

# **The Crane Survey Report: High Risk Group Surveys Conducted in 2008/9, Kampala, Uganda**

**A collaborative activity between Makerere University / School of Public Health, PEPFAR / Centers for Disease Control and Prevention, and the Ministry of Health**



## EXECUTIVE SUMMARY

The "Crane Survey" is a collaborative activity between the AIDS Control Programme, Ministry of Health, and the Makerere University School of Public Health; and is funded by the US Government's PEPFAR programme.

This epidemiologic survey took place in Kampala from May 2008 through April 2009. It received ethics approval from the Uganda National Council of Science and Technology, the Uganda Virus Research Institute, and in the USA. It measured risk behaviors among several assumed HIV high risk groups, namely; Female sex workers (FSW), partners and clients of sex workers (PSW), men having sex with men (MSM), boda boda riders (BOD), and university students (UST, both male and female).

Participants were interviewed about HIV related risk behaviors and characteristics, and were tested for HIV and other sexually transmitted diseases (STDs). People who tested positive for HIV were referred for further care and treatment; people with an STD were treated by the survey staff.

Some 3,000 people participated in the survey. The key survey findings were as follows: HIV prevalence among FSW, PSW, MSM, BOD and UST was 33%, 18%, 13.7%, 7.4% and 0.6%, respectively. The proportion of FSW, PSW, MSM, BOD and UST who reported having at least one STD, including HIV, syphilis, gonorrhoea, chlamydia, trichomoniasis (women) was 68%, 32%, 22%, 14% and 18%, respectively. The proportion that reported ever having had anal sex was 19% in FSW, 7% in PSW, 100% in MSM, 3.4% in BOD and 5% in UST. Same-sex or bi-sexual attraction was also reported; its prevalence was 2% in FSW, 5% in PSW, 81% in MSM, 4% in BOD and 6.6% in UST. The proportion of respondents that reported ever same sex intercourse was 6% in FSW, 7% in PSW, 100% in MSM, 3.4% in BOD and 3.6% in BOD. Ever selling sex was also reported; it ranged from 3.6% among UST to 100% in FSW. The proportion reporting ever forced to have sex was low, ranging from 11% among BOD to 26% in PSW, and through 46% in FSW.

The above findings suggest that sex workers, sex partners of sex workers and men having sex with men are at substantially higher risk for HIV infection than the general population in Kampala. Boda riders may have a somewhat higher risk for being HIV infected than other men whereas university students show substantially lower HIV infection rates than the general population. This survey also uncovered that high risk behaviors occur across all groups surveyed, i.e., many persons at high risk engage in more than one risk behavior. These findings will help inform HIV/AIDS control measures in Uganda.

## ACRONYMS

ACASI	Audio-computer assisted self-completed interview	HSV-2	Human herpes virus type 2
ART	Anti-retroviral treatment	ID	Identification number
BCC	Behavior change and communication	IDP	Internally displaced people
BOD	Boda-Boda drivers	IDU	Intravenous drug users
BV	Bacterial vaginosis	IT	Information technology
CA	<i>Candida albicans</i>	LGBTI	Lesbian Gay Bisexual Transgender Intersex
CAPI	Computer-assisted personal interview	MARP	Most-at-risk population
CASI	Computer-assisted self interview	MOH	Ministry of Health
CDC	Centers for Disease Control and Prevention	MSM	Men having sex with men
CI	Confidence interval	MSW	Male sex workers
CSW	Commercial Sex Workers	NET	Network (survey group)
CT	<i>Chlamydia trachomatis</i>	NG	<i>Neisseria gonorrhoea</i>
CM	Coupon Manager	NGO	Non-Governmental Organization
DU	Drug users	PASI	Palm-assisted self-completed interview
EIA	Enzyme immuno assay	PEPFAR	President's Emergency Plan for AIDS Relief
FPM	Female partners of MSM	PLHA	Persons living with HIV/AIDS
FSW	Female sex workers	PSW	Partners of sex workers
FTF	Face-to-face interview	QDS	Questionnaire Design Studio
GV	<i>Gardnerella vaginalis</i>	RDS	Respondent-driven sampling
HIV	Human immunodeficiency virus	SAVS	Self-administered vaginal swab
HBV	Hepatitis B virus	SARS	Self-administered rectal swab
HCV	Hepatitis C virus	UST	University students
HHV-8	Human herpes virus 8	TP	<i>Treponema pallidum</i>
HPV	Human papilloma virus	TRW	Transport workers
		VCT	Voluntary Counseling and Testing
		WB	Western blot

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# CHAPTER 1 - MOST AT RISK POPULATIONS IN UGANDA

## The big picture

### What we do know about HIV in Uganda?

In Uganda, HIV established itself as a generalised mature epidemic with a prevalence of 6%-7% (MOH Surveillance report July 2009). There are approximately 1.1 million people living with HIV in Uganda. The vast majority of HIV cases in Uganda are the result of sexual transmission. The key risk factors for sexual transmission include partner concurrency, HSV-2 infection, lack of male circumcision and lack of condom use.

### Postulated transmission modes (UNGASS country report, 2008)

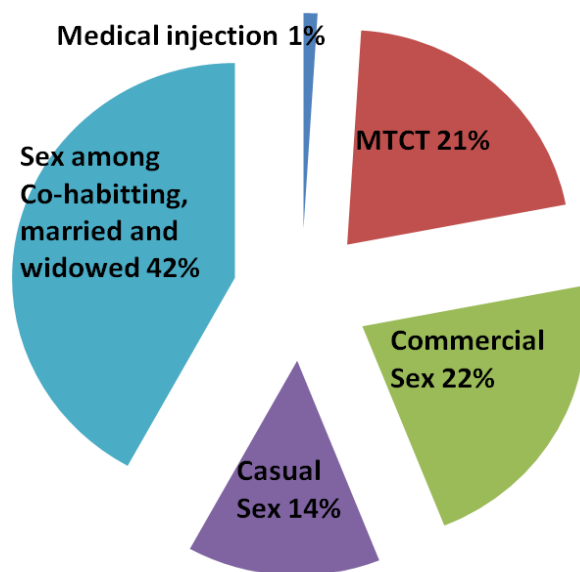


Figure showing the distribution of new infections by sources.

### Distribution of new HIV infections by behavior or group

Published in a recent UNGASS report, the pie chart figure shows the modelled distribution of new infections by mode of exposure. The Modes of Transmission (MoT) Study 2008 estimated the distribution of new HIV infections by behaviour or group. In the MoT's bar graph figure, the bars represent the percentage contribution of each risk group to the total number of new infections in Uganda and illustrate the patterns of infection. Contributions reflect level of risk, and also the relative size of the group. According to this graph, the largest proportion (43%) of new infections occur in the mutually monogamous heterosexual sex category, which includes almost half the population. Individuals engaged in multiple partnerships (MP) contribute 24% of new infections while the partners of individuals reporting multiple partnerships account for 22%. Sex work (SW) may account for 11% of new infections, of which clients of sex workers contribute 8%, sex workers 1% and partners of the clients account for the remaining 2%. The number of infections due to medical injections, blood transfusions, injecting drugs and men having sex with men are estimated to be lower than 0.5%.

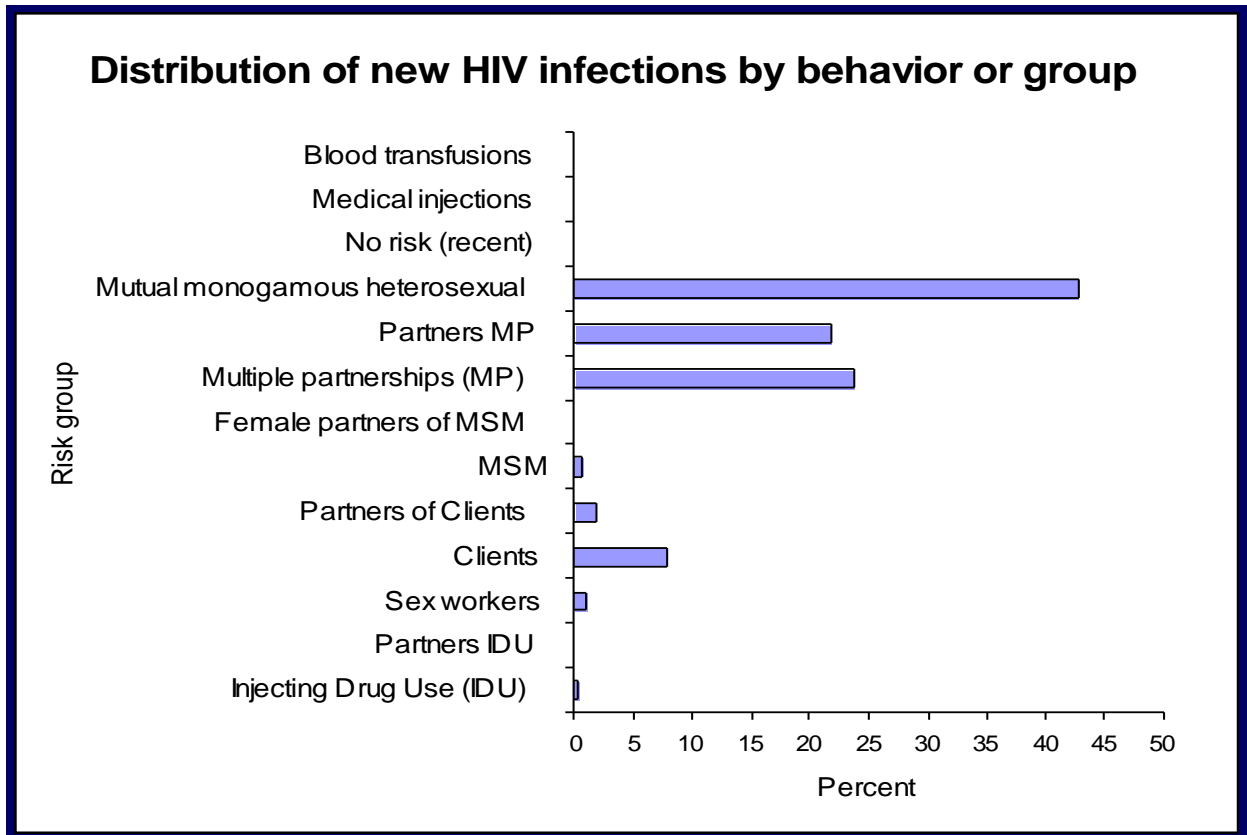


Figure showing the distribution of new HIV infections by behaviour or group.

#### Data quality of currently available estimates

Data quality varies widely. In the general population, risk behaviour data are good and based on the Demographic and Health Surveys (DHS), AIDS Information Survey (AIS) and general population cohorts. Among the high-risk groups, data quality is generally poor. Estimates on such groups are based on local surveys, which are non-representative, stem from estimates “imported” from abroad or involve the use of expert estimates and guesses.

#### Poor data availability leads to widely varying estimates

Taking MSM as an example, the contribution of MSM to the incidence of HIV in Uganda was estimated as 0.9% as per the Uganda Modes

of Transmission study (MoT); this is ten times lower than that in Kenya, where it was estimated as 9.3% in the Kenya MoT study. The Ugandan estimate of 0.9% is based on imported MSM HIV prevalence estimates from Kenya and a single expert opinion on MSM population size in Uganda.

#### What we know about most at-risk-populations (MARPs)

##### Fishing communities

The first AIDS cases in Uganda were reported from a fishing community in 1982. HIV studies suggested an HIV prevalence of >20% in Kalangala Island on Lake Victoria. A knowledge, attitude, behaviour and practice (KABP) survey was carried out in 2003.



Figure showing fishermen at one of the landing sites in Uganda. Fishing communities are among those that harbour MARPs in Uganda.

Another fishing community survey was scheduled to take place in December 2009 and will be followed by a survey of the fishing communities in the Lake Victoria Basin.

### Prisoners

In the 1990s, AIDS was the largest cause of death among prisoners. A 2008 United Nations Office of Drug Control (UNODC) survey of prisoners revealed an HIV prevalence of 13% in females and 10% in men. Large, nationally representative surveys are in the planning stage.

### Commercial sex workers

Commercial sex is illegal in Uganda, and stigma impedes access to HIV services by sex workers. A few surveys among commercial

sex workers have been carried out by MOH in Kampala, Uganda. These revealed prevalences of 23% and 47% in 2001 and 2003 respectively.

HIV surveys among CSW		
Year	Study area	Prevalence (%)
2001 (MoH)	Kampala	23*
2003 (MoH)	Kampala	47*
2009	Trans-African highway	Behavioral only
2009 (UNPA)	Kampala	KAP survey
*Convenience sample		

Figure showing HIV Surveys carried out among CSWs in Kampala, Uganda.



### Men having sex with men (MSM)

Male same-sex behaviour is a criminal offence in Uganda and punishable by a maximum penalty of life imprisonment. Stigma is severe and MSM are not accepted by the majority of Ugandan society.



