Republic of Botswana

2012 Mapping, Size Estimation & Behavioral and Biological Surveillance Survey (BBSS) of HIV/STI Among Select High-Risk Sub-Populations in Botswana

MINISTRY of HEALTH
REPUBLIC OF BOTSWANA

DEPARTMENT OF HIV/AIDS PREVENTION AND CARE

2012

MAPPING, SIZE ESTIMATION & BEHAVIORAL AND BIOLOGICAL SURVEILLANCE SURVEY (BBSS) OF HIV/STI AMONG SELECT HIGH-RISK SUB-POPULATIONS IN BOTSWANA

Technical Report

July 2013

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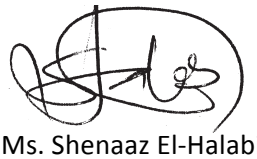
III. Foreword

More than two-thirds of all persons living with HIV and 70% of all new HIV infections are estimated to be in sub-Saharan Africa. Botswana ranks among the world's most affected countries in terms of HIV prevalence, with general population estimates at 17.6% in 2008.

The HIV and AIDS epidemic represents the most critical development challenge in Botswana's history. Since the first reported case of HIV in 1985, the Government of Botswana declared HIV and AIDS a national emergency and committed to a long-term response. Defined phases in the country's response can be delineated according to the particular plans that have been developed to address the epidemic. Each of these plans was developed after recognising the need to overcome the limitations inherent in the previous plans. During this period, significant gains were made in addressing the HIV/AIDS epidemic, especially in improving access to mother-to-child prevention services and antiretroviral treatment services.

The Second National Strategic Framework (NSF II) highlights four priorities for responding to HIV/AIDS in 2010–2016: 1) preventing new infections; 2) system strengthening; 3) managing strategic information; and 4) scaling up treatment, care, and support. To fulfill the first priority, the government noticed that there is need to increase access to HIV prevention services for the most-at-risk populations, also known as key populations. The limited data and research on estimating the size, risks, needs, and barriers to accessing health care services by the key populations led to the Government of Botswana embarking on a 2012 biological and behavioural surveillance survey among key populations. The results of this survey provide evidence that certain subpopulations in Botswana are more affected by HIV/AIDS than others. The results also show that behavioural linkages between these subgroups and the general population have the potential to facilitate further HIV transmission, hence posing challenges to the achievement of the first priority of NSF II.

This technical report is recommended for perusal and further analysis, as well as for use in developing relevant strategies based on its findings.



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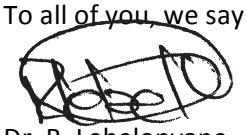
IV. Acknowledgements

The Ministry of Health would like to extend sincere gratitude to all who contributed to the successful conduct of the biological and behavioural surveillance survey among the selected key populations in Botswana. The Ministry acknowledges the STI/HIV control program for the coordination of this survey. Dr. M. Merrigan of FHI 360 is recognised for the technical support and facilitatory roles he provided during the survey.

The support of Tebelopele in providing its centres and mobile caravan for data collection is greatly appreciated. The National Health Laboratory (NHL), Botswana Harvard Partnership Reference Laboratory (BHPL), Botswana Police Service, World Health Organization (WHO), Joint United Nations Programme on HIV/AIDS (UNAIDS), the U.S. Agency for International Development (USAID), Research Triangle Institute (RTI), the University of Botswana, local organisations — including the Botswana Network on Ethics, Law and HIV/AIDS (BONELA), Nkaikela Youth Group, Sisonke, True men, Matshelo Community Development Association, and the Botswana Substance Abuse Network (BOSASNET) — and the districts are also appreciated for their significant contributions to the survey.

Finally, the Ministry would like to specially thank and appreciate the cooperation of survey team members (supervisors, interviewers, and counsellors) and the participants who made this survey a success.

To all of you, we say thank you!



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V. Acronyms

AIDS	Acquired immunodeficiency syndrome
ANC	Antenatal care
ARV	Antiretroviral
ART	Antiretroviral therapy
BAIS	Botswana AIDS Impact Survey
BONELA	Botswana Network on Ethics, Law and HIV/AIDS
BBSS	Biological and behavioural surveillance survey
BOSASNET	Botswana Substance Abuse Network
CDC	U.S. Centers for Disease Control and Prevention
CI	Confidence interval
DBS	Dried blood spot
FGD	Focus group discussion
FSW	Female sex worker
HIV	Human immunodeficiency virus
ID	Identification
LeGaBiBo	Lesbians, Gays and Bisexuals of Botswana
MSM	Men who have sex with men
NHL	National Health Laboratory
NGO	Nongovernmental organisation
NSF	National Strategic Framework
OR	Odds ratio
PCR	Polymerase chain reaction
PWID	People who inject drugs
RITA	Recent Infection Testing Algorithm
RDS	Respondent-driven sampling
RPR	Rapid plasma reagin
RTI	Research Triangle Institute
SADC	Southern African Development Community
STI	Sexually transmitted infection
TLS	Time-location sampling
TWG	Technical working group
UNAIDS	Joint United Nations Programme on HIV/AIDS
UNFPA	United Nations Population Fund
USAID	U.S. Agency for International Development
WHO	World Health Organization

VI. Technical Working Group Members

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VIII. Executive Summary

The HIV and AIDS epidemic in Botswana is generalised, with transmission occurring primarily in the general population. As a result, substantial prevention resources and the second-generation HIV surveillance system have been oriented towards the general population. Recently, there has been growing awareness of the importance of most-at-risk populations, known hereafter as key populations, who have long been the main focus of HIV prevention efforts outside of sub-Saharan Africa. Models have demonstrated that certain sexual behaviours and other risk behaviours among these stigmatised and often hidden populations — such as sex work, injection drug use, and male-to-male sex — have been the driving force behind concentrated epidemics. The Joint United Nations Programme on HIV/AIDS (UNAIDS) and other agencies have recognised that the classification of an epidemic as either 'concentrated' or 'generalised' based on HIV prevalence in the general population has masked the importance of these key populations within generalised epidemic settings. Epidemics in fact may be 'mixed' rather than either generalised or concentrated. Therefore, key populations may contribute disproportionately to generalised epidemics.

Biological and Behavioural Surveillance Survey

The 2012 Botswana Biological and Behavioural Surveillance Survey (BBSS) among key populations set out, through a cross-sectional design, to establish the population size, prevalence of HIV and other sexually transmitted infections (STIs), incidence of HIV, and risk profiles of three groups included in the international definition of key populations. These populations were female sex workers (FSWs), men who have sex with men (MSM), and people who inject drugs (PWID) in three districts of Botswana. PWID were omitted from the study early on, as anecdotal evidence suggested extremely low levels of injecting drug use and because no PWID were willing to participate in the study. As a result, the study progressed with FSWs and MSM in three districts that were selected because of high population levels, geographic diversity, and proximity to major border areas and transport routes. These three districts were Gaborone, Francistown, and Kasane.

Survey Findings for Female Sex Workers

Results of the BBSS showed FSWs to be the subpopulation most affected by HIV in Botswana, with an estimated population size of 4,000 in the three districts and a very high HIV prevalence (61.9%) and incidence (12.5%). Most FSWs reported finding clients in bars and other drinking spots, and they often had a different paying sex partner every night. They reported that many clients have wives and families, so these clients serve as a bridge between FSWs and the general population.

Although FSWs reported a widespread understanding of the importance of condom use in HIV prevention, they faced several obstacles to consistent condom use. These included clients paying more not to use condoms, clients forcing the FSWs not to use condoms, and regular experiences with condoms breaking. The prevalence of STIs was high among FSWs, repeat infections were common, and HIV prevalence escalated rapidly after each year of additional sex work. Most FSWs saw themselves at high risk of HIV and a considerable proportion knew their HIV status, yet an HIV-positive test result led only to better condom use with spouses or live-in partners. Only a minority of HIV positive FSWs reported receiving antiretroviral therapy. Excessive alcohol use was also common, which could have compounded risk behaviours.

Results of the BBSS also showed that FSWs receive HIV information from a variety of sources. However, an effective response to preventing HIV transmission among this subpopulation needs to go beyond information

dissemination and individual-level interventions. FSWs should be viewed within a broader risk environment that includes their boyfriends, clients, health care providers, peers, and focuses on access to services and commodities. Only by creating a more supportive environment for safer sexual decision-making will the knowledge that FSWs already have about HIV and AIDS result in reduced HIV transmission among this group and help reduce the burden of HIV among the general population in Botswana.

Survey Findings for Men Who Have Sex with Men

This study was conducted at an important time for MSM in Botswana. The HIV prevalence among MSM was 13.1%, which is similar to the HIV prevalence of 12.9% recorded among general population males aged 20-30 years in 2008 (NACA, 2008). However, the sample was young with a mean age of about 23 years, and HIV incidence was higher among MSM (3.6%) than among pregnant women in the 2011 antenatal care survey (2.7%). These results, together with a higher prevalence of STIs (about 10% for chlamydia) than the general population, indicates there may be cause for concern that HIV prevalence among this group may not be on the same downward trend as recent estimates for the general population.

The size of the MSM population was estimated at 781 in Francistown and Gaborone combined using a multiplier method, and the degree of error around these estimates was likely higher than that with the FSWs because of the high levels of stigma and hidden nature of this group. With such a young mean age among the MSM who were surveyed, it is likely that the peer-referral sampling method employed in respondent driven sampling may not have successfully engaged older MSM to participate, even though there were two MSM over the age of 40 involved in recruitment.

Reported risk behaviours confirmed the potential for HIV among MSM to spread to the general population, as respondents had a mean of one female partner each in the past six months, even though only about 40% of the sample had any female partners. About 10% of MSM with female partners had sex with FSWs, and a small minority (1%) were married, which again reflects on the young sample. Close to 40% were in concurrent sexual relationships at the time of the study, with the mean of about two male partners in the past six months, which refers to a combination of boyfriends and casual male partners.

A substantial proportion of MSM (65.1%) were not aware that anal sex is associated with a higher biological risk of HIV transmission than vaginal sex, and only about one-quarter (26.2%) had received any information on anal sex in the past year. Those who were only receptive partners in anal sex had a significantly higher HIV prevalence and lower rate of consistent condom use. About two-thirds (65.9%) of the MSM had always used condoms during anal sex in the past six months. Lubricant use was not widespread, and MSM in Gaborone were more likely to have access to water-based lubricant than their counterparts in Francistown and Kasane. About one-quarter of the MSM had never been tested for HIV (23.8%); however, among those who had been tested, a high proportion had been tested in the past 12 months (79.6%).

Alcohol use was common and cited as a reason for inconsistent condom use. 17.7% reported ever having an STI symptom in the past year. There were some reports of confusion among health care providers when faced with anal STIs, so this is an area of capacity development that would be a useful outcome of this study.

Conclusion

Overall the 2012 Botswana BBSS shed important light on two subpopulations whose behaviours are stigmatised and illegal and about whom little was known prior to this study. Now there is evidence

internationally, as well as in Botswana, that these subpopulations may contribute disproportionately to new infections even within a generalised epidemic setting. Further research and public health interventions are needed to better understand the context of HIV-related risk, especially with older MSM, and to respond to the current data with effective programmes and services that address individual as well as environmental factors among these marginalized populations, ultimately with the goal of increasing the likelihood that Botswana will achieve its Vision 2016 goal of zero new HIV infections in the country.

1. Introduction

1.1 Overview of HIV/AIDS in Botswana

According to the Joint United Nations Programme on HIV/AIDS (UNAIDS), the annual number of new HIV infections has been steadily declining since the late 1990s and there are fewer AIDS-related deaths because of the significant scale-up of antiretroviral therapy (ART) over the past few years. Although the number of new infections has been falling, the rate of new infections is still high and the number of people living with HIV worldwide has increased because of a significant reduction in mortality[1]. Botswana, with an estimated population of 2 million people[2], ranks among the countries most affected by HIV. Prevalence in the general population ages 10–64 years was estimated at 17.6% in 2008, with women having a higher estimated prevalence (20.4%) than men (14.2%)[3]. HIV prevalence among pregnant women is estimated at 30.4%[4].

The HIV/AIDS epidemic in Botswana is a generalised epidemic with transmission occurring primarily in the general population. As a result, substantial prevention resources have been devoted to interventions directed at the general population. Botswana has achieved notable success in scaling up HIV/AIDS care and treatment, as well as interventions for the prevention of mother-to-child transmission. As of December 2009, the number of children younger than 15 years who were newly infected with HIV had declined by 78%[5].

To track generalised epidemics, Botswana has a robust second-generation HIV/AIDS surveillance system made up of repeat sentinel surveillance among pregnant women attending antenatal care (ANC) clinics and a household survey to track HIV prevalence, knowledge, attitudes, and risk behaviours among the general population. The survey, called the Botswana AIDS Impact Survey (BAIS), is entering its fourth round. To understand the population-level burden of disease, successes, and emerging priorities, the principles of second-generation HIV surveillance require tracking trends in HIV prevalence and other biological markers over time, together with supportive knowledge, attitudes, and high-risk or protective behaviours (e.g., condom use among non-regular partners, fewer sexual partners) that can lead to reduced HIV infection.

1.2 Rationale for a Biological and Behavioural Surveillance Survey among Key Populations

The Second National Strategic Framework (NSF II) for 2010–2016[6] stipulates the need to increase HIV prevention services for the most-at-risk and hard-to-reach populations as one of its prevention implementation strategies. However, very little is known in Botswana about subpopulations who are highly affected by HIV and AIDS in other countries, such as sex workers, sexual minorities such as men who have sex with men (MSM), and people who inject drugs (PWID). These groups are highly stigmatized and engage in behaviours that carry higher biological risks of HIV transmission (e.g., unprotected anal sex, sharing of needles and syringes) or are at increased risk because of HIV-related risk behaviours, including a high number of sex partners.

Very few studies have been conducted on female sex workers (FSWs) in Botswana, including only one published study on HIV prevalence. In that study, HIV prevalence was obtained from a small sample of FSWs during screening for sexually transmitted infections (STIs)[7]. The small sample size was partly due to the stigmatisation and illegal nature of sex work in Botswana. The 2008 BAIS III report estimated the prevalence of HIV to be 37.4% among female respondents who exchanged in sex for money and 23.8% among male

respondents who paid for sex[5]. A recent meta-analysis of studies from 26 countries with medium and high HIV prevalence found HIV prevalence among sex workers to be disproportionately high at 30.8%[8]. According to Shannon and Montaner[9], punitive policies (e.g., criminalisation), enforcement efforts (e.g., police crackdowns, raids), and the threat of violence continue to limit sex workers' access to HIV prevention services, undermine their ability to negotiate condom use, and limit rigorous assessments of HIV interventions targeting sex workers.[4] Qualitative studies conducted among sex workers have revealed information gaps in relation to HIV prevention and other health services. They have also revealed that sex workers have difficulty finding affordable and free water-based lubricants[10,11].

Very little is also known about MSM in Botswana. The one published study on HIV prevalence, conducted by Baral and colleagues among 117 MSM in Gaborone, found a prevalence of 19.6%[12]. The prevalence differed by age, with the highest prevalence among men older than 30 years (46.7%). Although HIV knowledge was high among MSM, risk behaviours such as multiple partners (both male and female), inconsistent or no condom use, and alcohol and drug use were common. In addition, only 50% of the MSM who reported using lubricants reported using a water-based product as opposed to a petroleum-based product, which can weaken the condom and cause breakage. Studies of MSM from across the region have detected high HIV prevalence. In South Africa, a recent study revealed an HIV prevalence of 49.5% among MSM in Johannesburg and 27.5% among MSM in Durban[13]. Previous studies in South Africa have shown HIV prevalence among MSM to be 42% in Cape Town, 25% in Durban, 25% in Pretoria, and 12% in Soweto[1,21]. In Malawi and Namibia, HIV prevalence among MSM has been estimated at 21.4% and 12.4%, respectively[12].

Most-at-risk populations, referred to hereafter as key populations, are of particular importance for HIV surveillance, even in generalised epidemics. This is true because evidence suggests that many MSM also have female partners or married male partners and that many FSWs have boyfriends or married clients. These partnerships serve as 'bridges' for HIV transmission between key populations and lower-risk individuals in the general population[12,14]. Given the relatively limited information available about these subpopulations, there is a need for robust data to determine whether certain subpopulations contribute disproportionately to HIV transmission. Therefore, biological and behavioural surveys that generate accurate data on the size of these subpopulations, their risk behaviours, and their HIV prevalence and incidence are important for informing Botswana's response to the HIV epidemic, particularly as it relates to policy development, the planning and targeting of interventions, and decisions about resource allocation.

The Botswana Ministry of Health recognised that even in a generalised epidemic, HIV prevalence may be concentrated among key populations, that these groups have linkages to the general population, and that a comprehensive response to the epidemic requires knowledge of HIV prevalence and risk behaviours among these groups. Therefore, with support from its development partners, the Ministry of Health embarked on an exercise in 2011 to fill this knowledge gap through the first ever mapping, size estimation, and biological and behavioural surveillance survey (BBSS) among key populations in Botswana.

1.3 Goal and Objectives

The overall goal of the integrated BBSS was to generate baseline information regarding the prevalence and incidence of HIV and other STIs, and the risk factors for HIV among FSWs, MSM, and PWID. The information gathered will help the Government of Botswana and its partners better plan and target programmes and interventions to reduce the spread of HIV and other STIs among these subpopulations.

The specific objectives of the study were:

- To estimate the incidence and prevalence of HIV infection among FSWs, MSM, and PWID in Botswana.
- To estimate the size of the FSW and MSM populations in three districts of Botswana (Gaborone, Francistown, and Kasane).
- To measure the prevalence of syphilis, gonorrhea, and chlamydia among FSWs, MSM, and PWID.
- To identify the main risk factors for HIV and other STIs among FSWs, MSM, and PWID in Botswana.
- To strengthen the capacity of local institutions to conduct mapping, size estimation, and integrated biological and behavioural surveillance of HIV and other STIs among these subpopulations in Botswana.

2. Methods

2.1 Planning, Consensus-Building, and Study Committees

The planning phase for the BBSS led to the establishment of mechanisms, processes, and structures for continuous dialogue and exchange of ideas and experiences among the key implementing partners and other stakeholders. This process included the following activities:

- Review of background and technical materials on the prevalence of HIV and other STIs in the Southern Africa region and among key populations in Botswana, key risk factors that could account for increased vulnerability of these groups to HIV and other STIs, current programmes and interventions directed at these groups, and problems of access to HIV-related information and services by these groups were also reviewed.
- Meetings and consultations with local experts and potential partners (including members of existing technical working groups) concerned with the issues mentioned above.
- Formation of a Technical Working Group (TWG) for HIV Surveillance among the key populations. This TWG met regularly to endorse key study design and implementation plans, be briefed on the progress of the BBSS, and provide inputs on technical and operational aspects of the study based on the group's knowledge and experiences from previous surveys. The TWG consisted of representatives from organisations including the Botswana Network on Ethics, Law and HIV/AIDS (BONELA), Sisonke, Lesbians, Gays and Bisexuals of Botswana (LeGaBiBo), Research Triangle Institute (RTI), the Botswana Police Force, Tebelopele, the World Health Organization (WHO), UNAIDS, the U.S. Agency for International Development (USAID), the US Center for Disease Prevention and Control (CDC), FHI 360, the National AIDS Coordinating Agency (NACA), and the Botswana Ministry of Health. Participants ranged from public health professionals to epidemiologists, programme managers, technical advisors, attorneys, police officers, and human rights advocates. The TWG met periodically during the development of the protocol, finalization of the protocol, and implementation of the study and to review and endorse the draft results.
- Formation of a research protocol team (a subset of the TWG) to develop the protocol and related data collection tools. The protocol team met regularly (initially weekly and later twice monthly) to review protocol development, provide needed input and feedback, and plan the logistics of the study. During protocol implementation, the protocol team reviewed progress in implementing the protocol,

oversaw study supervision and monitoring, and discussed implementation issues and constraints, including how to resolve them.

2.2 Study Sites and Target Populations

The 2012 Botswana BBSS was conducted among two subpopulations at risk of HIV, namely FSWs and MSM, in three selected districts of Botswana: Gaborone, Francistown, and Kasane. During initial community mobilization activities, no PWID could be identified or successfully referred to the study team, so this group was removed from the study (see more details below).

2.2.1 Female sex workers

For the purpose of the survey, a FSW was defined as any woman 18 years old or older who received either money or a gift or incentive in exchange for sexual favors within the past three months. FSWs in Botswana primarily work in areas such as bars, restaurants, nightclubs, hotels, hostels, or streets. Because sex work involves multiple partner exchange, and FSWs often have limited power in negotiating safe sex, FSWs are considered to be at a higher risk of becoming infected with and transmitting HIV.

2.2.2 Men who have sex with men

For the purpose of the survey, an MSM was defined as any man 18 years old or older who engaged in sexual activity with another man (anal or oral sex) in the six months prior to the survey. This group was considered to be at a higher risk of becoming infected with and transmitting HIV because of the elevated biological risk of HIV transmission through unprotected anal sex, multiple partnerships, and the potential for riskier sexual behaviour due to the stigma and discrimination attached to male-to-male sex.

2.2.3 People who inject drugs (removed from the study)

For the purpose of the survey, a PWID was defined as any man or woman 18 years old or older who reported injecting drugs for non-medical reasons at least once in the six months prior to the survey. The target group was considered to be at a higher risk of becoming infected with and transmitting HIV because of the biological risk of transmitting HIV through shared needles and syringes. Several attempts were made to identify and recruit PWID into the 2012 BBSS. These included:

- Meeting with the Botswana Substance Abuse Network (BOSASNET), which is the only organisation in Botswana with the mandate to counsel and rehabilitate drug addicts.
- Consulting with police headquarters to identify records of any individuals who were arrested for injecting drug use.
- Seeking information from the Sabrana Psychiatric Hospital (Lobatse), the Princess Marina Referral Hospital (Gaborone), the Nyangabwe Referral Hospital (Francistown), and the Kasane District Hospital about any PWID who were referred to these facilities for psychiatric or other addiction-related services.
- Attending a substance abuse and dependency-awareness workshop with 40 participants involved in substance abuse issues nationwide, including doctors, psychiatrists, counselors, teachers, social workers, police, and health programme managers. During the workshop, service providers were

informed about the study, and a follow-up questionnaire was circulated to collect information on any interactions with PWID.

These consultations failed to highlight any networks of PWID in Botswana, with no records of PWID identified by police, at hospitals, or by service providers in the substance abuse network. Only BOSASNET indicated experience with a few current or past injecting drug users. Information on the study and an invitation to participate in a focus group discussion (FGD) was passed on to the PWID involved in BOSASNET. However, BOSASNET reported that its clients were not willing to participate in the study. As a result, based on a recommendation of the TWG, PWID were removed from the study. Questionnaires for both MSM and FSW were modified to include a few questions on injecting drug use.

2.3 Sample Size

The sample size for each target population was calculated to detect a difference of 15% in key behaviours such as consistency of condom use and commercial sex, and to provide reliable estimates for each variable at the district level. Table 1 shows the theoretical sample size (required) plus the actual sample size achieved per district and group.

Table 1. Sample sizes required and achieved

Study populations	Gab (req'd)	Gab – (Ach'd)	F'Town (req'd)	F'Town (Ach'd)	Kasane (req'd)	Kasane (Ach'd)	Total sample size per group, required (3 dist)	Total sample size per group, achieved (3 dist)
Female sex workers	370	410	370	410	370	130	1110	**950**
Men who have sex with men	300	273	300	151	300	30	900	**454**
People who inject drugs* **removed from study*	300	0	300	0	300	0	900	**0**
Total	970	**683**	970	**561**	970	**160**	**2,910**	**1,404**

2.4 Sampling Procedures

2.4.1 Female sex workers

In order to reach a representative sample of FSWs in each district, time-location sampling (TLS) was used[15]. TLS is a form of cluster sampling that contains dimensions of both time and location. First, a mapping exercise of all venues where FSWs solicited clients in the urban centres of each of the three districts was used to create a time-location sampling frame. The mapping team consisted of 10 mappers (active FSW peer educators in the different districts) and a supervisor. Mappers were selected with the help of organisations working with FSWs,

such as Sisonke, RTI, Nkaikela, BONELA, and the Botswana Council of Churches. A one-day training was then provided to the team, and a pilot test of the mapping instrument was performed at venues in each district.

The mapping questionnaire picked up size estimates for each venue at two different time periods: busy-day/busy time and non-busy day/busy time. Estimates from two key informants at each venue, including an FSW present at the site and a staff member or manager, were used. Types of venues mapped included bars, hotels, restaurants, shebeens, truck stops, hostels (also referred to as brothels by some peer educators), and street locations frequented by FSWs. Mapping was conducted in 217 venues in Gaborone (including Tlokweng and Phakalane), of which 214 were patronized by FSWs: 169 venues in Francistown, of which 157 were patronized by FSWs); and 89 venues in Kasane (including Kazungula), of which 75 were patronized by FSWs. In each district, peer educators who were engaged with local nongovernmental organisation (NGO) HIV prevention programmes for FSWs made an important contribution to the study by helping identify FSWs and motivating them to participate in the study.

TLS clusters were selected using probability proportionate to size with a fixed number of FSWs recruited from each cluster. The cluster size was 10, and 37 clusters were selected in each district in order to reach the sample size of 370. When the estimated number of FSWs in a district was less than the sample size of 370, as in Kasane, a 'take-all' approach was used in which all FSWs were recruited for the survey. During the second stage, all or a subsample of randomly selected population members who appeared at the site during a designated time interval of fixed length (in this case 4 hours) were interviewed. To the extent that all members of a target population access the locations at some point, TLS is a probability sampling method because all population members have a non-zero chance of selection as long as the TLS frame is complete and because the selection probabilities can be calculated by taking the time and space dimensions into account. No eligible FSWs refused to participate in the study.

2.4.2 Men who have sex with men

In order to reach a representative sample of MSM, the respondent-driven sampling (RDS) method was used. RDS is a method for sampling hidden populations that combines 'snowball sampling' with a mathematical model that weights the sample to compensate for the fact that the sample was collected in a non-random way[16]. RDS is characterized by long referral chains (to ensure that all members of the target population can be reached) and a statistical theory of the sampling process that controls for bias, including the effects of choice of seeds and differences in network size. Because of these characteristics, RDS overcomes the shortcomings of institutional sampling (coverage) and snowball-type methods (statistical validity). By attempting to transform chain-referral sampling into a probability sampling method, and consequently resolving the dilemma of a choice between coverage and statistical validity, RDS has become the most appropriate method for sampling hard-to-reach populations.

The RDS process starts with the recruitment of initial seeds, who each recruit a maximum of three members from their target population peer group. The new recruits then continue recruitment through their own networks until the sample reaches 'equilibrium.' Only one RDS site was maintained per district. In each district, the MSM component was conducted at the district Tebelopele HIV testing centre, which was viewed as an acceptable location to participants during pre-testing. BONELA helped the study team identify initial seeds, some of which were replaced during the study if they were not recruiting efficiently. Vouchers were numbered to include the identification (ID) number (serial number) of the original recruiter. The number of

vouchers given to each recruiter was limited to three. As an incentive, each participant received P50 for each person they were able to refer into the study. This was to ensure that a broad array of participants had an opportunity to recruit and to prevent the emergence of semi-professional recruiters. Also, MSM helped screen potential participants to reduce the likelihood that non-MSM would seek the incentive. No refusals were received from eligible participants.

2.5 Key Indicators in the Biological and Behavioural Survey

Following are the key variables selected for analysis by the TWG as part of the survey data analysis plan:

- HIV prevalence
- HIV incidence
- Size of target populations by district
- Prevalence of syphilis
- Prevalence of gonorrhea
- Prevalence of chlamydia
- Knowledge about HIV and other STIs
- Self-reported STI symptoms
- Multiple and concurrent partnerships
- Duration of sex work
- Alcohol and other drug use
- Condom use with commercial and non-commercial sex partners
- Condom and lubricant use during anal sex
- HIV testing history
- Attitudes towards people living with HIV/AIDS
- Exposure to interventions

2.6. Pilot Study

Before the study began, a three-day test of the survey process was conducted in a non-BBSS district — Selebi-Phikwe. This involved testing various parts of the process, including the study protocol, the methodology, and data collection. Members of the TWG and the research protocol team, with support from the district health team, Tebelopele, and the office of the district AIDS coordinator, participated in the pilot study. Following the pilot, a TWG meeting was held to discuss improvements to the survey process, methodology, and instrument based on the outcome. Some of the changes following the pilot included:

- Increasing incentives to P60 for FSW participation.
- Arranging full-time security for the FSW study team.
- Engaging two local peer educators per district for the FSW team.
- Procuring additional equipment, including cooler boxes and lights, and arranging the timely transportation of biological samples.

2.7. Training of Personnel

Before the pilot test began, a week-long training was held in July 2012 with supervisors, interviewers, counselors, and phlebotomists. Trainers held in-depth sessions on the survey objectives and methodology to enhance the trainees' understanding of their roles in the survey process and the need for good quality data.

The supervisors and interviewers were experienced, with many having been involved in past HIV-related studies. Each question in the questionnaire was reviewed and role-played, and possible challenges were identified and addressed. The trainers then used a screening process to select the most capable interviewers to continue in the main study. Special sessions on ethics and characteristics of the study populations were also held to adequately sensitize interviewers on communication and other issues specific to FSWs and MSM.

During training, all personnel received a study manual that included key study background documents, operational procedures, roles and responsibilities, ethical issues, and tips for conducting a successful interview. All the forms necessary for conducting the study, including collection and transportation of biological samples, were included in the annex to the study manual. A separate one-day training was held in each district for all members of the mapping team. This was to train the mapping team on the mapping data collection tool, and included testing and review of each completed form together with a supervisor.

2.8 Size Estimates

2.8.1 Female sex workers

A variation of census and enumeration methods[17] was used to estimate the number of FSWs in each district. Enumeration involves developing a sampling frame and then counting all members of the target population at the places listed in the sampling frame. This was possible since FSWs in Botswana are largely venue-based and need to be visible and accessible in order to find clients. The adjustment made to the enumeration method was based on FHI 360's work in India, where the term 'Reverse Tracking Method' was coined[18]. This method involved adjusting the initial estimates from enumeration to improve their accuracy, using results observed during fieldwork or during the main phase of the study. In practice, this method was adjusted to the local context and applied for FSWs using the following formula:

$$\text{Number of FSWs in each district} = \frac{Ba + \ldots Bz}{(A1a+A2a)/2) + \ldots (A1z+A2z/2)} \times \sum \frac{(A1a+A2a)}{2} + \ldots \frac{(A1y+A2y)}{2}$$

A1 = busy day/busy time size estimate from FSW key informant

A2 = busy day/busy time size estimate from non-FSW venue key informant

B = observed number of FSWs at venue a, b….z

Z= number of venues visited on Friday or Saturday nights during study main phase

Y= total number of venues mapped with one or more FSW

Application of this formula yielded an 'adjustment factor' from a sample of venues, specific to each district. The adjustment factor was then applied to the sum of average key informant estimates from all venues combined. Given an unknown level of error for any single estimate, both adjusted and non-adjusted estimates for each district were used to present a range of estimates (high and low) for each district.

2.8.2 Men who have sex with men

A different method was used to estimate the size of the MSM population, as estimating the size of this population is more difficult given its hidden nature. Following are some of the constraints to deriving a reliable estimate:

- MSM do not gather at certain sites or locations, ruling out use of the enumeration method.
- Capture-recapture methods rely on assumptions that are difficult to meet, including independence of the two samples[17] and each population member having an equal chance of selection (i.e., participation in the capture stage should not affect participation in the recapture stage).
- Gatherings of more than a handful of MSM are rare, which rules out distributing a unique object for the unique object multiplier method.
- There are no reliable NGO or government estimates on MSM reached by a particular programme or service.

In the end, the study team was able to use a multiplier method based on an HIV prevalence study supported by the Southern African Development Community (SADC) among MSM in Gaborone, Francistown, and other parts of Botswana. As this study took place just a few months before the BBSS, there was a question inserted into the BBSS about participation in the SADC study. This, together with the number of participants in the SADC study, were the ingredients for the multiplier. The formula for size estimation using this method is as follows[17]:

$$= \frac{\text{number of MSM participants in sexual minority study}}{\%\text{ of population who report participating in sexual minority study}}$$

Given concerns about relying on a single method, the study team was advised to use a second, population-based estimate, to provide both high and low estimates. Following a literature search of studies examining population-level male-to-male sexual behaviour, a second data point to complement the multiplier method — 1% of the adult male population was used. This is among the lowest of estimates of the prevalence of MSM in the general population from studies conducted globally, although data from Africa is rare. The forthcoming BAIS IV may be able to provide a better estimate than the 1% used here.

2.9 HIV Incidence Calculations

HIV incidence estimates were computed using the Recent Infection Testing Algorithm (RITA), recommended by UNAIDS and WHO. The RITA was used to reduce the misclassification or false recent rate. The variables used included BED incidence data (recent, long-term), rapid HIV test results, HIV ELISA results, and questions on testing history, namely whether participants had ever been tested for HIV, results of the most recent test, time since the most recent test, results of the most recent test, and taking of antiretroviral (ARV) drugs. All the available HIV-positive samples were screened using the BED incidence assay. Incidence was calculated as follows[19]:

$$I_r = \frac{R - \varepsilon P}{(1-\varepsilon)\omega N}$$

where the survey counts (N, P, R) are specified as follows:

N is the number of HIV-negative people in the survey
P is the number of HIV-positive people in the survey, and
R is the number of people classified as RITA positive,

and the calibration parameters are specified as follows:

ω is the mean RITA duration specified in units of years, and
ε is the FRR of the RITA.

