individuals acting on their own to reduce risk. The prevalence in the displaced persons is only marginally higher than the general population, and there is a question as to whether HIV acquisition in these populations is recent or the result of events in the past during the height of the civil disorder.
- Female sex workers have a prevalence level many times higher than the national average, with higher rates among young rural sex workers, perhaps because of a lack of access to condoms. Sex workers are a population where there is no doubt about their status as a MARP.
- There is a lack of data and more research is needed to determine HIV prevalence levels amongst discordant couples, MSM, drug users, truck drivers and the lakeside fishing communities.
- There is evidence of high prevalence levels of STIs in some populations, which may be contributing to HIV transmission. The low level of male circumcision in Burundi is a factor contributing to continuing HIV transmission



- Although there is a high level of awareness of HIV, risk factors and the need to use condoms, this has not translated into comprehensive knowledge about prevention or significant changes of practice, either amongst adults or youth. Stigma about HIV remains widespread, inhibiting people's willingness to take an HIV test.
- Early onset of sexual activity is common in both rural and urban areas, although there is some indication that the age of first sex may be increasing.
- There is evidence of high levels of GBV, as well as sexual abuse of children
- There is a lack of information about sexual habits – number of casual and regular partners, amount of concurrency, partners outside of marriage, etc.

KAP and HIV prevalence studies need to be launched into MARPs that have not previously been targeted, such as MSM, fishing communities, etc. and based on the results, appropriate interventions developed to meet the needs of these groups.

KAP survey, behavioural surveillance and research instruments need to be broadened to include more detailed questions on sexual behaviour and practice based on internationally recommended standard indicators.

Interventions aimed at behaviour change need to take the results of KAP and BSS surveys and forthrightly address issues of multiple concurrent partnerships, casual sex, adolescent sexuality, gender violence, and child sexual abuse.

Condom IEC, promotion, availability and distribution needs to be massively increased, especially in rural areas.

Interventions need to be implemented to address the low rate of male circumcision. Because of the relatively low prevalence and cultural issues preventing widespread uptake of adult circumcision, it may be more worthwhile to develop a program of neonatal or infant circumcision by trained personnel as a “long-term insurance” against surges of HIV epidemics in the future, in combination with programs on IEC aimed at the adult population and improving existing adult MC services at health facilities to assure quality and increase scale.

Interventions with sex workers (SW) promoting safe sex, use of condoms, regular testing and treatment of STIs and other health issues need to be implemented. Community-based programs using peer leaders and mobilising SW communities should be initiated in urban areas, training peer leaders and trainers who can then be deployed in more widespread programs targeting SWs in semi-urban and rural locations.

- There has been a strong response to the epidemic in the past eight years, as evidenced by the increased number of facilities offering care and treatment and PMTCT services, the increased numbers of people on ARVs, and the increased levels of knowledge. However it seems likely that the greatest proportion of those in need of care, treatment, counselling and testing are still not being reached.

Target-setting in the Annual Strategic Plan should be both evidence-informed and realistic, reflecting only the size of the problem but also the infrastructure and resources that are available to address the problem.

- Evidence-informed decision-making is predicated on both the assumption and the necessity that the evidence being used to make decisions is reliable. There is much evidence in the documents that were reviewed for this report that data collection and reporting in Burundi is often unreliable, and a number of factors that could be causing this have been suggested.