Given this background, it is difficult to provide targeted services for MSM. A survey of gay and bisexual men in Kampala conducted in 2004 showed that 61% of participants described themselves as “gay” and 39% as “bisexual”. Gay and bisexual men were mostly of Ugandan nationality (92%); 37% reported unprotected receptive anal sex in the last six months, 27% had been paid for sex, and 18% had paid for sex. The level of perception that gay and bisexual men are at risk from HIV infection was low. This study concluded that gay and bisexual men in Kampala are overwhelmingly Ugandan nationals and from all parts of society.

### Other MARPs

There are little or no data on intravenous drug users, migrant workers, slum dwellers, internally displaced people, people with disabilities, partners of clients of sex workers, street youth and the homeless. However, there is some information available from a recent mapping/profiling exercise (2009).

### Conclusion

Little is known about MARPs in Uganda. To date, few efforts were made to improve our knowledge of the HIV epidemic in these groups. MARPs data are mostly not representative, are outdated, and are often of sub-optimal quality or “imported”.

### Recommendations

There is a need to collect more and better MARPs data. Poor knowledge of the HIV epidemics among MARPs and related high risk behaviors contribute to Uganda’s poor response to curb the epidemic in these groups. There is a need to have regular MARPs surveys in major urban centres, measure high risk behaviour in the general population, and devise more sound methods to estimate the size and geographic distribution of MARPs.

## CHAPTER 2 - DESIGN

In Uganda, HIV surveillance and prevention activities focus almost entirely on the general population. Little is known about the risk of HIV infection among most-at-risk populations (MARPs), or their prevention, care, and treatment needs. Similarly, little bio-behavioural surveillance is conducted among MARPs. The Crane Survey, which began in May 2008, surveyed six MARPs including men having sex with men (MSM), female sex partners of MSM (FPM), female sex workers (FSW), male sex partners of female sex workers (PSW), university students (UST) and motorcycle taxi drivers (boda-boda riders, BOD). These groups were chosen based on their known high risk behaviors (MSM, FPM, FSW, PSW) or because of persistent media reports and anecdotal evidence pointed to certain occupational groups being at increased risk for HIV infection (BOD, UST).

### **Goal**

The overall goal was to inform Uganda's public health system (policy makers and planners of HIV/AIDS control programmes) about groups at high risk of HIV infection and to eventually facilitate and evaluate

prevention activities and related services through establishing a standing surveillance activity in greater Kampala, with the ability to survey different groups using different sampling designs.

### **Objectives**

The Crane survey system's objectives are the identification and recognition of selected MARPs, monitoring trends in prevalence of HIV and other sexually transmitted infections (STI), and identifying and describing risk factors associated with HIV infection.

### **Partnerships/collaborators**

This surveillance system is conducted in collaboration with Uganda Ministry of Health STD/AIDS Control Programme, Makerere University School of Public Health, and the Centers for Disease Control and Prevention.

### **Funding**

The project was funded by the US President's Emergency Plan for AIDS Relief (PEPFAR) with \$375,000 per year through Makerere University School of Public Health (SPH). All field staff are employed by the SPH.



*Figure showing some of the staff and investigators of the Crane Survey.*

### **Survey time line**

Crane Survey Round 1 started in May 2008 and was completed in April 2009; it was the focus of the December 9, 2009 Stakeholders meeting. Groups surveyed included MSM, FPM, FSW, PSW, UST and BOD. The future plan is to sample 2 groups per year, including either repeat surveys among confirmed high risk groups and/or new surveys among suspected high risk groups.

### **General eligibility criteria for participants**

#### **Inclusion criteria**

All recruits were required to understand one of the interview languages offered and were residing in greater Kampala within a 15km radius from the city.

#### **Exclusion criteria**

Recruits unable to understand or provide informed consent, duplicate recruits and those who received a coupon from a stranger (did not know recruiter) were excluded from the survey. However, at the discretion of the principal investigator or project manager, the latter could be used as a seed to start a new wave.

## Sampling design

### Respondent driven sampling (RDS)

RDS is a sampling technique developed in the 1990s to sample hidden but networked populations. Since then, it has been applied in numerous countries on five continents to survey a wide range of high-risk populations. With RDS, survey participants recruit their

own peers to the survey, which makes it a form of “chain referral sampling”, which is suitable to sample “hidden populations”. MARP members must be “networked,” i.e., they must know each other, and the resulting probability sample allows investigators to project sample characteristics to target population.



Figure showing countries in which RDS has been a success

### Seeds

The survey starts with a “seed” or a person fulfilling the eligibility criteria. Seeds are arbitrarily chosen and can be one or several persons. The seed then refers others, and these refer others as well, until the sample size is reached.



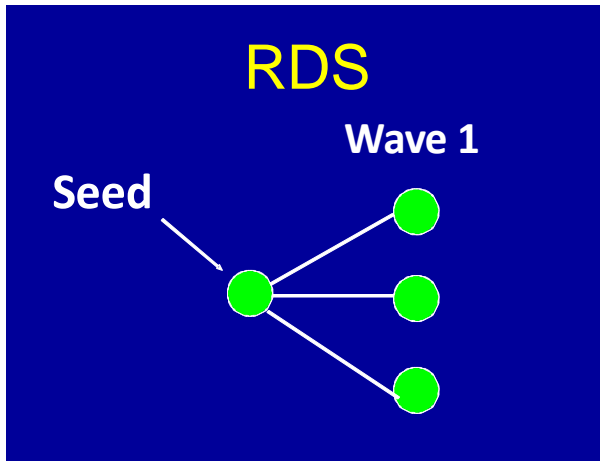


Figure showing how RDS starts. It starts with one person (a seed) who refers the first wave of respondents.

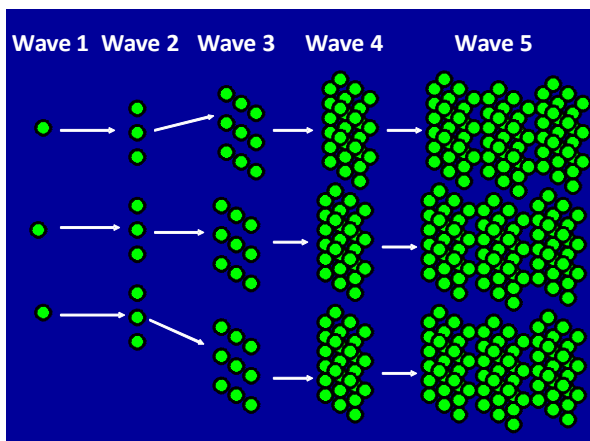


Figure showing the mechanism of RDS from the first to the fifth wave as each participant refers three new participants.

### Coupon-based enrolment

Survey participants receive coupons to “recruit” others for survey participation. The number of coupons issued is controlled by investigators and while variable, typically three coupons are given to each participant. Each coupon has a unique number (ID) and is used to refer only one person. The coupon can only be given to a person the participant knows.



Figure showing a sample coupon that was used for recruitment into the survey

### RDS facilitates population estimates

RDS analysis adjusts for varying sampling probability and similarity among networked and sampled peers. In doing so, sample estimates are converted into population estimates.

Participants are asked how many (eligible) people they personally know. This number is equivalent to their “network” size or “degree”. The inverse of the network size corresponds to the sampling weight, and this is the basis for computing population estimates.

### Special sampling design

In this survey, two groups, those being male partners of female sex workers (PSW) and female partners of MSM (FPM), could not be sampled directly as investigators assumed that these two groups were not networked. Therefore, an “indirect” form of RDS was employed. To sample these groups, FSW received separate coupons to also recruit male sex partners while MSM also received separate coupons to recruit their female sex partners.

### Sample size, time

The target sample size was 600 per MARP group with an assumed design effect of 2 giving it the same power as a random sample of 300. The sampling duration was assumed to be three months per MARP. All MARP groups were sampled concurrently.

## Overview of key events

### First visit to survey office

This visit was for participants' interviews, screening, counseling and specimen collection. This was then followed by a period of peer referral and laboratory testing.

### Second visit to survey office

This followed a period of two weeks after the first visit. This is the time at which participants underwent post-test counselling, received their laboratory results and were interviewed on peer referral efforts.

**Registration:** anonymous identification was done using fingerprints

All participants had fingerprints scanned generating a unique alphanumeric code with no image recorded. The code cannot reconstruct the fingerprint image but upon re-scanning, the same code is generated.

## Data collection

### Quantitative data collection

Standardised instruments that focused on behavioural risk were used for each MARP group. Audio-computer assisted self-interview (ACASI) increased validity for

sensitive questions. The use of ACASI also implied that there was little or no data entry required by staff. Interviews were conducted in English or Luganda. A short tutorial ensured that recruits familiarized themselves with ACASI before starting the actual interview. More than 90% of recruits underwent ACASI, the remainder were interviewed face-to-face (computer-assisted interview).

### Recall periods

These are time frames that were used to ask about recent behaviours. The recall period used for MSM was 3 months, for FSW 30 days, for FPM six months, for PSW six months, for UST six months and for BOD six months.

### Sex partner type definitions – non-commercial sex

Prior to the interview respondents were briefed about how certain terms in the interview were to be understood, such as:

**Steady sex partners:** - "People a participant had a relationship with, for example a boyfriend, a partner, or spouse." Sex may or may not have taken place in the recall period.

**Casual sex partners:** - "People a participant had sex with but did not see regularly or had feelings for. There is no exchange of money or other things for sex."

**Commercial sex partner:** Persons a participant paid for sex with money. Good or services, or people who paid a participant for sex with money, goods, or services.

We also asked participants on whether they were ever forced to have sex against their own will (answer options included: Yes, No, or Refuse to answer).

### Biomarkers

All MARP groups were screened for *human immunodeficiency virus* (HIV), *Treponema pallidum* (syphilis), *Neisseria gonorrhoea*, and *Chlamydia trachomatis*. All female participants were also screened for bacterial

vaginosis and *Trichomonas vaginalis*. MSM and FSW participants were screened for rectal gonorrhoea and rectal Chlamydia infection. Other participants reporting receptive anal sex or anal STDs were also screened for rectal gonorrhoea and rectal Chlamydia trachomatis. Refer to figure below. In addition, among those reporting neither receptive anal sex nor rectal STD symptoms, a randomly chosen 5% were invited for rectal STD testing.

## Biological measures

Spx. type	Agent	MSM, FSW	FPM, PSW, BOD, UST
Rectal swab	CT & NG*	All	All reporting anal receptive sex or anal STD symptoms + 5% randomly selected
Vaginal swab	CT & NG*	All females	
	<i>Trichomonas vaginalis</i>		
	<i>Bacterial vaginosis</i>		
Urine	CT & NG*	All males	
Venous blood	HIV & <i>T. pallidum</i>	All	

Figure showing biological measures indicating Spx. (specimen) type, agents tested for, and the categories of people whose specimens were tested for particular agents. CT: *Chlamydia trachomatis*, NG: *Neisseria gonorrhoea*, *T. pallidum*: *Syphilis*.

## Qualitative data collection

A sub-sample was chosen based on key characteristics. Participants underwent in-depth interviews regarding social networks, sexual networks, sexual practices, risk perceptions, health seeking behaviour, violence, stigma, and alcohol and drugs.

## Evaluating ACASI

A small number of questions used in the ACASI were repeated face-to-face. The objective was to compare ACASI with face-to-face interview responses. These questions were either socially neutral or socially sensitive (stigmatizing behaviors).

## Data analysis

Tailored software, RDSAT, was used for analysis of RDS derived samples. Univariate and bivariate analysis was applied. Proportions shown are weighted population

estimates, unless stated otherwise. Means and medians are reported un-weighted.