2.10 Focus Group Discussions

Prior to the main phase of the study, as part of the formative assessment in each district, three FGDs were held with MSM and three FGDs were held with FSWs. The number of participants in each FGD ranged from four to eight. The areas explored during the FGDs included:

- What types of key populations (e.g., MSM, FSWs) are found in the specific geographical area visited?
- How is the subpopulation viewed/regarded by the local community?
- Is the subpopulation stigmatized? If yes, what is the perceived level of stigma?
- How accessible is the subpopulation?
- Where do they congregate or socialize?
- What is the demographic and socio-economic make-up (e.g. age, ethnicity, sex, occupational groups) of the subpopulation?
- How receptive might they be to a survey team?
- What would be the best ways to contact them, and what are some of the major potential obstacles to recruiting them and interviewing them for the survey?
- What are some of the major health issues (including STIs) facing them, and what is being done to address these issues at the local level?

2.11 Study Procedures and Data Collection for the Main Study

Irrespective of the target group (FSW or MSM), the study procedures for the main study were consistent across subpopulations and included the following steps:

- Interviewer introduced and explained the study to the participants.
- Interviewer obtained consent from the participant for behavioural component.
- Interviewer conducted the behavioural interview.
- Interviewer obtained consent from the participant for the biological component and accompanied participant to the counselor-phlebotomist.
- Counselor conducted pre-test counseling.

- Phlebotomist drew a blood sample from the participant and labeled the vacutainer with the participant's study ID number (barcode).
- Blood was tested at site for HIV using the standard rapid test algorithm used in Botswana, with results available to participants on site (if desired).
- Participants were asked to provide urine samples.
- MSM participants (not FSWs) were also asked for an additional anal swab sample.
- All samples (i.e., blood, urine, anal swab with corresponding code numbers/barcodes) were stored in a cooler box and sent the next morning to the pre-designated district laboratory. Arrangements were made to courier results from the district laboratories to the National Health Laboratory (NHL) in Gaborone for testing.
- Results of the STI tests (with participant ID numbers) were sent back to designated health facilities accessible by survey participants.
- Irrespective of where and when the results of the tests were obtained, counselors provided the participants with post-test counseling.

In terms of the physical location of the study, the MSM component took place in Tebelopele centres (counseling rooms and laboratory). For the FSW component, a mobile caravan on loan from Tebelopele was used for counseling, sample collection, and storage. Every evening the caravan was placed close to one or more pre-selected venues, based on the sampling plan. Peer educators identified FSWs and accompanied them to the caravan, where they were interviewed in a quiet place, often by interviewers using head torches. Data were collected between July and October 2012.

2.12. Laboratory Methods

2.12.1 Sample collection

The majority of laboratory testing for this study was undertaken at the NHL, Gaborone, with the exception of syphilis screening, which was undertaken at district laboratories**.** All consenting participants were asked to give a sample of venous blood (8 ml) for HIV testing. Two tubes of 4 ml of venous blood was collected in ETDA tubes and labeled with the participant's study ID number and date of collection. Some of this was used to do rapid HIV testing at the site, and the remaining blood was packaged and sent to the district laboratories for dried blood spot (DBS) preparation.

At the district laboratories, the blood was spun and aliquotted into two cryovials, and each was labeled with the participant study ID number and date of collection. Rapid plasma reagin (RPR) tests were performed from one of the aliquots to screen for syphilis. The two cryovials together with the DBS were then sent to the NHL. Positive RPR results were confirmed at the NHL using one of the aliquots, and the other aliquot was used for quality assurance during HIV testing. All blood samples were kept at 2–8°C in a refrigerator or cooler box at all times.

First-void urine samples and self-administered rectal swabs were collected from male participants to perform tests for gonorrhea and chlamydia*.* Each consenting participant was asked to collect the first catch urine in the specimen jar provided, and the sample was transferred into the collection media provided in the Cobas PCR Urine Sample Kit (Roche, United Kingdom). The collected urine sample was tested by polymerase chain reaction (PCR) for the presence of N. gonorrhea and C. trachomatis.

Prior to testing, specimens were assessed for integrity and adequacy. Poor-quality specimens were documented and rejected. Reasons for rejection included improper packaging, improper labelling, haemolysis, and inadequate quantity.

2.12.2 Laboratory quality assurance plan

The quality assurance plan was designed to manage the pre-analytical, analytical, and post-analytical processes. All personnel involved in the survey were trained in the standard operating procedures for sample collection, preparation, transport, and storage. Particular emphasis was given to DBS preparation and to management and transport systems.

All personnel were trained and tested for competence using blinded materials and direct observation. For HIV testing, DBS control materials were used in every run in conjunction with kit controls. All quality control was tracked in real time using Levy Jennings charts and applying Westgard Rules. All plates were reviewed by the supervisor before results were released. The laboratory working group met regularly to review survey processes and quality control data. The laboratory is enrolled in the U.S. Centers for Disease Control and Prevention's (CDC's) external quality assurance program for BED incidence assays and HIV serology.

2.12.3 HIV prevalence and incidence testing

The diagnosis of HIV infection is usually made by detecting antibodies to HIV. DBS were punched into a test tube pre-labeled with the corresponding barcode. The puncher was decontaminated by punching either a clean sheet or blank spots 10 times after each DBS (to avoid any carry-over contamination). Each punched spot was eluted by incubation overnight at 4°C with phosphate buffered saline (with 0.05% Twin 20). An aliquot of the eluted sample was used for HIV antibody testing.

A parallel HIV testing strategy — Vironostika Uniform II *plus* O (Biomerieux, Boxtel, Netherlands) and Murex HIV-1.2.O (Abbott, Germany) — was used per standard operating procedures for HIV DBS serology, and results were interpreted per the algorithm in Figure 1.

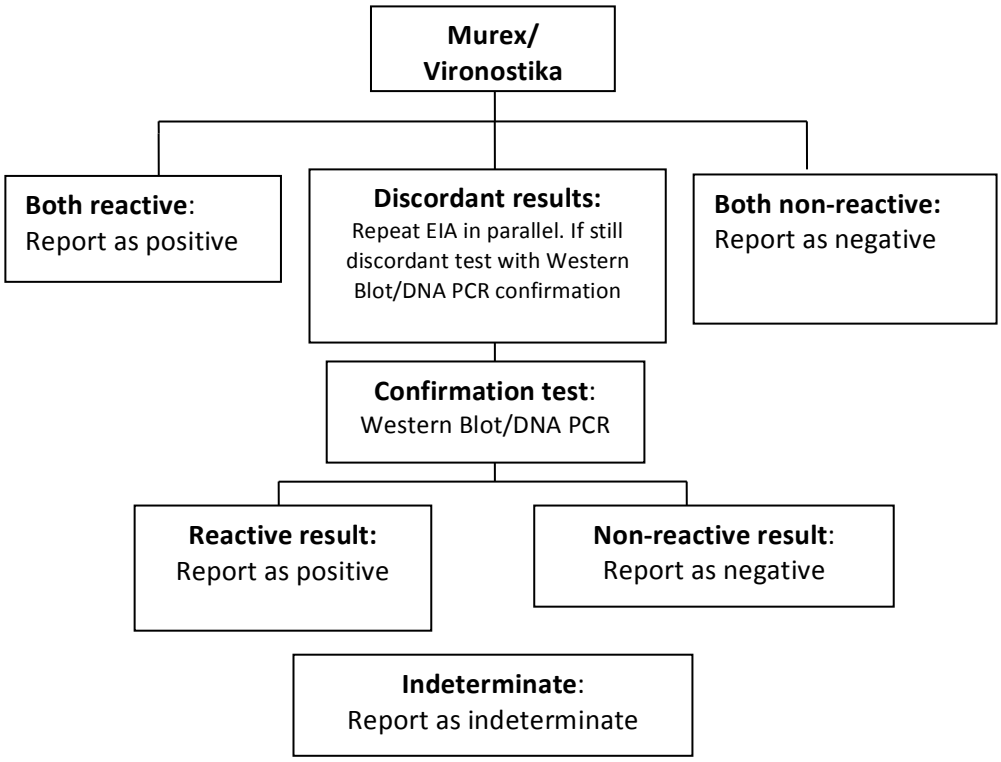

Figure 1. HIV testing strategy

Incidence testing was conducted using the BED-CEIA according to the manufacturer's instructions (Calypte Biomedical Corporation, OR, USA). Results from the BED-CEIA were reported as normalised optical density units (OD-n). An HIV-1-positive specimen, for which the confirmatory BED-CEIA gave an OD-n of $\leq$0.8, was considered to be a specimen of recent HIV-1 infection with seroconversion having occurred within the previous 180 days.

2.12.4 Syphilis, gonorrhoea, and chlamydia testing

Syphilis screening was done using the RPR test. Confirmatory tests were performed with the Treponema pallidum haemaglutination (TPHA) test on positive samples at the NHL. Gonorrhea and chlamydia testing was conducted using Cobas 4800 at the NHL. This test is an in-vitro nucleic acid amplification test for the qualitative detection of *N. gonorrhoea* and *C. trachomatis* in participants' samples. The test involves amplification of target DNA by PCR and nucleic acid hybridization to detect the two bacteria. The specimens used were urine and anal swabs. Quality control was assured by the addition of an internal control to each sample throughout the entire process, from sample preparation to amplification and detection of the target DNA. This minimized the risk of false positives due to inhibition.

2.13 Community Sensitization and Mobilization

As this was the first study of its kind in Botswana, both FSW and MSM communities needed some sensitization and preparation before fieldwork began. This was particularly important given the illegal nature of the high-risk activities of these communities. These challenges were addressed by:

- Involving the stakeholders and related government departments in the development and implementation of the study proposal and protocol.

- Liaising with organisations involved in advocacy and service provision for the target groups, such as BONELA, Sisonke, and RTI (and its local partners) to identify seeds, participants for FGDs, and peer educators and to better understand the dynamics of each district. As a result, the study was advertised on websites and Internet chat rooms.
- Addressing a meeting of LeGaBiBo at the University of Botswana to explain the objectives of the study and encourage participation.
- Informing police headquarters about the nature of the study, general movements of the study team, and the benefits of the study to the community and nation.
- Liaising with district health authorities, district AIDS coordinators, and local community leaders about the study and its advantages for preventing and controlling the HIV epidemic in the community and nation.
- Visiting MSM-friendly venues or nightclubs to mobilise participation.
- Sending an official letter from the Ministry of Health to the district health management team and local community leaders, together with a letter from police headquarters to the district police office, to facilitate participation of the target groups in the study.

2.14 Study Monitoring and Quality Assurance

Both FSW and MSM study teams had a dedicated supervisor who was responsible for adhering to the protocol, supervising the team, and overseeing study logistics. Supervisors were supported by the study coordinator, who was in the field for the duration of the study. Part of the supervisor's role was to immediately review each completed questionnaire and correct any mistakes before moving onto the next participant. To assure high-quality data and adherence to the study protocol, a central monitoring team was active during the survey. The team was composed of the study's two principal investigators, the study coordinator, and the study manager. For the duration of the study, the study coordinator was involved in the fieldwork, and the central monitoring team visited each district while data were being collected. Each interviewer participated in one or more questionnaire review sessions with the monitoring team. At these sessions, one of the questionnaires was reviewed, and the interviewer was coached on data entry, skip patterns, and communication techniques. Common issues arising from questionnaire review sessions were addressed during group briefings before fieldwork each day.

2.15 Data Management and Analysis

Data were entered using CSPro version 5.0 (U.S. Census Bureau, downloaded from www.census.gov). A template for the questionnaire was designed with pre-programmed consistency and range checks, including skips and eligibility criteria. Questionnaire data were entered into CSPro by data entry consultants, and double-data entry was performed on 10% of all data entered. Laboratory data were entered by dedicated data entry assistants in the NHL. After entry, the data were cleaned and analyzed using Stata version 11. Data cleaning involved the following checks:

- Searching for ages outside the age range, and for the last time sex was sold (FSWs) or male-to-male sex occurred (MSM).
- Cross-checking all corresponding skips in the questionnaire.
- Reviewing the cluster allocations for FSWs.

- Cross-checking the completed questionnaire responses from the interviewers in the database with the records in the supervisors' log.
- Tallying the supervisors' log of blood samples collected to ensure that the recorded number of samples collected matched the results recorded in the database.
- Conducting consistency checks involving cross-checking answers to related questions.

Variables were recoded using standard recodes according to the indicators to be measured. Denominators were standardized and composite indicators were created. A clean database was used to generate the necessary tables in accordance with the pre-approved analysis plan.

2.15.1. General data analysis

The data analysis focused on HIV prevalence and incidence, prevalence of STIs, and risk factors. For all, 95% confidence intervals (CIs) were determined. Cross-tabulations and multivariate analyses, including associations with HIV prevalence and consistent condom use, were also conducted.

2.15.2 Respondent-driven sampling analysis

MSM data were analysed in Stata version 11 and RDSAT version 7.1.38 (RDS Incorporated, Ithaca, NY). Unweighted and weighted prevalences of HIV, STIs, condom use, and other variables of interest (as well as 95% CIs) were calculated for 450 participants. Weighted rates took into account clustering in RDS. RDSAT was also used to conduct univariate analyses and to estimate sample proportions, proportions at equilibrium, and estimated population proportions of variables of interest and their 95% CIs. Individual HIV sampling weights were generated in RDSAT and exported to Stata. Using HIV weights imported from RDSAT, bivariate analysis was conducted in Stata version 11 (Stata Corporation, College Station, TX, USA). We assessed whether the RDS sample reached equilibrium by checking the number of recruitment waves and tolerance. RDSAT was used to estimate the required number of recruitment waves at which the RDS sample reached the equilibrium for the key variable, which was HIV status. Two waves were required to reach equilibrium at a convergence radius of 0.02. We then compared sample proportions and corresponding equilibrium proportions. The absolute discrepancy between the two proportions fell within the tolerance of 0.02 or 0.03, which indicated that the sample stabilized to reach equilibrium.

Our principal outcome of interest was HIV infection. Predictor variables included demographics, sexual orientation and experience, sexual behaviour in the six months preceding the interview, history of HIV testing, circumcision, concurrent partnerships, laboratory markers of STIs, and self-reported STI symptoms. The affiliation patterns of HIV recruiting relations in MSM in Botswana reflected neither homophily nor heterophily. The homophily indices were -0.02 for the HIV-negative samples and 0.02 for the HIV-positive samples. We presented weighted (except for continuous data) for overall and unweighted data.

Unweighted analyses were conducted in Stata on the full sample of MSM, whereas the RDS analysis was conducted on only 353 participants. This was a limitation due to missing data on coupon numbers for participants who referred the additional 106 participants. Although equilibrium was reached with the 353 participants, this missing data had implications for district-level adjusted analysis. Therefore, the study committee determined that unadjusted data would be reported for the majority of MSM variables, with the exception of overall biological results, for which both adjusted and unadjusted results were reported.

2.16 Ethical Provisions

After informed consent was obtained, the survey questionnaire was administered to all target groups through one-on-one interviews in private settings that guaranteed confidentiality and anonymity. The respondents were assured that all information and discussions remained confidential, that no personal identifiers would be recorded, and that their participation was voluntary. They were informed that they could refuse to answer any questions and that they could opt out of the study at any time, without affecting any benefit they would normally receive. The provision of immediate HIV test results with proper counseling, as well as the ability to receive STI test results at a nearby referral centre four weeks after the study, were tangible benefits to participants. Individuals who tested HIV-positive were referred to a health facility for further counseling and enrollment in care. A reporting system for adverse events was also established, although no adverse events were reported during the study. The study received ethical approval from FHI 360's Protection of Human Subjects Committee on May 18, 2012, and from the Ministry of Health's Health Research Development Committee on June 11, 2012.

3. Results

3.1 Size Estimates

3.1.1 Female sex workers

Table 2 illustrates the differences between FSW size estimates observed during fieldwork (column B) and key-informant size estimates (column A) at a sample of sites where the interview team visited during a busy-day/busy-time time-location cluster. The difference between the sum of these two estimates yielded a correction factor, which was used to adjust the key-informant estimates.

The average of all venue-based key-informant estimates is also included in Table 2, which is the low estimate in Francistown, in contrast to the high estimates in Gaborone and Kasane. When the correction factor was above 1 (as in Francistown), the survey team found a higher number of FSWs than the key informants had estimated in the sites sampled (which means the value in column B is higher than in column A). Therefore, key-informant estimates were adjusted upwards, rather than downwards as in Kasane and Gaborone. Using the mid-point between these two estimates gave a size estimate of 2,722 for FSWs in Gaborone. It also resulted in estimates of 1,065 FSWs in Francistown and 366 in Kasane.

Table 2. Size estimates for female sex workers

District	A. Total Estimated Size across observed clusters	B. Total observed size across selected clusters	C. Correction factor – applied to Key Informant estimates (B/A)	D. Low Estimate	E. Mid Estimate	F. High Estimate
Francistown	177.5	189	1.0648	1,032	**1,065**	1,098
Gaborone	659.5	371	0.5625	1,960	**2,722**	3,484
Kasane	65	50	0.769	318	**366**	414

3.1.2 Men who have sex with men

As explained earlier, participation in the SADC study on MSM was used as an 'event multiplier.' The formula for the multiplier method was[17]:

$$\text{Size estimate} = \frac{\text{number of MSM participants in sexual minority study}}{\%\text{ of population who reported participating in sexual minority study}}$$

Column A in Table 3 shows the number of respondents in the SADC sexual minorities study, and column D gives the proportion of participants in the BBSS who also participated in the sexual minorities study. The result from this method is included in column E. Column G includes an estimate based on 1% of the general population of adult men (aged 15-64 years), using the 2011 census figures for total population and the 2001 census breakdown for age and gender. Using these two estimates as the high and low ranges, a mid-estimate or average of the two was derived. This gave a mid-estimate of 319 MSM in Francistown and 462 MSM in Gaborone. As the SADC study did not take place in Kasane, no estimates were possible for Chobe district.

Table 3. Size estimates for men who have sex with men

Multiplier Method for MSM Size Estimate	A. Number MSM that participated in SADC Sexual Minorities Study, UB	B. Number of MSM BBSS study participants that also participated in Sexual Minorities Study	C. BBSS MSM Sample Size Achieved per District	D. Proportion of MSM BBSS study participants that also participated in Sexual Minorities Study (B/C)	E. Size Estimate from Event Multiplier (A/D)	F. Population based estimate @ 1% of adult males	G. Midpoint of two estimates
F'town	31	13	151	8.6%	360	277	**319**
Gaborone	76	71	273	26.0%	292	630	**462**

3.2. Biological Results

3.2.1 Female sex workers

3.2.1.1 HIV prevalence

Out of 947 participants, 912 (96%) had complete HIV enzyme immunoassay screening results. In the unweighted analysis, 512 (56%) were HIV-positive. In the weighted analysis, HIV prevalence for FSWs varied from 53.5% in Francistown (95% CI, 46.1–60.9%) to a high of 68.5% in Kasane (95% CI, 56.9–80.1%) (Figure 2), with an overall result of 61.9% (56.7%–69.2%, 95% CI). Although the differences were not significant, Zimbabwean FSWs — who comprised 34.2% of the sample — had a slightly higher HIV prevalence than Batswana (69.5% versus 57.7%). HIV prevalence was high across all age groups, ranging from 44.2% (under 20 years of age) to 79.8% and 74.9% (for 30-39 year olds, and 40-49 year olds respectively).

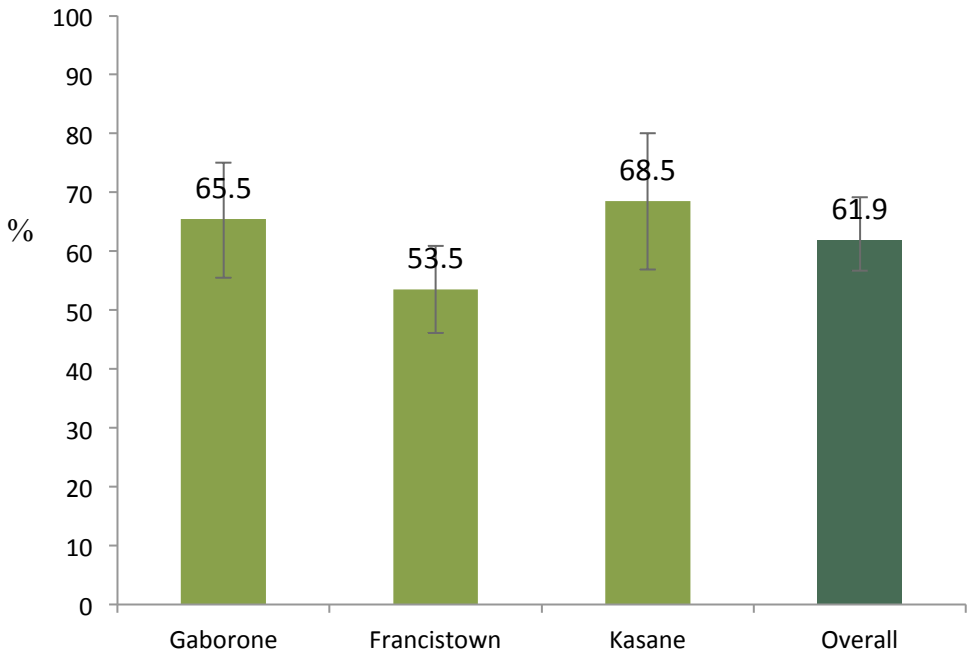

Figure 2. HIV prevalence among female sex workers

3.2.1.2 HIV incidence

A total of 501 HIV-positive samples were tested with the BED incidence assay and classified either as 'recent' or 'long-term' infections. From the BED tests, 46 samples were classified as recent, and 22 of these were reclassified as false recent due to ART and HIV testing history. The proportion of recent infections was therefore 24 (4.8%) of 501 (95% CI, 2.7–6.7%). Using the WHO formula, the Incidence (I_r) as an annual instantaneous rate was calculated as 12.5% ([95% CI, 7.3–17.1%;] COV = 21.2%).

3.2.1.3 Prevalence of sexually transmitted infections

Table 4 outlines the results from STI prevalence testing among FSWs. Overall, the prevalence of gonorrhea was 10.5%, ranging from a low of 8.3% in Kasane to 11.7% in Francistown. The prevalence of chlamydia and syphilis varied more widely. The prevalence of chlamydia was the highest of all the STIs studied, at 11.9%. Like gonorrhea, the prevalence of chlamydia was lowest in Kasane at 4.8% and highest in Francistown at 16.3%. The overall prevalence of syphilis was 3.5%. In contrast to the other STIs, the prevalence of this STI was highest in Kasane (14.5%) and significantly lower in Gaborone (3.7%) and Francistown (1.6%).

Table 4. Prevalence of sexually transmitted infections among female sex workers

Indicator	Gaborone(404)	Francistown(412)	Kasane(131)	All
Gonorrhea	10% (5.2-14.9)	11.7% (7.6-15.9)	8.3% (7.1-9.6)	10.5% (6.9-13.9)
Chlamydia	10.4% (5.9-14.9)	16.3% (9.8-22.9)	4.8% (4.1-5.6)	11.9% (8.4-15.5)
Syphilis	3.7% (2.4-5.1)	1.6% (0.1-3.1)	14.5%(9.1-13.8)	3.5% (2.3-4.6)

3.2.2 Men who have sex with men

3.2.2.1 HIV prevalence

As shown in Figure 3, HIV prevalence for MSM was 13.1% (unadjusted) and 9.2% (adjusted). Due to difficulties implementing the coupon-tracking system, together with uncertainty regarding the accuracy of weights allocated through RDSAT, only the unadjusted estimates were used for the purposes of this study. Adjusted estimates are presented for biological indicators only.

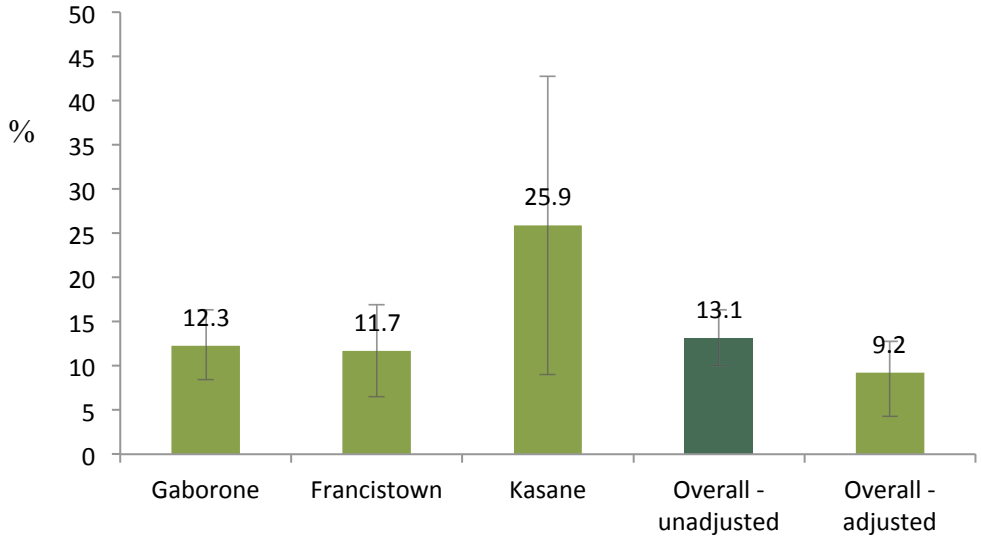

Figure 3. HIV prevalence among men who have sex with men

At the district level, HIV prevalence estimates became less stable, particularly due to the small sample size of MSM in Kasane (n=30). The prevalence of HIV appeared highest in Kasane at 25.9% (although the 95% CI was wide, ranging from 9.0% to 42.8%) when compared with Gaborone at 12.3% (95% CI, 8.4–16.3%) and Francistown at 11.7% (95% CI, 6.5–16.9%).

3.2.2.2 HIV incidence

A total of 59 HIV-positive samples were tested with the BED incidence assay and classified as either 'recent' or 'long-term' infections. From the BED assays, eight samples were classified as recent infections, and one was reclassified as false recent due to HIV testing history. The proportion of recent infections was therefore 7

(11.9%) of 59 (CI, 4.2–22.9%). Using the WHO formula, the Incidence (I_r) as an annual instantaneous rate was calculated as 3.6% (95% CI, 0.9–6.8%).

3.3.3.3 Prevalence of sexually transmitted infections

Table 5 contains STI prevalences for MSM. As with HIV prevalence, the unadjusted STI prevalence results were considered final for the purposes of this study, although the adjusted results are also included.

Table 5. Prevalence of sexually transmitted infections among men who have sex with men

Indicator	Gaborone(275)	F'town(145)	Kasane(30)	All (450) **Adjusted**	All (450) **(Unadjusted)**
N.Gonorrhea	3.4(1.2-5.7)	2.6(-0.0-5.5)	0	2.6(0.7-6.6)	**2.9(1.3-4.5)**
Urine_N.g	1.6(0-3.1)	1.9(-0.7-4.6)	0	0.7(0-1.5)	**1.4(0.3-2.5)**
Swab_N.g.	1.9(0.2-3.6)	2.1(-0.8-4.9)	0	2.1(0.2-6.2)	**1.7(0.4-2.9)**
CT prev (any)	12.6(8.6-16.6)	11.0(5.3-16.7)	0	8.3(5-13.7)	**11.3(8.2-14.3)**
Urine_CT	5.9(2.9-8.8)	11.5(5.3-17.7)	0	5.7(3.0-8.9)	**7.1(4.7-9.5)**
Swab_CT	8.6(5.1-11.9)	3.1(-0.4-6.5)	0	3.8(1.3-9.5)	**5.9(3.7-8.2)**
Syphilis prev	4.2(1.8-6.7)	0.7(-0.1-2.1)	0	2.9(0.5-7.8)	**2.7(1.2-4.3)**

No STIs were detected among the small sample of MSM in Kasane. As with FSWs, chlaymdia was the most common STI detected among the MSM. Overall, 11.3% (95% CI, 8.2–14.3%) of the sample was infected with chlamydia at the time of the survey. Chlamydia was detected in both urine samples (7.1%) and anal samples (5.9%). Although overall chlamydia prevalence was similar for Gaborone and Francistown, chlamydia was more likely to be detected in urine in Francistown (11.5%) than in Gaborone (5.9%). MSM in Gaborone were more likely to be infected with anal chlamydia (8.6%) than were MSM in Francistown (3.1%).

Gonorrhea was the next most common STI among MSM, with a prevalence of 2.9% (95% CI, 1.3–4.5%) in the overall sample. The prevalence was slightly higher in Gaborone (3.4%) than in Francistown (2.6%). It was also slightly higher in anal samples (1.7%) than in urine samples (1.4%) in both Gaborone and Francistown. Finally, the prevalence of syphilis was 2.7% (95% CI, 1.2–4.3%) overall, and it was higher in Gaborone (4.2%) than in Francistown (0.7%).

3.3 Focus Group Discussions

3.3.1 Female sex workers

A total of 27 FSWs participated in FGDs in the three districts. These FGDs highlighted several issues that affect daily life and risk behaviours of FSWs. The first was the nature of sex work, as participants confirmed that sex workers are easy to find since they work in bars, hotels, streets, and homes or hostels. Poverty, peer pressure, and poor parental guidance were listed as the main reasons women start sex work. The findngs also showed that sex workers are mobile in all three districts, but more so in Kasane because it is a border town and travelling to and from neighbouring countries is easy. The number of FSWs in Francistown increases towards the end of the month, up to the first week of the next month, which coincides with the pay days for most

employees. It is normal for a FSW to work in different places in the same town on different nights, or even on the same night.

FGDs showed that FSWs feel highly stigmatised by society, which affects their access to services. When asked about STI service access, participant 4 in Gaborone mentioned that "*hospital staff get angry. They insult. Staff say 'every week you are here*'. Participant 1 stated that if she goes to the clinic, she gives a false name. In terms of risk behaviours, participants reported that clients pay more not to use condoms "*FSWs are like soldiers. They know the risk but still do it. HIV/AIDS kills after 10 years. Why not make money today*!" said participant 1. Condoms sometimes break. "*Yesterday a condom broke for P50. Why not take P2000 for not using of condom*!"said participant 5. Boyfriends are common, as is alcohol and drug use (marijuana). Participant 2 mentioned that Botswana FSWs are more likely than Zimbawean FSWs to drink while working, as Zimbabweans only drink after work.

Several stories were exchanged about violent and difficult clients, with FSWs reporting a difficult relationship with police. "*You cannot go to police, because police laugh at you,*" said participant 9. "*Instead of helping you, police judge your profession,*" said participant 10. Participant 1 and 4 both expressed a desire to work more closely with police. "*During the night we see many thieves…we can find so many criminal cases, if police want to work with us.*" There is, however, some solidarity among FSWs, as participant 1 mentioned that FSWs help each other out in cases of sickness or death in the family.

3.3.2 Men who have sex with men

Twenty-four MSM participated in FGDs across the three districts. Notable differences were picked up between districts in terms of being open to discussing MSM issues. Most participants felt that the further from Gaborone, the more stigma and lack of awareness about MSM issues there was. According to participants, most MSM are not comfortable with their sexual identity. "*Most of them feel not good. For most people it is strange*," said participant 2. In most cases, participants reported keeping their behaviour a secret from their families. However, this was not always the case, with participant 11 stating that after disclosing his feelings, "*my family is cool.*" Feminine MSM were singled out as being more stigmatised, and participants also mentioned a group of MSM known as the 'after nines' because they have wives and families at home and only venture out after 9 pm when their families are asleep.

A lot of socializing is done in protected spaces, such as on Facebook and in Internet chat rooms. "*People are on the web. Married gays are also on the web,"* said participant 3. In general, the groups felt that MSM cut across different strata in society, with participant 3 expressing that "*directors of some companies want sex with men. Low-paid employees have a relationship with gay men to meet cost of living*." The majority of MSM reported around 20 other MSM in their personal social network.

Regarding access to services, MSM also mentioned stigma as a barrier, particularly in relation to seeking treatment for anal STIs. "*Going to hospital and telling people about my disease is a decision-making process. We don't have an organisation that provides health services to gay men,*" said participant 3. According to participant 5, "*health facilities are not accessible, e.g., I get STI from another man, but health professionals think that I have got from a woman. There is no chance to tell that I have got an STI from another man*."

Alcohol abuse is also common among the MSM community, and participants felt it sometimes leads to riskier behaviour. There were also reports of intimate partner violence from strangers and within partnerships. "*If one partner refuses, another guy becomes aggressive. Generally it happens during weddings and at drinking places,"* said participant 3. "*It is mostly strangers (who are violent)… if we don't give sex,*" said participant 6. Other issues raised included limited access and awareness surrounding lubricants, together with expensiveness. "*Some don't know lubricant; 15 ml lubricant costs P50; might use Vaseline,*" said participant 3. Some negative experiences were also reported about free condoms. According to participant 3, "*negative experiences about Lorato condoms is a hard situation*."

3.4. Characteristics, Knowledge, Attitudes and Practices, and Multivariate Analyses

3.4.1 Female sex workers

3.4.1.1 Characteristics

As outlined in Table 6, about two-thirds of the overall sample of FSWs was from Botswana. The remaining one-third was largely from Zimbabwe, with Zimbabweans accounting for 27.8% to 48.2% of the sample in Gaborone and Francistown, respectively.