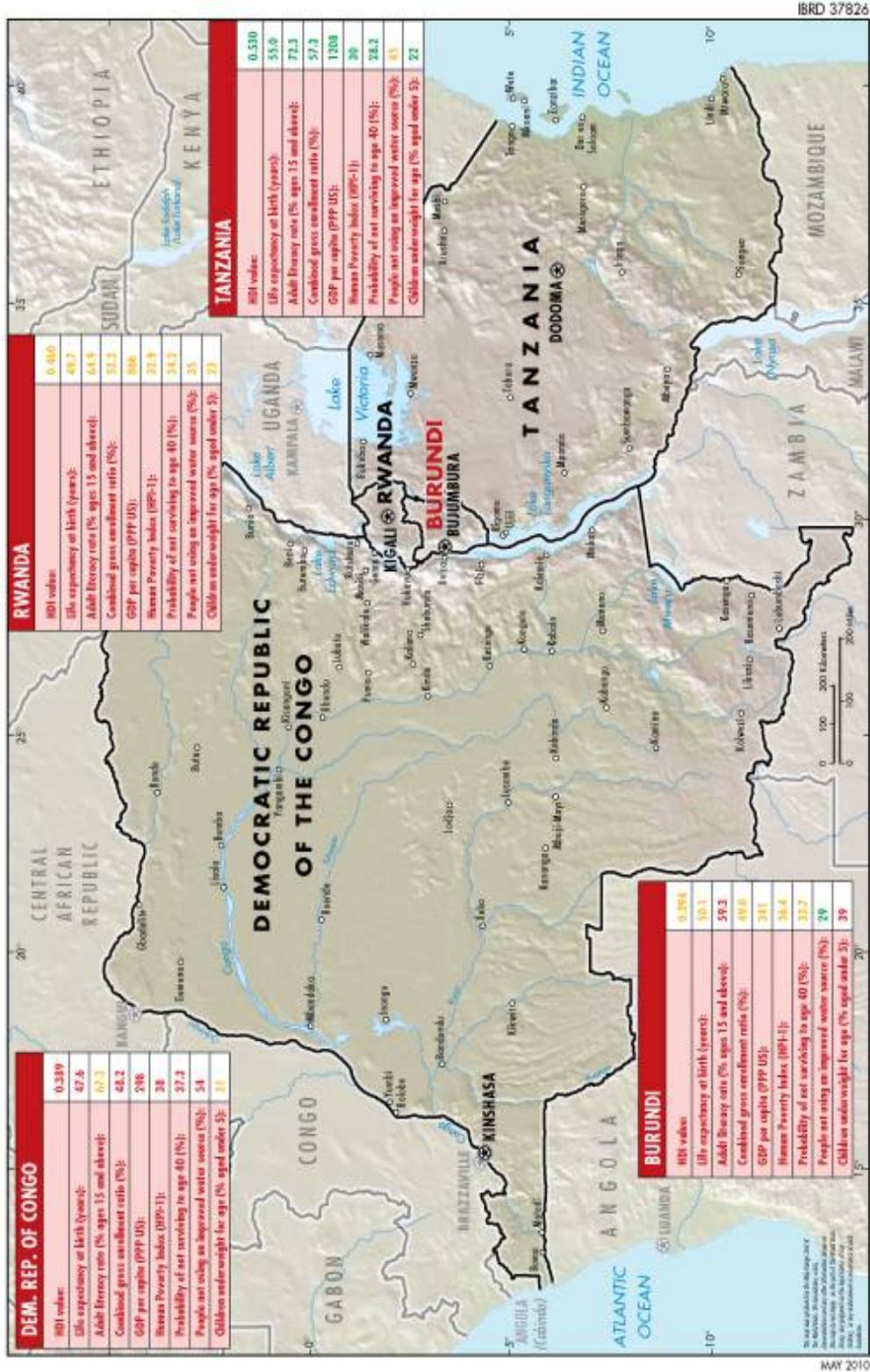
Quality assurance mechanisms and improved monitoring and evaluation of testing and reporting systems needs to implemented at all levels of the health system as soon as possible in order to improve the quality and reliability of the data being generated and analysed.

Finally, this report has identified a number of issues, specific high-risk populations and unanswered questions about the HIV epidemic in Burundi, for which data is either incomplete, unavailable, or difficult to analyse. It is hoped that some of these will be resolved in the next BSS study, planned for 2010.

APPENDIX ONE – COMPARATIVE POPULATION INDICES

BURUNDI COMPARATIVE POPULATION INDICES*

*SOURCE: UNDP Human Development Report, 2009.