## Ethics

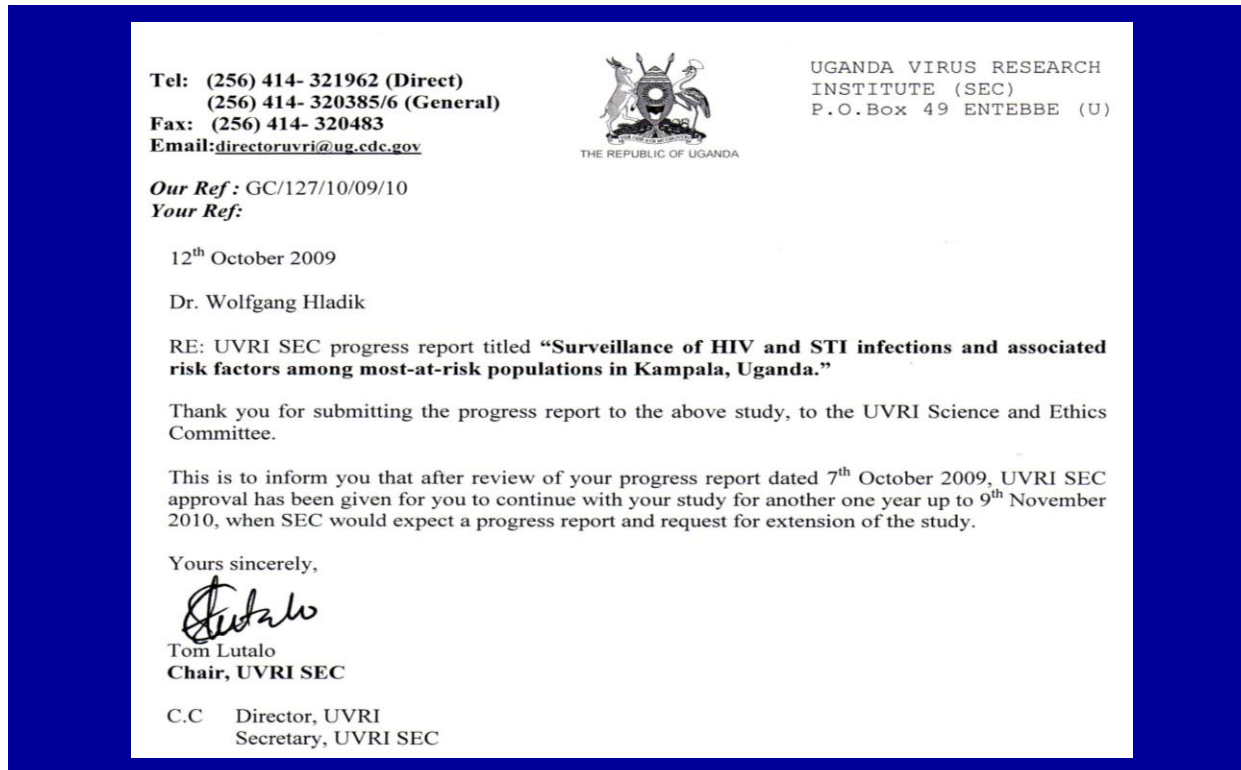
No personal identifiers were collected to ensure confidentiality. Fingerprint scanning was used to identify duplicate participants and to link participants' first and second visits. The fingerprint scans did not allow the identification of recruits.

All participants gave verbal informed consent and received their laboratory test results upon return to the survey office. All HIV-infected participants were referred for further care and treatment, and on-the-spot treatment was given to those testing positive for (non-HIV) STIs.

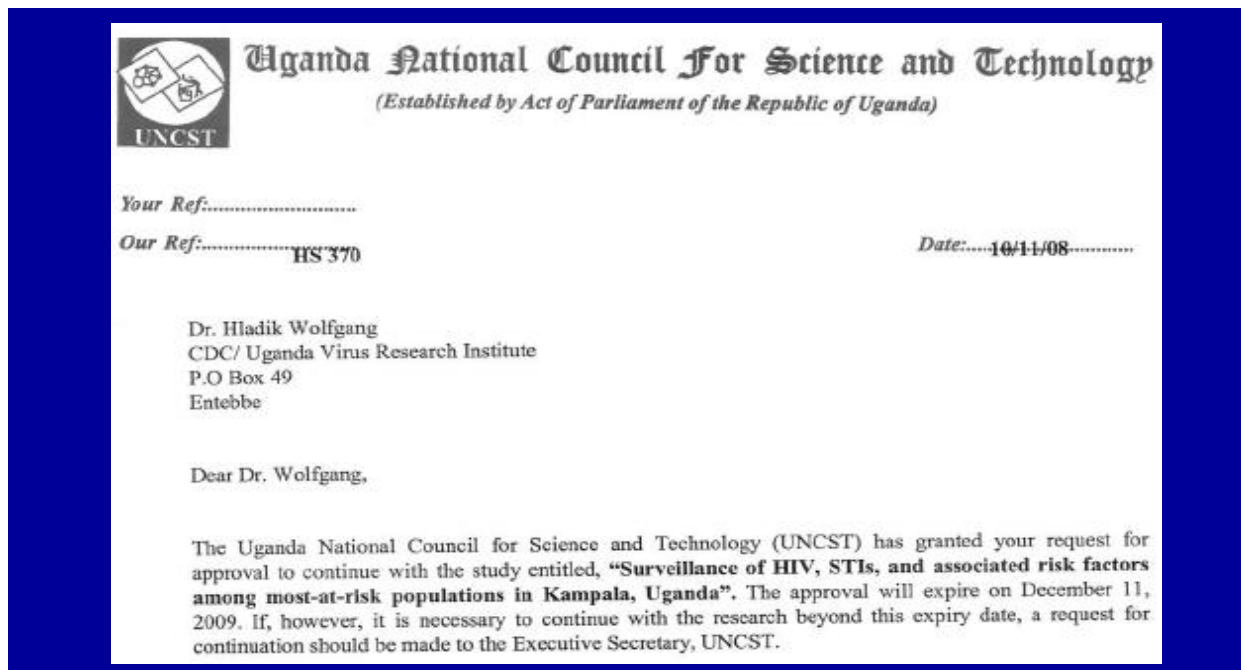
## Human subjects review

The protocol was reviewed and approved by the Uganda Virus Research Institute's (UVRI) Science and Ethics committee (SEC), the Uganda National Council of Science and Technology, and the Centers for Disease Control and Prevention (Atlanta, USA).





*Letter of approval from UVRI for the MARPS study to continue for another year following review of the study's progress report dated October 7, 2009.*



*Approval letters from the Uganda National Council of Science and Technology (UNCST) for the MARPs survey.*

## **CHAPTER 3 - METHODS AND PROCEDURES**

### **Crane Survey Staff**

The Crane survey team comprised one principal investigator (Wolfgang Hladik), one project manager (Joseph Barker, also co-investigator), thirteen co-investigators (SPH: David Serwadda, MOH: Edith Nakku-Joloba, Michael Muyonga, Tom Tenywa, CDC: David Katuntu, Sylvia Nakayiwa, Beryl West, Frank Kaharuza, Rachel King, Fitti Weissglas, Brad Bartholow, Jordan Tappero), and one staff team lead (George Lubwama, also coupon manager). Survey staff included one laboratory supervisor (part time), three coupon managers, three data managers, seven nurse counsellors, four laboratory technologists, one administrative assistant, and two janitors.

### **Overview of key events**

The key events included a first visit to the survey office for quantitative data collection, specimen collection and peer referral training. This was followed by off-site laboratory testing of the collected samples, and a second visit to the survey office for return of test results and Interview on peer recruitment, scheduled two weeks after the first visit.

### **First visit at the survey office**

At the first visit, participants went through registration at the reception, received survey information, underwent screening for eligibility and underwent voluntary HIV testing and counselling (VCT). Further, recruits underwent quantitative data

collection, specimen collection and peer referral training.

### **Reception and survey information**

At this point, coupon validation and finger printing were carried out. Participants presented their survey coupons, received folders and CD/MP3 players to inform them about the survey. All information was presented both both on paper and on CD/MP3 player. Participants had a choice to listen and/or read. Two languages were used, English and Luganda. Gender and group-specific text was used, and cartoons were used to depict specimen collection on the paper version.

### **The survey information package**

This had both written and audio information. It comprised a welcome and survey overview; an information sheet identical to the informed consent text, and terms and phrases used in ACASI (*anal sex, sex partner types (steady, casual...), etc.*).



Figure showing an MP3 player, one of the gadgets used for the audio information

It also had STI testing information for HIV, gonorrhoea, chlamydia, syphilis, bacterial vaginosis and trichomoniasis and peer referral instructions. The information was recorded by professionals at Straight Talk – Uganda and had a total listening time of about 30 – 45 minutes.

#### Registration and screening for eligibility

At the coupon manager's office, the coupon managers registered recruits under the corresponding MARP group. Each MARP was numbered to ensure confidentiality so that participants would not know one another's group and only the Crane Survey staff understood each group's numbering.

#### Screening for eligibility

All participants underwent eligibility interviews by the coupon manager, through which they were screened according to group-specific criteria. The eligible respondents

continued to ACASI, and the ineligible ones were thanked for their time.

#### Registration – anonymous identification using fingerprints

Anonymous identification using fingerprints was utilised for registration. All participants had their fingers scanned. The fingerprint scans automatically created a unique alphanumeric code for each participant, and no image was recorded. The code could not reconstruct the fingerprint image, however, upon re-scanning the same code would be regenerated. Microsoft fingerprint readers using commercial software (Griaule Biometrics, San Jose, CA, USA) were used. See figure below.



Figure showing a fingerprint reader used in the registration process and a sample screenshot.

#### Uses of fingerprint scanning

Fingerprint scanning was used to detect duplicate recruits (participants presenting again with another coupon); to link return visits with initial visits; and to link various survey procedures within the same visit. No recruit refused fingerprint scanning.

#### Informed consent

The coupon manager probed participants' understanding the informed consent language

and survey procedures. Verbal informed consent was given before the participants were registered.

### **Quantitative data collection**

The main interview was ACASI-based. There was an alternative of computer-assisted personal interviews (CAPI) conducted by the survey staff. QDS software was used to administer standardised instruments with a focus on behavioural risk and. There were approximately 100-150 questions with a total duration of 30-60 minutes depending on the participants' skip pattern. Response input options included a touch screen, mouse, or keyboard (numbers). The responses were either categorical or numerical.

### **ACASI room procedures**

The data manager in the ACASI room opened a new ACASI file for each participant, double keyed in participants' IDs, conducted short ACASI tutorials with the recruit and then left the recruit to conduct the interview by him/herself. The data manager was within earshot to offer help during the interviews. Participants had a choice of listening to and / or reading questions. Between six and eight ACASIs were carried out concurrently.



*Figure showing one of the ACASI slots, with a set-up similar to internet cafes. Visual barriers facilitated privacy.*

### **VCT and specimen collection**

#### **Pre-test counselling**

Pre-test HIV/STI information was provided in writing and on CD/MP3 player using standard MOH HIV/STI counselling guidelines. Nurse counselors probed and re-inforced recruits' understanding of the pre-test information.

#### **Peer referral training and exit**

Participants were trained on the characteristics for peer referral using terms such as "people like you". Peer referral was to be conducted outside the survey office, among friends and acquaintances, and was coupon-based (1-6 coupons / participant). The number of coupons handed out was regulated by the investigators and was primarily subject to recruitment efficacy. No peer referral of FPM or PSW was carried out as investigators assumed insufficient networking within each of these two groups.

### First visit exit

At the end of the first visit, the appointment for the second visit was set (two weeks from the first visit), which allowed for recruited peers to come to the survey office and for the processing of specimens in time. The participants were given coupons for peer recruitment, and compensated for their time and transport.

### Interim period

The interim period refers to the two-week period between the first and second visit.

#### Laboratory testing

Almost all collected specimens were processed and tested at the Mulago National Referral Hospital STI clinic. Only the last few hundred specimens were tested at CDC. The results were returned to the survey offices within the 14 days of the interim period. Where delays occurred with testing, especially for the PCR testing of chlamydia and neisseria, recruits were re-invited to come at a later time and compensated for their extra transport costs.

Laboratory tests	
STI	Test
HIV	EIA
Syphilis	TPHA, RPR
Chlamydia & Gonorrhea	PCR
Trichomonas Vaginalis Bacterial Vaginosis	Microscopy

Figure showing the laboratory tests that were performed on all the collected specimens

### Second visit at the survey office

At their second visit participants underwent a peer referral interview (ACASI mode), HIV post-test counselling, and receipt of their STI results.

#### Participant confirmation using coupon and fingerprint to generate code

All participants had their fingerprints re-scanned to validate their involvement in the survey. This was to assure that the coupon holder was the rightful owner of the coupon he/she presented.

#### Peer referral interview

Interviews about peer participation were conducted with questions pertaining to who was given a coupon, who accepted it and the participant's relationship to them.

#### Post-test counselling

HIV post-test counselling was done using standard MOH VCT post-test counselling, prior to delivery of the returned HIV and STI

results. If a participant was HIV infected, he/she was referred to an ART facility for further care/treatment. If he/she tested STI positive, the participant was provided with treatment onsite as per MOH and WHO guidelines. Participants with more complicated STI situations (allergies, e.g., previous treatment history) were referred to the STD Clinic in Mulago Hospital. The average time spent at this stage was about 60 – 90 minutes.

## Discussion and conclusion

### Successes

The methods and procedures were successful for sampling several MARPs concurrently. Four thousand two hundred and ninety-four participants were screened, 3,197 ACASI/CAPI interviews were conducted and 2,238 (70%) participants returned for results. HIV results were returned, and participants with STIs received treatment. The ACASI technology used was highly acceptable by all groups, both literate, illiterate and novice computer users. Standard survey information was efficiently delivered electronically, finger print codes assured anonymity and identification of ineligible and duplicate participants.

### Challenges

The survey office was burglarized in October 2008, with all computers stolen (but no data lost, and without any breach of confidentiality, thanks to encrypted data and daily data transfer from interview computers to secure off-site servers) which led to the

interruption of sampling activities for one week. Recruitment chains were successfully recovered.

MSM sampling twice was severely interrupted by the arrests of Lesbian Gay Bisexual Transgender Intersex (LGBTI) activists and impeded reaching the target sampling size of 600. FPM sampling was unsuccessful with only 19 participants. A logistical challenge for the survey staff was the unpredictable workload of processing 0 – 100+ first visits per day.

### Sub-sample procedures

This was aimed at evaluating ACASI. The objective was to compare ACASI with face-to-face interview responses. It was done by re-interviewing face-to-face with a sub-sample of questions on socially neutral and socially undesirable behaviors.