Table 6. Key characteristics of female sex workers

FSW Characteristics	Gaborone (404)	Francistown (412)	Kasane (131)	All (947)
Nationality	Motswana 72.0% Zimbabwean 27.8% Other 0.2%	Motswana 51.5% Zimbabwean 48.2% Other 0.3%	Motswana 55.6% Zimbabwean 43.9% Other 0.5%	Motswana 65.5% Zimbabwean 34.2% Other 0.3%
Mean Age	30.2 yrs	28.8 yrs	28.6 yrs	29.7 yrs
Age category	Under 20:1.8% 20-29:44.9% 30-39:47.1% 40-49:5.6% 50+:0.5%	Under 20: 2% 20-29:58.9% 30-39:33.2% 40-49:5.2% 50+:0.7%	Under 20:0 20-29:57.7% 30-39:38.1% 40-49:4.2% 50+:0	Under 20:1.8% 20-29:49.5% 30-39:42.8% 40-49:5.4% 50+:0.5%
Relationship Status	Married/co-habitating: 15.4% Separ:1.4% Divor: 9.3% Wido: 4.3% Bf: 52.4% Sing: 17.2%	Married/co-habitating 5.6% Separ: 1.2% Divor: 9.0% Wido: 2.5% Bf: 51.4% Sing: 30.3%	Married/co-habitating: 4.9% Separ:0 Divor: 8.9% Wido: 3.8% Bf: 24.1% Sing: 58.3%	Married/co-habitating:12.2% Separ:1.3% Divor: 9.2% Wido:3.8% Bf: 50.9% Sing: 22.6%
Highest level of Education	None: 0.1% Pri: 12.1% Jss: 33.8% Sss : 51.5% Higher: 2.6%	None: 0.1% Pri: 9.6% Jss: 36% Sss : 51.7% Higher: 2.6%	None: 0 Pri: 6.9% Jss: 43.3% Sss : 48.1% Higher: 1.6%	None: 0.1% Pri: 11.1% Jss: 34.8% Sss : 51.4% Higher: 2.6%
Other Occupation	None:54.9% Formal :18.3% Student : 0.4% Commerce : 9.9% Agric : 0 Other : 16.3%	None:69.8% Formal : 5.8% Student : 0.2% Commerce : 5.7% Agric : 0.1% Other :18.4%	None:75.4% Formal : 9.1% Student : - Commerce : 2.4% Agric : - other :13.1%	None: 60% Formal :14.4% Student :0.3% Commerce : 8.4% Agric : 0.04% other :16.8%

FSW Characteristics	Gaborone (404)	Francistown (412)	Kasane (131)	All (947)
Mean no. of children	1.7	1.69	1.62	1.69
Mean Duration of Selling Sex	4.9 yrs	4.4 yrs	4.1 yrs	4.7 yrs
Where Find Clients	Home: 10.4% Lodge:11.1% Bar: 74.2% Street: 9.6 % Phone: 14.7% Internet 0.3% Other 1.9%	Home: 10.5% Lodge: 5.6% Bar: 76% Street: 34.4% Phone: 28.9% Internet: 0.1% Other: 3.7%	Home: 0.2% Lodge:11.1% Bar:83.2% Street:16.4% Phone:14.9% Internet 0 Other 19.5%	Home: 10.0% Lodge: 9.5% Bar: 75.1% Street: 16.9% Phone: 18.7% Internet 0.2% Other 3.1%
Average amount paid per sex act	P97.1	P85.4	P89.4	P93.5

The mean age of FSWs surveyed was 29.7 years, with a range from 28.6 years in Kasane to 30.2 years in Gaborone. Less than 2% of the sample was under 20 years old, with most either aged between 20 to 29 years (49.5%) or 30 to 39 years (42.8%). At the time of the survey, 12.2% were married or living with a partner (co-habitating), 50.9% described themselves as having a boyfriend they don't live with, and only 0.3% reported having a casual sex partner in the week before the survey. Having a boyfriend was least common in Kasane (24.1%) and living with a partner was most common in Gaborone (15.4%) when compared with other districts.

Less than 3% of FSWs surveyed had completed a tertiary education, although an additional 51.4% had completed senior secondary school. Only 11.1% reported not continuing school after primary level. The majority of FSWs (60%) reported having no other occupation, and only 0.3% were students. Being formally employed outside of sex work was more common in Gaborone (18.3%) than in either Kasane (9.1%) or Francistown (9.1%). After formal employment, small business or commerce was the next most common additional source of income (8.4%). Women had been selling sex for a mean of 4.7 years, with a slightly higher mean in Gaborone (4.9 years) than in Francistown (4.4 years) or Kasane (4.1 years). Only 16.6% of the sample had been selling sex for less than 12 months prior to the survey. The mean age of starting sex work was 25 years.

In findings consistent with FGDs, many FSWs reported finding clients in more than one location. Bars were the most common, cited by 75.1% of respondents. FSWs in Francistown were more likely to find clients on the streets (34.4%) than were FSWs in Gaborone (9.6%) or Kasane (16.9%). Arranging sex with clients over the phone was also common, with 18.7% of women surveyed citing this. However, this practice was more common in Francistown (28.9%) than in Gaborone (14.7%) or Kasane (14.9%). Homes and lodges were each listed by about 10% of respondents as places where they find clients. FSWs in Francistown and Gaborone were more likely to find clients at homes (10.5% and 10.4%, respectively) than were FSWs in Kasane (0.2%). FSWs in Kasane and Gaborone were more likely to find clients at lodges (11.1% for both) than were FSWs in Francistown (5.6%). Meeting clients over the Internet was uncommon, with only 0.2% of FSWs reporting this. The overall mean amount paid per sex act was P93.5, with the highest mean in Gaborone (P97.1) followed by Kasane (P89.4) and Francistown (P85.4).

3.4.1.2 Key risk behaviours

Table 7 shows risk behaviours reported by FSWs in the three districts. FSWs reported a mean of 7.6 partners in the week prior to the survey. Slightly more than half of the sample reported fewer than five partners, with a small minority (5.2%) reporting more than 21 partners. These partners were predominantly clients, with 70.5% and 61.5% reporting one-time and regular clients, respectively. Sex with other types of partners in the past week was much less common, with less than 2% of FSWs reporting sex with a spouse or cohabitating partner, a non-cohabitating boyfriend, or a casual partner.

Table 7. Key risk behaviors of female sex workers

FSW key risk behaviours	Gaborone (404)	Francistown (412)	Kasane (131)	All (947)
Mean no. of partners last week	7.3	8.6	6.3	7.6
Volume of sex partners last week	0-2: 25.7% 3-5:28% 6-10: 31.2% 11-20:10.4% 21+:4.7%	0-2: 13.6% 3-5:32.6% 6-10: 28.4% 11-20:18.4% 21+:6.9%	0-2: 21.1% 3-5:35.4% 6-10: 27.7% 11-20:13.9% 21+:1.8%	0-2: 22.1% 3-5:29.6% 6-10: 30.3% 11-20:12.8% 21+:5.2%
Types of partners last week	One-time client 67.1% Regular client:64.1% Spouse/cohabitating 0.9% Non-cohabitating boyfriend 1% Casual 1.4%	One-time client 78.2% Regular client: 58.2% Spouse/cohabitating : 0.1% Non-cohabitating boyfriend 2.1% Casual 0.5%	One-time client 73.8% Regular client:41.2% Spouse/cohabitating 1.3% Non-cohabitating boyfriend 1.3% Casual 2.6%	One-time client 70.5% Regular client:61.5% Spouse/cohabitating:0.7 % Non-cohabitating boyfriend 1.3% Casual 1.2%
Mean no. of each partner type last week	One-time client: 4.8 Regular client:2.3 Spouse/cohabitating : 0.01 Non-cohabitating boyfriend:0.01 Casual: 0.04	One-time client: 6.1 Regular client:2.3 Spouse/cohabitating : 0.001 Non-cohabitating boyfriend:0.02 Casual:0.01	One-time client:4.3 Regular client:1.9 Spouse/cohabitating : 0.01 Non-cohabitating boyfriend: 0.13 Casual:0.05	One-time client: 5.1 Regular client:2.3 Spouse/cohabitating:0.7 Non-cohabitating boyfriend: 0.01 Casual:0.03
Last time condom use with client	89.7%	90.7%	92.5%	90.1%
Condom use with client last mth	Always: 70.9% Almost every time:15.6% Sometimes: 13.5% Never:0	Always: 57.7% Almost every time: 25.9% Sometimes:16.3% Never:0.1%	Always: 71.3% Almost every time:13.5% Sometimes: 15.2% Never:0%	Always: 67.1% Almost every time:15.2% Sometimes: 14.4% Never:0%
Why not always use condoms with clients?	Client refuses:16.7% Client is regular :6.1% No condoms: 3.1% Want baby: 0 More pay: 43.1% Violent: 0 Drunk :3.7% Embarrassed: 0 Don't like: 0 Other : 27.3%	Client refuses : 4.3% Client is regular: 9.6% No condoms: 3.2% Want baby:0 More pay: 60.1% Violent : 0 Drunk : 1.9% Embarrassed:0 Don't like: 2.3% Other: 18.5%	Client refuses: 14% Clients is regular: 9.4% No condoms:8.1% Want baby:0 More pay: 46.6% Violent: 0 Drunk: 4.7% Embarrassed :0 Don't like:0.6% Other:16.7%	Client refuses:12.2% Client is regular 7.4% No condoms :3.3% Want baby:0 More pay:49.3% Violent: 0 Drunk:3.1% Embarrassed: 0 Don't like:0.8 % Other: 23.8%
Last time condom use with spouse/co-	84.2%	40.7%	69.6%	78.3%

FSW key risk behaviours	Gaborone (404)	Francistown (412)	Kasane (131)	All (947)
habitating				
Always condom use with spouse/cohabitating	15.8%	28.4%	69.6%	18.6%
Last time condom use with boyfriend	74.4%	65.2%	65.4%	71.6%
Always condom use with boyfriend	55.1%	45.9%	50.0%	52.3%
Why not always use condoms with boyfriends?	I trust him 36.9% Partner refuse 17.5% Partner HIV-: 2.9% No condoms 3.1% Want baby 9.8% Violent 0.2% Embarrassed 0 Drunk/high 2.2% Don't like it 27.3% Other	I trust him 40.2% Partner refuse 34.3% Partner HIV-0 No condoms 0 Want baby 5.1% Violent 0 Embarrassed 1.4% Drunk/high 2.9% Don't like it 16.1% Other	I trust him 62.3% Partner refuse 21.4% Partner HIV-:0 No condoms 0 Want baby 4.8% Violent 0 Embarrassed 0 Drunk/high 0 Don't like it 11.5% Other	I trust him 38.5% Partner refuse 23.1% Partner HIV-:1.9% No condoms 2.0% Want baby 8.1% Violent 0.2% Embarrassed 0.5% Drunk/high 2.4% Don't like it 23.2% Other
Proportion having anal sex	2.3%	3.9%	4.5%	2.9%
Condom use with anal sex	52.4%	69.8%	30.7%	57.5%
Lubricant use	Yes, always: 5.5% Yes, sometimes 6.9%	Yes, always: 2.1% Yes, sometimes 8.9%	Yes, always: 0.2% Yes, sometimes 4.2%	Yes, always: 4.3% Yes, sometimes 7.4%
Which lubricant	Saliva 19.1% Oil 31.4% Water-based 4.1% Body lotion 3.2% Other 42.2%	Saliva 21.3% Oil 31.0% Water-based 10.8% Body lotion 10.8% Other 26.1%	Saliva 29.3% Oil 29.3% Water-based 29.3% Body lotion 0 Other 12.1%	Saliva 19.9% Oil 31.2% Water-based 6.3% Body lotion 5.2% Other 37.5%

The proportion who reported using condoms at last sex with clients was 90.1%, and was similar in every district. The proportion who reported always using condoms with clients in the past month was lower, at 67.1%. This was lowest in Francistown (57.7%) and highest in Gaborone (70.9%). The most common reason FSWs gave for not always using condoms with clients was being offered more money (49.3%), followed by other reasons not captured on the questionnaire (23.8%) and client refusal to use condoms (12.2%). Having clients refuse condoms was more common in Gaborone (16.7%) than in Francistown (4.3%) or Kasane (14%). However, clients were more likely to pay more not to use condoms in Francistown (60.1%) than in Gaborone (43.1%) or Kasane (46.6%).

Rates of condom use at last sex and always use of condoms were lower with spouses or cohabitating partners than with clients, at 78.3% and 18.6%, respectively. This was quite similar to condom use levels with boyfriends, which were 71.6% for use at last sex and 52.3% for use always in the past month. Reasons for not always using condoms with boyfriends were different than the reasons given for not using condoms with clients. The most common reason was trust in boyfriends (38.5%), followed by FSWs not liking them or not feeling like using them (23.2%). The third most common reason was partner refusal (23.1%), which was highest in Francistown (34.3%) and lowest in Gaborone (17.5%). FSWs were also asked about anal sex in the past month and whether they used condoms during anal sex with clients. Anal sex was not very common, reported by 2.9% of FSWs in the past month. Condom use at last anal sex was also lower (57.5%) than condom

use at last sex with a client, and was particularly low in Kasane (30.7%), where the practice was also slightly more common (4.5%) than in other districts.

FSWs were also asked about lubricant use during commercial sex. Lubricant use was not very common, with 88.3% of those surveyed saying they do not use lubricant. FSWs in Gaborone were the most likely to report always using lubricants (5.5%), whereas FSWs in Kasane were the least likely (0.2%). The few FSWs in Kasane who reported using lubricant were more likely to use water-based lubricant (29.3%) than were FSWs who reported using lubricant in Gaborone (4.1%) or Francistown (10.8%).

3.4.1.3 Barriers to consistent condom use

For the purposes of this study, we defined consistent condom use as using condoms in the last month 'always' or 'almost every time.' Although condom use at last sex was quite high with all partner types, FSWs faced important constraints in consistently using condoms with clients and other types of partners.

Figure 4 illustrates that in all districts over the past month, a significant proportion of FSWs reported being paid not to use condoms (23.9%), being forced not to use condoms (18.6%), or having one or more condoms break (41.9%); 59.5% of FSWs experienced at least one of these events in the past month, with the highest rates in Kasane (64.6%) and lowest in Gaborone (57.1%). Condoms breaking was the most common of the three reasons, reported by 54% of FSWs in Kasane, 41.6% in Francistown, and 41.3% in Gaborone. FSWs in Francistown were the most likely to report being paid not to use condoms (30.5%).

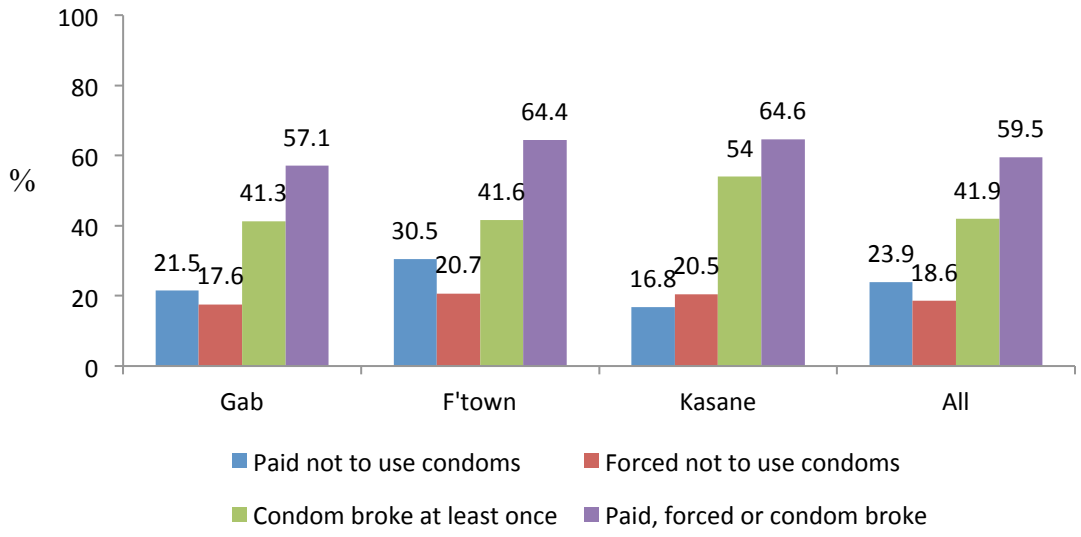

Figure 4. Obstacles to consistent condom use reported by female sex workers in the last month

3.4.1.4 HIV-related knowledge, risk perception, knowledge of status, and antiretroviral therapy

FSWs demonstrated a high level of HIV-related knowledge, with 98.3% mentioning that condom use prevents HIV, as does sticking to one partner or reducing the number of partners. According to Figure 5, a very high percentage had also been tested for HIV (88.1%), with almost half tested in the past year (48.3%).

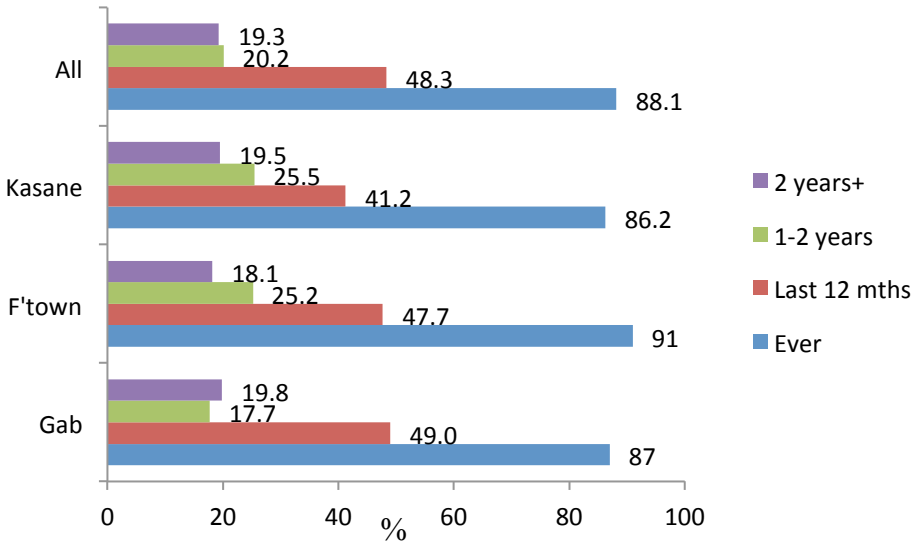

Figure 5. HIV testing history for female sex workers

With high levels of HIV-related knowledge, FSWs tended to see themselves at high risk of becoming HIV infected. Overall, 62.3% of FSWs perceived themselves to be at high risk of HIV infection, with a higher proportion in Gaborone (65.4%) than in Francistown (55%) or Kasane (55.9%). FSWs in Gaborone were also much less likely to perceive themselves as being at no or low risk (5%) than were FSWs in Francistown (39.9%) or Kasane (27.3%). The two most common reasons for a perception of high risk were not always using condoms (34.1%) and having multiple partners (36.6%). Among those who considered themselves at low risk of becoming infected with HIV, the main reason cited was always using condoms (76.9%), with only about 6% of FSWs giving any other reason.

Out of those who had been tested before, 33.9% mentioned that the result was positive. Of all the FSWs sampled, 24.9% mentioned they are currently or have ever been enrolled in the national ART programme. This is about 73% of those who reported testing positive before the BBSS. A higher proportion of FSW in Kasane reported ever being enrolled in treatment (35%) when compared with FSWs in Gaborone (26.4%) and Francistown (17.9%). There was no significant difference between the proportion of Zimbabwean and Batswana FSWs who had ever been tested for HIV, and there was also no significant difference in reported access to ART. Among FSWs who tested positive at last test, 50.4% of those from Botswana said they take ARV drugs daily, compared with 40.2% of those from Zimbabwe. The proportions of Batswana FSWs taking ARV drugs each day were slightly higher in all districts, except for Kasane, where the difference was more striking (64.5% for Batswana versus 1.7% for Zimbabwean FSWs).

3.4.1.5 Alcohol and drug use

Alcohol was the most common substance used by FSWs, with 10.6% reporting drinking alcohol daily in the past month and a further 47.2% reporting consuming alcohol at least once a week. However, 27.6% reported never consuming alcohol in the past month. FSWs were also asked how often they consume six or more alcoholic drinks before sex. Out of those who consume alcohol, 55.4% reported that they consumed six or more drinks before sex at least two or three times a week in the past month. Also, 11.2% reported that about once a month they can't remember what happened the night before because of excessive drinking, while 14.7% said this happens more than once a month.

As shown in Figure 6, marijuana was the next most popular drug, with 10.1% reporting use of marijuana in the past month, followed by pills, with 1.8% of FSWs reporting taking some kind of pill in the past month. Pill use and glue inhalation were more common in Kasane than in other districts. Cocaine use in the past month was more common in Francistown (2%) than in Gaborone (1%) or Kasane, although levels of use were very low in all three districts. Other drug use was also rare –only 2 FSWs sampled reported injection drug use.

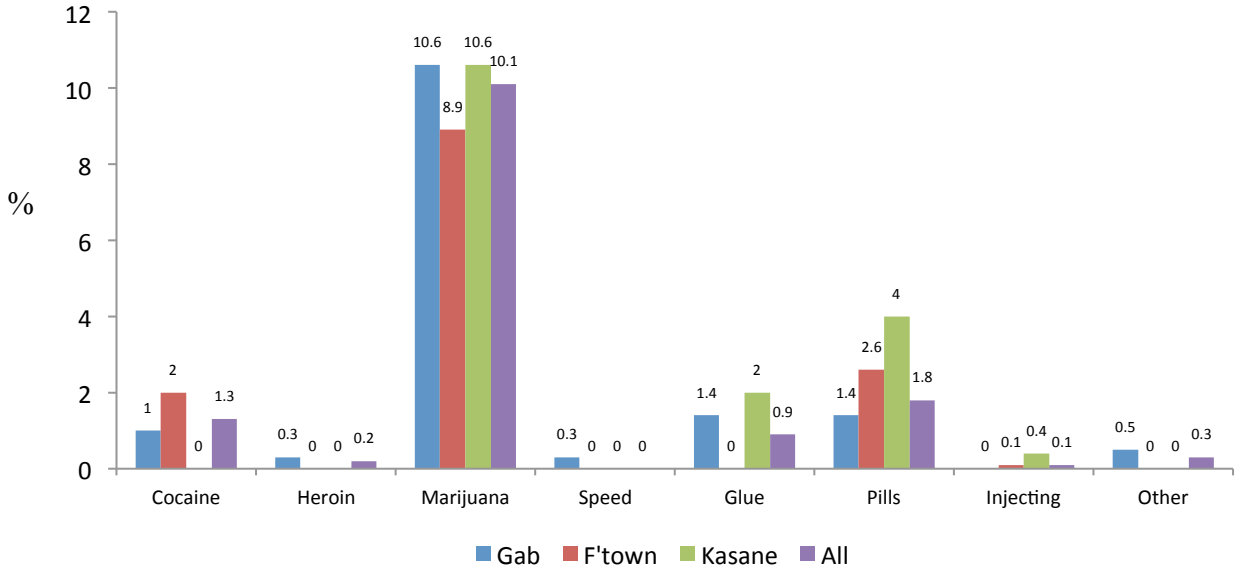

Figure 6. Prevalence of drug use in the past month among female sex workers

3.4.1.6 Knowledge and experience with sexually transmitted infections

Among the FSWs, 54.4% reported experiencing excessive or foul genital discharge in the past 12 months, and 29.8% reported experiencing a genital ulcer or sore. FSWs in Gaborone were more likely to experience both than were their counterparts in other districts, with 58% reporting excessive or foul genital discharge in the past year and 34.2% reporting a genital ulcer or sore. About 80% first sought treatment at a government clinic, and 94% reported receiving treatment. About 80% of the FSWs with genital discharge took the drugs until the course was complete. However, 70.9% with a genital ulcer or sore completed the course. FSWs in Gaborone were the most likely to complete the course of drugs for genital ulcers or sores (72.6%), compared with FSWs in Francistown (69.5%) or Kasane (47.8%).

Although there were likely some misunderstandings regarding STI symptoms, 37.8% of FSWs reported currently having one or more STI symptoms. Levels were highest in Gaborone (40.3%) and lowest in Francistown (31.7%). Of those who had experienced symptoms in the past year, 28.7% reported continuing to have sex when they had an STI, and the majority (88.9%) mentioned they used condoms to protect their partners during this time. Also, 61.6% of FSWs attended a clinic or hospital with STI symptoms in the past year, with a mean of 1.5 visits; the mean number of visits was highest in Gaborone (1.6) and lowest in Kasane (0.9). Visits to the clinic or hospital for checkups without symptoms were less common, with 25.1% reporting this form of health-seeking behaviour.

3.4.1.7 Exposure to HIV and AIDS information and activities

FSWs were asked questions about where they had received information about HIV and AIDS in the past year and what activities they had been involved in. The results in Figure 7 show that FSWs were exposed to a variety of information sources and activities related to HIV and AIDS. Although the time period for most of these questions was the past year, a question about exposure to a condom demonstration was for a time period of 'ever.' More than 90% of FSWs had ever seen a condom demonstration, and this proportion was similar in all districts.

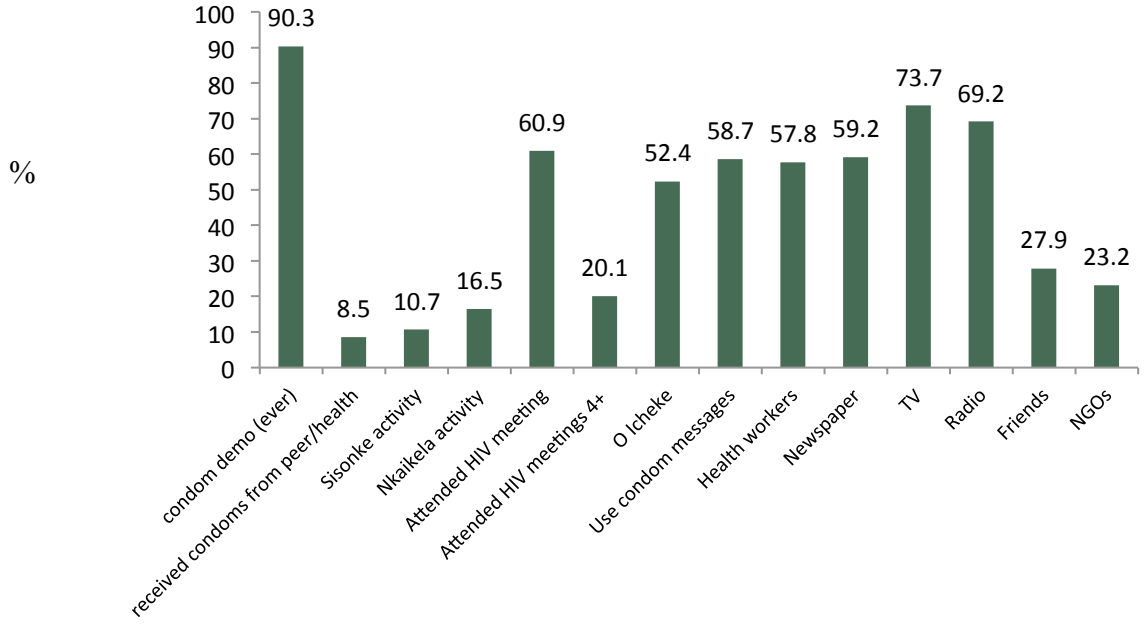

Figure 7. Exposure to different HIV and AIDS information sources or activities in the past year

FSWs were highly likely to be exposed to HIV and AIDS information through mass media, with 73.7% seeing information on TV, 69.2% on radio, and 59.2% through newspapers in the past year. Both radio and TV exposure to HIV information was lower in Kasane (54.3% and 57.6%, respectively) than in Gaborone and Francistown (about 70% or more). The two most common messages FSWs were able to remember without being prompted were the O Icheke campaign (52.4%) and condom promotion messages (58.7%). Kasane-based FSWs were the least likely to be exposed to O Icheke messages (40.4%), whereas Francistown-based FSWs were the least likely to be exposed to condom promotion messages (48.7%).

In terms of the individuals or organisations reaching FSWs with HIV and AIDS information, more than half of the FSWs had attended an HIV-related meeting in the past year (60.9%), and 20.1% had attended meetings at least every three months. Francistown-based FSWs were slightly less likely than those in other districts to attend one (54.9%) or four (15.3%) meetings. A good proportion of FSWs (57.8%) received HIV-related information from health workers (57.8%), and 27.9% received it from friends. Receiving information from friends was more common in Gaborone (34.9%) than in Francistown (12.5%) or Kasane (16.7%). In addition, 23.2% of FSWs received HIV-related information from NGOs, with the lowest proportion in Francistown (15.7%), whereas 10.7% and 16.5% received information by participating in a Sisonke or Nkaikela activity,

respectively. Outside of Gaborone, participation in both Nkaikela and Sisonke activities dropped off considerably. In Gaborone, about one-quarter of FSW had participated in an Nkaikela activity and 14.4% in a Sisonke activity. In terms of where FSWs received their condoms, 8.5% reported receiving them from peer or health educators, with the lowest proportion in Francistown (2.8%) and the highest in Kasane (20.7%). In all districts, FSWs were the most likely to receive condoms from clinics (56.8%), with the highest proportion in Francistown (67.7%) and the lowest in Kasane (49.9%).

3.4.1.8 Associations with HIV prevalence

Several variables were included in bivariate and multivariate analyses to identify risk factors associated with HIV transmission. Factors that went into the bivariate analysis that were not significantly associated with HIV prevalence included:

- FSWs who regularly consumed six or more alcoholic drinks before sex were no more likely to be HIV infected than those who reported not drinking six or more alcoholic drinks before sex.
- FSWs with 11 or more sex partners in the past week did not have a significantly higher HIV prevalence (67.9%) than those with fewer than five partners (58.2%).
- FSWs who initiated sex before the age of 15 years did not have a significantly higher HIV prevalence (71.6%) than those who initiated sex later (61.6%).
- FSWs who solicited clients on the streets did not have a significantly higher HIV prevalence (59.3%) than those who were based in bars or elsewhere (62.7%).
- HIV prevalence for FSWs with boyfriends or cohabitating partners (62.4%) was no different than HIV prevalence for those without boyfriends or cohabitating partners (61.6%).
- HIV prevalence for those who reported being paid not to use condoms in the past month (56.3%) was not significantly different than HIV prevalence for those who were not paid to not use condoms (63.9%).

For multivariate analysis, we built a model using predictor variables associated with HIV infection at a level of $p \leq 0.05$ in bivariate analysis. The final weighted model displayed all predictor variables significantly associated with HIV infection at a level of $p \leq 0.05$. Table 8 presents the results of the multivariate analysis. After controlling for potential confounders in the weighted multivariate analysis (i.e., relationship status, alcohol use, condom use), the factors that were found to be associated with HIV prevalence were age of 30 and older, HIV testing two or more years ago (as opposed to recent testing), self-perception of a high risk of acquiring HIV, and current syphilis infection.

Table 8. Statistically significant results from multivariate analysis of HIV prevalence

Specific	Unadjusted OR	p	Adjusted OR	P
Age				
<30(Ref)				
30+	4.6(2.5-8.4)	0.00	5.4(2-14.2)	0.001
Last Test				
Under 12mth(Ref)				
2-4	2.8(1.3-6.1)	0.012	2.4(1.2-4.8)	0.013
>4	6.2(2.8-14.0)	0.00	10.4(4.8-21.8)	0.000

Specific	Unadjusted OR	p	Adjusted OR	P
Risk Perception				
Low(Ref)				
High	2.8(1.8-4.5)	0.00	3.1(1.7-5.7)	0.000
Syphillis				
No (Ref)				
Yes	2.6(0-9-7.0)	0.08	10.8(1.6-19.0)	0.000

In Table 8, constant: -0.96; degrees of freedom (d.f.): 30; n: 552; F-statistic: 3.17; and P(F):0.01.

3.4.1.9 Associations with consistent condom use with clients

The majority of bivariate analyses involving condom use did not uncover any significant results. A summary of the results is as follows:

- Those working as FSWs for four or more years were not significantly more likely to consistently use condoms with clients than were those working as FSWs for less than one year (83.6% versus 90.6%).
- Those who had an HIV test in the past 12 months were not significantly more likely to consistently use condoms with clients than were those last tested four or more years ago (88.5% versus 83.6%).
- Participants who tested positive at their last test were not significantly more likely to consistently use condoms with clients than were those who tested negative (88.8% versus 87.3%).
- There was no significant difference in consistent condom use with clients between participants who regularly consumed at least six alcoholic drinks before having sex (83.8%) and those who did not drink (82.2%).
- There was no significant difference in consistent condom use with clients between younger (77.3% for FSWs under 20 years) and older FSWs (86.9% for FSWs aged 30-39 years).
- There was no significant difference in consistent condom use with clients between those reporting STI symptoms in the past year (82.5%) and those not reporting symptoms (89.2%).
- There was no significant difference in consistent condom use with clients between those who had participated in a condom demonstration (86%) or seen condom promotion messages in the past year (84.8%) and those who had not (81.7% and 86.5%, respectively).

For multivariate analysis, we built a model using predictor variables associated with consistent condom use with clients at a level of $p \leq 0.2$ in bivariate analysis. The final weighted model displayed all predictor variables significantly associated with consistent condom use at a level of $p \leq 0.05$. Table 9 presents the results of the multivariate analysis. After controlling for potential confounders in the weighted multivariate analysis (i.e., alcohol use, past STI), FSWs who identified themselves as being at high risk of acquiring HIV or who had chlamydia were less likely to consistently use condoms with clients. Other variables in the model that remained insignificant were condom demonstrations (odds ratio [OR]=0.5, p=0.09), those who were Nkaikela members and received condoms from peer educators or health workers (OR=2.1, p=0.2), and those who saw the 'O Icheke' and condom use messages and information on HIV from radio and TV (OR=1.0, p=0.9).