IBRD 37826

MAY 2010



APPENDIX TWO - PEOPLE MET

Marie-Louise Baleng; Resident Representative, Population Services International (PSI)

Dr. Véronique Barankenyereye; Director, Unite Sectorielle de Lutte Contre le SIDA (UCLS),
Ministere de la Sante Publique

M. Aurelien Serge Beko; Poverty Economist, World Bank

Edouard Cishahayo; Research Manager, Population Services International (PSI)

Christa Josiane Karirengera; Coordinator, Centre Seruka

Patience Kubwumuremyi; National Coordinator, Alliance Burundi contre le SIDA (ABS)

Dr. Yolande Magonyagi; National Program Officer, UNFPA

Dr. Deo Manirakiza; UNICEF

Diane Mpinganzima; Consultant

Rosemeire Munhoz; Country Coordinator, UNAIDS

Adjaratou Ndiaye; Senior Public Health Specialist, World Bank

Dr. Athanase Ndayiragije; Consultant, Centre de Formation et de Recherche en Maladies Infectieuses (CEFORMI)

Gilbert Nduwayo; Technical Director, Program National de Services Reproductifs (PNSR), MSP

Dr Martin Ngabonziza; Country Director Family Health International (FHI)

Dr. Fabien Ngendakumana ; National Coordinatory, Association Nationale de Soutien aux Seropositifs et Maladies du SIDA (ANSS)

Benjamin Nicayenzi; National Coordinator, Reseau Burundais des Personnes Vivant avec le VIH/SIDA (RBP)

Prof. Theodore Niyongabo; Director, National HIV/AIDS Reference Centre (CNR)

Audace Niyongere; Planning Monitoring and Evaluation Expert, Conseil National de Lutte Contre le SIDA du Burundi (CNLS)

Majoric Nshimirimana, M&E Technical Officer, Family Health International (FHI)

Dr. Stanislas Ntahobari; HIV/AIDS National Professional Officer, WHO

Dr. Janvier Nzorijana; Medical Coordinator, Society for Women Against AIDS in Africa (SWAA)

Felicia Price; Country Manager, Clinton Foundation

Dr Jean Rirangira; Permanent Executive Secretary, Conseil National de Lutte Contre le SIDA du Burundi (CNLS)



Isabel Rusuku; L'Association pour la Défense des Personnes Vulnérables

Philbert Sinzinkayo; Chief, Information Education and Communication Services, Program National de Services Reproductifs (PNSR), MOH

Danielle Vaubourg; National Coordinator, Ensemble Solidarite Therapeutique Hospitaliere en Reseau (ESTHER), Ministere de la Sante Publique

M. Yves; Association of MSMs - Humure



APPENDIX THREE - DOCUMENTS RECEIVED

ANSS. **Rapport des Activites pour l'Annee 2008** (April 2009)

ANSS, Projet REMUA VIH/SIDA; **Analyse de Situation la Prise en Charge des PVVIH au Burundi** (December 2005)

APRODEC; **Phénomène de Stigmatisation et Discrimination des Personnes Infectées ou Affectées par le VIH/SIDA au Burundi**, (DATE???)

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CNLS/CEFOMI; **Behavioural and Surveillance Study – Displaced Persons** (2002)

CNLS/CEFOMI; **Behavioural Surveillance Survey 2004**

CNLS/CEFOMI; **Behavioural and Surveillance Study – General Population** (October 2008)

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RBP+; **Annual Report 2009**

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SWAA Burundi; **Human Rights Violation of Displaced Women Affected by HIV: A Case Study of Carama and Kiyange Sites** (July 2002)

UNAIDS; **2008 UNGASS Report – Rapport du Suivi de l'Engagement sure le VIH/SIDA au Burundi (draft report – never submitted)**

UNDP; **Human Development Report 2009**

UNFPA ; **Plan d'Action de Programme Pays Burundi 2010-2014**

UNFPA; **Sexual Violence Study**



For further information contact:

The Global HIV/AIDS Program
World Bank Group
1818 H St. NW
Washington, DC 20433
Tel: +1 202 458 4946
Fax: +1 202 522 1252
wbglobalHIVAIDS@worldbank.org
www.worldbank.org/aids