### Compensation

Compensation is standard in RDS surveys. Primary compensation was 6,000 Uganda shillings to cover transport, time, and inconvenience. At the return visit, compensation was 2,000 Uganda shillings for each eligible peer successfully referred in addition to re-imbusement for transport.

### The Crane Survey – IT design

Survey information and the consenting language was provided in an audio format. Fingerprint scans linked participants' first and second visits and identified duplicate recruits. Participant management software was used for coupon management and monitoring of survey events; interview data collection used ACASI technology.



## CHAPTER 4 - MEN HAVING SEX WITH MEN (MSM)

### Eligibility criteria and sampling

All participants were 18 years or older, resided in greater Kampala and reported anal sex with a man in the last three months. The sample size achieved was 306 participants – below the targeted number of participants was 600.

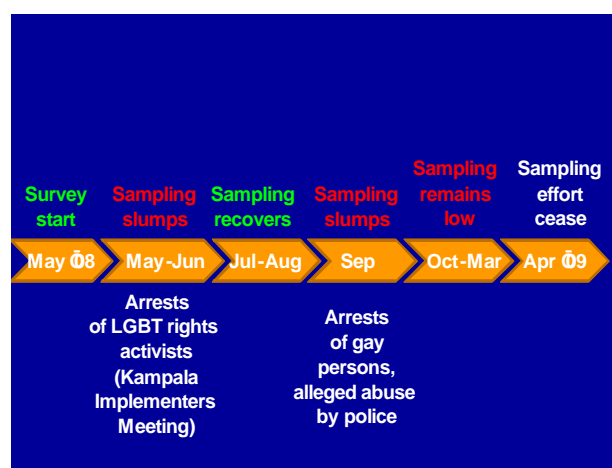


Figure showing the sampling timeframe with the challenges faced during the process.

Sampling proved very difficult after the arrest and abuse of gay rights activists in May 2008; sampling stopped but recovered later. There was also arrest of alleged gay men in September 2008; this time sampling stopped and never fully recovered.

### Sampling characteristics

Sampling duration:	10 months
Seeds:	17
No. coupons issued:	1,706
Highest wave achieved:	11
Equilibrium (HIV), wave No.:	2
Recruits screened:	454
Ineligible recruits:	146
<b>Eligible recruits:</b>	<b>306</b>

Figure showing sampling characteristics. The final number of eligible participants was 306.

### Baseline demographics

The median age of participants was 25 years with an interquartile range (IQR) of 21-28 years. Ninety-four percent were Ugandan nationals. They had a median education of 11 years of schooling with an interquartile range of 7-14.

#### Marriage, female partners, children

Almost one third (31%) of respondents had ever been married, and 20% were currently married. Seventy-eight percent had ever had sex with a woman, 44% had ever lived with a female sex partner and 16% were currently living with a female sex partner. Twenty-nine percent had fathered children.

### Sexual behaviour

#### Sexual orientation and attraction

Seven percent of men reported that they were straight/heterosexual, more than one third (37%) bisexual, and one half (50%) were gay/homosexual. Nineteen percent were

attracted to mostly/only women, 12% to both men and women and 70% to mostly/only men. More than half (57%) had disclosed their same-sex activity to other people.

### Type of sex partner at first MSM episode

More than two thirds (70%) of participants said their first MSM sexual partner was a friend, 7% said he was a relative, another 7% said he was an acquaintance, 6% a stranger, 3% a prison inmate and 8% an “authority figure”. Authority figures included religious leaders (50%), teachers (22%), military superiors (11%), and the police (17%). The median age at the first MSM sex episode was 18 years.

### Median number of male sex partners by type in last 3 months

In the last 3 months participants had bought sex from a median of two men and had had a median of two commercial clients, two casual sex partners and four steady sex partners.

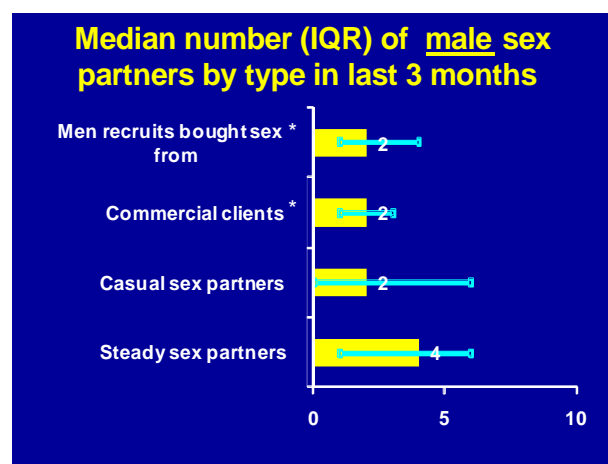


Figure showing the median number of male sex partners by type in the last three months. Commercial / transactional sex was frequent, 42% had ever sold sex. \*Commercial clients refer to men from whom recruits had bought sex.

### Median number of female sex partners by partner type in last 3 months

In the last three months participants had bought sex from one woman among those selling sex, had had zero female commercial clients, no casual sex partners and one female steady sex partner. The median number of all male and female sex partners in the last three months combined was 12. Twenty-four percent of MSM ever sold sex to women, and on average MSM reported one female steady partner in the last 3 months.

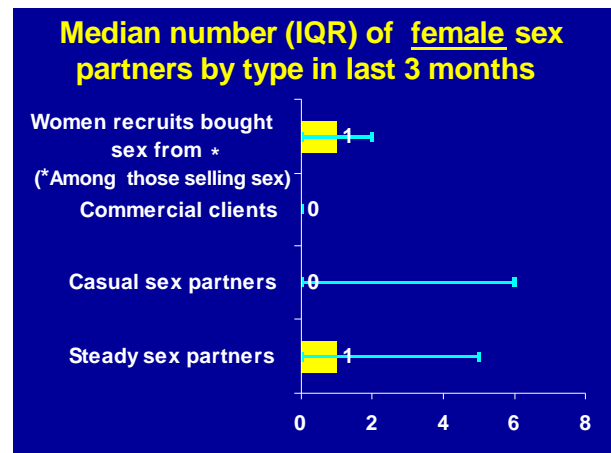


Figure showing the median number of female sex partners by type in the last 3 months among MSM.

### Condom use in the last three months by sex partner type

Forty percent used condoms with their female casual partners, 39% with female steady partners, 43% with male casual partners and 50% with their male steady partners in the past three months. There was sub-optimal condom use across all partner types especially for transactional sex. Twenty-six percent of participants never used condoms.





Figure showing median proportion of condom use in last three months by partner type among MSM.

### Last MSM sex act characteristics

On the last sex act, 53% had sex with a steady partner, 49% had used condoms, and 67% used a lubricant. Forty-seven percent had drunk alcohol and 13% had used drugs before sex. Only 4% perceived their partner's HIV status to be positive, and 81% said their last sex act was with a Ugandan national.

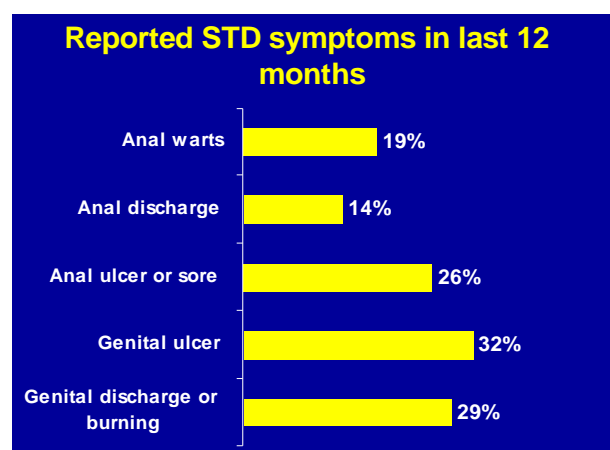


Figure showing reported STD symptoms in the last 12 months among MSM. 36% report at least one anal STD problem

## Prevalence of selected STIs and HIV

Twenty-two percent of participants had an STI (including HIV). Specifically, 13.2% were HIV infected, 8.3% had syphilis, 1.9% rectal gonorrhoea, 1.4% urethral gonorrhoea, 1.1% rectal *Chlamydia trachomatis* and 1.2% urethral *Chlamydia trachomatis*. One in five MSM had at least one STI, with HIV being the commonest.

### HIV prevalence by age group

Older MSM ( $\geq 25$  years of age) were substantially more likely to be HIV-infected with a prevalence of 21.2% than younger ones ( $< 25$  years of age) with a prevalence of 3.9%.

### Knowledge of HIV status

More than one half (51%) of participants stated knowing their HIV status; 41% stated they were uninfected and 10% said they were infected.

### HIV testing history

Forty-four percent of participants had ever tested for HIV, and of these 5% reported a positive result.

### Perceived HIV status versus actual HIV status

Only 10% of MSM who thought they were HIV infected actually tested HIV-positive. About one in seven MSM survey respondents who thought they were HIV-uninfected tested HIV-positive.

Perceived vs. actual HIV status			
Actual	Perceived		
	Neg	Pos	D/K
Neg	35%	9%	44%
Pos	6%	1%	5%

Figure showing perceived against actual HIV status among MSM. Pos: Positive, Neg: Negative, D/K: Don't know.

## Risk factors for HIV

### Significant associations with HIV

Older MSM (25 years and more) were six times more likely to be HIV infected than younger MSM. MSM who reported ever having been abused because of their same sex activity (that is, subjected to physical or sexual violence, or to verbal or moral insults) were also more likely to be HIV infected, and those with any STI were three times more likely to be HIV infected. Those using recreational drugs were less likely to be HIV infected than those not using drugs; those not using lubricants were also less likely to be HIV infected than those using lubricants (Refer to figures below). There was an 11% lifetime history of injecting drugs. In multivariate analysis, drug use and use of lubricants were not associated with HIV infection.

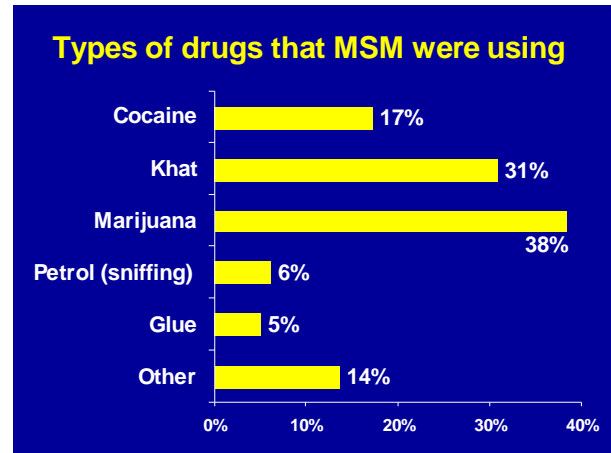


Figure showing types of recreational drugs commonly used by MSM. 25% of MSM ever used drugs.

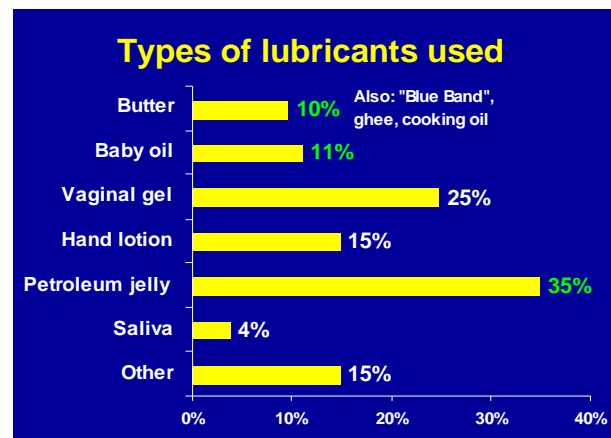


Figure showing types of lubricants commonly used by MSM; 78% ever used lubricants. Green font represents for oil-based lubricants.

### Factors not associated with HIV infection

The factors that were found not to be associated with HIV infection included education, marital status, unemployment, alcohol use, circumcision status, never having tested for HIV, increasing number of lifetime partners, history of rape, reported STD symptoms, sex with women, condom use, sex partner type and mainly receptive anal sex. For some of these factors, the survey's statistical power (sample size) may have been insufficient to detect significant associations.

## Knowledge, perceptions, stigma

### “What kind of anal sex do you think is more dangerous to get HIV?”

Eleven percent said both insertive and receptive sex posed no risk, 65% said both were equally risky, 13% said insertive was riskier and 11% thought receptive was riskier.

### “Compared to vaginal sex how important is it to use condoms for anal sex?”

Almost a half (49%) said it is more important, 41% said it is equally important and 10% said it's less important.

### “Compared to sex with women, do you think it's more or less likely to get HIV through sex with men?”

One half (50%) of participants said sex with women and sex with men carry the same risk, 12% said it's more likely to get HIV through sex with men, 38% said it is more likely to get HIV through sex with women.

### Comfort and stigma receiving STD treatment

More than a half 53% felt stigmatized by STI clinic staff, but 82% were comfortable getting STI treatment from the clinics.