Table 9. Statistically significant results from multivariate analysis of consistent condom use with clients

Specific Xtic	Unadjusted OR	p	Adjusted OR	P
Risk Perception				
Low(Ref)				
High	0.05(0.01-0.2)	0.000	0.04(0.01-0.2)	0.000
Chlamydia				
No (Ref)				
Yes	0.62(0.4-102.6)	0.062	0.4(0.2-0.8)	0.005

In Table 9, constant: 5.1; degrees of freedom (d.f.): 32; n: 616; F-statistic: 3.75; and P(F):0.01

3.4.2. Men who have sex with men

3.4.2.1 Characteristics

As outlined in Table 10, the overwhelming majority of MSM were Batswana (97.6%), with the lowest proportion in Kasane (80.8%). With such a small sample in Kasane, it may be difficult to draw any conclusions about real differences between Kasane and the other districts. With this in mind, MSM in Kasane also had the highest mean age (26.7 years) when compared with MSM in Gaborone (22.9 years) and Francistown (23.3 years). The mean age for the overall sample was 23.2 years. Attempts were made to recruit older MSM by selecting two seeds ages 40 years and older. However, there was very little participation from this age group in the survey (1.3%).

Table 10. Key characteristics of men who have sex with men

MSM Characteristics	Gaborone (273)	Francistown (151)	Kasane (30)	All (454)
Nationality	Motswana 98.5% Zimbabwean 0.4% Other 1.1%	Motswana 99.3% Zimbabwean 0.7% Other 0%	Motswana 80.8% Zimbabwean 16.7% Other 3.3%	Motswana 97.6% Zimbabwean 1.6% Other 0.9%
Mean Age	22.9 yrs	23.3 yrs	26.7 yrs	23.2 yrs
Age category	Under 20:17.1% 20-29:78.2% 30-39:3.6% 40-49:0.7% 50+:0.4%	Under 20: 13.8% 20-29:80.7% 30-39:4.8% 40-49:0.7% 50+:0%	Under 20:6.7% 20-29:70% 30-39:16.7% 40-49:6.7% 50+:0	Under 20:15.2% 20-29:79.1% 30-39:4.4% 40-49:1.0% 50+:0.3%
Relationship Status	Married: 1.1% Co-habitating: 2.2% Separ:0.4% Divor: 0% Bf: 41.5% Sing: 54.9%	Married: 0.7% Co-habitating: 2.1% Separ: 0% Divor: 0% Bf: 51.0% Sing: 46.2%	Married: 0% Co-habitating: 3.3% Separ:0% Divor: 0% Bf: 40.0% Sing: 56.7%	Married:0.9% Co-habitating: 2.2% Separ:0.2% Divor: 0% Bf: 44.4% Sing: 52.2%
Highest level of	None: 0% Pri: 0% Jss: 7.6%	None: 0% Pri: 0.7% Jss: 20%	None: 0% Pri: 20.0% Jss: 36.7%	None: 0% Pri: 1.6% Jss: 13.6%

MSM Characteristics	Gaborone (273)	Francistown (151)	Kasane (30)	All (454)
Education	Sss : 44.0% Higher: 48.4%	Sss : 52.4% Higher: 26.9%	Sss : 33.3% Higher: 10%	Sss : 46% Higher: 38.9%
Occupation	None:18.9% Student : 53.8% Commerce :13.4% Agric : 9.5 Govt : 4.4%	None:37.2% Student : 21.4% Commerce :6.9% Agric : 27.6% Govt :6.9%	None:23.3% Student :0% Commerce :6.7% Agric :60.0% Govt: 10.0%	None: 25.1% Student :39.8% Commerce :10.7% Agric : 18.7% Govt :5.6%
Mean no. of children	0.1	0.2	0.6	0.15
How many MSM met in last 6 mths	21.4	9.6	8	16.5

Very few MSM were married at the time of the survey (0.9%), although 2.2% reported living with a sexual partner. The majority of MSM were single (52.2%), with the highest proportion in Kasane (56.7%) and the lowest in Francistown (46.2%). Furthermore, 44.4% of the sample reported currently being in a relationship with another man (boyfriend), with the highest proportion in Francistown (51.0%) and the lowest in Kasane (40.0%).

In comparison to FSWs, MSM were much better educated, particularly in Gaborone. Overall, 84.9% of the sample had completed senior secondary school or a tertiary qualification, with the highest proportion in Gaborone (92.4%) and a considerably lower proportion in Kasane (43.3%). Among all the MSM, 39.8% were currently students. This varied significantly at the district level, from 53.8% in Gaborone to 21.4% and 0% in Francistown and Kasane, respectively. 'Student' was considered an occupation for the purposes of the study, but nevertheless 25.1% of the sample did not have an occupation at the time of the survey. This ranged from a high of 37.2% in Francistown to a low of 18.9% in Gaborone. It was relatively uncommon for MSM to have children, with a mean number of 0.15 children per participant. MSM were also asked about how many MSM they knew personally and how many MSM they knew and had seen in the past six months. For this last question, respondents had seen a mean of 16.5 other MSM they knew in the past six months. The size of personal MSM networks differed significantly between districts. MSM reported seeing a mean of 21.4 other MSM in the past six months in Gaborone, which dropped to 9.6 in Francistown and 5.5 in Kasane.

3.4.2.2 Key risk behaviours

Sexual partnerships

As shown in Table 11, the overall mean age at first sex with a man was 19.8 years, with the highest mean age in Kasane (24.1 years) and the lowest in Gaborone (19.2 years). MSM had a mean of 2.4 male partners in the past six months, with the highest mean in Gaborone (2.5) and the lowest in Kasane (1.8). MSM also had a mean of 1.0 female partners in the past six months, with the highest mean in Kasane (1.8) and the lowest in Gaborone (0.9). Boyfriends were the most common partner type in the past six months (71.5%), followed by casual male partners (49.3%) and female partners (46.7%). MSM in Francistown were the most likely to report having sex with a boyfriend (76.9%) in the past six months, whereas MSM in Kasane were the most likely to report having sex with a woman (66.6%). Also, 7.8% of the MSM reported selling sex in the past six months, with the highest proportion in Kasane (16.7%) and lowest in Gaborone (5.3%). In addition, 11.1% of the MSM

who had female partners reported having sex with a FSW in the past six months, with the highest proportion in Kasane (26.8%) and the lowest in Gaborone (0.1%).

Table 11. Key risk behaviours of men who have sex with men

MSM Characteristics	Gaborone (273)	Francistown (151)	Kasane (30)	All (454)
Mean Age at First Sex with Man	19.2 yrs	20.3 yrs	24.1 yrs	19.8 yrs
Mean No. of male partners last 6 mths	2.5	2.2	1.8	2.4
Mean No. of each partner type last 6 mths	Boyfriend: 0.9 Casual male: 1.2 Paying men: 0.01 Women: 0.9 Male sex workers: 0.2	Boyfriend:0.9 Casual male:0.7 Paying men: 0.1 Women: 1.0 Male sex workers:0	Boyfriend:1.0 Casual male:0.6 Paying men: 0.1 Women: 1.8 Male sex workers:0.1	Boyfriend:0.9 Casual male:1.0 Paying men: 0.1 Women: 1.0 Male sex workers:0
Percent sex with partner type last 6 mths	Boyfriend: 69.9% Casual male: 51.5% Paying men: 1.1% Female: 41.2% Male sex workers:0.7% FSW:0.1%	Boyfriend: 76.9% Casual male: 46.1% Paying men: 6.9% Female: 47.4% Male sex workers:1.9% FSW:14.1%	Boyfriend: 66.7% Casual male: 40% Paying men: 6.7% Female: 66.6% Male sex workers:6.7% FSW:26.8%	Boyfriend: 71.5% Casual male: 49.3% Paying men: 2.9% Female: 46.7% Male sex workers:1.5% FSW:11.1%
Insertive or receptive anal sex	Both: 26.7% Insertive: 42.8% Receptive: 30.5%	Both:50.9% Insertive: 26.5% Receptive: 22.5%	Both: 51.7% Insertive: 27.6% Receptive: 20.7%	Both: 34.8% Insertive: 37.5% Receptive: 27.7%
Condom use last anal sex	85.5%	83.5%	76.7%	84.3%
Always condom use anal sex	68.0%	62.9%	60.7%	65.9%
Why not always use condoms?	Partner refuse:11.9% Partner HIV-:5.9% When insertive:3.6% When receptive:0% No condoms:26.2% Drunk/high: 21.4% Embarrassed:1.2% Don't like:13.1% Other:16.7%	Partner refuse:7.6% Partner HIV-:3.8% When insertive:0% When receptive:0% No condoms:24.5% Drunk/high: 32.1% Embarrassed:0% Don't like:24.5% Other:7.6%	Partner refuse: 27.3% Partner HIV-:0% When insertive:0% When receptive:0% No condoms:9.1% Drunk/high: 18.2% Embarrassed:0% Don't like:27.3% Other:18.2%	Partner refuse:11.5% Partner HIV-:4.7% When insertive:2.0% When receptive:0% No condoms:24.3% Drunk/high:25.0% Embarrassed:0.7% Don't like:18.2% Other:13.5%
Sold sex last 12 mths	5.3%	10.4%	16.7%	7.8%
Circumcised	31.6%	24.3%	23.3%	28.7%
In more than one ongoing sexual partnership	38.5%	39.2%	36.7%	38.6%
Condom burst last 6	Once: 13.7%	Once: 14.6%	Once: 3.6%	Once: 13.3%

MSM Characteristics	Gaborone (273)	Francistown (151)	Kasane (30)	All (454)
mths	2+: 12.5%	2+ 7.6%	2+: 14.3%	2+: 11.1%
	Never: 73.8%	Never: 77.1%	Never:75.0%	Never: 74.9%
Use of lubricant last 6	No:25.5%	No:39.9%	No:48.3%	No:31.6%
mths	Always:50.2%	Always:31.5%	Always:37.9%	Always:43.3%
	Mostly:5.9%	Mostly:4.2%	Mostly:0%	Mostly:4.9%
	Sometimes:18.5%	Sometimes:24.5%	Sometimes:13.8%	Sometimes:20.1%
Which lubricant	None:4.5%	None:8.1%	None:0%	None:5.1%
	Saliva:1.6%	Saliva:0%	Saliva:0%	Saliva:1.1%
	Oil:11.2%	Oil:54.8%	Oil:53.3%	Oil:23.4%
	Water-based: 54.8%	Water-based:22.6%	Water-based:40.0%	Water-based:46.7%
	Body lotion:6.1%	Body lotion:11.3%	Body lotion:0%	Body lotion:6.9%
	Other:21.8%	Other:3.2%	Other:6.7%	Other:16.8%

In sexual encounters with other men in the past six months, the majority of MSM were only the insertive partner (37.5%) or were both the receptive and insertive partner (34.8%). Being a receptive partner in unprotected anal sex carries a higher biological risk of acquiring HIV, and 27.7% of the MSM were only the receptive partner in the past six months. There were some district variations in this indicator, with MSM in Gaborone being more likely to report being only the insertive partner (42.8%) or only the receptive partner (30.5%). In contrast, MSM in Kasane and Francistown were more likely to have practiced both (51.7% and 50.9%, respectively).

Condom and lubricant use

The proportion of MSM who reported using condoms at last anal sex was 84.3% overall. This proportion was highest in Gaborone (85.5%) and lowest in Kasane (76.7%). The proportion who reported always using condoms during anal sex in the past six months dropped to 65.9%. This ranged from 60.7% in Kasane to 68.0% in Gaborone. The most common reasons given for not always using condoms were being intoxicated or high (25.0%), not having condoms (24.3%), and not liking to use condoms (18.2%). MSM were most likely to get condoms from a shop (51.2%), followed by a clinic (31.2%). Only 1.1% reported receiving condoms from a peer or health educator. In addition, 73.9% of MSM reported always using condoms with girlfriends in the past six months, with the highest proportion in Francistown (76.9%) and the lowest in Kasane (66.7%); 14.6% reported using condoms with girlfriends only sometimes or never. The proportion who reported always using condoms with casual female partners and FSWs in the past six months was 90.3% and 88.2%, respectively. In Francistown, MSM were most likely to obtain condoms from a clinic (47.9%); in Gaborone, MSM were most likely to obtain condoms from a shop (60.7%). Among all MSM, 24.4% had a condom burst at least once during anal sex in the past six months, with 11.1% reporting that this occurred more than once.

Regarding lubricant use, 43.3% of MSM reported always using a lubricant during anal sex, with the highest percentage in Gaborone (50.2%) and the lowest in Francistown (31.5%). Among the different types of lubricant used, water-based was the most common, cited by 46.7% of respondents. Use of water-based lubricant was more common in Gaborone (54.8%) than in Kasane (40%), and particularly more common in Gaborone than in Francistown (22.6%). Oil-based lubricant use was much more common in Francistown (54.8%) and Kasane (53.3%) than in Gaborone (11.2%).

Circumcision and concurrent partnerships

Among all MSM, 28.7% were circumcised, with a slightly higher proportion in Gaborone (31.6%) than in Francistown (24.3%) or Kasane (23.3%). In terms of concurrency, a high proportion of MSM reported being in more than one ongoing sexual relationship at the time of the survey (38.6%). Proportions were quite similar across districts, ranging from a low of 36.7% in Kasane to a high of 39.2% in Gaborone.

3.4.2.3 HIV-related knowledge, risk perception, knowledge of status, and antiretroviral therapy

Knowledge of HIV and AIDS was generally very high, with 98% of the MSM able to mention condoms as a method of HIV prevention together with either reducing the number of partners or being faithful to one partner. This, however, was not necessarily the case in regards to anal sex, as 36.8% of the sample reported that there is a lower risk of becoming infected with HIV during anal sex than during vaginal sex; a further 28.3% reported that chances of HIV transmission are the same during anal sex as during vaginal sex. In Francistown, only 17.7% of the respondents were able to correctly identify that anal sex carries a higher risk of HIV transmission. The proportion who identified this fact correctly was higher in Gaborone (42.8%) and Kasane (40.0%). Only 20.5% of the sample perceived themselves to be at high risk of HIV infection, with similar proportions across districts. Furthermore, 14.2% of MSM perceived themselves to be at no risk of HIV infection, and 27.9% perceived themselves to be at small risk; 51.4% of respondents in Kasane perceived themselves to be at no or small risk of HIV infection, compared with 41.3% in Gaborone and 42.2% in Francistown.

In terms of access to HIV testing (Figure 8), 76.2% of the sample had ever had an HIV test. This ranged from 74.6% in Gaborone to 80% in Kasane. Furthermore, 60.7% had been tested in the past 12 months, with the lowest proportion in Kasane (53.4%) and the highest in Francistown (65.7%). In addition, 7.4% of the sample reported obtaining a positive result on their last HIV test, with the highest proportion in Kasane (9.1%) and the lowest in Francistown (4.7%). Among those who tested positive at their last HIV test, 13.1% were enrolled in the national ART programme; the proportion enrolled was much higher in Kasane (33.3%) than in Gaborone or Francistown (both 10%).

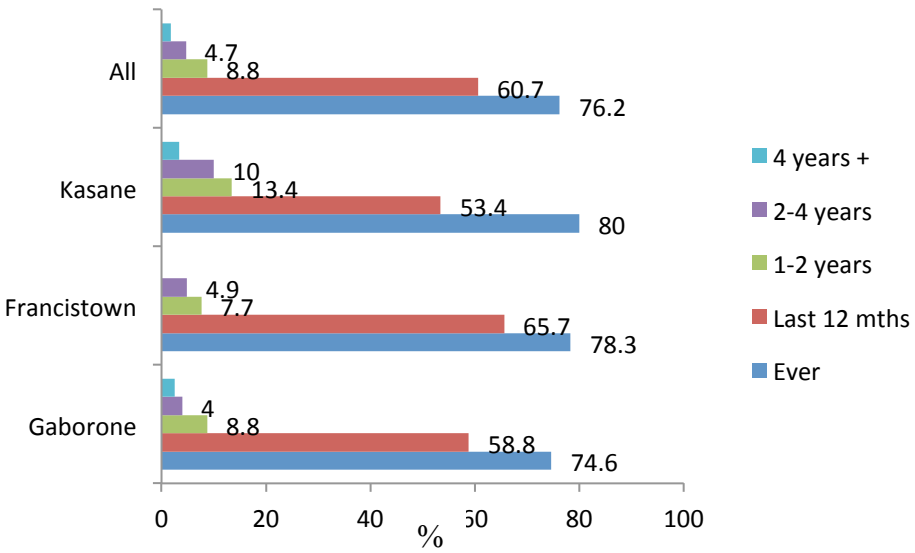

Figure 8. HIV testing history for men who have sex with men

3.4.2.4 Alcohol and drug use

Among the MSM, 17.5% were non-drinkers, with the highest proportion of non-drinkers in Kasane (27.6%). This is in contrast to the 5.8% of MSM who reported drinking alcohol on a daily basis and the 60.5% who reported drinking at least once a week. The proportion who reported drinking at least once a week (including daily) was highest in Gaborone (69%), followed by Francistown (65.2%) and Kasane (44.8%). When MSM were asked how often in the past month they were unable to remember what happened the night before due to excessive alcohol consumption, results were similar in all districts, with 12.2% of respondents reporting that it happens monthly or less frequently and 7.5% reporting that it happens at least twice a month. Respondents were also asked how often they have six or more drinks before sex. Of those who reported drinking alcohol, 43% said they drink six or more drinks before sex at least once a week.

In terms of other drug use (Figure 9), there were no reports of injecting drug use among MSM in the past month. Marijuana was the most common drug consumed in the past month (19.8%). Marijuana use was highest in Francistown (30.4%), followed by Kasane (26.7%) and Gaborone (15.1%). The use of other drugs was much lower. Only 1.2% and 0.5% of the sample had used cocaine and heroin, respectively. The use of pills was slightly more common (1.5%) than the use of speed (0.2%) or glue (0.2%). Other drugs, not specified here, were reportedly used by only 0.5% of respondents.

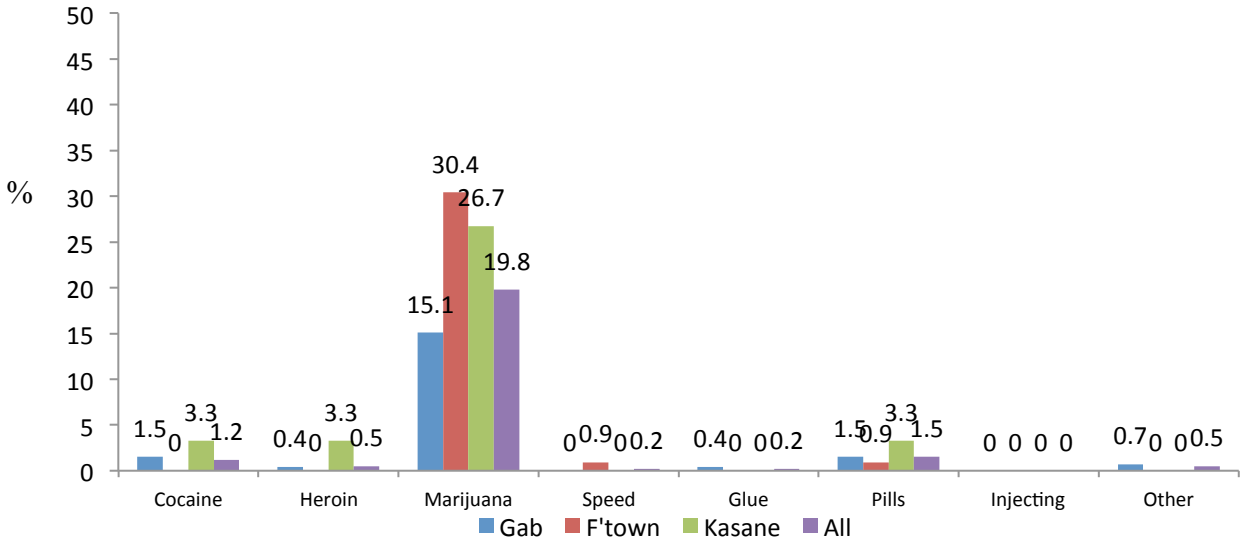

Figure 9. Drug use in the past month by men who have sex with men

3.4.2.5 Self-reported symptoms of sexually transmitted infections

Keeping in mind that a significant proportion of STIs may be asymptomatic, self-reported STI symptoms and health-seeking behaviour are not representative of the actual STI burden among MSM. More reliable data are presented under the biological results. That said, as shown in Figure 10, 17.7% of MSM reported experiencing burning urine, a genital ulcer or sore, or an anal sore at least once during the past year. The proportion was highest in Kasane (30%), followed by Gaborone (17.9%) and Francistown (14.7%).

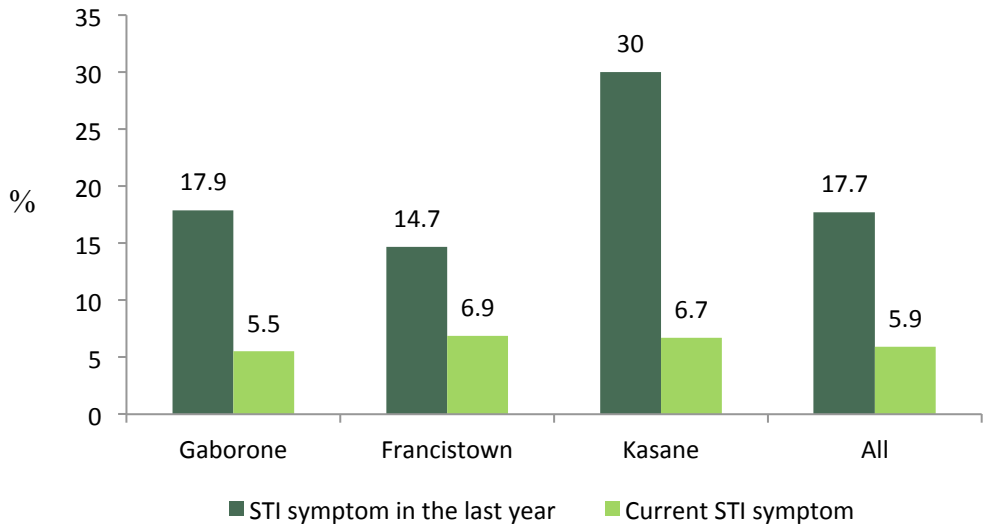

Figure 10. Self-reported sexually transmitted infection symptoms among men who have sex with men

MSM in Francistown were the most likely to report a current STI symptom (6.9%), followed by Kasane (6.7%) and Gaborone (5.5%). In terms of current symptoms, 1.2% mentioned genital discharge, 3.9% mentioned burning pain during urinations, and 1.5% mentioned a genital ulcer or sore. When asked about the first source of treatment after noticing symptoms, 71.4% of MSM reported going to a government clinic and 94% reported receiving medication. Among those who received medication, only 49.2% completed the prescribed treatment regimen. Others stopped taking the drugs when they felt better (13.1%) or when the symptoms disappeared (32.8%). MSM in Gaborone were more likely to complete the drug regimen (53.8%) than MSM in Francistown (42.9%) or Kasane (37.5%).

3.4.2.6 Exposure to HIV and AIDS information and activities

MSM were asked a number of questions about where they got general information on HIV and AIDS in the past year and what activities they had been involved in. Figure 11 shows that MSM were exposed to a variety of information sources and activities related to HIV and AIDS. About half (49.4%) of the MSM had participated in at least one HIV-related meeting in the past year, and the proportion was similar across districts. Mass media was also a common source of HIV and AIDS information, with 100% of MSM in Kasane and Francistown being exposed to HIV messages through newspaper, TV, and radio. These percentages were slightly lower for MSM in Gaborone, at 81.4%, 89.2%, and 79.9%, respectively.

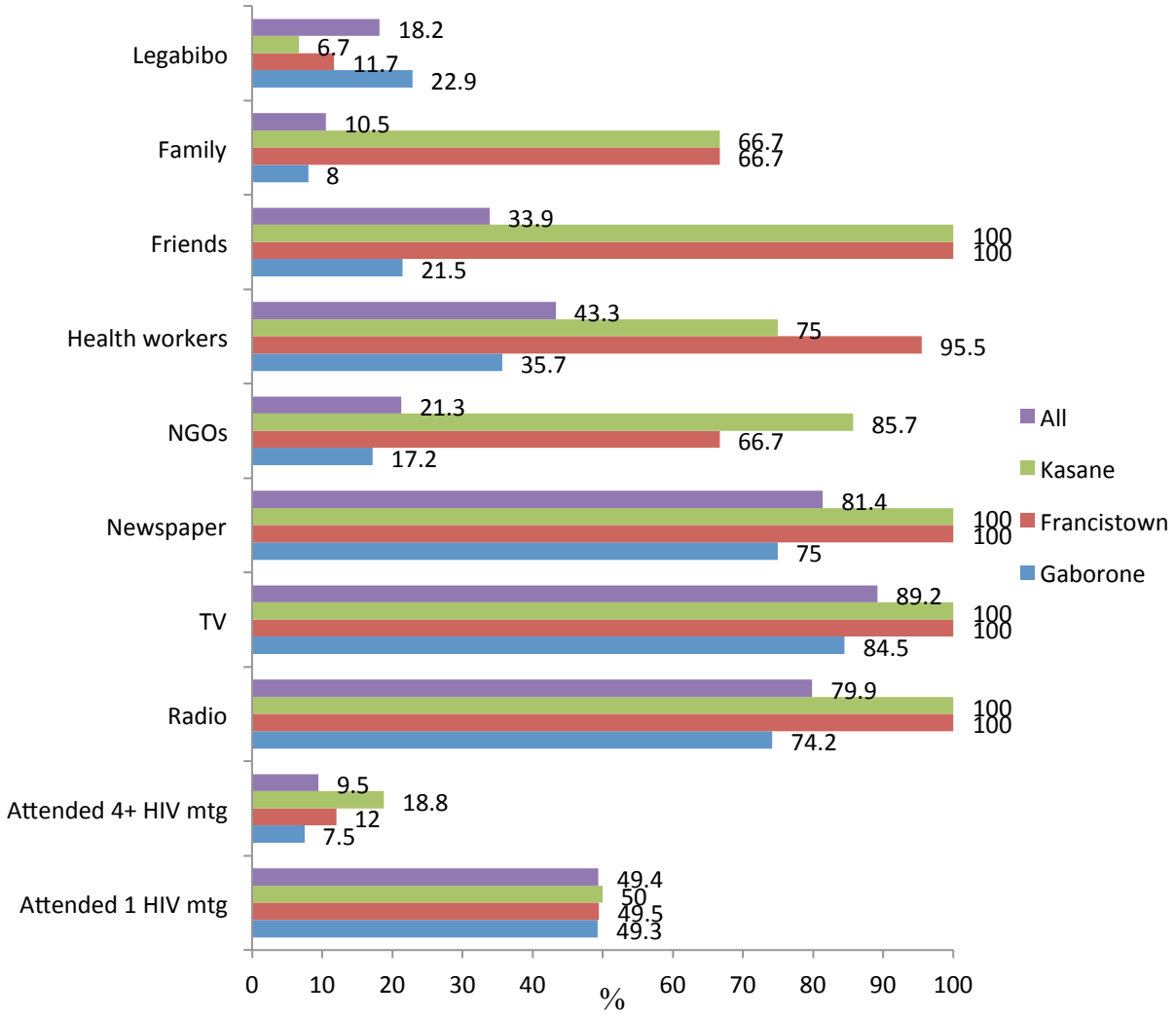

Figure 11. Exposure to different sources of information on HIV and AIDS among men who have sex with men

In terms of interpersonal communication on HIV and AIDS, MSM in Gaborone were less likely to receive information from friends, family, health workers, and NGOs (21.5%, 8%, 35%, and 17.2%, respectively) than were MSM in Francistown (100%, 66.7%, 95.5%, and 66.7%, respectively) or in Kasane (100%, 66.7%, 75%, and 85.7%, respectively). However, MSM in Gaborone were more likely to have attended a LeGaBiBo meeting (22.9%) than were their counterparts in Francistown (11.7%) and Kasane (6.7%). When examining the type of messages MSM received on HIV and AIDS, only a minority (26.2%) received any information on the risks associated with unprotected anal sex. This proportion was highest in Gaborone (32.7%) and lower in Francistown (15.9%) and Kasane (16.7%). Overall, 40.2% of MSM had been exposed to the O Icheke campaign in the past year, with the highest proportion in Kasane (53.3%), followed by Francistown (46.9%) and Gaborone (35.3%). Condom promotion messages were the most common of all HIV prevention messages received by MSM. Overall, 76.7% of MSM had been exposed to this kind of message in the past year. MSM in Kasane were the most likely to have seen condom promotion messages (93.3%), followed by MSM in Francistown (84.1%) and MSM in Gaborone (70.9%).

3.4.2.7 Associations with HIV prevalence

In bivariate analysis, only two factors were significantly associated with increased risk of HIV infection: age and being a receptive partner in anal sex. The following variables were also put into a bivariate analysis but were found not to be associated with HIV prevalence:

- Employment
- Education
- Age of sexual debut
- STI prevalence (chlamydia, gonorrhea, and syphilis)
- Selling sex in the past year
- Self-reported STIs
- Time since last HIV test
- Being in a concurrent sexual partnership at the time of the survey
- Self-perception of risk of HIV infection
- Lubricant use (water, oil, and no lubricant)
- Number of partners in the past six months
- Regularly consuming six or more alcoholic drinks before sex in the past month
- Sex with women in the past six months
- Consistent condom use
- Attended meetings on HIV and AIDS
- Forced sex at initial MSM experience
- Burst condom in the past six months
- Circumcision

In the bivariate analysis, only two factors were significantly associated with increased risk of HIV infection: Age and being receptive partner in anal sex. Table 12 presents the results of the multivariate analysis. After controlling for potential confounders in the weighted multivariate analysis (i.e., circumcision, alcohol use, condom use), MSM aged 20 to 29 were eight times more likely than their younger counterparts to be infected with HIV. MSM who were receptive partners in anal sex were three times more likely than insertive partners to be infected. Older age (30 years and above) was no longer significantly associated with HIV status and was not included in the final multivariate model.

Table 12. Results from multivariate analysis of HIV prevalence

Specific Xtic	Unadjusted OR	p	Adjusted OR	p
Age				
Under 20(Ref)				
20-29	11(1.5-81.3)	0.02	8.1(1.1-62)	0.045
30-39	22(2.4-202)	0.006	2.8(0.1-60.5)	0.514
40-49	43.9(3.1-63.2)	0.005	-	
Insertive vs Receptive				
Insertive(Ref)				
Receptive	3.8(1.7-8.3)	0.001	3.5(1.5-8.0)	0.004

In Table 12, constant: -3.73; n: 241; Chai square (x^2): 24.6; and P(x^2):0.001

3.4.2.8 Associations with consistent condom use

In bivariate analysis, factors significantly associated with consistent condom use in anal sex included risk perception and being the receptive partner in anal sex. In terms of risk perception, MSM who thought they had a high chance of acquiring HIV had a significantly lower likelihood of using condoms consistently than those who reported they had a low chance of acquiring HIV (OR=0.4; 95% CI, 0.2–0.7; *p*=0.003). In terms of consistent condom use, receptive partners were significantly less likely to consistently use condoms during anal sex than were insertive partners (OR=0.5; *p*=0.03).

The following variables were also put into a bivariate analysis but were not shown to be associated with consistent condom use during anal sex in the past six months:

- Age
- Regularly consuming six or more alcoholic drinks before sex in the last month
- Recent HIV testing history
- Circumcision
- Sex with casual partners
- Being in a concurrent sexual relationship
- Sex with a female partner

Table 13 presents the results of the multivariate analysis. After controlling for potential confounders in the weighted multivariate analysis (i.e., circumcision, alcohol use), MSM who perceived themselves as having a high risk of acquiring HIV or who were receptive partners were 60% and 50% less likely to use condoms than were MSM with a low risk perception or who were insertive partners, respectively.

Table 13. Statistically significant results from multivariate analysis of consistent condom use in anal sex

Specific Xtic	Unadjusted OR	p	Adjusted OR	p
Risk Perception Low(Ref)				
High	0.4(0.2-0.7)	0.003	0.4(0.2-0.9)	0.021
Insertive vs Receptive Insertive(Ref)				
Receptive	0.5(0.3-0.9)	0.033	0.4(0.2-0.9)	0.025

In Table 13, constant: 0.88; n: 219; Chai square (x^2): 29; and P(x^2):0.00

4. Study Limitations

4.1 Underestimation of refusals

MSM selected for participation in the study were given invitation cards to visit the research centre. In the case of FSWs, peer educators would first approach potential respondents and escort them to the caravan. No refusals were recorded by the study team once the respondents had reached the site. The number of refusals

may actually have been higher since an unknown number of selected individuals refused to receive cards. Rather than being marked as refusals, those cards may have been given to other people to participate. Also, FSW peer educators did not record refusals at the first point of contact, as supervisors filled in refusal record forms once the respondents reached the caravan, at which point they had already agreed to participate.