### Blackmail, abuse and rape

Twenty-six percent of participants reported ever having been raped, 37% reported ever having been blackmailed and another 37% reported ever having been physically abused.

## Discussion

Stigma and prosecution impeded sampling. Almost all MSM in Kampala are Ugandan nationals. A substantial proportion of MSM have fathered children, live with female sex partners or are married, are attracted sexually

to women, have steady female partners and buy sex from women. HIV prevalence in MSM (13%) is substantially higher than among Kampala men (UHSBS 2004/5: 4.5%) and is substantially higher in older MSM than younger MSM. There is poor knowledge on HIV risk of anal sex. Commercial sex is frequent (including with women). MSM experience a high level of blackmail, abuse, and rape. Those experiencing abuses are much more likely to be HIV infected. Further research is needed about this sub-community.

### Areas where further research is needed include: -

1. Poor knowledge on HIV risk of anal sex. How poor is the knowledge of MSM on HIV risk of anal sex? What are the effects of the poor knowledge on their sexual behavior and subsequently incidence and prevalence of HIV? Have they ever had any health education?
2. Frequent commercial sex (less so with women). What factors lead to a high frequency of commercial sex?
3. Frequent multiple concurrent partnerships
4. High level of blackmail, abuse, and forced sex. What is the cause of the high level of blackmail, abuse and forced sex? Who is responsible for these acts? Have the authorities ever helped to find out why, where and how this happens?

## Recommendations

There is need to include MSM in strategic HIV/AIDS control planning. HIV/AIDS planners should work with NGOs and advocacy groups to initiate tailored interventions regarding

counseling and testing to address anal sex promote condom use, make safe lubricants available, and increase access to diagnose and treat anal STDs. MSM should be surveyed at regular intervals and at other locations throughout the country.

## CHAPTER 5 - FEMALE SEX WORKERS (FSW)

### Eligibility criteria and Sampling

Participants had to be 15 years or old and had sold sex to men in the past 30 days. They also had to be resident in greater Kampala. Sampling was carried out from June 2008 through April 2009; 947 participants were enrolled. Sampling was overall very successful. Participants sampled their peers directly, and their sex partners indirectly through referral to the study.

### Baseline demographics

The median age of participants was 26 years with an interquartile range of 22 – 31 years, and most (96%) were Ugandan nationals. On average, FSW participants had 7 years of education with an interquartile range of 5 – 9 years.

### Marriage and pregnancy

Sixty-six percent of the participants had ever been or were currently married, 91% had ever been pregnant with a median number of lifetime pregnancies of 3, and 34% had ever had an abortion. Only 66% use modern

methods of family planning, which include injectables, oral contraceptives and intrauterine devices.

### Occupation other than selling sex

Fifty-eight percent had no work other than selling sex, 16% were self employed in other professions, and 22% had gainful employment (bar maids, casual laborers, professional/technical workers, students, shop market or transport and others). Nineteen percent had ever had anal sex; 5% reported having had anal sex in the past 30 days.

### Knowledge, attitudes, practices

***“Do you agree with this statement? I am not as careful about HIV and sex now because there is better treatment for AIDS”.***

More than half (60%) agreed; 40% disagreed.

**Compared to vaginal sex, how important is it to use condoms for anal sex?** To 41% it was equally important, to 29% it was more important and to 39% it was less important.

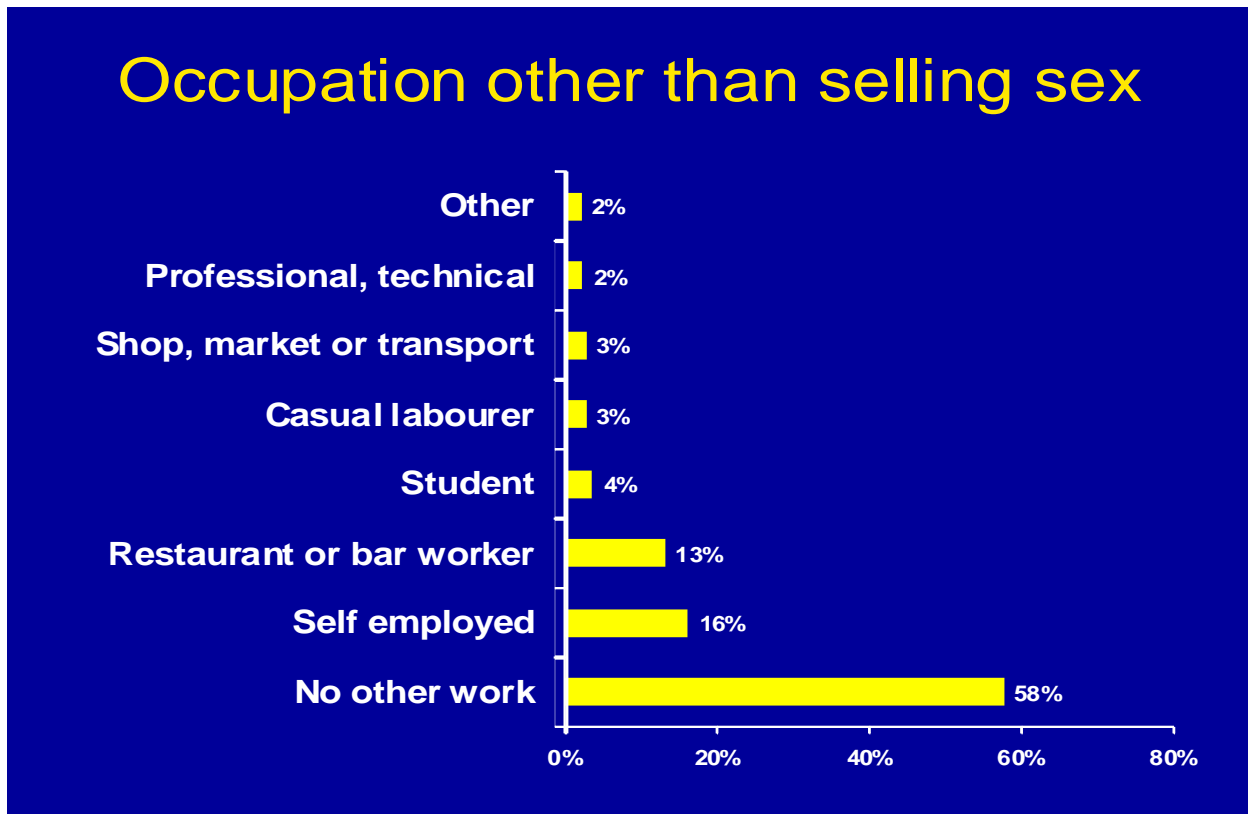


Figure showing other occupation aside from selling sex among FSWs

## Sexual behavior

### Sexual orientation and attraction

Most (91%) participants reported that they were straight/heterosexual, 7% were bisexual and 1% lesbian. Most (98%) were attracted mostly or only to men, 1% to both men and women and another 1% to mostly or only women.

### Characteristics of sex work

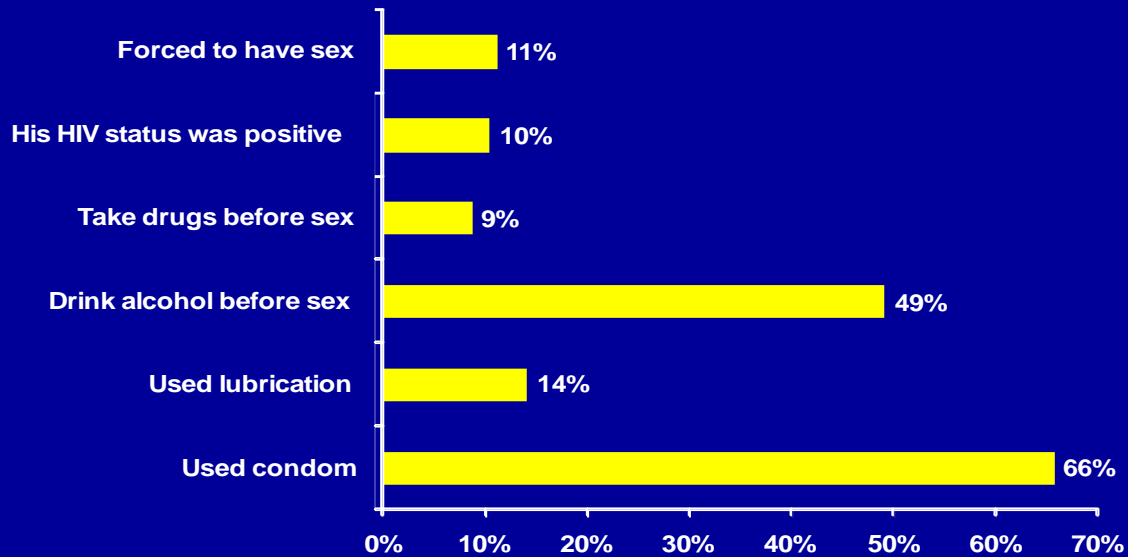
The average duration of sex work was 3 years with an interquartile range of 2-6 years. The

average amount of money a participant was paid for the last sex act was UGX 5,000 (about US dollars 2.50) with an interquartile range of UGX 3,500 – 10,000).

### Last sex characteristic for which participant was paid

Sixty-six percent reported using condoms the last time they had sex, 49% had drunk alcohol before sex and 14% had used lubrication. Nine percent had used drugs, 11% were forced to have sex, and 10% perceived their client's HIV status to be positive at last sex.

## Last sex act characteristics for which recruit was paid



*Last sex act characteristics for which FSW recruit was paid*

### Anal and vaginal sex

Nineteen percent of the participants reported ever having had anal sex, and 5% had had it within the past 30 days with a median of 3 times.

### Number of sex partners in preceding 30 days

Almost 90% of FSW had  $\geq 5$  partners within the last 30 calendar days. Specifically 51% had more than 16 partners, 18% had 10 – 15, 19% had 5 – 9 and 11% had 1 – 4.

### Sexual violence and abuse

Forty-six percent reported ever being raped in the last 30 days (recall period). All FSW

reported being beaten; the median number of times having been beaten in the last 30 days was 2.

### Prevalence of selected STIs and HIV

Sixty-eight percent of the respondents were diagnosed with an STI in the survey. Thirty-three percent had bacterial vaginosis, 33% had HIV, 22% syphilis, 9% *Trichomonas vaginalis*, 8% vaginal *N. gonorrhoeaea*, 4% rectal *N. gonorrhoeaea*, 4% vaginal *C. trachomatis* and 2% Rectal *C. trachomatis*. Refer to the figure below.

## Prevalence (95% CI) of selected STIs

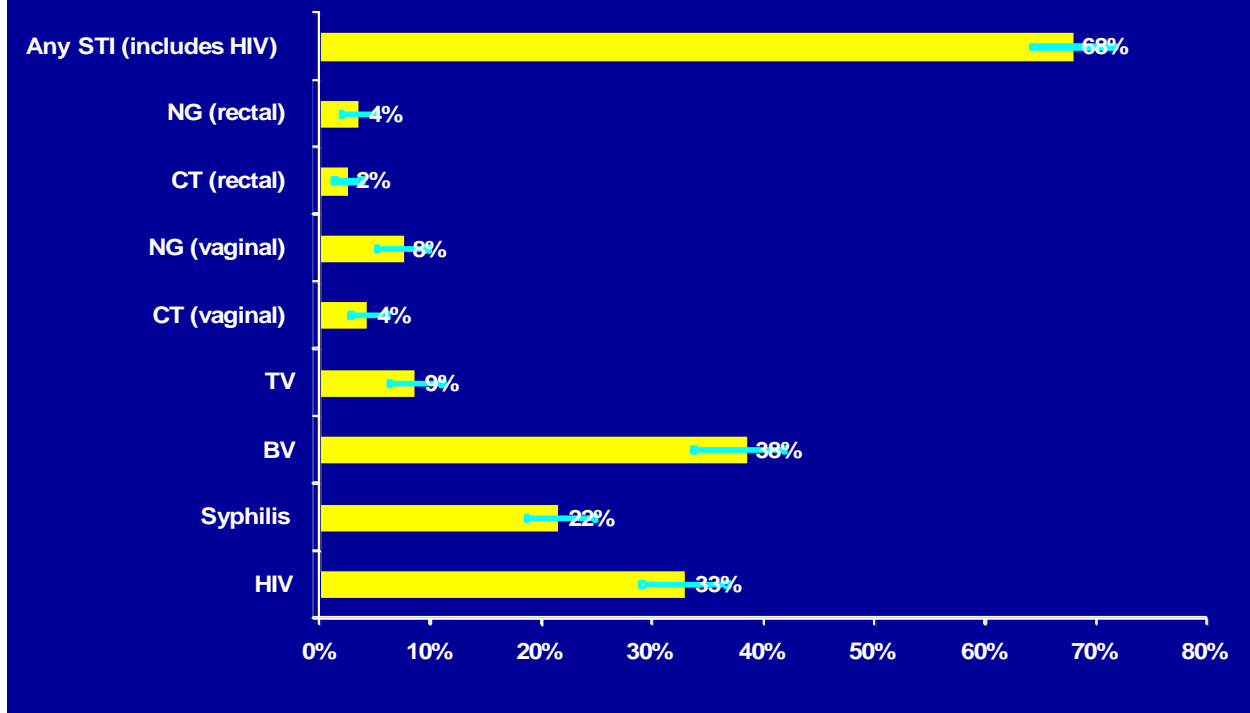


Figure showing the prevalence of selected STIs and HIV among FSWs. BV: bacterial vaginosis, TV: Trichomonas vaginalis, CT: Chlamydia trachomatis, NG: Neisseria gonorrhoea

HIV prevalence was substantially higher in older FSW (25+ years) than younger FSW (<25 years).

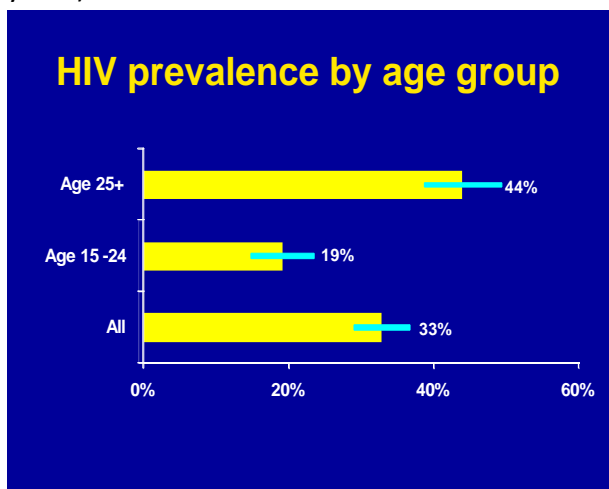


Figure showing the prevalence of HIV by age group among FSWs.

### Stated/perceived HIV status versus actual HIV status

Only 54% of the participants had ever tested for HIV, and only 8% reported an HIV positive result. One in three participants who believed were HIV infected tested HIV negative, and half of those who did not know their status were found to be HIV infected. Refer to the figure below.



Stated/perceived HIV status versus actual HIV Status			
Actual	Stated/Perceived		
	Pos	Neg	D/K
Pos	62 (7.1%)	85 (9.7%)	149 (17.0%)
Neg	31 (3.5%)	394 (45.0%)	155 (17.7%)

Figure showing the perceived versus actual HIV status

## Risk factors for HIV

### Factors significantly associated with HIV infection

FSW who are older, who ever married, who never tested for HIV, who reported STI symptoms or tested positive for STI during the survey were at higher risk of HIV infection than others. Those with a longer duration of sex work and increasing number of clients were also at higher risk of acquiring HIV.

### Factors not associated with HIV infection

Factors not found to be associated with HIV infection included: alcohol use before sex, use of recreational drugs, ever injecting drugs, increasing age since sexual debut (increasing number of years since participant became sexually active), ever had anal sex, ever been forced to have sex, syphilis infection, never using lubricants and condom use.

## Discussion

HIV prevalence in FSW (33%) is nearly three times that of Kampala women in general

population (11.5%). Older FSW (25 years plus) are at even higher risk (44%) than younger FSW (19%). The majority of the FSWs (60%) agree that ART availability makes safe sex less important.

Higher education and gainful employment were associated with lower risk of HIV infection. Violence, including sexual violence such as forced sex and physical abuse, are common problems in this group. FSW form an important bridge population to the general population. Two-thirds of the FSW are married. A high proportion engages in anal sex. Poverty, education and employment are critical structural factors that need to be addressed.

## Recommendations

There is need for further behavioural and biomedical evaluation and research among FSW in Kampala, a critical bridge population. FSW are very vulnerable population. Programs should target and scale up reduction or mitigation of sexual and other forms of violence against FSW.

There is a need to improve access to tailored counseling and testing, STI testing / treatment and provision of condoms and lubricants. There is also need for measures to improve FSW's physical safety.

## CHAPTER 6 - PARTNERS AND CLIENTS OF FEMALE SEX WORKERS (PSW)

The PSW group includes paying and non-paying male sex partners of FSW. No data are available to characterize this group.

### Eligibility criteria and sampling

Participants were 18 years old or above, resident in greater Kampala, had had sex with a female sex worker (FSW) participating in the Crane Survey in the last six months and had received a survey coupon from her. From June 2008 through April 2009, 573 participants were sampled indirectly through participating FSW. Participating FSW could refer either their clients or their non-paying sexual partners to the survey.

### Baseline demographic characteristics

Participants were of median age 27 years with an interquartile range of 23-34 years and on average had 7 years of schooling with an interquartile range of 4-11 years. Half of all PSWs had ever been married, and 49% were currently married.

### Sexual behaviour

#### Type of sexual relationship between PSW and sex workers

About half (49%) of the participants had a commercial relationship with the FSW who had referred them to the survey; 34% had casual and 17% had steady relationships. PSW in these latter two categories are collectively referred to as non-commercial sex

partners and include spouses, boyfriends or casual partners. Refer to the figure below.

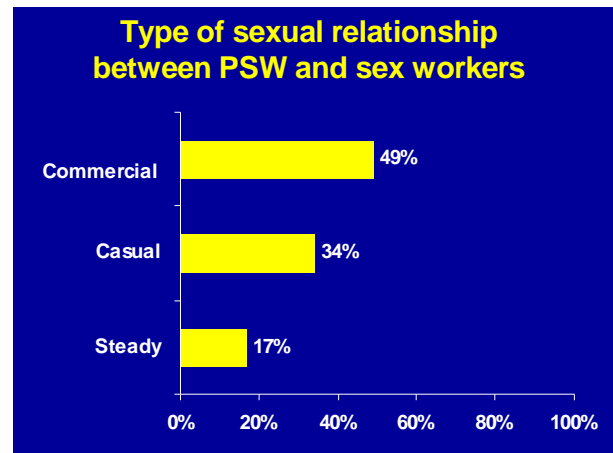


Figure showing type of sexual relationship between PSW and sex workers.

#### Sexual orientation

Eighty-nine percent of PSW identified themselves as straight or heterosexual, 8% as bisexual, and 3% as gay or homosexual. Ninety-four percent said they were mostly or only attracted to women, 6% were attracted to men, 3% to both men and women and 3% mostly or only to men.

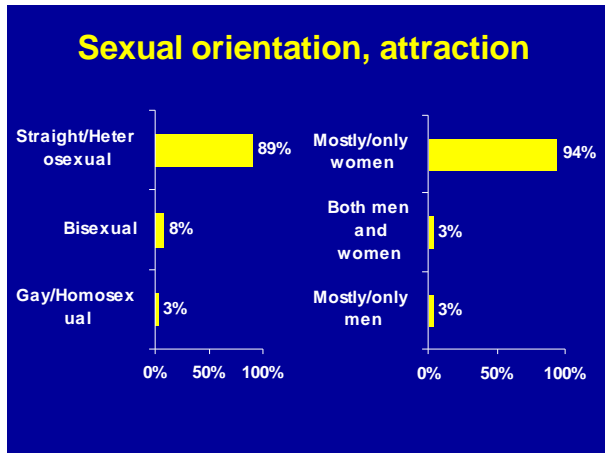


Figure showing Sexual orientation and attraction among PSWs. 3% are gay/homosexuals.

### Prevalence of HIV and selected STI

#### Prevalence of STIs

Thirty-two percent of participants had an STI (including HIV); 17.5% had HIV infection, 14% had syphilis, 34% had urethral gonorrhoea, and 2% had urethral *Chlamydia trachomatis*. Among those tested, no rectal gonorrhoea or Chlamydia infection was detected.

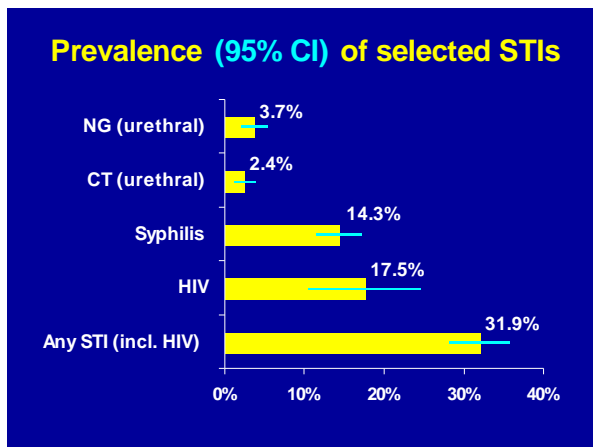


Figure showing prevalence of selected STI among PSW. NG: *Neisseria gonorrhoea*, CT: *Chlamydia trachomatis*.

### Knowledge, perceptions, practices and attitude

#### “What do you think is your HIV status?”

Eighty-one percent did not know their status,

12% thought they were uninfected and 7% thought they were infected. One third had tested for HIV previously and of these, 7.5% reported being infected. Refer to the figure below.

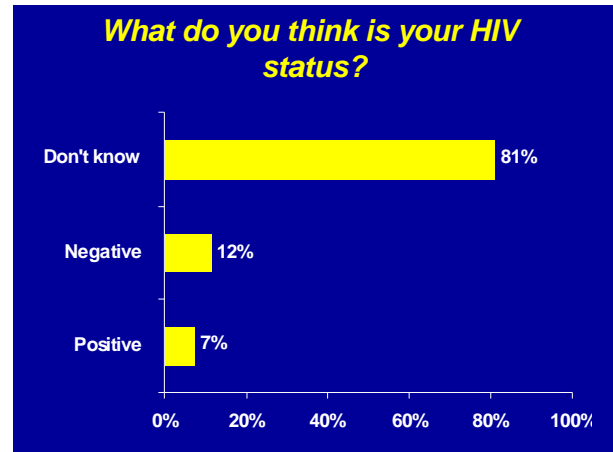


Figure showing perceived HIV status among PSWs

#### Proportion who state their HIV status correctly / incorrectly

Among participants who reported that they knew their own HIV status, 72% reported their status correctly, and 28% reported their own HIV status incorrectly.

#### Perceived vs. actual HIV status

Of the PSW who perceived themselves as HIV negative, 9% tested HIV positive, and of those who did not know their status, a quarter were found to be HIV positive.

### Perceived vs. actual HIV status

	Perceived		
Actual	Neg	Pos	D/K
Neg	10%	4%	64%
Pos	1%	4%	17%

Half of PSW who believed they were HIV-positive tested HIV-negative

Figure showing perceived vs. actual HIV status among PSWs. D/K: Don't know.

Of those who perceived themselves as infected, half tested HIV-negative. Of those who did not know their status, 17% were infected.

**Do you agree with this statement: "I am not as careful about HIV and sex now because there is better treatment for AIDS."**

Fifty-six percent agreed with this statement.

#### Stigma on seeking STD treatment

Most PSWs (82%) felt comfortable getting STI treatment while a few of them (24%) felt stigmatized by STI clinic staff (two separate questions). Refer to the figure below.

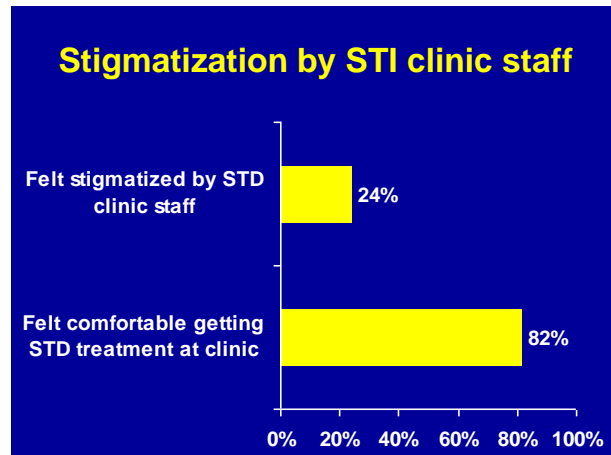


Figure showing stigmatization by STD clinic staff among PSWs.

#### HIV prevalence by age group and status

Older PSW ( $\geq 25$  years) were four times more likely to be HIV-infected than younger PSW. Both paying and non-paying PSW were equally likely to be HIV-infected with prevalences of 21% and 17% respectively. Refer to the figure below.

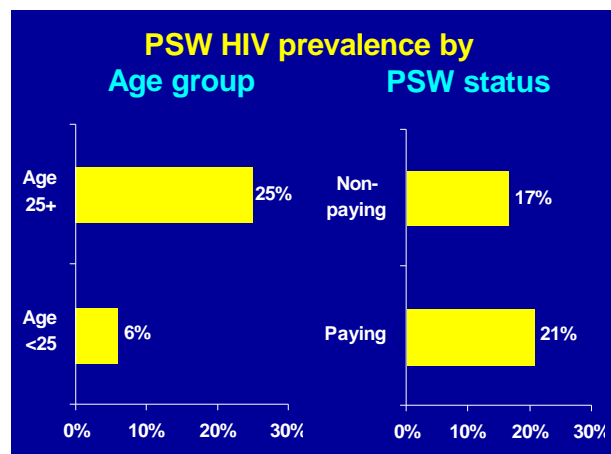


Figure showing HIV prevalence by age group and status among PSWs

#### Lubricants, condom use

19% had never used condoms, and 11% had ever used lubricants for sex.