4.2 Self-reporting bias

The research team employed a number of tactics to limit self-reporting bias. All interviews were conducted in private, surveys were anonymous, and respondents were encouraged to provide accurate responses. However, respondents may have underreported certain behaviours, particularly those pertaining to drug use and unprotected sex, given the high social stigma of these illicit activities. FSWs and MSM tended to report very high condom use at last sex, although the true figures are likely to be lower. FSWs and MSM may also have underreported drug use, given the dual stigma of sex work and homosexuality with drug use, or over-reported preventive behaviours.

4.3 Representativeness

A few things may have affected the representativeness of the samples. The team conducted random sampling using a sampling frame with a mapping process. Mapping was used to determine the location where targeted individuals tended to congregate and could be accessed. Because of limited time and human resources, the teams may have overlooked some mapped spots and not included them in the sample frame. In other cases, researchers might not have accessed individuals at mapped locales (e.g., denials of sex work by certain establishment owners, the closure of shebeens during the study.) In addition, certain 'high class' FSWs who charge a higher premium for their services may tend to use mobile phones for arranging to meet clients and may not frequent hotspots. Therefore, they may not have been included in the sampling frame. Variance in selected samples will be larger than variance from random sampling because of two effects: the variance among clusters and the variance between individuals in a cluster.

4.4 Sampling error

RDS has been widely used as a method of collecting data among hard-to-reach populations. However, several assumptions and emerging issues for this method require further evaluation, including refusal rates, selection of 'seeds,' and the extent to which selection can be randomised when using network populations. The reported versus actual size of networks also critically affects outcomes. The bullets below highlight possible sampling errors that may result when RDS is used:

- Certain 'seeds' selected from specific populations (i.e., MSM) may limit the selection of participants from subgroups within those populations. For example, younger MSM seeds may be less likely to interact with older MSM, and MSM seeds who are students may have little interaction with MSM in workplaces. The team tried to limit this bias by selecting seeds from diverse backgrounds, including older men and at least one transgender participant.
- One RDS assumption is that seeds and selected participants will continue to select individuals from the same networks. However, some individuals do not always recruit members from their network, but rather go to 'hot spots' and provide coupons to anyone they meet (even if they do not know them).
- The rigor with which individuals are selected across subgroups varies. Sometimes individuals will choose others who are easy to reach; hence, they may not be fully representative of their populations.

4.5. Data analysis bias

The team initially used RDSAT as a tool to analyse the data. This software is designed to adjust data for potential biases that occur in chain-referral recruitment, specifically those that occur because of network and recruitment patterns [16]. The tool helps produce representative population estimates that, without the tool, would have been considered convenience samples. However, during the analysis, the research team discovered that RDSAT has some limitations that required further consideration. RDSAT cannot provide population estimates when sample sizes are below 40. Secondly, the adjustment of certain variables raised questions about the accuracy of weights given by RDSAT. For example, the HIV prevalence among MSM was adjusted from 13.1% to 9.2%, and the proportion of MSM in Gaborone who reported being separated from their spouse was adjusted from 0.4% to 3.3%. This is confirmed in recent literature[20], where it is argued that unweighted estimates may be more accurate than weighted estimates. The study team also had difficulty maintaining the coupon-tracking system, and more than 100 participants could not be linked to seeds in the chain-referral network. Because of these critical limitations, the team opted to present unadjusted estimates in this report. Adjusted estimates were presented only for overall (not district-specific) biological variables.

5. Discussion and recommendations

The 2012 BBSS has shed light on the HIV and AIDS situation of two key populations about whom little is known in Botswana.

5.1 Female Sex Workers

Starting with FSW, biological results from three geographically diverse districts highlighted this group as the most affected by HIV and AIDS in Botswana, with an overall HIV prevalence of 61.9% and HIV incidence of 12.5%. STIs were also quite common among this population, with a prevalence of 10.5% for gonorrhea and 11.9% for chlamydia. The prevalence of syphilis was lower, at 3.5%, although being infected with syphilis was significantly associated with HIV prevalence in the multivariate analysis. A large proportion of the FSW sample was Zimbabwean (34.2%), and there was no significant difference in HIV prevalence between Batswana and Zimbabwean FSWs, except in Francistown, where Zimbabwean FSWs had a significantly higher HIV prevalence. Although there were no significant differences between HIV prevalence at the district level, FSWs in Kasane were significantly less likely to be infected with chlamydia and significantly more likely to have syphilis.

FGDs helped explain the organisation of sex work and the difficulties FSWs face, including exposure to violence and forced sex from clients. They also exposed the common practice of accepting more money to not use condoms, with one respondent describing FSWs as 'like soldiers' — aware of the risks yet still practicing high-risk behaviour. FSWs appear to weigh a potential death from AIDS in several years against the imperative to put food on the table today. With the mid-estimate showing 4,153 FSWs in the three districts studied, and a mean of 7.6 sex partners in the week before the survey, this is a sizeable population with enough partner exchange to affect HIV transmission in the general population. With a mean duration of sex work of 4.7 years, the majority of FSWs in the sample had been exposed to HIV risk for several years. This exposure to risk is amplified by the tendency of clients to pay more not to use condoms, the tendency of clients to force FSWs to have sex without condoms, and regular experiences of condoms breaking. Although rates of condom use at last sex were high with all partner types and very few FSWs reported not having condoms when they needed them, only two-thirds of the FSWs reported always using condoms with clients in the past month. At the same

time, about 60% of FSWs experienced either condoms breaking or clients refusing to use them. This indicates that clients as well as condom quality should be important focal points in efforts to reduce HIV transmission among this population. These factors appear more important than access to HIV information or services, as knowledge levels appear high and FSWs receive HIV-related information from a variety of sources.

It may be a concern that HIV prevalence is still very high among FSWs who consider themselves at low risk of HIV infection. When examining consistent condom use patterns against involvement in HIV-related activities or receiving free condoms, no significant relationships were detected. However, the data did hint that participation in some networks (e.g., Nkaikela) and HIV-related activities (e.g., meetings, condom distribution) may be linked to improved consistent condom use with clients and better STI health-seeking behaviours. One of the limitations of studies such as this is that it is not possible to assess the quality or effectiveness of information or HIV prevention activities FSWs have been involved in.

Another concern is that FSWs who reported they were HIV-positive prior to the study were no more likely to consistently use condoms than were those who had tested HIV-negative before the study. One exception was for the rate of condom use with cohabitating partners, which was much lower if a FSW learned she was HIV-negative and much higher if she learned she was HIV-positive. The data show that by the time FSWs have practiced sex work for more than two years, HIV prevalence is already at 59.2%. This is in contrast to FSWs who have practiced sex work for less than one year, who have an HIV prevalence of 37%. There is a direct relationship between the duration of sex work and HIV prevalence, which highlights the importance of intervening early with access to services for those new to sex work. FSWs also have other non-paying partners, such as boyfriends, who should feature in HIV prevention efforts for this group. Just as important to stem the number of new HIV infections originating from sex work should be biomedical prevention interventions. Expanding access to ART for both Batswana and Zimbabwean FSWs would help lower the viral load in the population, and thus the risk of transmission during each unprotected sex act, both protecting partners as well as preventing reinfections.

This study has served to highlight the high burden of HIV among FSWs in three districts of Botswana, as well as some of the environmental factors that increase their exposure to HIV. Reducing HIV transmission among FSWs and their partners requires intervening within a broader context that includes not only interventions and services targeted at FSWs but also initiatives that go beyond individual-level behaviour change communication. These efforts should be aimed at structural factors which create a more supportive environment for safer sex practices given the important influence partners such as clients and boyfriends, have on condom use.

5.2 Men Who Have Sex with Men

This was a timely study for MSM in Botswana and related public health policies and practices. Because of the hidden nature of the MSM population, it was difficult to estimate the exact size of the population. Triangulating the two methods used returned a mid-point estimate of 781 MSM in Francistown and Gaborone combined, however this estimate may be quite conservative. The young age of the sample (mean of 23 years) calls into question how representative the study was of MSM in Botswana. More than once in the FGDs, the issue of older men living double lives — living with wives and children during the day and venturing out to look for male partners 'after 9 pm' — was raised (the term 'after nines' was given to these men by the FGD participants). If there were a substantial number of older MSM in the districts surveyed, there may not have been sufficient incentives (either financial or otherwise) for them to be involved in the study, while there is strong motivation to remain hidden due to the legal status of homosexuality and the high stigma associated. Older men may also know or strongly suspect they are HIV infected, and chose to opt out of inclusion in the study for fear of disclosure. Alternatively, younger MSM may not have been in the same networks as older MSM, and the principles of RDS (i.e., reaching equilibrium after several waves of recruitment) may not have worked as expected in this context.

Despite the limitations of the survey, this was the largest study of MSM in Botswana to date, and important insights were gained into the HIV and STI prevalences, HIV incidence, and risk behaviours of this key population. With an HIV prevalence of 13.1%, keeping in mind the very young age of the sample, it may not yet be significantly higher than the prevalence of men of the same age in the general population, and without a representative sample of older men, the true burden of disease among MSM in Botswana cannot be accurately assessed. Studies of MSM throughout Africa and globally have consistently shown that older age is significantly associated with HIV prevalence and that MSM over the age of 30 have the highest burden of disease. Comparisons with general population men should be age disaggregated when the BAIS IV is released. Even with the under-representation of older men, this sample shows a relatively high level of annual HIV incidence, at 3.6%, which can be contrasted with the 2.7% incidence among pregnant women in the 2011 ANC survey. MSM also have a relatively high burden of STIs, with about 11.3% testing positive for chlamydia, including 5.9% infected with chlamydia in the anus. These findings have implications for the expansion of diagnostic and treatment capacity for anal STIs. MSM in FGDs mentioned feeling uncomfortable discussing these issues with health care providers, so there may also be a need for sensitization and specialist training or MSM-appropriate services.

Results concerning high risk behaviours give a strong indication of the need to work with MSM to lower their risk of HIV and STI transmission. Many MSM have multiple partners, including female partners, which serve as a bridge for STI and HIV transmission to the general population. Concurrent partnerships are also common, with nearly 40% of MSM reporting to be in more than one ongoing sexual relationship at the time of survey. Some MSM are selling sex and others are buying sex from FSWs. Importantly, most MSM are not aware that anal sex carries an increased risk of HIV transmission, and only two-thirds reported always using condoms during anal sex in the six months prior to the survey as targeted prevention to MSM, including through peer

outreach as well as targeted clinical services, are not currently available. Excessive alcohol consumption was reported as a barrier to consistent condom use, as was condom and lubricant availability. Compared to FSWs, MSM were less likely to receive condoms and HIV education from health workers or peer educators. Consistent lubricant use was about 50%, and access to water-based lubricant needs to be explored in more detail, particularly outside of Gaborone, where the percentage of MSM using water-based lubricant during anal sex drops considerably. About three-quarters of MSM had ever been tested for HIV, and most of those who had been tested had done so within the past year. This compares favourably with testing rates in the general population for men around the same age. Yet, 25% of MSM had never been tested for HIV. A minority of those who reported testing positive are currently on ART.

These data, together with an absence of programme-related data on interventions with MSM, underscore the importance of starting work with MSM to improve understanding of the risks associated with male-to-male sex, understand the sexual networks of MSM, improve access to quality sexual health services, expand access to safer sex commodities, and promote safer sex decision-making.

These data also highlight the importance of planning future rounds of biological and behavioural surveillance among MSM. As encouraging signs of reduced HIV incidence and prevalence among the general population are emerging, it will be important to establish trends in these variables among MSM. This will help ensure that all groups at risk of HIV in Botswana are moving in a better trajectory and none are left behind. It will also enhance the prospects of achieving zero new infections in Botswana by 2016.

5.3 Summary of Recommendations for Programmes

- Expand access to condoms and water-based lubricant for key populations, particularly outside of Gaborone.
- Expand targeted HIV and STI prevention programs for key populations, including through peer education and outreach.
- Expand key population-friendly STI services and build the capacity of health care providers in communication, the screening and treatment of anal STIs, and partner notification.
- Increase awareness of the link between excessive alcohol consumption and risk behaviours.
- Increase access to HIV counseling and testing, particularly for key populations who have never tested before, and encourage regular CD4 monitoring for ART eligibility.
- Expand access to ART for HIV-positive key populations as part of biomedical prevention and for their own health.
- Involve clients of FSWs and non-paying partners in HIV prevention efforts, as key decision-makers regarding condom use.
- Intensify HIV prevention efforts for FSWs who are new to sex work.
- Review efficacy of freely distributed condoms, including storage conditions and other factors, considering frequent reports of condoms breaking.
- Plan for another BBSS round among key populations in Gaborone, Francistown, and at least one alternative district to Kasane in the next 2 to 3 years given the high HIV incidence.
- Raise awareness about multiple concurrent partnerships among MSM and promote male circumcision in future efforts to promote health.

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Appendix: Supplementary Statistical Tables

1. FSW

FSW				
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
		Biological results		
HIV prevalence	65.3(55.5 – 75.1)	53.5(46.1 – 60.9)	68.5(56.9 – 80.1)	61.9(56.7 – 69.2)
HIV prevalence by age	<20: 60.3(20.3-100) 20-29: 48.5(39.5-57.5) 30-39:80.1(68.5-91.7) 40-49:78.6(54.8-100) 50+:100 (n=2)	<20: 15.6 (-18.6-49.7) 20-29:39.4 (26.0-52.9) 30-39:77.1 (64.3-89.8) 40-49: (34.0-100) 50+: 100 (n=2)	<20: - 20-29:57.8 (43.1-72.5) 30-39:89.6(82.9-96.2) 40-49:30.7 (23.0-38.5) 50+:-	<20: 44.2 (8.3-80.1) 20-29:45.8 (38.2-53.4) 30-39:79.8 (70.2-88.8) 40-49:74.9(55.2-94.7) 50+:100 (n=4)
HIV incidence				12.5% (7.3 – 17.1)
N.Gonorrhea prev	10(5.2-14.9)	11.7(7.6-15.9)	8.3(7.1-9.6)	10.5(6.9-13.9)
CT prev	10.4(5.9-14.9)	16.3(9.8-22.9)	4.8(4.1-5.6)	11.9(8.4-15.5)
Syphilis prev	3.7(2.4-5.1)	1.6(0.1-3.1)	14.5(9.1-13.8)	3.5(2.3-4.6)
		Questionnaire results		
A) Social Demographics				
Nationality	Mots: 72(55 - 89.1) Zim: 27.8(10.7 - 44.9) Zam: 0 SA: 0 Other: 0.1(-0.1 - 0.4)	Mots: 51.5(30.6 – 72.4) Zim: 48.2(27.1 – 69.3) Zam: 0 SA:0 Other:0.3(-0.6 – 1.4)	Mots:55.6(48.0–63.2) Zim: 43.9(37.2 – 50.8) Zam:0.4(-0.6 – 1.4) SA:0 Other: 0	Mots: 65.5(52.3-78.7) Zim:34.2(20.9 – 47.6) Zam:0.02(-0.02 – 0.04) SA: 0 Other: 0.1(-0.0 0 0.4)
Mean Age	30.2(28.8 - 31.5)	28.8(28.2 - 29.3)	28.6(28.1 - 29.1)	29.7(28.8 - 30.6)
Age category	Under 20:1.8(0.1-2.7) 20-29:44.9(33.8-56.2) 30-39:47.1(35.8-58.4) 40-49:5.6(2.6-8.6) 50+:0.5(-0.4-1.4)	Under 20:2(-0.0-4.1) 20-29:58.9(54.1-63.8) 30-39:33.2(26.4-39.9) 40-49:5.2(0.1-9.5) 50+:0.7(-0.3-1.6)	Under 20:0 20-29:57.7(51.8-63.6) 30-39:38.1(33.1-43.2) 40-49:4.2(2.8-5.5) 50+:0	Under 20:1.8(0.1-2.7) 20-29:49.5(41.6-57.4) 30-39:42.8(34.7-50.8) 40-49:5.4(3.0-7.8) 50+:0.5(-0.1-1.2)
Relationship status	Married: 0.9 (-0.1 - 1.9) Separ:1.4(-0.03 - 2.9) Divor: 9.3(3.0 - 15.6) Wido: 4.3(1.2 - 7.5) Cohabi: 11.6(-2.8 – 26.1) Bf: 23.4 (15.9 – 30.8) Sing: 49.0(38.1 – 59.9)	Married: 1.3(-0.04 – 2.9) Separ: 1.2(-0.3 – 2.6) Divor: 9.0(1.7 – 16.3) Wido: 2.5(0.3 – 4.8) Cohabi: 3.9 (0.5 – 7.3) Bf: 28(22.9- 33.2) Sing: 54.1 (44.1 – 64.1)	Married:0 Separ:0 Divor: 8.9(7.8 – 10.0) Wido: 3.8(2.1 – 5.8) Cohabi: 1.3(0.7 – 19) Bf: 16.6(12.3 – 20.9) Sing: 69.4(61.9 – 76.8)	Married:0.9(0.2-1.8) Separ:1.3 (0.2-2.4) Divor: 9.2(4.5-13.9) Wido:3.8(1.5-6.1) Cohabi: 9.0(-0.08-18.8) Bf: 24.4(19.0-29.8) Sing: 51.2(43.4-59.2)
Religion	Chri: 62.0(50.3 -73.8) Muslim:0.6(-0.0 – 1.2) Trad: 7.1(4.4 – 9.8) Non: 30.3(17.6 – 42.9) Other: 0	Chri: 57.6(49.8 – 65.4) Muslim:0 Trad: 7.2(5.1 – 9.3) Non: 34.4(26.7- 42.2) Other: 0.8(-0.2 – 1.7)	Chri: 64.2(59.9 – 68.5) Muslim: 0.4(-0.6 – 1.4) Trad: 3.4(2.3 - 4.5) Non: 31.6(29.2 – 33.9) Other: 0.3(-0.07 – 1.4)	Chri: 60.8(52.6-69.1) Muslim:0.4(-0.0 – 0.9) Trad: 6.9(5.0-8.9) Non: 31.5(22.6-40.4) Other: 0.2(-0.0-0.5)
Education	None: 0.07 (-0.08 – 0.2) Pri: 12.1(7.3 – 16.8) Jss: 33.8(23.8 – 43.7) Sss : 51.5(39.4 – 63.6) Higher: 2.6(0.6 – 4.6)	None: 0.07(-0.08 – 0.2) Pri: 9.6(6.3 – 12.9) Jss: 36(24.9 – 47.0) Sss : 51.7(38.9 – 64.5) Higher: 2.6(0.5 – 4.8)	None: 0 Pri: 6.9(5.2 – 8.6) Jss: 43.3(36.8 – 49.8) Sss : 48.1(42.1 – 53.4) Higher: 1.6(1.1 – 2.2)	None: 0.07(-0.04-0.2) Pri: 11.1(7.8 – 14.5) Jss: 34.8(27.4–42.2) Sss : 51.4(42.5-60.3) Higher: 2.6(1.1-4.0)
Occupation	None: 54.9(43.9 – 66.1) Formal :18.3(3.2 – 33.4) Student : 0.4(-0.02–1.0) Commerce : 9.9(5.2 – 14.6) Agric : 0 other : 16.3(8.7 -24.0)	None: 69.8(60.8 – 78.8) Formal : 5.8(0.9 – 10.7) Student : 0.2(-0.01 – 0.6) Commerce : 5.7(2.9 – 8.4) Agric : 0.1(-0.1 – 0.4) other :18.4(10.1 -26.6)	None: 75.4(72.1–78.7) Formal : 9.1(8.1 - 10.2) Student : 0 Commerce : 2.4(-0.2- 4.9) Agric : 0 other :13.1(11.3 – 14.9)	None: 60(51.6 -68.4) Formal : 14.4(4.3-24.5) Student :0.3(-0.08-0.8) Commerce : 8.4(4.9-11.9) Agric : 0.04(-0.04-0.1) other :16.8(11.1-22.4)
Av. # of kids	1.7(1.41 – 1.99)	1.69(1.54 – 1.85)	1.62(1.53 – 1.71)	1.69(1.49 -1.89)
Sisonke Members	Yes: 15.1(6.6 – 23.6) No : 84.9(76.4 – 93.4)	Yes: 8.2(2.4 – 13.9) No : 91.8(86.1 – 97.6)	Yes: 6.8(4.8 – 8.8) No : 93.2(91.2 – 95.2)	Yes: 12.8 (7.1 -18.5) No :87.2(81.5 –92.9)
B) Sex Work				
Average age at first sex	18.1(17.8- 18.3)	18.1(17.8-18.3)	17.5(17.1-17.8)	18.0(17.8-18.2)
Av age at first sex work	25.4(24.1-26.6)	24.3(23.4 – 25.3)	24.5(24.3 – 24.8)	25.03(24.1 – 25.9)
Av. duration	4.9(4.4 – 5.46)	4.4(3.82 – 5.04)	4.08(3.7 – 4.46)	4.7(4.26 – 5.18)

FSW				
Indicator of sex work (yrs)	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
Duration of sex work (category, yrs)	1 or less: 15.9(10.4-21.6) 2-3: 27.9(21.1-34.8) 4+: 56.1(47.3-64.9)	1 or less: 18.2(11.9-24.4) 2-3: 36.2(27.7-44.7) 4+: 45.6(38.9-52.4)	1 or less: 16.7(12.7-20.6) 2-3: 39.9(38.3-41.4) 4+: 43.5(38.6-48.4)	1 or less: 16.6(12.4-20.9) 2-3: 30.8(25.6-35.9) 4+: 52.6(46.1-59.0)
Why start sex work	Financial gain:74.8(62.3-87.2) Unemployment: 62.2(49.6 – 74.8)) Pleasure: 3.4(1.9 – 4.9) Jilted: 8.8(-6.2 – 23.8) Divorced: 4.1(0.2 – 8.1) Widowed:2.2(0.4 – 3.9) Peer Pressure:9.9(4.9 – 14.9) Abused: 0 Other: 7.3(3.9 – 10.5)	Financial gain: 80.2(73.1 – 87.2) Unemployment: 63.6(55.2 – 71.9) Pleasure: 3.1(3.7-5.8) Jilted:4.6(2.1 – 7.1) Divorced: 3.1(0.6-5.4) Widowed: 1(-0.5 –2.6) Peer Pressure: 10.4(5.6 – 15.2) Abused:0.3(-0.2 – 0.8) Other: 8.8(5.4 – 12.2)	Financial gain: 83.8(81.6 – 85.8) Unemployment: 64.0(58.1 – 69.9) Pleasure:1.3(0.7–1.9) Jilted: 0.5(-0.7 – 1.8) Divorced: 5.1(3.3-6.9) Widowed:1.3(0.7 – 1.9) Peer Pressure: 5.5(4.0 – 6.9) Abused:1.3 (0.7 – 1.9) Other:9.7(7.8 – 11.9)	Financial gain: 76.7(68 – 85.3) Unemployment: 62.7(53.8 – 71.4) Pleasure: 3.2(1.9 – 4.5) Jilted: 7.2(-2.8 – 17.3) Divorced: 3.9(1.1 – 6.6) Widowed: 1.8(0.5 – 3.1) Peer Pressure: 9.9(6.3 – 13.6) Abused: 0.1(-0.06 – 0.3) Other: 7.8(5.3 – 10.3
Where find clients(choose all that apply)	Home: 10.4(6.4 – 14.5) Lodge:11.1(6.7 – 15.4) Bar: 74.2(61.3 – 87.0) Street: 9.6 (6.4 – 12.9) Phone: 14.7(0.2 – 29.1) Internet 0.3(-0.2 – 0.9) Other 1.9(0.1 – 3.5)	Home: 10.5(5.7-15.4) Lodge: 5.6(3 – 8.2) Bar: 76(69.6 – 82.5) Street: 34.4(17.4-51.5) Phone: 28.9(23.1 – 33.9) Internet 0.07(-0.08 – 0.2) Other 3.7(1.1 – 6.2)	Home: 0.2(-0.3 – 0.6) Lodge:11.1(8.2–14.0) Bar:83.2(79.0 – 87.3) Street:16.4(12.6 – 20.3) Phone:14.9(8.3 – 21.5) Internet 0 Other 19.5(15.9 – 23.1)	Home: 10(6.9 – 13.1) Lodge: 9.5(6.3 – 12.8) Bar: 75.1(66.2 – 83.9) Street: 16.9(10.6 – 23.2) Phone: 18.7(8.5 – 28.9) Internet 0.2(-0.1 – 1.5 Other 3.1(1.5 – 4.6)
Where take clients(choose all that apply)	Home: 69.4(53.2 – 84.9) Lodge: 18.1(12.0 – 24.1) Bush: 15.3(0.99 – 29.3) Bar:0.3(-0.3 – 0.9) Other 13.7(7.9 – 19.4)	Home: 86.2(79.7–92.8) Lodge: 36.5(27.7 -45.3) Bush:7.9(4.8 – 10.9) Bar: 0.9(-0.4 – 2.2) Other 19.8(15.4–24.2)	Home: 78.8(74.5 – 83.1) Lodge: 20.3(17.1 – 23.4) Bush: 17.7(14.1 – 21.3) Bar: 1.4(0.9 – 1.9) Other35.2(30.5–40.0)	Home:74.6(64.1 – 85.0) Lodge: 23.4(17.6 – 29.1) Bush: 13.3(3.6 – 22.9) Bar: 0.5(-0.03 – 1.1) Other 16.3(11.9 – 20.7)
How clients pay (choose all that apply)	In cash: 97.5(95.8 – 99.1) Goods: 1.2(0.2 – 2.2) Both: 2.5(0.9 – 4.1)	In cash:96.4(93.8–99) Goods: 0.1(-0.0 -0.1) Both: 3.1(0.8 – 5.4)	In cash:94.7(88.7 – 1) Goods:0 Both: 5.1(-0.6 – 10.9)	In cash: 97.1(95.7–98.4) Goods: 0.8(0.1 – 1.5) Both: 2.9(1.5 – 4.1)
Av. Pula Paid per sex act	97.1(89.9 -104.4)	85.4(70.7 – 100.2)	89.4(78.9 – 100.1)	93.5(87.0 – 99.9)
Pula Paid per sex act(category)	<100: 46.7(35.0-58.3) 100-200: 50.1(38.3-61.9) 200+: 3.2(1.7-4.6)	<100: 64.3(54.7-73.9) 100-200: 32.9(25.2-40.6) 200+: 2.8(0.4-5.8)	<100: 59.5(50.1-68.8) 100-200: 36.7(28.9-44.3) 200+: 3.8(2.1-5.6)	<100: 52.2(43.7-60.8) 100-200: 44.7(36.2-53.2) 200+: 3.1(1.9-4.3)
Risk Perceptions, Sexual Behaviour, Sexual Partner				
Av. no partners last week	7.3:(6.3 – 8.3)	8.6(6.7 – 10.5)	6.3(6.0 – 6.6)	7.6(6.7 – 8.5)
No of partners last week (category)	0-2: 25.7(16.3-35.1) 3-5:28(20.4-35.6) 6-10: 31.2(18-44.5) 11-20:10.4(5.5-15.3) 21+:4.7(3.1-6.3)	0-2: 13.6(8.1-19.1) 3-5:32.6(23.6-41.6) 6-10: 28.4(22.7-34.0) 11-20:18.4(9.7-27.2) 21+:6.9(4.2-9.8)	0-2: 21.1(17.7-24.1) 3-5:35.4(30.9-39.8) 6-10: 27.7(23.9-31.6) 11-20:13.9(9.4-18.4) 21+:1.8(1.1-2.6)	0-2: 22.1(15.1-28.9) 3-5:29.6(23.9-35.3) 6-10: 30.3(21.3-39.3) 11-20:12.8(8.5-17.2) 21+:5.2(3.8-6.6)
Av. No. partners by Partner type last week	Paying one-time: 4.8(3.6 – 5.9) Paying regular: 2.3(1.7 – 2.9) Spouse: 0.01(0.00-0.18) Lover/boyfriend: 000.9(0.00 – 0.02) Casual, non-paying: 0.04(-0.01 – 0.09)	Paying one-time: 6.1(4.3 – 7.9) Paying regular: 2.3(1.6 – 2.9) Spouse:0.001(-0.00 – 0.002) Lover/boyfriend: 0.02(0.00-0.04) Casual, non-paying: 0.01(-0.01-0.03)	Paying one-time: 4.3(3.9 – 4.7) Paying regular: 1.9(1.8 – 2.0) Spouse: 0.013(0.01 – 0.02) Lover/boyfriend: 0.13(0.01-0.02) Casual, non-paying: 0.05(0.03-0.07)	Paying one-time:5.1(4.2 – 6.1) Paying regular: 2.3(1.8 – 2.7) Spouse: 0.7(0.00-0.13) Lover/boyfriend: 0.01(0.004 – 0.02) Casual, non-paying: 0.03(0.00-0.07)
%Paying one-time last wk?	No: 32.9(20.8-45.2) Yes: 67.1(54.8-79.2)	No:21.8(12.9-30.6) Yes: 78.2(69.4-87.1)	No:26.2(23.4-28.9) Yes: 73.8(71.1-76.6)	No:29.5(20.7-38.3) Yes: 70.5(61.7-79.3)
%Paying regular last wk?	No: 35.9(29.0-42.8) Yes: 64.1(57.2-70.9)	No:41.8(32.8-50.8) Yes:58.2(49.2-67.2)	No:57.8(56.4-59.3) Yes:41.2(40.7-43.6)	No:38.5(33.1-43.9) Yes:61.5(56.1-66.9)
% sex spouse last wk	No:99.1(98.2-99.9) Yes: 0.9(0-1.8)	No:99.9(99.8-100.1) Yes:0.1(-0-0.2)	No:98.7(98.1-99.3) Yes:1.3(0.7-1.9)	No:99.3(98.7-99.9) Yes:0.7(0-1.3)
%Lover/boyfriend last wk	No:99.0(98.1-99.9) Yes:1.0(0.4-1.9)	No:97.9(95.9-99.9) Yes:2.1(0-4.1)	No:98.7(98.1-99.3) Yes:1.3(0.7-1.9)	No:98.7(97.8-99.6) Yes:1.3(0.4-2.2)