### Reasons for not using condoms

The most frequent reason for not using condoms was not having one when it was needed as reported by 21% of the respondents. Fifteen percent didn't think of it, 14% believed their partners were HIV uninfected, 10% don't like them, for 9% the

partners objected, for 5% the partner was known to be HIV uninfected, 4% didn't feel at risk and another 5% cited "other" reasons. Only 2% reported condom affordability being an issue. Only 15% reported that they always used condoms. Refer the figure below.

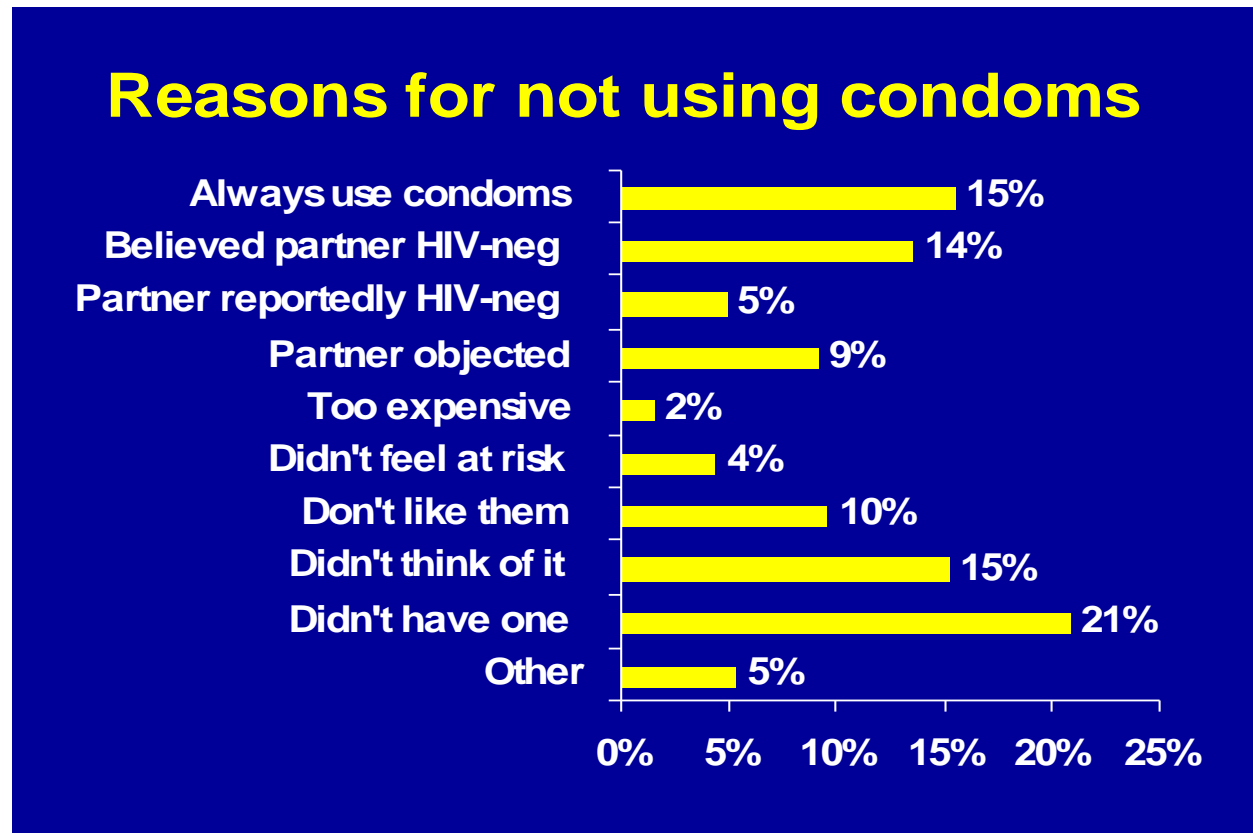


Figure showing reasons for not using condoms among PSWs. Most of them had sex without a condom because they did not have one at the time they were about to have sex.

### PSWs' lifetime exposure to anal sex

Twenty-one reported ever having had anal sex, 19% with women and 7% with men.

### Lifetime history of forced and selling sex

Eighteen percent of participants had ever been forced to have sex, 31% had ever sold sex to women and another 18% had ever sold sex to men. Selling sex was broadly defined

and included both commercial and transactional sex.

### Sex act characteristics the last time participant (PSW) had sex with FSW

Slightly more than half (51%) of the participants had drunk alcohol the last time they had sex, 43% used a condom, 13% had used drugs, 6% reported having had forced

the partner into sex and 1% had anal sexual intercourse.

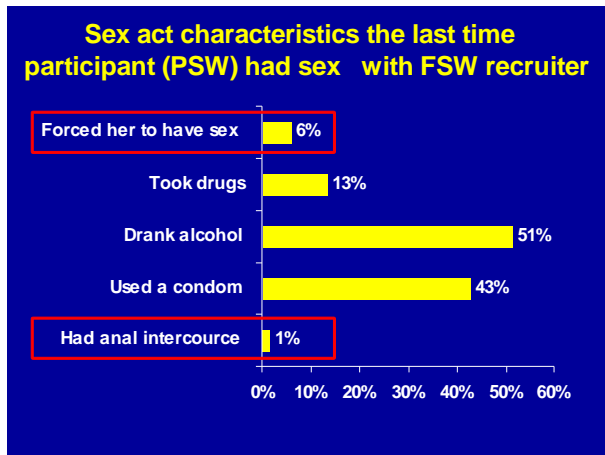


Figure showing Sex act characteristics the last time participant (PSW) had sex with a FSW.

### Condom use by PSWs' perception of FSWs' HIV status during the last sex act

There was little difference in condom use by perceived HIV status of female partner. Forty-five percent of those who did not know the FSW's HIV status, 44% of those who thought she was HIV infected and 39% of those who thought she was uninfected used a condom.

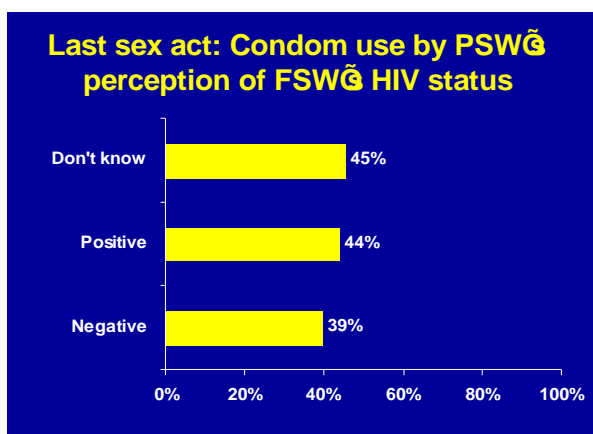


Figure showing condom use at last sex act by PSW's perception of FSW's HIV status.

### Number of female sex partners in last six months, by sex partner

PSW had a median of two casual sex partners, one steady partner, bought sex from a median of five women and had sold sex to a median of two women.

### Number of sex partners of PSW in last six months (all types combined)

About 75% of the participants reported having had 5 or more partners in the last six months. 39% had 16 or more sex partners, 16% had 10 – 15, 23% had 5 – 9 and another 23% had 1 – 4. Generally, the median number of lifetime partners reported by the PSWs was 21. Refer to figure below.

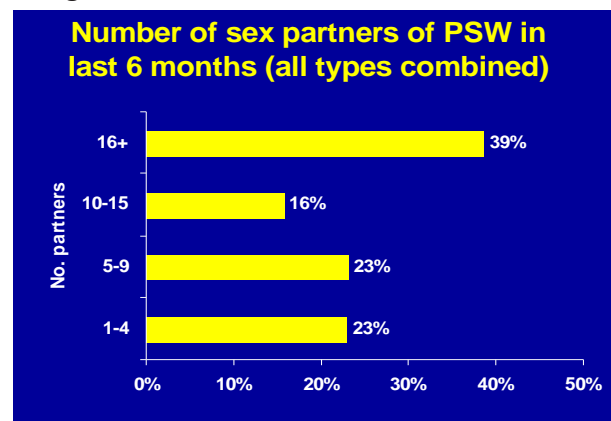


Figure showing the number of sex partners of PSW in the last six months. More than a third had at least 16 and more sex partners.

### Self-reported STI-related symptoms in last 12 months

More than a half (58%) of PSW reported at least one STI symptom in the past 12 months. The most common self-reported STI-related symptoms in the last 12 months were urethral discharge or burning sensation (41%) and genital ulcer (39%).

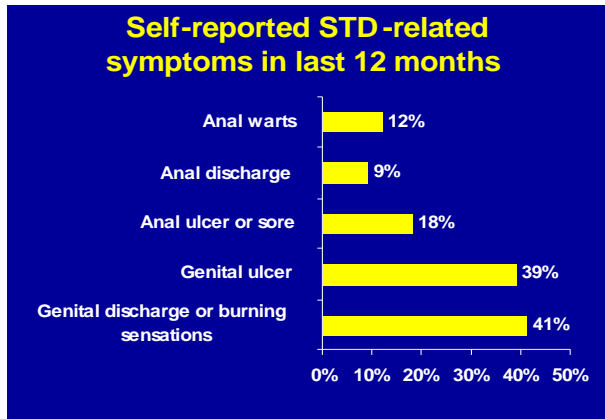


Figure showing self-reported STI-related symptoms in last 12 months among PSWs.

### Risk factors for HIV

#### Factors associated with HIV infection

PSW participants who never used lubricants were eight times more likely to be HIV infected; unemployed or ever married PSW were four times more likely to be infected. Those with any reported STI symptoms were two and a half times more likely to be HIV infected.

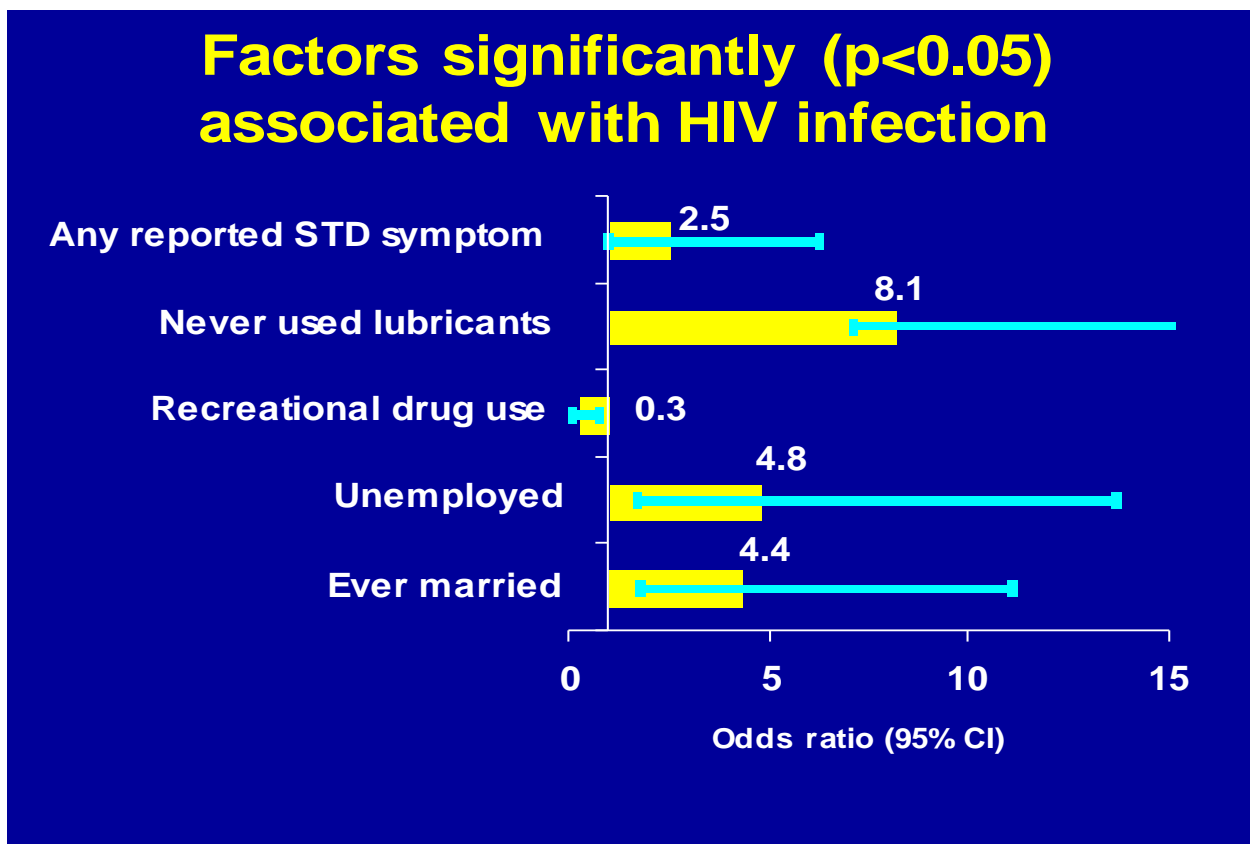


Figure showing factors significantly associated with HIV infection among PSWs

#### Factors not associated with HIV infection

Factors not associated with HIV infection among PSW included education, alcohol use, circumcision status, never having tested for

HIV, number of lifetime partners, history of rape, sex with women, condom use, and sex partner type.