	FSW			
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
%Casual, non-paying last wk	No:98.6(97.6-99.7) Yes:1.4(0.3-2.4)	No:99.5(98.8-100.1) Yes:0.5(-0.1-1.2)	No:97.4(96.3-98.6) Yes:2.6(1.4-3.7)	No:98.8(98.1-99.6) Yes:1.2(0.4-1.9)
Av Highest clients per wk	14.3(12.4 – 16.3)	16.6(14.3 – 18.9)	12.3(11.1 – 13.6)	14.9(13.4 – 16.4)
Av Lowest clients per wk	4.8(4.1 – 5.6)	5.3(4.5 – 6.1)	3.8(3.7 – 3.9)	4.9(4.4 – 5.5)
Occup of last client	Students: 0.7(0-0.9) Mine worker: 1.5(-0.2-3.2) Police/military: 10.8(5.3-16.3) Taxi/combi driver:1.9(0.3-3.5) Truck driver:7.8(-0.2-15.9) Agric:0.1(-0.1-0.4) Business men:13.2(6.6-19.7) Other: 23.4(15.7-31.0) Don't know: 40.6(28.7-52.4)	Students: 0 Mine worker:21.9(16.7-27.1) Police/military:9.3(6.2-12.5) Taxi/combi driver:0.6(-0.2-1.5) Truck driver:7.4(4.3-10.5) Agric:0.1(-0-0.2) Business men:7.6(5.7-9.5) Other: 22.5(12.9-32.2) Don't know:30.5(17.8-43.2)	Students:0 Mine worker:0 Police/military:4.2(3.3-5.1) Taxi/combi driver:1.4(1-1.9) Truck driver:80.2(70.4-89.9) Agric:0.2(-0.3-0.6) Business men:4.9(3.8-6.0) Other: 5.8(-0-12.7) Don't know:3.3(-1.1-7.6)	Students:0.5(0-0.9) Mine worker:7.3(4.2-10.4) Police/military:10.1(6.2-13.9) Taxi/combi driver:1.5(0.4-2.6) Truck driver:10.7(3.5-17.9) Agric:0.1(-0-0.3) Business men:11.2(6.9-15.6) Other: 22.4(16.4-28.4) Don't know:36.1(27.3-45.0)
Forced sex last 1 yr	Yes: 16.5(11.7 – 21.4) No:83.4(78.6 – 88.3)	Yes: 24.1(18.9 – 29.3) No: 75.9(70.9 – 81.1)	Yes: 15.2(11 – 19.3) No: 84.8(80.7 – 88.9)	Yes: 18.6(15.1 – 22.2) No: 81.3(77.8 – 84.9)
Who forced sex:				
Paying one-time	Yes:11.8(5.5-18.1) No:88.2(81.9-94.5)	Yes:21.8(14.5-29.1) No:78.2(70.9-85.5)	Yes:10.6(5.9-15.3) No:89.4(84.7-94.1)	Yes:14.6(9.5-19.7) No:85.4(80.3-90.5)
paying regular	Yes:7.4(1.7-12.9) No:92.6(87-98.3)	Yes:7.7(0.6-14.9) No:92.3(85.1-99.4)	Yes:2.0(0.4-3.6) No:98.0(96.4-99.6)	Yes:7.2(2.9-11.4) No:92.8(88.6-99.1)
non-paying spouse	Yes: 1.7(-1.6-5.0) No:98.3(94.9-101.6)	Yes:1.6(-0.6-3.8) No:98.4(96.2-100.6)	Yes:0 No:100	Yes:1.6(-0.0-3.8) No:98.4(96.2-100.6)
police	Yes:0.6(-0.4-1.7) No:99.4(98.3-100.4)	Yes:0.2(-0.2-0.5) No:99.8(99.5-100.2)	Yes:0 No:100	Yes:0.5(-0.2-1.1) No:99.5(98.9-100)
Military	Yes:0.4(-0.4-11.8) No:99.6(98.8-100.4)	Yes:1.5(-1.2-4.3) No:98.5(95.7-101.2)	Yes:0 No:100	Yes:0.7(-0.3-1.7) No:99.3(98.3-100.3)
bar owner	Yes:0 No:100	Yes:0 No:100	Yes:0 No:100	Yes:0 No:100
Pimp	Yes:0.4(-0.4-1.2) No:99.6(98.9-100.4)	Yes:0 No:100	Yes:0 No:100	Yes:0.3(-0.3-0.8) No:99.7(99.2-100.3)
Other	Yes:2.7(0.6-4.8) No:97.3(95.2-99.4)	Yes:4.2(0.8-7.7) No:95.8(92.3-99.2)	Yes:1.3(0.7-1.9) No:98.7(98.1-99.3)	Yes:3.0(1.3-4.8) No:97.0(95.2-98.7)
Physical violence	Yes: 22.7(16.3 – 29.1) No: 77.3(70.9 – 83.7)	Yes: 29.6(19.2 – 40.0) No:70.4(59.9 – 80.8)	Yes: 10.7(9.5 – 11.9) No: 89.3(88.1 – 90.5)	Yes: 24.2(18.8 – 29.5) No: 75.8(70.5 – 81.1)
Police sex favor	Yes: 7.4(4.6 – 10.2) No: 92.6(89.8 – 95.3)	Yes: 14.0(9.8 – 18.2) No: 85.9(81.8 – 90.2)	Yes: 4.4(3.8 – 4.9) No: 95.6(95.0 – 96.2)	Yes: 9.1(6.6 – 11.7) No: 90.8(88.3 – 93.3)
Paid for no condoms	Yes: 21.5(14.8 – 28.2) No: 78.5(71.8 – 85.2)	Yes: 30.5(18.0 – 42.9) No: 69.5(57.1 – 81.9)	Yes: 16.8(11.5 – 22.2) No: 83.2(77.8 – 88.5)	Yes: 23.9(18.3 – 29.4) No: 76.1(70.6 – 81.7)
Forced to not use condoms	Yes: 17.6(14.2 – 20.9) No: 82.4(79.1 – 85.8)	Yes:20.7(14.1 – 27.4) No: 77.2(72.2 – 85.9)	Yes: 20.5(17.4 – 23.7) No: 79.5(76.3 – 82.6)	Yes: 18.6(15.7 – 21.5) No: 81.4(78.5 – 84.3)
Anal Sex	Yes: 2.3(0.7 – 3.9) No: 97.9(96.1 – 99.3)	Yes: 3.9(1.5 – 6.5) No: 96(93.5 – 98.4)	Yes: 4.5(3.9 – 5.2) No: 95.5(94.8 – 96.1)	Yes: 2.9(1.7 – 4.1) No: 97.1(95.9 – 98.3)
Condom with anal sex	Yes: 52.4(13.9 – 90.8) No: 47.6(9.2 – 86.1)	Yes: 69.8(45.4 – 94.2) No:30.2(5.8 – 54.6)	Yes: 30.7(22.8 – 38.1) No: 69.3(61.3 – 77.3)	Yes: 57.5(31.6 – 83.4) No: 42.5(16.6 – 68.4)
		Risk Perception		
Self risk perception of contracting HIV	No risk: 3(0.9 – 5.0) Small: 2(-0.3 – 4.3) Moderate: 21.1(15.5 – 26.8) High: 65.4(56.9 – 73.8)	No risk: 10.5(6.6 – 14.3) Small: 29.4(19.9-38.9) Moderate: 12.6(6.9 – 18.2) High: 55.0(50.8-61.2)	No risk: 2.7(-4.1 – 9.6) Small: 24.6(18.1 – 30.9) Moderate: 16.8(11.1 – 22.5) High: 55.9(49 – 62.8)	No risk: 2.7(1.2 – 4.3) Small: 16.4(11.4 – 21.4) Moderate: 18.5(14.1 – 22.9) High: 62.3(56.2 – 68.4)
Why Low Risk				
HIV not in community	Yes: 0 No:100	Yes:0.4(-0.5-1.3) No: 99.6(98.7-100.5)	Yes:0 No:100	Yes:0.2(-0.2-0.6) No: 99.8(99.4-100.2)
I can tell if someone is HIV+	Yes:0.7(-0.5-1.9) No:99.3(98.0-100.5)	Yes:0.4(-0.4-1.2) No: 99.6(98.8-100.4)	Yes: 0 No: 100	Yes:0.5(-0.1-1.2) No: 99.5(98.8-100.2)
Always Condoms	Yes:74.7(62.1-87.4) No:25.3(12.6-37.9)	Yes:79.3(64.6-94.1) No: 20.7(5.9-35.4)	Yes:77.1(71.7-82.6) No: 22.9(17.4-28.3)	Yes:76.9(67.7-86.1) No: 23.1(13.9-32.3)
Other	Yes:3.5(-0.5-7.5)	Yes:8.4(0.9-15.8)	Yes:4.8(3.3-6.2)	Yes:5.7(1.7-9.7)

FSW				
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
	No:96.5(92.5-100.5)	No: 91.6(84.2-99.1)	No: 95.2(93.8-96.7)	No: 94.3(90.3-98.3)
Don't Know	Yes:0.9(-0.9-2.6) No:99.1(97.4-100.9)	Yes:0 No: 100	Yes:0 No: 100	Yes:0.4(-0.4-1.3) No: 99.6(98.7-100.5)
Why High Risk				
Not always use condoms	Yes: 30.7(20.9-40.5) No: 69.3(59.5-79.1)	Yes:44.9(30.5-59.2) No:55.1(40.8-69.5)	Yes:30.3(23.9-36.7) No: 69.6(63.3-76.1)	Yes:34.1(26.1-42.1) No: 65.9(57.9-73.9)
Multiple Partners	Yes:36.1(27.9-44.4) No: 63.9(55.6-72.1)	Yes:37.5(27.7-47.3) No: 62.5(52.7-72.3)	Yes:41.0(34.9-47.1) No: 58.9(52.9-65.1)	Yes:36.6(302.-43.1) No: 63.4(56.9-69.8)
Mistrust Partners	Yes:15.7(9.6-21.8) No:84.3(78.2-90.4)	Yes:10.0(3.2-16.8) No: 89.9(83.2-96.8)	Yes:10.1(9.2-11.0) No: 89.9(88.9-90.8)	Yes:14.1(9.3-18.9) No: 85.9(81.1-90.7)
Past Sex history	Yes:11.5(5.6-17.3) No:88.5(82.7-94.4)	Yes:5.2(1.3-9.0) No: 94.8(90.9-98.7)	Yes:5.4(3.4-7.5) No: 94.6(92.5-96.6)	Yes:9.7(5.4-14.1) No: 90.3(85.9-94.6)
Current Sex practices	Yes:2.6(0.3-4.9) No:97.4(95.0-99.7)	Yes:7.1(1.5-12.8) No: 92.9(87.2-98.5)	Yes:8.4(6.8-10.1) No: 91.6(89.9-93.2)	Yes:3.9(1.6-6.3) No: 96.1(93.7-98.4)
Sick Partner	Yes:2.6(0.3-4.9) No:97.4(95.0-99.7)	Yes:7.1(1.5-12.8) No: 92.9(87.2-98.5)	Yes:8.4(6.8-10.1) No: 91.6(89.9-93.2)	Yes:3.9(1.6-6.3) No: 96.1(93.7-98.4)
Don't Know	Yes: 0 No: 100	Yes:2.3(-1.1-5.7)) No: 97.7(94.3-101.1)	Yes:0 No: 100	Yes:0.6(-0.3-1.4) No: 99.4(98.6-100.3)
Other	Yes:34.8(19.9-49.7) No:65.2(50.3-80.1)	Yes:22.3(7.3-37.3) No: 77.7(62.7-92.7)	Yes:26.7(20.5-32.8) No: 73.3(67.2-79.5)	Yes:31.4(20.1-42.8) No:68.6(57.2-79.9)
		Condom and lubricant use with clients		
Condom last sex	Yes: 89.7(84.5 – 94.8) No: 10.3(5.1 – 15.5)	Yes: 90.7(85.2 – 96.2) No: 9.3(3.8 – 14.8)	Yes: 92.5(91.7 – 93.4) No: 7.5(6.6 – 8.3)	Yes: 90.1(86.3 – 93.9) No: 9.9(6.1 – 13.7
Who provided condom	Respondent: 77.9(67.2 – 88.8) Client: 21.3(10.7 – 31.9) Other: 0.7(-0.2 – 1.7)	Respondent: 78.1(67.7 – 88.5) Client: 21.9(11.5-32.3) Other: 0	Respondent:71.7(63.1 – 80.2) Client: 28.3(19.8-36.8) Other: 0	Respondent: 77.7(69.9 – 85.6) Client: 21.8(14.0 – 29.5) Other: 0.5(-0.1 – 1.1)
Where get condoms	Shop: 23.6(8.5 – 38.6) Pharmacy: 2.2(0.9 – 3.5) Clinic: 52.6(40.6 – 64.6) Bar: 1.3(-0.1 – 2.7) Health educator: 1.4(0.4 – 2.3) Peer educator: 8.9(2.1 – 15.7) Other: 9.9(5.2 – 14.7	Shop: 24.7(19.2–30.1) Pharmacy: 0.7(-0.1-1.5) Clinic: 67.7(62.6 – 72.9) Bar: 0.4(-0.3 – 1.0) Health educator: 1.7(-0.6 – 4.0) Peer educator: 1.1(0.05 – 2.2) Other: 3.8(1.3 – 6.2)	Shop: 5.9(4.9 – 6.9) Pharmacy: 0 Clinic: 49.9(46.3 – 53.5) Bar: 14.3(10.9 – 17.6) Health educator: 5.3(3.2 – 7.3) Peer educator: 15.4(10.8 – 20.1) Other: 9.2(7.8 – 10.7)	Shop: 23.2(12.9 – 33.4) Pharmacy: 1.7(0.8 – 2.7) Clinic: 56.8(48.4 – 65.2) Bar: 1.6(0.3 – 2.9) Health educator: 1.6(0.7 – 2.6) Peer educator: 6.9(1.9 – 11.9) Other: 8.2(4.6 – 11.7)
Condom burst last mth	Yes, once: 16(11.5 – 20.6) Never: 58.7(46.3 – 71.1) Yes >1: 25.3(15.1 – 35.4) No client: 0 No condom: 0	Yes, once: 13(8.8 -17.2) Never: 57.7(47.7-67.7) Yes >1: 28.6(19.2-37.9) No client: 0.7(-0.6 – 1.9) No condom: 0	Yes, once: 23.6(20.7 – 26.4) Never: 45.9(40.2 – 51.5) Yes >1: 30.4(27.2 – 33.5) No client: 0 No condom: 0.2(-0.3 – 0.6)	Yes, once: 15.5(12.2 – 18.8) Never: 57.9(49.1 – 66.6) Yes >1: 26.4(19.2 – 33.6) No client: 0.2(-0.2 – 0.6) No condom: 0(-0.0 – 0.02)
Lubricant use last mth	No 87.6(82.2 – 92.9) Yes, always: 5.5(2.7 – 8.3) Yes, sometimes: 6.9(3.2 – 10.6)	No: 88.9(83.7 – 94.2) Yes, always: 2.1(-0.1 -4.2) Yes, sometimes: 8.9(5.3 – 12.7)	No: 95.6(95.0 – 96.2) Yes, always: 0.2(-0.3 – 0.6 Yes, sometimes: 4.2(3.3 – 5.1)	No: 88.3(84.3 – 92.2) Yes, always: 4.3(2.3 – 6.3) Yes, sometimes: 7.4(4.6 – 10.1)
Which lubricant	Saliva: 19.1(2.4 – 35.8) Oil: 31.4(15.5 – 47.3) Water-based: 4.1(-0.8 – 8.2) Body lotion: 3.2(-0.8 – 8.2) Other: 42.2(19.7 – 64.8)	Saliva: 21.3(1.3–41.3) Oil: 31.0(3.9 – 58.1) Water-based: 10.8(-6 -27.8) Body lotion: 10.8(-6 – 27.8) Other: 26.1(6.7–45.5)	Saliva: 29.3(18.6-39.9) Oil: 29.3(18.6 – 39.9) Water-based 29.3(18.6 – 39.9) Body lotion: 0 Other: 12.1(-19.9 – 44.2)	Saliva: 19.9(6.8 – 32.9) Oil: 31.2(17.7 – 44.8) Water-based: 6.3(0.6 – 11.9) Body lotion: 5.2(-0.8 – 11.1) Other: 37.5(20.7 – 54.2)
Condom use past month	Every time: 70.9(61.9 – 79.9) Almost every time: 15.6(11.3 – 19.8) Sometimes: 13.5(7.0 – 20.1) Never: 0	Every time: 57.7(46.6 – 68.7) Almost every time: 25.9(17.8 – 34.1) Sometimes: 16.3(7.3 – 25.5) Never: 0.1(-0.1 – 0.4)	Every time: 71.3(67.8 – 74.8) Almost every time: 13.5(9.3 – 17.8) Sometimes: 15.2(11.2 – 19.1) Never: 0	Every time: 67.1(60.5 – 73.8) Almost every time: 18.4(14.8 – 2.0) Sometimes: 14.4(9.3 – 19.5) Never: 0.03(-0.04 – 0.1)
Why not always use condoms	Client refuses:16.7(0.2-33.2) Neg client: 0 Regular:6.1(2.9-9.3) No condoms: 3.1(0.2-5.9) Want baby: 0 More pay: 43.1(32.6-53.7) Violent: 0 Drunk :3.7(-0.5-7.9) Embarrassed: 0	Client refuses: 4.3(0.8-7.8) Neg client: 0.2(-0.2-0.6) Regular: 9.6(-1.5-20.6) No condoms: 3.2(0.5-5.9) Want baby:0 More pay: 60.1(49.8-70.4) Violent : 0 Drunk : 1.9(-0.4-4.2) Embarrassed:0	Client refuses: 14(8.1-19.9) Neg client:0 Regular: 9.4(5.4-13.3) No condoms:8.1(-14.1-30.2) Want baby:0 More pay: 46.6(36.1-56.9) Violent: 0 Drunk: 4.7(2.7-6.7) Embarrassed :0	Client refuses:12.2(1.4-23.0) Neg client:0.01(-0-0.2) Regular 7.4(3.1-11.8) No condoms :3.3(1.2-5.4) Want baby:0 More pay:49.3(41.5-57.0) Violent: 0 Drunk:3.1(0.4-5.8) Embarrassed: 0

FSW				
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
Ever refused client over condoms	Don't like: 0 Other : 27.3(13.7-40.9) Yes: 50.9(39.3 – 62.7) No:49.1(37.3 – 60.7	Don't like: 2.3(-0.6-5.1) Other: 18.5(4.4-32.6) Yes: 56.7(49.0 – 64.4) No: 43.3(35.6 – 50.9)	Don't like:0.6(-1.2-2.3) Other:16.7(11.6-21.9) Yes: 51.6(45.9 – 57.3) No: 48.4(42.7 – 54.1)	Don't like:0.8 (-0.0-1.9) Other: 23.8(14.5-33.1) Yes: 52.6(44.6 – 60.7) No: 47.4(39.3 – 55.4)
Reasons for condom use	Std/hiv prevention: 37.6(23.3 – 52.1) Pregnancy prevention: 5.3(2.2 – 8.3) Both: 54.9(38.5 – 71.3) Other: 2.2(0.8 – 3.6	Std/hiv prevention: 39.8(36.3 – 43.4) Pregnancy prevention: 3.9(0.5 – 7.3) Both: 55.2(49.9 – 60.5) Other: 1.0(0.0 -2.0)	Std/hiv prevention: 40.1(37.6 – 43.4) Pregnancy prevention: 2.6(1.4 – 3.8) Both: 54.7(53.3 – 56.1) Other: 2.6(1.4 – 3.8)	Std/hiv prevention: 38.3(28.5 – 48.2) Pregnancy prevention: 4.8(2.5 – 7.0) Both: 55.0(43.8 – 66.2) Other: 1.9(0.9 – 2.9)
		Condom Use with Cohabiting Partner		
Current cohabitating Av no of sex episodes with partner	Yes: 15.4(1.3 – 29.4) No: 84.6(70.6 – 98.7) 4.1(0.6 – 7.7)	Yes: 5.6(0.6 – 10.7) No: 94.4(89.3 – 99.4) 9.5(7.1 – 11.9)	Yes: 4.9(3.2 – 6.7) No: 95.1(93.3 – 96.8) 3.9(1.8 – 5.9)	Yes: 12.2(2.5 – 21.8) No: 95.1(93.3 – 96.8) 4.8(1.4 – 8.4)
Condom at last sex Condom use past month	Yes: 84.2(60.3 – 1.1) No: 15.8(-8.2 – 39.7) Every time: 15.8(-9.8 – 41.4) Almost every time: 16.4(-5.8 – 38.6) Sometimes: 63.7(14.8 – 1.12) Never: 4.1(-3.1 – 11.2)	Yes: 40.7(16.4 – 65.0) No: 59.3(34.9 – 83.6) Every time: 28.4(3.5-53.3) Almost every time:6.4(-7.4-20.11) Sometimes: 20.3(-1.5-41.9) Never: 44.9(31.4-58.5)	Yes: 69.6(59.9 – 79.2) No: 30.4(20.8 – 40) Every time: 69.6(59.9 – 79.2) Almost every time: 0 Sometimes: 0 Never: 30.4(20.8 – 40.0)	Yes: 78.3(53.6 – 1.03) No: 21.7(-3.0 – 46.4) Every time: 18.6(-4.9 – 42.1) Almost every time: 13.9(-3.6 – 31.4) Sometimes: 56.9(10.8 – 1.03) Never: 10.5(-1.3 – 22.4)
Reasons for Not using condoms	I trust him:77.2(39.9-114.4) Partner refuse:15.6(-11.5-42.7) Neg partner:0 No condoms:0.4(-0.0-1.5) Want baby: 1.4(-2.3-5.1) Violent: 1.1(-1.8-3.9) Embarrassed:0 Drunk/high:2.2(-3.2-7.6) Don't like it:1.1(-1.8-3.9) Other:1.4(-1.9-4.7)	I trust him: 54.6(39.9-114.4) Partner refuse:15.6(-11.5-42.7) Neg partner:0 No condoms:0.4(-0.8-1.8) Want baby: 1.6(-2.9-6.1) Violent: 1.3(-2.1-4.8) Embarrassed:0 Drunk/high:2.5(-3.9-8.9) Don't like it:1.3(-2.1-4.7) Other:0	I trust him: 0 Partner refuse:100 Neg partner:0 No condoms:0.40 Want baby: 0 Violent: 0 Embarrassed:0 Drunk/high:0 Don't like it:0 Other:0	I trust him 74.1(37.2-111.0) Partner refuse:18.2(-8.8-45.2) Neg partner:0 No condoms:0.4(-0.0-1.5) Want baby: 1.4(-2.3-5.1) Violent: 1.1(-1.8-3.9) Embarrassed:0 Drunk/high:2.2(-3.2-7.6) Don't like it:1.1(-1.8-3.9) Other:1.4(-1.9-4.7)
		Condom use with non cohabiting Boyfriends		
Current boyfriend Av no of boyfriends sex last mth among those with boyfrd	Yes: 52.4(41.6 – 63.2) No: 47.6(36.8 – 58.4) 2.3(1.4 – 3.14)	Yes: 51.4(43.2 – 59.6) No: 48.6(40.4 – 56.8) 1.5(1.2 – 1.8)	Yes: 24.1(21.1 – 27.1) No: 75.9(72.9 – 78.8) 1.6(1.3 – 1.9)	Yes: 50.9(43.1 – 58.8) No: 49.1(41.2 – 56.9) 2.1(1.4 – 2.7)
Av no of sex episodes	5.6(4.5 – 6.7)	5.4(3.9 -6.9)	4.1(3.4 – 4.8)	5.5(4.7 – 6.4)
Condom at last sex	Yes: 74.4(69.3 – 79.5) No: 25.6(20.5 – 30.7)	Yes: 65.2(52.7 – 77.7) No: 34.8(22.3 – 47.3)	Yes: 65.4(56.2 – 74.4) No: 34.6(25.6 – 43.5)	Yes: 71.6(66.6 – 76.5) No: 28.4(23.4 – 33.4)
Condom use past month	Every time: 55.1(47.9 – 62.3) Almost every time: 14.3(8.9 – 19.7) Sometimes: 19.5(12.0 – 27.0) Never: 11.1(5.6 – 16.5)	Every time: 45.9(34.4 – 57.5) Almost every time: 11.2(7.9 – 14.5) Sometimes: 32.6(27.7 – 37.5) Never: 10.2(0.5 – 19.9)	Every time: 50.0(41.1 – 58.9) Almost every time: 5.7(3.3 – 8.2) Sometimes: 33.7(30.6 – 36.8) Never: 10.5(0.8 – 20.2)	Every time: 52.3(46.4 – 58.2) Almost every time: 13.2(9.4 – 17.1) Sometimes: 23.6(17.6 – 29.6) Never: 10.8(6.1 – 15.6)
Reasons for Not using condoms	I trust him: 36.9(24.9 – 48.9) Partner refuse: 17.5(8.1 – 26.9) Neg partner: 2.9(-2.9 – 8.6) No condoms: 3.1(-0.1 – 6.3) Want baby: 9.8(3.9 – 15.6) Violent: 0.2(-0.3 – 0.8) Embarrassed: 0 Drunk/high: 0 Don't like it: 2.2(-0.1 – 5.1) Other: 27.3(13.7 – 40.9)	I trust him: 40.2(22.9 – 57.4) Partner refuse: 34.3(17.6 – 50.9) Neg partner: 0 No condoms: 0 Want baby: 5.1(0.9 – 9.3) Violent: 0 Embarrassed: 0 Drunk/high: 1.4(-1.2 – 3.9) Don't like it: 2.9(0.0 – 5.9) Other: 16.1(1.9 – 30.3)	I trust him: 62.3(38.3 – 86.3) Partner refuse: 21.4(1.1 – 41.8) Neg partner: 0 No condoms: 0 Want baby: 4.8(-6.5 – 16.1) Violent: 0 Embarrassed: 0 Drunk/high: 0 Don't like it:0 Other: 11.5(4.5 – 18.5)	I trust him: 38.5(28.8 – 48.3) Partner refuse: 23.1 (14.3 – 31.9) Neg partner: 1.9(-1.9 – 5.6) No condoms: 2.0(-0.2 – 4.2) Want baby: 8.1(4.0 – 12.3) Violent: 0.2(-0.2 – 0.5) Embarrassed: 0 Drunk/high : 0.5(-0.4 – 1.3) Don't like it: 2.4(0.3 – 1.3) Other: 23.2(13.0 – 33.6)
		Condom use with casual partners		
Av. no of casual sex partners last	0.34(0.22 – 0.46)	0.26(0.17 – 0.36)	0.17(-0.03 – 0.37)	0.31(0.22 – 0.40)

FSW				
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
mth				
% with casual partner last mth	15.7(11.3-20.3)	17(9.9-24.1)	9.2(-2.9-21.3)	15.8(11.3-20.3)
Av no of sex episodes	2.9(1.9 – 3.9)	4.4(1.9 – 6.7)	2.1(1.3 – 2.9)	3.3(2.4 – 4.3)
Condom at last sex	Yes: 83.1(73.7 – 92.5) No: 16.9(7.5 – 26.3)	Yes: 89.7(74.6 – 1.04) No: 10.3(-4.7 – 25.3)	Yes: 80.7(54.6 – 1.1) No: 19.3(-6.8 – 45.4)	Yes:84.9(76.9 – 92.9) No: 15.0(7.1 – 23.0)
Condom use past month	Every time: 78.2(67.6 – 88.8) Almost every time: 4.4(-0.1 – 8.8) Sometimes: 15.2(4.5 – 25.9) Never: 2.2(-1.2 – 5.7)	Every time: 82.7(66.7 – 98.6) Almost every time: 9.2(-5.9 – 24.3) Sometimes: 7.2(-1.9 – 16.4) Never: 0.8(-0.4 – 2.2)	Every time: 80.7(54.6 – 1.1) Almost every time: 1.8(-2.8 – 6.4) Sometimes: 15.8(-7.8 – 39.4) Never: 1.8(-2.8 – 6.4)	Every time: 79.5(70.9 – 88.2) Almost every time: 5.7(0.4 – 10.9) Sometimes: 12.9(5.0 – 20.9) Never: 1.8(-0.6 – 4.2)
Reasons for Not using condoms	I trust him: 6.5(-6.3-19.4) Partner refuse:32.2(-11.6-76.1) Neg partner :0 No condoms : 18.2(-4.1-48.5) Want baby:0 Violent :0 Embarrassed : 0 Drunk/high:6.5(-6.3-19.4) Don't like it: 2.4(-3.3-8.2) Other :34.1(-5.6-73.7)	I trust him: 17.4(-11.4-46.2) Partner refuse:27.2(-6.0-60.4) Neg partner :0 No condoms : 47.8(-14.5-110) Want baby:0 Violent :0 Embarrassed : 0 Drunk/high:0 Don't like it: 4.9(-4.5-14.3) Other :2.7(-4.0-9.5)	I trust him: 0 Partner refuse:27.6(-46.1-101.3) Neg partner :0 No condoms : 0 Want baby:0 Violent :0 Embarrassed : 0 Drunk/high:0 Don't like it: Drunk/high:0 Other :72.4(-1.3-146.1	I trust him: 9.9(-2.5-22.2) Partner refuse:30.4(-0.1-61.0) Neg partner :0 No condoms : 27.3(-0.9-55.4) Want baby:0 Violent :0 Embarrassed : 0 Drunk/high:4.2(-4.3-12.7) Don't like it: 5.5(-1.1-12.7) Other :22.7(-2.9-48.4)
		STIs		
Excessive/ foul dc last yr	Yes: 58(49.4 – 66.7)	Yes: 46.8(36.8 – 56.9)	Yes:48.2(44.9 – 51.4)	Yes: 54.4(47.5 – 61.4)
First Treatment	Gov clinic: 84.7(77.7-91.8) H/Worker:0.3(-0.4-1.0) Private clinic:1.4(-0.7-3.4) Pharm:2.5(-0.1-5.2) Trad Heal:0.6(-0.4-1.7) Friends Meds:0 Herbalist:0.6(-0.4-1.6) Nothing:8.1(4.2-12.1) Other:1.7(-0.9-4.2)	Gov clinic: 91.2(86.8-95.6) H/Worker:0 Private clinic:0.9(-0-2.4) Pharm:0.3(-0.3-0.9) Trad Heal:0.9(-0.4-2.3) Friends Meds:0.3(-0.3-0.9) Herbalist:0.6(-0.5-1.7) Nothing:5.5(0.9-10.1) Other:0.2(-0.2-0.5)	Gov clinic: 94.2(92.5-95.9) H/Worker:0 Private clinic:0 Pharm:0 Trad Heal:0 Friends Meds:0 Herbalist:0 Nothing:5.8(4.1-7.5) Other:0	Gov clinic: 86.6(81.6-91.7) H/Worker:0.2(-0.3-0.7) Private clinic:1.3(-0.3-2.7) Pharm:1.9(-0.0-3.8) Trad Heal:0.7(-0.1-1.5) Friends Meds:0 Herbalist:0.6(-0.2-1.3) Nothing:7.4(4.5-10.5) Other:1.2(-0.6-3.0)
Receive meds	Yes: 97.7(94.3-101.1) No:2.3(-1.1-5.7)	Yes: 96.5(93.7-99.4) No:3.5(0.6-6.3)	Yes: 100 No:0	Yes: 97.5(94.9-100) No:2.5(0-5.0)
How long on Treat	Felt better:4.4(0.5-8.3) Symp go:12.5(5.2-19.8) Complete:80.8(71.4-90.2) Other:2.3(0.6-4.1)	Felt better:7.6(1.3-13.9) Symp go:14.4(7.3-21.4) Complete:78.0(70-86) Other:0	Felt better:5.6(3.3-7.9) Symp go:18.1(13.7-22.4) Complete:76.3(69.7-82.9) Other:0	Felt better:5.3(1.9-8.6) Symp go:13.2(7.8-18.6) Complete:79.7(73-86.8) Other:1.6(0.3-2.9)
Genital sore last yr	Yes: 34.2(25.1 – 43.3)	Yes: 20.2(11.6 – 28.9)	Yes: 22.4(17.3 – 27.6)	Yes: 29.8(22.2 – 37.5)
Receive Treat	Yes:93.3(87.0-99.6) No:6.7(0.4-12.9)	Yes:95.5(90.8-100.2) No:4.5(-0.2-9.2)	Yes:100 No:0	Yes:93.9(89.1-98.8) No:6.1(1.2-10.4)
How long take treatment	Felt better:3.1(-1.0-7.2)) Symp go:24.3(13.8-34.9) Complete:72.6(64.4-80.7)	Felt better:3.5(-2.5-9.5) Symp go:27.0(11.8-42.3) Complete:69.5(51.4-87.6)	Felt better:6.9(5.2-8.5) Symp go:45.3(41.6-48.9) Complete:47.8(44.4-51.3)	Felt better:3.3(0-6.7) Symp go:25.7(17.3-34.2) Complete:70.9(63.6-78.3)
Current lower abd pain	Yes:22.9(14.0-31.7) No:77.1(68.3-85.9)	Yes:14.5(7.9-21.1) No:85.5(78.9-92.1)	Yes:26.5(23.8-29.1) No:73.5(70.9-76.2)	Yes:20.6(14.1-27.2) No:79.4(72.8-85.9)
Current Excess discharge	Yes:20.4(12.4-28.4) No:79.6(71.6-87.6)	Yes:15.6(9.9-21.4) No:84.4(78.6-90.1)	Yes:15.3(10.9-19.7) No:84.7(80.3-89.0)	Yes:18.9(12.9-24.8) No:81.1(75.2-87.1)
Current Foul discharge	Yes:19.5(13.2-25.8) No:80.5(74.2-86.8)	Yes:16.1(12.0-20.2) No:83.9(79.8-87.9)	Yes:13.2(9.2-17.3) No:86.8(82.8-90.8)	Yes:18.3(13.7-22.8) No:81.7(77.2-86.3)
Current Burning Urine	Yes: 6.9(2.1-11.6) No: 93.1(88.4-97.7)	Yes: 6.4(2.7-10.2) No:93.6(59.8-97.3)	Yes: 17.4(13.6-21.1) No:82.6(78.9-86.4)	Yes: 7.2(3.9-10.5) No:92.8(87.5-96.1)
Current Genital Ulcer	Yes:4.8(2.9-6.6) No:95.2(93.4-97.1)	Yes:4.7(1.6-7.9) No:95.3(92.1-98.4)	Yes:4.2(3.3-5.1) No:95.8(94.9-96.7)	Yes:4.7(3.2-6.3) No:95.3(93.7-96.8)
Current Groin swelling	Yes:2.0(1.1-2.9) No:98.0(97.1-98.9)	Yes:2.2(-0.1-4.4) No:97.8(95.6-100.1)	Yes:1.4(0.9-1.9) No:98.6(98.1-99.0)	Yes:2.0(1.1-2.9) No:98.0(97.1-98.9)
Current Fever	Yes:10.4(4.9-15.8) No:89.6(84.2-95.0)	Yes:8.5(4.5-12.5) No:91.5(87.5-95.5)	Yes:4.2(2.8-5.5) No:95.8(94.5-97.2)	Yes:9.6(5.7-13.5) No:90.4(86.5-94.3)
Sex with STI	Yes: 26.7(18.0 – 35.4)	Yes: 38.8(25.9 – 51.8)	Yes: 12.2(8.9 – 15.3)	Yes: 28.7(21.6 – 35.8)

FSW				
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
	No: 73.3(64.6 – 81.9)	No: 61.2(48.2 – 74.1)	No: 87.9(84.7 – 91.1)	No: 71.3(64.2 – 78.4)
Protect partner when having STI	Nothing: 10.8(-6.7 – 28.3) Condom: 89.2(71.7 – 106.7)	Nothing:12.1(-1.6 – 25.8) Condom:87.9(74.2 – 101.6)	Nothing:0 Condom:100	Nothing:11.0(-2.2 – 24.2) Condom:88.9(75.8-101.2)
Current STI (any)	Yes: 40.3(29.4 – 51.2) No: 59.7(48.8 – 70.6)	Yes: 31.7(21.5 – 41.9) No: 68.3(58.1 – 78.5)	Yes: 38.5(34.2 – 42.9) No: 61.5(57.1 – 65.8)	Yes: 37.8(29.6 – 45.9) No: 62.2(54.0 – 70.4)
antibiotics last week	Yes: 12.8(6.5 – 19.1) No:87.2(80.9 – 93.5)	Yes: 12.8(6.9 – 18.7) No: 87.2(81.3 – 93.0)	Yes: 11.8(10.1 – 13.5) No: 88.2(86.5 – 89.9)	Yes: 12.8(8.2 – 17.4) No: 87.2(82.6 – 91.8)
STI clinic with symptom (Av # visit last yr)	1.6(1.0-2.2)	1.1(0.9-1.3)	0.9(0.9-1.1)	1.5(1.0-1.9)
STI clinic with symptom: %	No:35.8(26.8-44.7) Yes:64.2(55.3-73.2)	No:43.5(36.4-50.6) Yes:56.5(49.4-63.5)	No:46.6(41.3-51.8) Yes:53.4(48.2-58.7)	No:38.4(31.7-45.1) Yes:61.6(54.9-68.3)
STI clinic no symp (Av # visit last yr)	0.5(0.3-0.6)	0.7(0.3-1.1)	0.4(0.4-0.5)	0.5(0.4-0.7)
STI clinic no symp: %	No:74.6(61.0-88.2) Yes:25.4(11.8-38.9)	No:75.7(68.9-82.5) Yes:24.3(17.5-31.0)	No:73.6(70.4-76.8) Yes:26.4(23.3-29.6)	No:74.9(65.5-84.2) Yes:25.1(15.8-34.5)
	Knowledge, Opinions and Attitudes to HIV			
Knowledge of HIV transmission	Yes:98.6(97.1 – 100.0) No: 1.4(-0.0 – 2.9)	Yes: 97.3(94.9 – 99.6) No: 2.7(0.4 – 5.0)	Yes: 100 No: 0	Yes: 98.3(97 – 99.5) No: 1.7(0.5 – 2.9)
Ever test	Yes: 87.0(82.7 – 91.4) No: 12.9(8.6 – 17.3)	Yes: 91.0(88.3 – 93.8) No: 8.9(6.2 – 11.7)	Yes: 86.2(74.3 – 98.1) No: 13.8(1.9 – 25.7)	Yes: 88.1(84.9 – 91.4) No: 11.9(8.6 – 15.1)
When last test (among all tested before)	<12 months: 56.3(45.4 – 67.1) 1 – 2 years: 20.3(13.1 – 27.6) 2 – 4 years: 12.3 (7.7 – 17.0) > 4 years ago: 10.5(7.3 – 13.7) Can't remember: 0.6(-0.1 – 1.8)	<12 months: 52.4(44.3 – 60.5) 1 – 2 years: 27.7(20.0 – 35.5) 2 – 4 years: 10.6(1.1 – 20.1) > 4 years ago: 9.3(5.9 – 12.6) Can't remember: 0	<12 months: 47.8(41.7 – 53.9) 1 – 2 years: 29.6(27.4 – 31.8) 2 – 4 years: 10.3(8.6 – 11.9) > 4 years ago: 12.3(8.6 – 15.9) Can't remember: 0	<12 months: 54.8(47.2 – 62.3) 1 – 2 years: 22.9(17.5 – 28.3) 2 – 4 years: 11.7(7.5 – 15.9) > 4 years ago: 10.2(7.8 – 12.6) Can't remember: 0.4(-0.4 – 1.2)
Last HIV test Result	Negative: 62.1(49.8 – 74.4) Positive: 36.9(25.4 – 48.6) Can't remember: 0.9(-0.1 – 1.9)	Negative: 73.7(63.1 – 84.3) Positive: 26.3(15.7 – 36.9) Can't remember: 0	Negative: 60.0(53.6 – 66.4) Positive: 39.9(33.6 – 46.4) Can't remember: 0	Negative: 65.5(56.3 – 74.6) Positive: 33.9(25.3 – 42.6) Can't remember: 0.6(-0.2 – 1.4)
MASA (of those testing positive)	Yes: 26.4(12.2 – 40.6) No: 73.6(59.4 – 87.8)	Yes: 17.9(3.4 – 32.3) No: 82.1(67.7 – 96.6)	Yes: 35.0(31.2 – 38.8) No: 64.9(61.2 – 68.8)	Yes: 24.9(13.8 – 36.0) No: 75.1(63.9 – 86.2)
Know where HIV test	Yes: 90.2(85.6 – 94.8) No: 9.3(4.8 – 13.8) Don't know: 0.5(-0.4 – 1.4)	Yes: 87.4(79.0 – 95.8) No: 11.1(3.6 – 18.5) Don't know: 1.5(-0.4 – 3.4)	Yes: 95.8(94.9 – 96.7) No: 2.9(2.4 – 2.4) Don't know: 1.3(0.7 – 1.9)	Yes: 89.6(85.7 – 93.6) No: 9.5(5.6 – 13.3) Don't know: 0.8(0.0 – 1.6)
	Alcohol and Narcotics			
Alcohol past month	Daily:10.5(6.4-14.6) Once/wk+:48.7(36.7-60.7) Once/mth+:15.5(10.1-21) Never:25.3(14.3-36.2)	Daily:9.8(6.4-13.1) Once/wk+43.1(30.1-56.1) Once/mth+:12.7(6.6-18.8) Never:34.4(22.2-46.6)	Daily:17.2(13.0-21.3) Once/wk+:50.4(47.4-53.3) Once/mth+:13.5(11.5-15.6) Never:18.9(16.2-21.7)	Daily:10.6(7.6-13.5) Once/wk+:47.2(38.4-55.9) Once/mth+:14.6(10.6-18.7) Never:27.6(19.7-35.5)
Memory Loss from alcohol last month	Never:55.6(44.5-66.7) Mthly:13.6(-2.4-29.5) 2-4/mth:9.9(6.3-13.7) 2-3/wk: 4.9(2.5-7.4) 4+/wk:1.0(0.9-1.8) Cant rem:14.9(4.9-24.9)	Never:65.6(48.8-82.4) Mthly:5.7(2.1-9.3) 2-4/mth:8.1(2.1-14.0) 2-3/wk: 0.9(-0.2-1.9) 4+/wk:2.7(-0.3-5.7) Cant rem:17.1(-3.0-37.1)	Never:63.6(55.9-71.3) Mthly:6.3(1.1-11.4) 2-4/mth:8.4(2.6-14.2) 2-3/wk: 2.6(1.4-3.7) 4+/wk:1.6(1.1-2.2) Cant rem:17.5(15.0-19.9)	Never:58.6(49.4-67.7) Mthly:11.2(0.2-22.1) 2-4/mth:9.4(6.3-12.5) 2-3/wk: 3.8(1.9-5.6) 4+/wk:1.5(0.6-2.4) Cant rem:15.6(6.9-24.2)
Cocaine	Yes:1.0(0.2-1.9) No:98.9(98.1-99.8)	Yes:2.0(0-4.1) No:97.9(95.9-100)	Yes:0 No:100	Yes:1.3(0.4-2.1) No:98.7(97.9-99.6)
Heroin	Yes:0.3(-0.3-0.9) No:99.7(99.1-100.3)	Yes:0 No:100	Yes:0 No:100	Yes:0.2(-0.2-0.6) No:99.8(99.4-100)
Weed	Yes:10.6(6.9-14.3) No:89.4(85.7-93.0)	Yes:8.9(4.5-13.3) No:91.1(86.7-95.5)	Yes:10.6(-1.3-22.5) No:89.4(77.5-101.3)	Yes:10.1(7.3-12.9) No:89.9(87.1-92.7)
Speed	Yes:0.3(-0.3-0.9) No:99.7(99.1-100.3)	Yes:0 No:100	Yes:0 No:100	Yes:0.2(-0.2-0.6) No:99.8(99.4-100.2)
Glue	Yes:1.4(0-2.8) No:98.6(97.2-100)	Yes:0 No:100	Yes:2.0(-3.9-7.9) No:97.9(92-103.9)	Yes:0.9(0-1.9) No:99.1(98-99.9)
Valium	Yes:0.3(-0.3-0.9) No:99.7(99.1-100.3)	Yes:0 No:100	Yes:0 No:100	Yes:0.2(-0.2-0.6) No:99.8(99.4-100.2)
Pills	Yes:1.4(0.5-2.2) No:98.6(97.8-99.5)	Yes:2.6(0.6-4.6) No:97.4(95.4-99.4)	Yes:4.0(2.5-5.5) No:95.9(94.5-97.5)	Yes:1.8(1.0-2.6) No:98.2(97.4-98.9)

	FSW			
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
Other	Yes:0.5(-0.2-1.1)	Yes:0(0-0.2)	Yes:0	Yes:0.3(-0.1-0.8)
	No:99.5(98.9-100.2)	No:99.9(99.8-100)	No:100	No:99.7(99.2-100.1)
IDU	Yes: 0	Yes: 0.1(-0.1 – 0.4)	Yes: 0.4(-0.7 – 1.4)	Yes: 0.1(-0 – 0.1)
	No: 100	No: 99.9(99.6 – 100.1)	No: 99.6(98.6 – 100.1)	No: 99.9(99.9 – 100)
		Stigma and Discrimination		
Share a meal	Yes: 93.2(89.8 – 96.7)	Yes: 85.9(75.6 – 96.2)	Yes: 85.5(81.7 – 89.3)	Yes: 90.8(86.8 – 94.9)
	No: 6.8(3.3 – 10.2)	No: 14.1(3.8 -24.4)	No: 14.5(10.6 – 18.3)	No: 9.2(5.1 – 13.2)
Care for relative	Yes: 99.2(98.2 – 100.2)	Yes: 95.6(92.8 – 98.9)	Yes: 98.6(98.1 – 99.0)	Yes: 98.1(97.0 – 99.2)
	No: 0.8(-0.2 – 1.8)	No: 4.4(1.7 – 7.2)	No: 1.4(0.9 – 1.9)	No: 1.9(0.8 – 2.9)
Teacher continue work	Yes: 98.1(96.5 – 99.7)	Yes: 97.1(95.2 – 98.9)	Yes: 99.6(98.6 – 100.7)	Yes: 97.8(96.6 – 99.1)
	No: 1.9(0.3 – 3.5)	No: 2.9(1.1 – 4.8)	No: 0.4(-0.7 – 1.4)	No: 2.2(0.1 – 3.4)
Buy from shopkeep	Yes: 91.2(86.9 – 95.4)	Yes: 83.5(78.4 – 88.6)	Yes: 89.8(85.1 – 94.5)	Yes: 88.9(85.6 – 92.3)
	No: 8.8(4.6 – 13.1)	No: 16.5(11.4 – 21.6)	No: 10.2(5.5 – 14.9)	No: 11.0(7.7 – 14.4)
Keep family secret	Yes: 26.9(20.6 – 33.2)	Yes: 36.5(31.2 – 41.9)	Yes: 38.9(35.6 – 42.3)	Yes: 30.2(25.8 – 34.5)
	No: 73.1(66.8 – 79.4)	No: 63.5(58.1 – 68.8)	No: 61.1(57.7 – 64.4)	No: 69.8(65.5 – 74.2)
		Exposure to Interventions		
Attended Meetings	Yes:63(54.7-72.5)	Yes:54.9(49.4-60.6)	Yes:59.1(49.6-68.6)	Yes:60.9(54.4-67.5)
	No:36.4(27.5-45.3)	No:45.0(39.4-50.6)	No:40.9(31.4-50.4)	No:39.1(32.5-45.6)
How often meet	Once:38(20.4-55.7)	Once:30.9(16-45.8)	Once:25.9(23.8-28.2)	Once:35.7(22.7-48.6)
	>once:40.3(25.9-54.7)	>once:53.9(40.7-67.0)	>once:51.2(49.9-52.5)	>once:44.3(33.8-54.8)
	3mthly:9.7(5.4-13.9)	3mthly:12.6(7.8-17.4)	3mthly:15.4(13.2-17.6)	3mthly:10.7(7.3-13.9)
	Mthly:12(6.7-17.4)	Mthly:2.7(-0.3-5.6)	Mthly:7.4(7.2-7.6)	Mthly:9.4(5.7-13.1)
Radio	Yes:70(59.3-80.8)	Yes:69.3(61.8-76.8)	Yes:54.3(45.8-62.7)	Yes:69.2(61.6-76.7)
	No:30(19.2-40.7)	No:30.7(23.2-38.2)	No:45.7(37.3-54.2)	No:30.8(23.3-38.4)
TV	Yes:73(65.4-80.7)	Yes:77.6(71.9-83.2)	Yes:57.6(48.3-66.8)	Yes:73.7(67.9-79.4)
	No:27(19.3-34.6)	No:22.4(16.8-28.1)	No:42.4(33.2-51.7)	No:26.3(20.6-32.0)
Newspaper	Yes:65.4(58.0-72.8)	Yes:47.9(38.8-57.2)	Yes:34.3(30.3-38.3)	Yes:59.2(53.7-64.7)
	No:34.6(27.2-41.9)	No:52.1(42.8-61.2)	No:65.7(61.7-69.7)	No:40.8(35.3-46.3)
Religious leaders	Yes:1.2(-0.3-2.7)	Yes:3.7(0.6-6.7)	Yes:0	Yes:1.8(0.4-3.3)
	No:98.8(97.3-100.3)	No:96.3(93.3-99.4)	No:100	No:98.2(96.7-99.6)
NGOs	Yes:26.5(12.5-40.5)	Yes:15.7(10.7-20.7)	Yes:20.7(17.6-23.9)	Yes:23.2(13.6-32.8)
	No:73.5(59.5-87.5)	No:84.3(79.3-89.3)	No:79.3(76.1-82.5)	No:76.8(67.2-86.4)
Clients	Yes:0.4(-0.9-0.9)	Yes:0.3(-0.3-0.9)	Yes:2.6(1.4-3.7)	Yes:0.5(0-0.9)
	No:99.6(99.0-100)	No:99.7(99.1-100.3)	No:97.4(96.3-98.6)	No:99.5(99.1-99.9)
Teachers	Yes:4.8(2.4-7.2)	Yes:1.6(-0.4-3.6)	Yes:1.4(0.9-1.9)	Yes:3.8(1.9-5.6)
	No:95.2(92.8-97.6)	No:98.4(96.4-100.4)	No:98.6(98.1-99.0)	No:96.2(94.4-98.0)
H/Workers	Yes:60.2(49.7-70.7)	Yes:52.5(42.6-62.4)	Yes:54.9(49.3-60.5)	Yes:57.8(50.2-65.4)
	No: 39.8(29.3-50.3)	No:47.5(37.6-57.4)	No:45.1(39.5-50.7)	No:42.2(34.6-49.8)
Friends	Yes:34.9(21.3-48.5)	Yes:12.5(8.6-16.5)	Yes:16.7(12.7-20.6)	Yes:27.9(18.6-37.1)
	No:65.1(51.5-78.7)	No:87.5(83.5-91.4)	No:83.3(79.4-87.3)	No:72.1(62.9-81.4)
Family	Yes: 11.2(6.4-15.9)	Yes:6.5(2.4-10.5)	Yes:10.1(5.8-14.4)	Yes:9.8(6.4-13.2)
	No:88.8(84.0-93.6)	No:93.5(89.5-97.6)	No:89.9(85.6-94.2)	No:90.2(86.8-93.6)
Other	Yes:11.3(6.9-15.6)	Yes:10.1(5.3-14.8)	Yes:9.8(7.4-12.2)	Yes:10.9(7.7-14.1)
	No:88.7(84.4-93.1)	No:89.9(85.2-94.7)	No:90.2(87.8-92.6)	No:89.1(85.9-92.3)
Stop aids: love life	Yes: 27.1(18.9 – 35.4)	Yes: 3.9(1.8 – 6.2)	Yes: 8.2(5.9 – 10.5)	Yes: 19.9(14.3 – 25.4)
	No: 72.9(64.6 – 81.1)	No: 96(93.8 – 98.2)	No: 91.8(89.5 – 94.0)	No: 80.1(74.6 – 85.7
If it's not on, it's not in.	Yes: 0.7(-0.0 – 1.4)	Yes: 0	Yes: 0	Yes: 0.5(-0 – 0.9)
	No:99.3(98.6 – 100.0)	No: 100	No: 100	No: 99.5(99.0 – 100)
O icheke	Yes: 55.2(44.9 – 65.5)	Yes: 47.5(37.2 – 57.8)	Yes: 40.4(33.5 – 47.2)	Yes: 52.4(44.9 – 59.8)
	No: 44.8(34.5 – 55.1)	No: 52.5(42.2 – 62.8)	No: 59.6(52.8 – 66.5)	No: 47.6(40.2 – 55.1)
Aids is real…	Yes: 21.9(17.2 – 26.6)	Yes: 22.5(17.1 – 27.9)	Yes: 23.9(18.5 – 29.3)	Yes: 22.2(18.6 – 25.7)
	No: 78.1(73.4 – 82.8)	No: 77.5(72.1 – 82.9)	No: 76.1(70.7 – 81.5)	No: 77.8(74.3 – 81.4)
Protect the public ..	Yes: 9.4(5.6 – 13.1)	Yes: 0.9(-0 – 1.9)	Yes: 0.2(-0.3 – 0.6)	Yes: 6.6(3.7 – 9.5)
	No: 90.6(86.9 – 94.4)	No: 99.1(98.1 – 100)	No: 99.8(99.4 – 100.3)	No: 93.4(90.5 – 96.3)
Be fit and strong…	Yes: 11.4(6.5 – 16.2)	Yes: 3.8(1.5 – 6.1)	Yes: 3.1(2.7 – 3.5)	Yes: 8.9(5.6 – 12.1)
	No: 88.6(83.8 – 93.5)	No: 96.2(93.9 – 98.5)	No: 96.9(96.5 – 97.3)	No: 91.1(87.9 – 94.4)
True christian standard	Yes: 21.5(14.9 – 28.0)	Yes: 3.6(1.3 – 5.9)	Yes: 4.2(2.8 – 5.5)	Yes: 15.7(11.1 – 20.3)
	No: 78.5(71.9 – 85.1)	No: 96.4(94.1 – 98.7)	No: 95.8(94.5 – 97.2)	No: 84.3(79.7 – 88.9)
Use a condom	Yes: 62.8(53.7 – 71.9)	Yes: 48.7(42.7 – 54.7)	Yes: 60(52.8 – 67.2)	Yes: 58.7(52.4 – 64.9)
	No: 37.2(28.1 – 46.3)	No: 51.3(45.3 – 57.3)	No: 39.9(32.8 – 47.2)	No: 41.3(35.1 – 47.6)
Stay healthy..	Yes: 28.8 (21.4 – 36.2)	Yes: 19.5(12.9 – 26.0)	Yes: 16.6(14.8 – 18.4)	Yes: 25.6(20.2 – 31.3)
	No: 71.2(63.8 – 78.6)	No: 80.5(73.9 – 87.1)	No: 83.4(81.6 – 85.2)	No: 74.4(68.9 – 79.8)
Sisonke	Yes: 14.4(6.1 – 22.6)	Yes: 2.9(0.2 – 5.7)	Yes: 4.2(3.3 – 5.1)	Yes: 10.7(5.4 – 15.9)
	No:85.6(77.4 – 93.9)	No: 97.1(94.3 – 99.8)	No: 95.8(94.9 – 96.7)	No: 89.3(84.0 – 94.6)
Nkaikela	Yes: 24.4(4.1 -44.6)	Yes: 0.5(0 – 0.9)	Yes: 0.2(-0.3 – 0.6)	Yes: 16.5(1.7 – 31.4)
	No: 75.6(55.4 – 95.9)	No: 99.5(99.1 – 99.9)	No: 99.8(99.4 – 100.3)	No: 83.5(68.6 – 98.4)
Condom	Yes: 91.6(87.8 – 95.4)	Yes: 87.6(82.3 – 92.9)	Yes: 87.1(84.7 – 89.5)	Yes: 90.3(87 – 93.5)

FSW				
Indicator	**Gabs(404)**	**F'town(412)**	**Kasane(131)**	**All(947)**
Demo	No: 8.4(4.6 – 12.2)	No: 12.4(7.0 – 17.7)	No: 12.9(10.5 – 15.3)	No: 9.7(6.5 – 12.9)
Public Events	Yes: 17.5(11.0 – 24.0)	Yes: 13.4(6.8 – 19.9)	Yes: 19.9(15.9 – 23.8)	Yes: 16.4(11.6 – 21.2)
	No: 82.5(75.9 – 88.9)	No: 86.6(80.1 – 93.2)	No: 80.1(76.2 – 84.0)	No: 83.6(78.8 – 88.4)

2. MSM (unadjusted tables)

MSM				
Indicator	**Gabs(275)**	**F'town(145)**	**Kasane(30)**	**All (450)**
		Biological results		
HIV prevalence	12.3(8.4 – 16.3)	11.7(6.5 – 16.9)	25.9(9.0 – 42.8)	13.1(10.0 – 16.3)
HIV prevalence by age	<20: 2.2 (-2.1-6.4) 20-29: 13.3 (8.7-17.9) 30-39: 25(-7.1-57.2) 40-49:50 (-48.3-100) 50+:0	<20:0 20-29:11.9 (6.0-17.9) 30-39:28.6(-7.7-64.8) 40-49:100 (n=1) 50+:	<20:0 20-29: 31.6 (10.0-53.1) 30-39:20 (-19.3-59.3) 40-49:0 50+:0	<20: 1.5 (-1.4-4.4) 20-29:13.9 (10.2-17.5) 30-39:25 (5.5-44.5) 40-49: 40(-8.1-88.1) 50+:0
HIV incidence				3.6% (0.9 – 6.8)
N.Gonorrhea prev	3.4(1.2-5.7)	2.6(-0.0-5.5)	0	2.9(1.3-4.5)
Urine_Ng	1.6(0-3.1)	1.9(-0.7-4.6)	0	1.4(0.3-2.5)
Swab_Ng	1.9(0.2-3.6)	2.1(-0.8-4.9)	0	1.7(0.4-2.9)
CT prev	12.6(8.6-16.6)	11.02(5.3-16.7)	0	11.3(8.2-14.3)
Urine_CT	5.9(2.9-8.8)	11.5(5.3-17.7)	0	7.1(4.7-9.5)
Swab_CT	8.6(5.1-11.9)	3.1(-0.4-6.5)	0	5.9(3.7-8.2)
Syphilis prev	4.2(1.8-6.7)	0.7(-0.1-2.1)	0	2.7(1.2-4.3)
		Questionnaire results		
A) Social Demographics				
Nationality	Mots: 98.5(97.1 – 99.9) Zim: 0.4(-0.4 – 1.1) Zam: 0.4(-0.4 – 1.1) SA: 0 Other: 0.7(-0.3 – 1.7)	Mots: 99.3(97.9 – 1.0) Zim: 0.7(-0.7 – 2.0) Zam: 0 SA: 0 Other: 0	Mots: 0.8(0.7 – 0.9) Zim: 16.7(3.1 – 30.3) Zam: 0 SA: 0 Other: 3.3(-3.2 – 9.8)	Mots: 97.6(96.1 – 98.9) Zim: 1.6(0.4 – 2.7) Zam: 0.2(-0.2 – 0.7) SA: 0 Other: 0.7(-0.1–1.4)
Mean Age	22.9(22.4 – 23.4)	23.3(22.7 – 23.9)	26.7(24.3 – 29.1)	23.2(22.9 – 23.7)
Age Category	Under 20:17.1(12.6-21.6) 20-29:78.2(73.3-83.1) 30-39:3.6(1.4-5.9) 40-49:0.7(-0.3-1.7) 50+:0.4(-0.4-1.1)	Under 20:13.8(8.1-19.4) 20-29:80.7(74.2-87.2) 30-39:4.8(1.3-8.3) 40-49:0.7(-0.7-2.0) 50+:0	Under 20:6.7(-2.4-15.8) 20-29:70(53.3-86.7) 30-39:16.7(3.1-30.3) 40-49:6.7(-2.4-15.8) 50+:0	Under 20:15.2(11.8-18.3) 20-29:79.1(73.0-80.8) 30-39:4.4(2.8-6.8) 40-49:1.0(0.1-2.0) 50+:0.25(0.1-3.5)
Relationship status	Married: 1.1(-0.1 – 2.3) Separ: 0.4(-0.4 – 1.1) Divor: 0 Sing: 54.9(49 – 60.8) Cohabi: 2.2(0.4 – 3.9) Bf: 41.5(35.6 – 47.3)	Married: 0.7(-0.7 – 2.0) Separ: 0 Divor: 0 Sing: 46.2(38.0 – 54.4) Cohabi: 2.1(-0.3 – 4.4) Bf: 51.0(42.8 – 59.2)	Married: 0 Separ: 0 Divor: 0 Sing: 56.7(38.6 – 74.8) Cohabi: 3.3(-3.2 – 9.9) Bf: 40(22.1 – 57.9)	Married: 0.9(0.01 – 1.8) Separ: 0.2(-0.2–0.7) Divor: 0 Sing: 52.2(47.6 – 56.9) Cohabi: 2.2(0.9–3.6) Bf: 44.4(39.8 – 49.1)
Religion	Chri: 75.3(70.2 – 80.4) Muslim:0.7(-0.3 – 1.7) Trad: 1.1(-0.1 – 2.3) Non: 22.2(17.2 – 27.1) Other: 0.7(-0.3 – 1.7)	Chri: 69.7(62.1 – 77.2) Muslim: 2.1(-0.3 – 4.4) Trad: 2.1(-0.3 – 4.4) Non: 24.8(17.6 – 31.9) Other: 1.4(-0.5 – 3.3)	Chri: 53.3(35.1 –71.6) Muslim: 0 Trad: 0 Non: 46.7(28.5 – 64.9) Other: 0	Chri: 72(67.8 – 76.1) Muslim: 1.1(0.1 – 2.1) Trad: 1.3(0.3 – 2.4) Non: 24.7(20.7 – 28.7) Other: 0.9(0.01 – 1.8)
Education	None: 0 Pri: 0 Jss: 7.6(4.5 – 10.8) Sss : 44(38.1 – 49.9) Higher: 48.4(42.9–54.3)	None: 0 Pri: 0.7(-0.7 – 2.0) Jss: 20(13.4 – 26.6) Sss : 52.4(44.2 – 60.6) Higher: 26.9(19.6 – 34.2)	None: 0 Pri: 20(5.4 – 34.6) Jss: 36.7(19.1 – 54.3) Sss : 33.3(16.1 – 50.5) Higher: 10(-0.9 – 20.9)	None: 0 Pri: 1.6(0.4 – 2.7) Jss: 13.6(10.4 – 16.7) Sss : 46(41.4 – 50.6) Higher: 38.9(34.4 – 43.4)
Occupation	None: 18.9(14.3 – 23.6) Student : 53.8(47.9 – 59.7) Commerce : 13.4(9.4 – 17.5) Govt: 4.4(1.9 – 6.8) Agric : 9.5(5.9 – 12.9)	None: 37.2(29.3 – 45.2) Student : 21.4(14.7 – 28.1) Commerce : 6.9(2.2 – 11.0) Govt: 6.9(2.7 – 11.0) Agric : 27.6(20.3 – 34.9)	None: 23.3(7.9 – 38.8) Student : 0 Commerce : 6.7(2.4 – 15.8) Govt: 10(-0.9 – 20.9) Agric : 60(42.1 – 77.9)	None: 25.1(21.1 – 29.1) Student : 39.8(35.2 – 44.3) Commerce : 10.9(7.9 – 13.8) Govt: 5.6(3.4 – 7.7) Agric : 18.7(15.1 – 22.3)
Av.# of kids	0.07(0.03 – 0.1)	0.21(0.08 – 0.33)	0.6(0.23 – 0.97)	0.15(0.09 – 0.21)
# MSM they know	38.5(31.2 – 45.8)	19.3(12.5 – 26.2)	8(4.7 – 11.3)	30.3(25.2 – 35.4)
# MSM seen in 6mths	21.4(17.9 – 24.9)	9.6(6.9 – 12.2)	5.5(3.8 – 7.2)	16.5(14.1 – 18.9)

MSM				
Indicator	**Gabs(275)**	**F'town(145)**	**Kasane(30)**	**All (450)**
B) Risk Perceptions, Sexual Behaviour, Sexual Partner				
Av. age at first sex with male	19.2(18.8-19.5)	20.3(19.6-20.9)	24.1(21.9-26.1)	19.8(19.5-20.2)
First Male partner	Co-worker: 1.1(-0.1 – 2.3) Friend: 55.8(49.9 – 61.7) Relative: 4.0(1.7 – 6.3) Neighbor: 4.0(1.7 – 6.3) Commercial partner: 0.4(-0.4 – 1.1) Stranger: 20.4(15.6 – 25.2) other: 14.2(10.1 – 18.4)	Co-worker: 2.8(0.1–5.5) Friend: 50.7(42.5 – 58.9) Relative: 4.2(0.9 – 7.5) Neighbor: 11.1(5.9–16.3) Commercial partner: 4.2(0.9 – 7.5) Stranger: 21.5(14.8 – 28.3) Other:5.6(1.8 – 9.3)	Co-worker: 10(-0.9 – 20.9) Friend: 53.3(35.1 – 71.5) Relative: 6.7(-2.4 – 15.8) Neighbor: 3.3(-3.2 – 9.8) Commercial partner: 3.3(-3.2 – 9.9) Stranger: 16.7(3.1 – 30.3) Other:6.7(-2.4 – 15.8)	Co-worker: 2.2(0.9 – 3.6) Friend: 54.0(49.4 – 58.7) Relative: 4.2(2.4 – 6.1) Neighbor: 6.3(3.9 – 8.5) Commercial partner:1.8(0.6 – 3.0) Stranger: 20.5(16.8 – 24.3) Other: 10.9(8.0 – 13.8)
Forced sex first sex with man	Yes: 4.0(1.7 – 6.3) No: 95.9(93.7 – 98.3)	Yes: 2.8(0.1 - 5.5) No: 97.2(94.5 – 99.9)	Yes: 13.3(0.9 – 25.7) No: 86.7(74.3 – 99.1)	Yes: 4.2(2.4 – 6.1) No: 95.8(93.9 – 97.6)
Av. no male partners (6mths)	2.5(2.2 – 2.9)	2.2(1.8 – 2.7)	1.8(1.4 – 2.1)	2.4(2.1 – 2.7)
Male Partner Type past 6mths	Boyfriends: 0.9(0.9 – 1.1) Paying men: 0.01(-0.03 – 0.03) Male sex workers: 0.18(-0.01-0.05) casual partners:1.2(0.9-1.4)	Boyfriends: 0.9(0.8 – 1.1) Paying men: 0.1(0.03 – 0.2) Male sex workers:0.02(-0.01-0.05) casual partners:0.7(0.5-0.6)	Boyfriends: 1.0(0.6 – 1.4) Paying men: 0.1(0.04 – 0.2) Male sex workers:0.13(-0.07-0.34) casual partners:0.6(0.3-0.9)	Boyfriends: 0.9(0.9 – 1.1) Paying men: 0.05(0.02 – 0.07) Male sex workers:0.03(0.01-0.05) casual partners: 1.0(0.9-1.2)
Sex with boyfriend past 6 mths	Yes:69.9(64.5-75.4) No:30.1(24.6-35.5)	Yes:76.9(68.8-85.1) No:23.1(14.9-31.2)	Yes:66.7(49.5-83.9) No:33.3(16.1-50.5)	Yes:71.5(67.1-75.9) No:28.5(24.1-32.9)
Sold sex past 6 mths	Yes:1.1(-0.1-2.4) No:98.9(97.6-100.1)	Yes:6.9(1.9-11.8) No:93.1(88.2-98.1)	Yes:6.7(2.4-15.8) No:93.3(84.2-102.4)	Yes:2.9(1.3-4.6) No:97.1(95.4-98.7)
Sex with male sex worker past 6 mths	Yes:0.7(-0.3-1.8) No:99.3(98.2-100.3)	Yes:1.9(-0.8-4.7) No:98.1(95.3-100.8)	Yes:6.7(-2.4-15.8) No:93.3(84.2-102.4)	Yes:1.5(0.3-2.7) No:98.5(97.3-99.7)
Casual Partnr past 6 mths	Yes:51.5(45.5-57.4) No:48.5(42.6-54.5)	Yes:46.1(36.3-55.8) No:53.9(44.2-63.7)	Yes:40(22.1-57.9) No:60(42.1-77.9)	Yes:49.3(44.4-54.2) No:50.7(45.8-55.6)
Av# Insertive partner past 6 mths	1.4(1.2 – 1.6)	1.3(1.1 – 1.5)	1.4(0.96 – 1.8)	1.3(1.2 – 1.5)
Av# Receptive partner past 6 mths	1.1(0.95 – 1.3)	1.2(0.99 – 1.5)	1.0(0.7 – 1.3)	1.2(1.0 – 1.3)
Insertive or receptive past 6 mths	Both:26.7(21.3-32.0) Insert:42.8(36.9-48.8) Recep:30.5(24.9-36.0)	Both:50.9(41.2-60.8) Insert:26.5(17.8-35.1) Recep:22.5(14.4-30.7)	Both:51.7(33.2-70.3) Insert:27.6(10.9-44.2) Recep:20.7(5.6-35.7)	Both:34.8(30.1-39.5) Insert:37.5(32.7-42.3) Recep:27.7(23.3-32.1)
Av. #Female Partners past 6 mths	0.9(0.65 – 1.3)	1.0(0.69 – 1.4)	1.77(0.9 – 2.6)	1.0(0.8 – 1.3)
Forced Sex past 6 mths	Yes: 5.4(3.3 – 7.5) No: 94.6(92.5 – 96.7)	Yes: 2.8(0.0 – 5.5) No: 97.2(94.5 – 99.9)	Yes: 13.3(0.9 – 25.7) No: 86.7(74.3 – 99.1)	Yes: 5.9(3.1 – 8.7) No: 94.1(91.3 – 96.9)
Physical Violence past 6 mths	Yes:12.0(8.2 – 15.9) No:87.9(84.1 – 91.8)	Yes:11.1(5.9 – 16.3) No: 88.1(83.7 – 94.1)	Yes: 10(-0.9 – 20.9) No: 90 (79.1 – 100)	Yes: 11.6(8.6 – 14.6) No: 88.4(85.4 – 91.4)
Forced not to use condoms past 6 mths	Yes:9.2(5.7-12.7) No:90.8(87.3-94.2)	Yes:6.8(1.9-11.7) No:93.2(88.3-98.1)	Yes:6.7(-2.4-15.8) No:93.3(84.2-102.4)	Yes:8.4(5.7-11.1) No:91.6(88.7-94.3)
Circumcised	Yes: 31.6(26.0 – 37.2) No: 68.4(62.8 – 73.9)	Yes: 24.3(17.3 – 31.4) No: 75.7(68.6 – 82.7)	Yes: 23.3(7.9 – 38.8) No: 76.7(61.2 – 92.1)	Yes: 28.7(24.4 – 32.9) No: 71.3(67.1 – 75.6)
Concurrent sex partner	Yes: 38.5(32.7 – 44.3) No: 61.5(55.7 – 67.3)	Yes: 39.2(31.3 – 47.2) No: 60.8(52.8 – 68.9)	Yes: 36.7(19.1 – 54.2) No: 63.3(45.7 – 80.9)	Yes: 38.6(34.0 – 43.1) No: 61.4(56.9 – 65.9)
Condom Use Last male Sex	Yes:85.5(81.3-89.7) No:14.5(10.3-18.7)	Yes:83.5(76.3-90.7) No:16.5(9.3-23.7)	Yes:76.7(61.2-92.1) No:23.3(7.9-38.8)	Yes:84.3(80.8-87.9) No:15.7(12.1-19.2)
Condom past 6 month with	Every time: 68.0(62.4 – 73.6) Almost every time: 15.6(11.3 –	Every time: 62.9(54.9 – 70.9) Almost every time: 11.2(5.9 –	Every time: 60.7(42.2 – 79.2) Almost every time: 3.6(-0.03	Every time: 65.9(61.5 – 70.4) Almost every time: 13.4(10.2 –

MSM				
Indicator	**Gabs(275)**	**F'town(145)**	**Kasane(30)**	**All (450)**
men	19.9) Sometimes: 14.1(9.9 – 18.3) Never: 2.2(0.5 – 4.0)	16.4) Sometimes: 23.1(16.2 – 30.0) Never: 2.8(0.0 - 5.5)	– 10.6) Sometimes: 21.4(5.9 – 36.9) Never: 14.3(1.1 – 27.5)	16.6) Sometimes: 17.5(13.9 – 21.1) Never: 3.2(1.5 – 4.8)
Why not always use condoms	Partner refuses: 11.9(4.9 – 18.9) Neg partner: 5.9(0.8 – 11.1) Insertive Partner: 3.6(-0.5 – 7.6) Receptive Partner: 0 No condoms: 26.2(16.7 – 35.7) Intoxicated: 21.4(12.5 – 30.3) Embarrassed: 1.2(-1.2 – 3.5) Don't like: 13.1(5.8 – 20.4) Other: 16.7(8.6 – 24.8)	Partner refuses: 7.6(0.3 – 14.8) Neg partner: 3.8(-1.4 – 8.9) Insertive Partner: 0 Receptive Partner: 0 No condoms:24.5(12.7 – 36.3) Intoxicated:32.1(19.3 – 44.9) Embarrassed: 0 Don't like: 24.5(12.7 – 36.3) Other: 7.6(0.3 – 14.8)	Partner refuses: 27.3(-0.1 – 55.1) Neg partner: 0 Insertive Partner: 0 Receptive Partner: 0 No condoms: 9.1(-8.9 – 27.1) Intoxicated: 18.2(-5.9 – 42.3) Embarrassed: 0 Don't like: 27.3(-0.5 – 55.1) Other: 18.2(-5.9 – 42.3)	Partner refuses: 11.5(6.3 – 16.7) Neg partner: 4.7(1.3 – 8.2) Insertive Partner: 2.0(-0.3 – 4.3) Receptive Partner: 0 No condoms: 24.3(17.3 – 31.3) Intoxicated: 25.0(17.9 – 32.1) Embarrassed: 0.7(-0.7 -2.01) Don't like: 18.2(11.9 – 24.5) Other: 13.5(7.9 – 19.1)
Risk of HIV from anal Sex	More: 42.8(36.6 – 48.9) Less: 32.8(26.9 – 38.6) Equal: 24.4(19.0 – 29.8)	More: 17.7(10.9 – 24.5) Less: 44.4(35.5 – 53.2) Equal:37.9(29.3 – 46.5)	More: 40(20.3 – 59.7) Less: 40(20.3 – 59.7) Equal: 20(39.5 – 36.1)	More: 34.8(30.1 – 39.5) Less: 36.8(32.1 – 41.6) Equal: 28.3(23.9 – 32.8)
Condom burst past 6 mths	Yes, once: 13.7(9.5 – 17.8) Never: 73.8(68.5 – 79.1) Yes >1: 12.5(8.6 – 16.5) No condom: 0	Yes, once: 14.6(8.8 – 20.4) Never: 77.1(70.2 – 83.9) Yes >1: 7.6(3.3 – 12.0) No condom: 0.7(-2.6 – 16.9)	Yes, once: 3.6(-3.4 -10.6) Never: 75(58.6 – 91.4) Yes >1: 14.3(1.1 – 27.5) No condom: 7.1(-2.6 – 16.9)	Yes, once: 13.3(10.1 – 16.5) Never: 74.9(70.9 – 78.9) Yes >1: 11.1(8.1 – 13.9) No condom: 0.7(-0.0 – 1.4)
Lubricant use past 6 mths	No : 25.5(20.3 – 30.7) Yes, always: 50.2(44.2 – 56.2) Yes, mostly: 5.9(3.1 – 8.7) Yes, sometimes: 18.5(13.8 – 23.1)	No: 39.9(31.8 – 47.9) Yes, always: 31.5(23.8 – 39.1) Yes, mostly: 4.2(0.8 – 7.5) Yes, sometimes: 24.5(17.4 – 31.6)	No: 48.3(29.7 – 66.8) Yes, always: 37.9(19.9 – 55.9) Yes, mostly: 0 Yes, sometimes: 13.8(0.9 – 26.6)	No: 31.6(27.3 – 35.9) Yes, always: 43.3(38.7 – 47.9) Yes, mostly: 4.9(2.9 – 6.9) Yes, sometimes: 20.1(16.3 – 23.8)
Which lubricant	None: 4.5(1.6-7.5) Saliva: 1.5(-0.2-3.2) Oil: 11.2(6.7-15.6) Water: 54.8(47.8-61.8) Body Lot: 6.1(2.7-9.5) Other: 21.8(16-27.6)	None:8.1(1.2-14.9) Saliva:0 Oil: 54.8(42.3-67.4) Water:22.6(12.0-33.1) Body Lot: 11.3(3.3-19.3) Other:3.2(-1.2-7.7)	None:0 Saliva:0 Oil: 53.3(27.1-79.6) Water:40(14.2-65.8) Body Lot: 0 Other:6.7(-6.5-19.8)	None:5.1(2.5-7.7) Saliva:1.1(-0.01-2.3) Oil: 23.4(18.3-28.4) Water:46.7(40.8-52.7) Body Lot: 6.9(3.9-9.9) Other:16.8(12.3-21.2)
Risk Perception				
Personal risk perception	No risk: 13.4(9.3 – 17.5) Small: 27.9(20.4 – 35.5) Moderate: 38.2(30 – 46.5) High: 19.1(12.5 – 25.8)	No risk: 14.7(8.7 – 20.7) Small: 27.5(22.1 – 32.9) Moderate: 37.5(31.7 – 43.4) High: 21.6(16.6 – 26.5)	No risk: 20.8(4.2 – 37.5) Small: 33.3 Moderate: 29.2(10.5 – 47.8) High: 16.7(1.4 – 31.9)	No risk: 14.2(10.9 – 17.5) Small: 27.9(23.7 – 32.2) Moderate: 37.3(32.7 – 41.9) High: 20.5(16.7 – 24.3)
Where get condoms	Shop: 60.7(54.8 – 66.5) Pharmacy: 5.1(2.5 – 7.8) Clinic: 22.4(17.9 – 27.4) Bar: 0.7(-0.3 – 1.8) Health educator: 0.7(-0.3 – 1.8) Peer educator: 0 Other: 10.3(6.7 – 13.9)	Shop: 38.2(30.2 – 46.2) Pharmacy: 1.4(-0.5 – 3.3) Clinic: 47.9(39.7 – 56.1) Bar: 4.9(1.3 – 8.4) Health educator: 0.7(-0.7 – 2.1) Peer educator: 0 Other: 6.9(2.8 – 11.1)	Shop: 26.7(10.5 – 42.8) Pharmacy: 3.3(3.2 – 9.9) Clinic: 30(13.3 – 46.7) Bar: 6.7(-2.4 – 15.8) Health educator: 0 Peer educator: 6.7(-2.9 – 15.8) Other: 26.7(10.5 – 42.8)	Shop: 51.1(46.5 – 55.8) Pharmacy: 3.8(2.0 – 5.6) Clinic: 31.2(26.9 – 35.5) Bar: 2.5(1.02 – 3.9) Health educator: 0.7(-0.0 – 1.4) Peer educator: 0.4(-0.1 – 1.1) Other: 10.3(7.5 – 13.1)
Ever refused sex over condoms	Yes: 31.7(26.2 – 37.3) No: 68.3(62.7 – 73.8)	Yes: 22.9(16 – 29.8) No: 77.1(70.2 – 83.9)	Yes: 39.3(20.8 – 57.8) No: 60.7(42.2 – 79.2)	Yes: 29.3(25.1 – 33.6) No: 70.7(66.4 – 74.9)
Reasons for condom use	Std/hiv prevention: 95.2(92.7 – 97.8) Other: 4.8(2.2 – 7.3)	Std/hiv prevention: 98.6(96.6 – 100) Other:1.4(-0.5 – 3.4)	Std/hiv prevention: 96.4(89.4 – 103) Other:3.6(-3.4 – 10.6)	Std/hiv prevention: 96.4(94.6 – 98.1) Other:3.6(1.9 – 5.4)
	Sex Work			
Sold sex in past yr	Yes: 5.3(2.6 – 8.0)	Yes: 10.4(5.4 – 15.4)	Yes: 16.7(3.1 – 30.3)	Yes: 7.8(5.2 – 10.3)
		Female Partners and Condom Use with women		
Sex with female in past 6 mths	Yes: 32.6(27.0 – 38.2) No: 67.4(61.8 – 72.9)	Yes: 41.7(33.6 – 49.8) No: 58.3(50.3 – 66.4)	Yes: 63.3(45.7 – 80.9) No: 36.7(19.1 – 54.3)	Yes: 37.6(33.1 – 42.1) No: 62.4(57.9 – 66.9)
Sex with FSW (subset of sex with female)	Yes: 4.6(1.4-9.1) No:95.4(90.9-99.9)	Yes:13.0(3.1-22.9) No:86.9(77.0-96.8)	Yes:36.8(14.4-59.3) No: 63.2(40.7-85.6)	Yes:11.2(6.1-16.3) No:88.8(83.7-93.9)
		STIs		
Self Report STI in past yr First Treatment	Yes: 17.9(13.3 – 22.4) No: 82.1(77.6 – 86.7) Gov clinic: 68.6(55.6-81.7) H/Worker:0	Yes: 14.7(8.8 – 20.5) No: 85.3(79.5 – 91.2) Gov clinic: 76.5(55.3-97.6) H/Worker:0	Yes: 30(13.3 – 46.7) No: 70(53.3 – 86.7) Gov clinic: 77.8(48.5-107.1) H/Worker:0	Yes: 17.7(14.1 – 21.2) No: 82.3(78.8 – 85.9) Gov clinic:71.4(61.1-81.7) H/Worker:0

MSM				
Indicator	**Gabs(275)**	**F'town(145)**	**Kasane(30)**	**All (450)**
	Priv clinic: 7.8(0.3-15.4) Pharm: 1.9(-1.9-5.9) Trad Heal: 1.9(-1.9-5.9) Friends Meds: 0 Herbalist:0 Nothing:0 Other: 19.6(8.4-30.8)	Priv clinic: 5.9(-5.8-17.6) Pharm:0 Trad Heal: 0 Friends Meds: 0 Herbalist: 0 Nothing:0 Other:17.6(-1.3-36.6)	Priv clinic:0 Pharm:0 Trad Hea:l 0 Friends Meds :0 Herbalist: 0 Nothing:0 Other:22.2(-1.1-51.5)	Priv clinic:6.5(0.9-12.1) Pharm:1.3(-1.3-3.9) Trad Heal: 1.3(-1.3-3.9) Friends Meds:0 Herbalist:0 Nothing:0 Other:19.5(10.4-28.5)
Receive Meds	Yes:95.3(88.9-101.8) No:4.7(-1.8-11.1)	Yes:93.3(80-106.6) No:6.7(-6.6-19.9)	Yes:88.9(66.7-111.1) No:11.1(-11.1-33.3)	Yes:94(88.2-99.9) No:6.0(0.1-11.8)
How long did they take drugs	Felt better: 10.3(0.4-20.1) Sympt go:28.2(13.6-42.8) Complete:53.8(37.7-70) Other:7.7(-0.9-16.3)	Felt better: 21.4(-1.3-44.2) Sympt go:35.7(9.1-62.3) Complete:42.9(5.4-70.3) Other:0	Felt better: 12.5(-12.5-37.5) Sympt go:50(12.2-87.8) Complete:37.5(8.9-74.1) Other:0	Felt better: 13.1(4.4-21.8) Sympt go:32.8(20.7-44.9) Complete:49.2(36.3-62.1) Other:49(-0.7-10.5)
Current Genital DC	Yes:0.7(-0.3-1.8) No:99.3(98.2-100.3)	Yes:0.9(-0.9-2.9) No:99.1(97.1-100.9)	Yes:6.7(-2.4-15.7) No:93.3(84.2-102.4)	Yes:1.2(0.2-2.3) No:98.8(97.7-99.8)
Current Burning Urine	Yes:4.0(1.7-6.4) No:96.0(94.1-97.9)	Yes:3.9(0.1-7.8) No:96.1(92.2-99.9)	Yes:3.3(-3.2-9.9) No:96.7(90.1-103.2)	Yes:3.9(2.1-5.9) No:96.1(94.1-97.9)
Current Genital Ulcer	Yes:1.8(0.2-3.4) No:98.2(96.6-99.8)	Yes:1(-0.9-2.9) No:99(97.1-100.9)	Yes:0 No:100	Yes:1.5(0.3-2.7) No:98.5(97.3-99.7)
Current Anal Ulcer	Yes:2.2(0.5-3.9) No:97.8(96.0-99.5)	Yes:1.9(-0.8-4.7) No:98.1(95.3-100.8)	Yes:0 No:100	Yes:1.9(0.6-3.4) No:98.1(96.6-99.4)
Sex with STI	Yes: 11.8(2.7 – 20.8) No: 88.2(79.2 – 97.3)	Yes: 40.9(19.6 – 62.3) No: 59.1(37.7 – 80.4)	Yes: 22.2(-7.0 – 51.5) No: 77.8(48.5 – 107)	Yes: 20.7(11.8 – 29.7) No: 79.3(70.3 – 88.2)
Protect partner from STI	Nothing: 25.0(12.4–37.6) Condom: 16.7(5.8 – 27.5)	Nothing: 13.6(-1.3 – 28.5) Condom:50(28.3 – 71.7)	Nothing: 22.2(-7.0 – 51.5) Condom:22.2(-0.7 – 51.5)	Nothing: 21.5(12.3 – 30.8) Condom:26.6(16.6 – 36.5)
Current STI symptom (any)	Yes: 5.5(2.8 – 8.2) No: 94.5(91.8 – 97.2)	Yes: 6.9(2.7 – 11.0) No: 93.1(88.9 – 97.3)	Yes: 6.7(-2.4 – 15.8) No: 93.3(84.2 – 102)	Yes: 5.9(3.7 – 8.0) No: 94.1(91.9 – 96.3)
antiobiotics last week	Yes: 7.3(4.2 – 10.4) No: 92.7(89.6 – 95.8)	Yes: 5.6(1.8 – 9.5) No: 94.4(90.5 – 98.2)	Yes: 6.7(-2.4 – 15.8) No: 93.3(84.2 – 102)	Yes: 6.7(4.4 – 9.1) No: 93.2(90.9 – 95.6)
		Knowledge, Opinions and Attitudes to HIV		
Knowledge of HIV transmission	Yes: 98.5(97.1 – 99.6) No: 1.5(0.0 – 2.9)	Yes: 97.2(94.6 – 99.9) No: 2.8(0 – 5.4)	Yes: 100 No: 0	Yes: 96.3(94.6 – 98.0) No: 3.7(1.9 – 5.4)
Ever HIV test	Yes: 74.6(69.4 – 79.8) No: 25.4(20.2 – 30.6)	Yes:78.3(71.5 – 85.1) No: 21.7(14.9 – 28.5)	Yes:80(65.4 – 94.6) No: 20(5.4 – 34.6)	Yes: 76.2(72.2 – 80.2) No: 23.8(19.8 – 27.8)
When last test (among all tested before)	<12 months: 78.8(73.2 – 84.5) 1 – 2 years: 11.8(7.4 – 16.3) 2 – 4 years: 5.4(2.3 – 8.6) > 4 years ago: 3.4(0.9 – 5.9) Can't remember: 0.5(-0.5 – 1.5)	<12 months: 83.9(77.1 – 90.8) 1 – 2 years: 9.8(4.3 – 15.4) 2 – 4 years: 6.3(1.7 – 10.8) > 4 years ago: 0 Can't remember: 0	<12 months:66.7(47.3 – 86.0) 1 – 2 years: 16.7(1.4 – 31.9) 2 – 4 years: 12.5(-1.1 – 26.1) > 4 years ago: 4.2(-4.0 – 12.4) Can't remember: 0	<12 months: 79.6(75.4 – 83.9) 1 – 2 years: 11.5(8.1 – 14.9) 2 – 4 years: 6.2(3.6 – 8.8) > 4 years ago: 2.4(0.7 – 3.9) Can't remember: 0.3(-0.2 – 0.7)
Last HIV test result	Negative: 91.2(87.1 – 95.3) Positive: 8.8(4.6 – 12.9)	Negative: 95.3(91.3 – 99.4) Positive: 4.7(0.6 – 8.7)	Negative: 90.9(78.6 – 103) Positive: 9.1(-3.3 – 21.4)	Negative: 92.6(89.7 – 95.5) Positive: 7.4(4.5 – 10.3)
On MASA of those testing+ve	Yes: 10(-10.7 – 30.7) No: 90(69.3 – 110)	Yes: 10(-10.7 – 30.7) No: 90(69.3 – 110)	Yes: 33.3(-35.8 – 102) No: 66.7(-2.5 – 136)	Yes: 13.1(-1.8 – 27.9) No: 86.9(72.1 – 102)
Know where HIV test	Yes: 81(76.4 – 85.7) No: 18.6(13.9 – 23.2) Don't know: 0.4(-0.4 – 1.1)	Yes: 86(80.3 – 91.7) No: 13.9(8.3 – 23.2) Don't know: 0	Yes: 90(79.1 – 100) No: 10(-0.9 – 20.9) Don't know: 0	Yes : 83.2(79.7 – 86.7) No: 16.6(13.1 – 20.0) Don't know: 0.2(-0.2 – 0.7)
		Alcohol and Narcotics		
IDU past month	Yes:0 No:100	Yes:0 No: 100	Yes:0 No: 100	Yes:0 No: 100
Alcohol Past Mth	Daily:5.5(2.8-8.3) Once/wk:63.5(57.7-69.2) Once/mth:15.1(10.8-19.4) Never:15.9(11.5-20.2)	Daily:8.4(2.8-14.1) Once/wk:56.8(46.8-66.9) Once/mth:15.8(8.4-23.2) Never:18.9(11-26.9)	Daily:0 Once/wk:44.8(26.4-63.8) Once/mth:27.6(10.9-44.2) Never:27.6(10.9-44.2)	Daily:5.8(3.5-8.1) Once/wk:60.5(55.7-65.3) Once/mth:16.2(12.6-19.9) Never:17.5(13.7-21.2)
Lost memory due to alcohol last month	Never:81(76.3-85.7) Mthly:13.4(9.3-17.5) 2-4/mth:4.1(1.7-6.5) 2-3/wk:1.5(0-2.9) Can't Remember:0	Never:78.4(70.4-86.5) Mthly:7.8(2.6-13.1) 2-4/mth:5.9(1.3-10.5) 2-3/wk:3.9(0.1-7.7) Can't Remember:3.9(0.1-7.7)	Never:76.7(61.2-92.1) Mthly:16.7(3.1-30.3) 2-4/mth:6.7(-2.4-15.8) 2-3/wk:0 Can't Remember:0	Never:80(76.1-83.9) Mthly:12.2(9.0-15.4) 2-4/mth:4.7(2.6-6.8) 2-3/wk:1.9(0.6-3.4) Can't Remember:0.9(0-1.9)
6+ Drinks before sex at least weekly among drinkers	No:58.7(49.4-68.1) Yes: 41.3(31.9-50.6)	No:52.1(49.4-68.1) Yes: 47.9(33.5-62.3)	No:62.5(26.4-98.6) Yes: 37.5(1.4-73.6)	No:56.9(49.3-64.6) Yes: 43.1(35.4-50.7)

MSM				
Indicator	**Gabs(275)**	**F'town(145)**	**Kasane(30)**	**All (450)**
Cocaine	Yes:1.5(0-2.9)	Yes:0	Yes:3.3(-3.2-9.9)	Yes:1.2(0.2-2.3)
	No:98.5(97.1-99.9)	No:100	No:96.7(90.1-103.2)	No:98.8(97.7-99.8)
Heroin	Yes:0.4(-0.4-1.1)	Yes:0	Yes:3.3(-3.2-98.9)	Yes:0.5(-0.2-1.2)
	No:99.6(98.9-100.4)	No:100	No:96.7(90.1-103.2)	No:99.5(98.8-100.2)
Weed	Yes:15.1(10.8-19.3)	Yes:30.4(21.4-39.4)	Yes:26.7(10.5-42.8)	Yes:19.8(15.4-23.7)
	No:84.9(80.7-89.2)	No:69.6(60.6-78.6)	No:73.3(57.2-89.5)	No:80.2(76.3-84.1)
Speed	Yes:0	Yes:0.9(-0.9-2.9)	Yes:0	Yes:0.2(-0.2-0.7)
	No:100	No:99.1(97.1-100.9)	No:100	No:99.8(99.3-100.2)
Glue	Yes:0.4(-0.4-1.1)	Yes:0	Yes:0	Yes:0.2(-0.2-0.7)
	No:99.6(98.9-100.4)	No:100	No:100	No:99.8(99.3-100.2)
Valium	Yes:0	Yes:0	Yes:0	Yes:0
	No:100	No:100	No:100	No:100
Pills	Yes:1.5(0-2.9)	Yes:0.9(-0.9-2.9)	Yes:3.3(-3.2-9.9)	Yes:1.5(0.3-2.7)
	No:98.5(97.1-99.9)	No:99.1(97.1-100.9)	No:96.7(90.1-103.2)	No:98.5(97.3-100.2)
Other	Yes:0.7(-0.3-1.8)	Yes:0	Yes:0	Yes:0.5(-0.2-1.2)
	No:99.3(98.2-100.3)	No:100	No:100	No:99.5(98.8-100.2)
		Stigma and Discrimination		
Share a meal	Yes: 84.7(80.4 – 88.9)	Yes: 83.2(77.1 – 89.4)	Yes: 86.7(74.3 – 99.1)	Yes: 84.9(80.2-87.1)
	No: 13.5(9.4 – 17.6)	No: 16.8(10.6 – 22.9)	No: 13.3(0.9 – 25.7)	No: 13.6 (9.7-16.8)
	DK: 1.8(0.2 – 3.4)	DK: 0	DK: 0	DK:1.6 (0.1-3.0)
Care for	Yes: 97.4(95.6 – 99.3)	Yes: 99.3(97.9 – 100.6)	Yes: 100	Yes: 98.2(96.9 – 99.4)
relative	No: 2.6(0.7 – 4.4)	No: 0.7(-0.7 – 2.1)	No: 0	No: 1.8(0.6 – 3.0)
Teacher	Yes: 97.4(95.5 – 99.3)	Yes: 97.2(94.5 – 99.9)	Yes: 90(79.1 – 100.9)	Yes: 96.9(95.2 – 98.5)
continue	No: 1.8(0.2 – 3.4)	No: 2.1(-0.3 – 4.5)	No: 0	No: 1.8(0.6 – 3.0)
work	DK: 0.7(-0.3 – 1.8)	DK: 0.7(-0.7 – 2.1)	DK: 10(-0.9 – 20.9)	DK: 1.3(0.3 – 2.4)
Buy from	Yes: 90.8(87.3 – 94.2)	Yes: 89.5(84.5 – 94.6)	Yes: 90(79.1 – 100.9)	Yes: 90.3(89.6 – 93.1)
shopkeeper	No: 8.5(5.2 – 11.8)	No: 9.8(4.9 – 14.7)	No: 10(-0.9 – 20.9)	No: 9.0(6.3 – 11.7)
	DK: 0.7(-0.3 – 1.8)	DK: 0.7(-0.7 – 2.1)	DK: 0	DK: 0.7(-0.0 -1.4)
Keep family	Yes: 37.3(31.5 – 43.1)	Yes: 43.4(35.2 – 51.5)	Yes: 36.7(19.1 – 54.3)	Yes: 39.2(34.6 – 43.7)
secret	No: 49.8(43.8 – 55.8)	No: 53.1(44.9 – 61.4)	No: 60.0(42.1 – 77.9)	No: 51.6(46.9 – 56.2)
	DK: 12.9(8.9 – 16.9)	DK: 3.5(4.7 – 6.5)	DK: 3.3(-3.2 – 9.9)	DK: 9.2(6.5 – 11.9)
		Exposure to Interventions		
Attended HIV	Yes:49.3(43.2-55.3)	Yes:49.5(39.7-59.3)	Yes:50(31.7-68.3)	Yes:49.4(44.4-54.3)
Meetings	No:50.7(44.7-56.8)	No:50.5(40.7-60.3)	No:50(31.7-68.3)	No:50.6(45.7-55.6)
How often	Once:41.4(33.3-49.5)	Once:54(39.9-68)	Once:50(24.6-75.4)	Once:45.0(38.5-51.8)
HIV meet last	>Once:51(42.8-59.2)	>Once 34(20.7-47.3)	>Once 31.3(7.7-54.8)	>Once 45.5(38.7-52.3)
12 mths	3 Mth:3.4(0.5-6.4)	3 Mth:8(0.4-15.6)	3 Mth:12.5(-4.3-29.3)	3 Mth:5.2(2.2-8.2)
	Mthly:4.1(6.7-7.4)	Mthly:4(-1.5-9.5)	Mthly:6.3(-6.1-18.6)	Mthly:4.3(1.5-7.0)
HIV info				
from:	Yes:74.2(68.3-80.1)	Yes:100	Yes:100	Yes:79.9(75.1-84.6)
radio	No:25.8(19.9-31.7)	No:0	No:0	No:20.1(15.4-24.9)
tv	Yes:84.5(79.9-89.2)	Yes:100	Yes:100	Yes:89.2(85.8-92.5)
	No:15.5(10.8-20.1)	No:0	No:0	No:10.8(7.5-14.2)
newspaper	Yes:75(69.2-80.8)	Yes:100	Yes:100	Yes:81.4(76.9-85.9)
	No:25(19.2-30.8)	No:0	No:0	No:18.6(14.2-23.0)
Rel leaders	Yes:3.7(0.5-6.9)	Yes:80(40.5-119.5)	Yes:80(40.5-119.5)	Yes:9.1(4.3-13.8)
	No:96.3(93.0-99.5)	No:20(-19.5-59.5)	No:20(-19.5-59.5)	No:90.9(86.2-95.7)
NGOs	Yes:17.2(11-23.5)	Yes:66.7(0.8-132.5)	Yes:85.7(57.5-113.9)	Yes:21.3(14.8-27.8)
	No:82.8(76.5-88.9)	No:33.3(-32.5-99.2)	No:14.3(-13.9-42.5)	No:78.7(72.2-85.2)
Teachers	Yes:13.6(7.8-19.3)	Yes:0	Yes:0	Yes:13.5(7.8-19.2)
	No:86.4(80.7-92.2)	No:100	No:100	No:86.5(80.8-92.2)
Health	Yes:35.7(28.4-43.0)	Yes:95.5(86.5-104.4)	Yes:75(25.7-124.3)	Yes:43.3(36.3-50.3)
worker	No:64.3(56.9-71.6)	No:4.5(-4.4-13.5)	No:25(-24.3-74.3)	No:56.7(49.7-63.7)
Friends	Yes:21.5(14.8-28.1)	Yes:100	Yes:100	Yes:33.9(26.9-40.9)
	No:78.5(71.9-85.2)	No:0	No:0	No:66.1(59.1-73.1)
Family	Yes:8(3.4-12.6)	Yes:66.7(0.7-132.6)	Yes:66.7(0.7-132.6)	Yes:10.5(5.4-15.6)
	No:91.9(87.4-96.6)	No:33.3(-32.6-99.2)	No:33.3(-32.6-99.2)	No:89.5(84.4-94.6)
Other	Yes:71.1(67.6-77.7)	Yes:97.1(92.9-101.1)	Yes:95(85.2-104.8)	Yes:79.3(74.5-84.1)
	No:28.9(22.3-35.4)	No:2.9(-1.1-7.0)	No:5(-4.8-14.8)	No:20.7(15.9-25.5)
Stop aids:	Yes: 5.1(2.5 – 7.7)	Yes: 3.4(0.5 – 6.4)	Yes: 10(-0.9 – 20.9)	Yes: 4.9(2.9 – 6.9)
love life	No: 94.9(92.3 – 97.5)	No: 96.6(93,6 – 99.5)	No: 90(79.1 – 100.9)	No: 95.1(93.1 – 97.1)
If it's noton,	Yes: 0.7(-0.3 – 1.7)	Yes: 0	Yes: 0	Yes: 0.4(-0.1 – 1.1)
it's not in.	No: 99.3(98.3 – 100.3)	No: 100	No: 100	No: 99.6(98.9 – 100.2)
O icheke	Yes: 35.3(29.6 – 40.9)	Yes: 46.9(38.7 – 55.1)	Yes: 53.3(35.1 – 71.5)	Yes: 40.2(35.7 – 44.8)
	No: 64.7(59.1 – 70.4)	No: 53.1(44.9 – 61.3)	No: 46.7(28.5 – 64.9)	No: 59.8(55.2 – 64.3)
Aids is real…	Yes: 23.3(18.3 – 28.3)	Yes: 37.2(29.3 – 45.2)	Yes: 36.7(19.1 – 54.3)	Yes: 28.7(24.5 – 32.9)
	No: 76.7(71.7 – 81.7)	No: 62.8(54.8 – 70.7)	No: 63.3(45,7 – 80.9)	No: 71.3(67.1 – 75.5)
Protect the	Yes: 4.7(2.2 – 7.3)	Yes: 1.4(-0.5 – 3.3)	Yes: 6.7(-2.4 – 15.8)	Yes: 3.8(2.0 – 5.6)
public ..	No: 95.3(92.7 – 97.8)	No: 98.6(96.7 – 100.5)	No: 93.9(84.2 – 102.4)	No: 96.2(94.4 – 97.9)

MSM				
Indicator	**Gabs(275)**	**F'town(145)**	**Kasane(30)**	**All (450)**
Be fit and strong…	Yes: 1.8(2.3 – 3.4) No: 98.2(96.6 – 99.8)	Yes: 1.4(-0.5 – 3.3) No: 98.6(96.7 – 100.5)	Yes: 0 No: 100	Yes: 1.6(0.4 – 2.7) No: 98.4(97.3 – 99.6)
True christian standard	Yes: 6.5(3.6 – 9.5) No: 93.5(90.5 – 96.4)	Yes: 6.9(2.7 – 11.0) No: 93.1(88.9 – 97.3)	Yes: 26.7(10.5 – 42.8) No: 73.7 (57.2 – 89.5)	Yes: 8(5.5 – 10.5) No: 92(89.5 – 94.5)
Use a condom	Yes: 70.9(65.5 – 76.3) No: 29.1(23.7 – 34.5)	Yes: 84.1(78.2 – 90.1) No: 15.9(9.9 – 21.8)	Yes:93.3(84.2–102.4) No: 6.7(-2.4 – 25.8)	Yes: 76.7(72.7 – 80.6) No: 23.3(19.4 – 27.3)
Stay healthy..	Yes: 6.9(3.9 – 9.9) No: 93.1(90.1 – 96.1)	Yes: 6.9(2.7 – 11.0) No: 93.1(88.9 – 97.3)	Yes: 10(-0.9 – 20.9) No: 90(79.1 – 100.9)	Yes: 7.1(4.7 – 9.5) No: 92.9(90.5 – 95.3)
info on anal sex	Yes: 32.7(27.2 – 38.3) No: 67.3(61.7 – 72.8)	Yes: 15.9(9.9 – 21.8) No: 84.1(78.2 – 90.1)	Yes: 16.7(3.1 – 30.3) No: 83.3(69.7 – 96.9)	Yes: 26.2(22.1 – 30.3) No: 73.8(69.7 – 77.9)
Attend LEGABIBO mtg	Yes: 22.9(17.9 – 27.9) No: 77.1(72.1 – 82.1)	Yes: 11.7(6.5 – 16.9) No: 88.3(83.0 – 93.5)	Yes: 6.7(-2.4 – 15.8) No: 93.3(84.2 – 102.4)	Yes:18.2(14.6 – 21.8) No: 81.8(78.2 – 85.4)

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