## Discussion

PSW have a large number of sex partners and many are married. Anal sex, same sex behaviour and lack of condom use are also not uncommon. Selling sex is frequent among PSW. PSW have second highest HIV prevalence in the groups surveyed in the Crane Survey, and their prevalence was almost four times higher than the general adult male population surveyed in Kampala in 2004/5 (Uganda HIV/AIDS Sero-Behavioural Survey). Many PSW are not clients but boyfriends and spouses of FSW. PSW have a

large number of partners and presumably a high partner turnover. A small proportion of PSW admit having had forced their recruiting FSW into sex.

## Recommendations

Clients of FSW are an important target group for HIV control programmes and need to be included in AIDS control plans. Transactional sex should be made as safe as possible through condom provision, STD testing and treatment, and also addressing sexual violence.



## CHAPTER 7 - BODA-BODA RIDERS IN KAMPALA

“Boda-boda riders” in Kampala are motorcycle taxi drivers.

### Eligibility criteria and sampling

Participants were 18 years or older, of male sex, and resident in greater Kampala and earned the majority of their income from their work as boda-boda riders. A total of 694 participants were sampled between July 2008 and March 2009.

### Demographics

Their median age was 26 years with an interquartile range of 22 – 30 years, 68% were currently married, 56% had fathered children, and their median years of education was 9 with an interquartile range of 7 – 13 years.

### Sexual behavior

#### Sexual orientation, attraction

Eighty-four percent identified themselves as straight/heterosexual, 12% as bisexual and 4% as homosexual. Ninety-five percent were attracted to mostly or only women, 3% said they were mostly or only attracted to men and only 1% of the participants were attracted to both men and women. Refer to figure below.

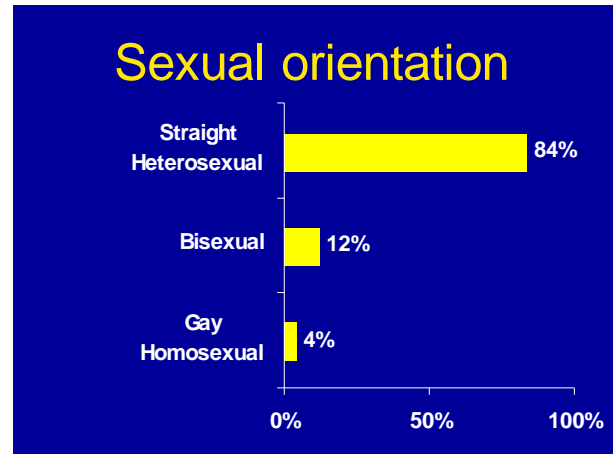


Figure showing sexual orientation among boda-boda riders in Kampala, March 2009

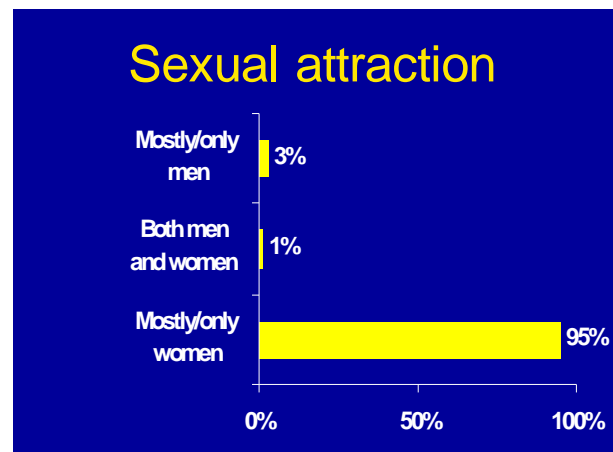


Figure showing sexual attraction among boda-boda riders in Kampala, March 2009

#### Knowledge, attitudes, practices

**“I am not as careful about HIV and sex now because there is better treatment for AIDS.”**

Approximately half agreed that they were not as careful about HIV and sex because there is better treatment for AIDS.

**“Compared to vaginal sex, how important is it to use condoms for anal sex?”**

Fifty-eight percent said it was more important to use condoms for anal sex than for vaginal sex, 17% thought it was equally important to use condoms for vaginal and anal sex, and 25% indicated that it was less important to use condoms for anal sex than for vaginal sex.

### Sexual history

The median age at first sex was 17 years. Seventy-nine percent of participants had ever used a condom, 3% had sold sex to women,

10% had ever been forced into sex, 9% had ever had anal sex with women, 4% had ever had sex with men and 7% had ever used lubricants (Refer to the figure below). Ten percent of participants to the survey reported sexual violence. Of these, 49% said the violence was perpetrated by a sex partner, 10% by a family member/relative, 22% by a friend or acquaintance, 11% by an authority figure, 6% by strangers and 2% by others.

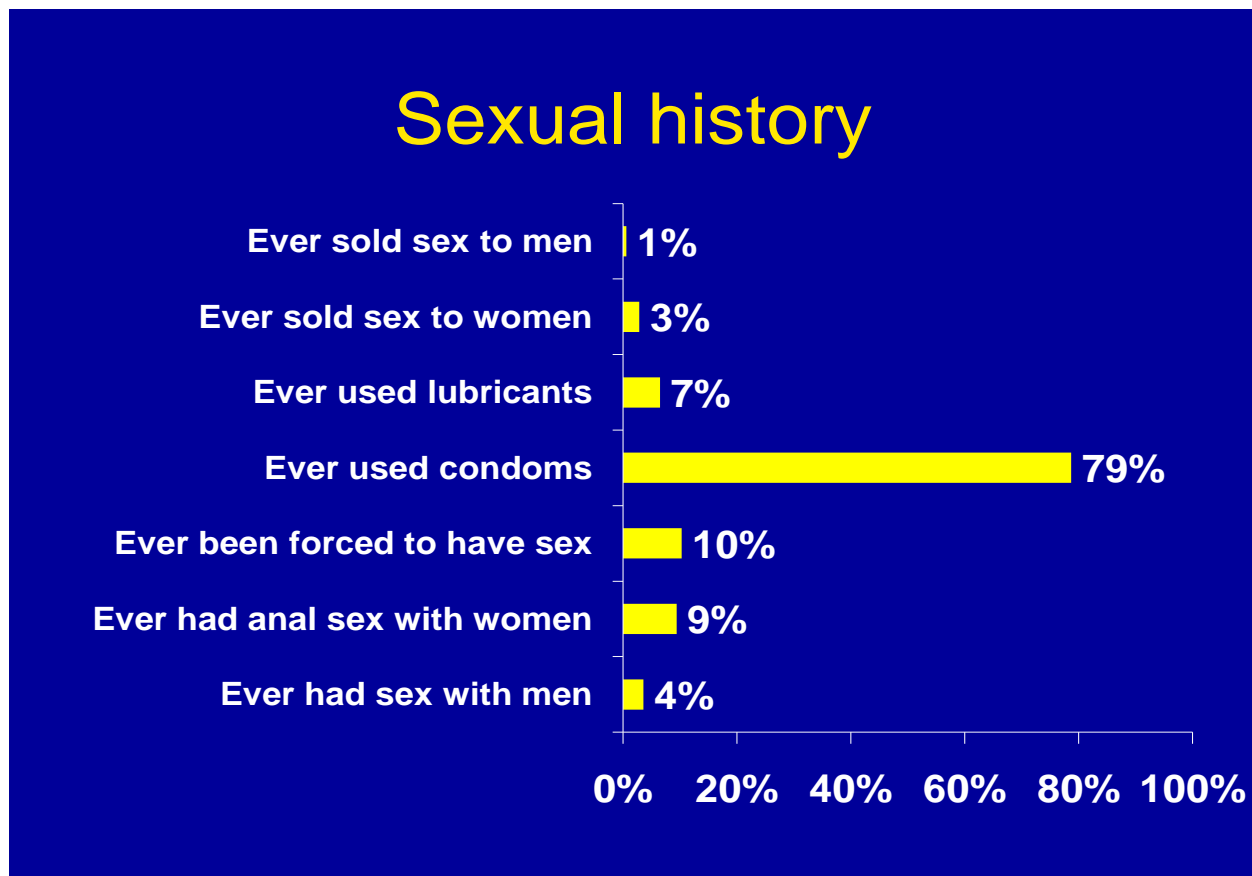


Figure showing sexual history among boda-boda riders in Kampala, March 2009. Most of them had ever used condoms.

### Multiple male sex partners in the past 6 months

Seven percent of participants reported having had sex with at least two male casual sex partners, while 8% reported sex with two steady male sex partners. Ten percent had

had one or more casual male sexual partners and 15% had more than steady male partners.

### Multiple female sex partners in the past six months

Twenty-one percent of boda riders reported having sold sex to at least two women while 78% bought sex from at least two women.

### Sex with women

Almost all (96%) of respondents had ever had sex with a woman. In the last six months, the median number of times they had had vaginal sex was 6 (IQR: 3, 12); only 33% had used a condom, and zero (on average) had anal sex. However, 9.3 % had ever had anal sex with a woman.

### Sex with men

Only 3.6% of the boda riders reported ever having had anal sex with a man.

### Commercial female sex partners

Ten percent of the sampled boda-boda riders reported buying sex from women in the past six months. Of these, more than three quarters (78%) had bought sex from two or more women.

### Median number of both male and female sex partners by partner type – past 6 months

Boda-boda riders bought twice as much sex from women than they sold to them. The median number of women that bought sex from boda riders was 1. This was half the median number of women that recruits bought sex from which was 2. None of the respondents had a casual sex partner, but the median number of steady sex partners was 1.

### Last sex act with female

Thirty-six percent of participants had used a condom the last time they had had sex, 22% had drunk alcohol and 3% had used drugs; only 1% had anal sex. Thirty-one percent reported that they did not know her HIV status; more than half (63%) said they thought she was negative, and 6% thought she was positive.

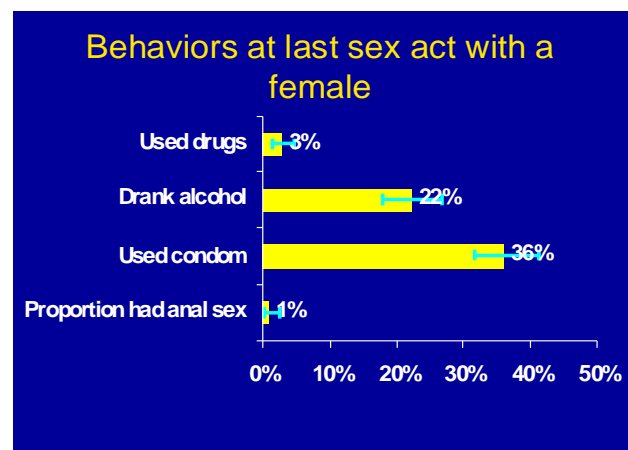


Figure showing behaviours at last sex act with a female among boda-boda riders. Only 1% had anal sex with a female.

### Drug and alcohol use

More than half (54%) of the boda riders had ever drunk alcohol, and 12 % had drunk it in the last 30 days. Sixteen percent ever used illegal drugs, and 2 % had ever injected drugs.

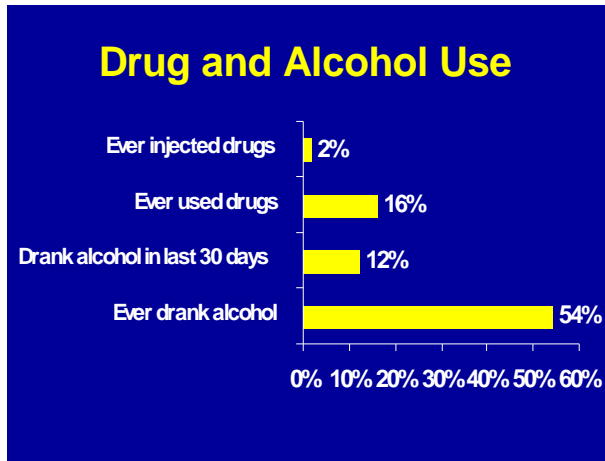


Figure showing drug and alcohol use among boda-boda riders in Kampala, March 2009. More than half of them ever drank alcohol and only 2% had ever injected illegal drugs.

## Prevalence of HIV and selected STIs

Fourteen percent of participants had ever had an STI (including HIV); 7.5% were HIV infected, 6.1% had syphilis, and 1.1% had urethral *Chlamydia trachomatis*. There was only 1 case of urethral gonorrhoea.

### Prevalence of reported STD symptoms in the past 12 months

The most prevalent symptoms among the boda-boda participants were genital ulcers and urethral discharge with rates of 34% and 31% respectively. Anal discharge was the least prevalent with 7% followed by anal warts at 10% and symptoms of anal ulcer or sore at 12%.

### HIV prevalence by age group

The general prevalence of HIV was 7.5%. However, respondents aged 25 years and above had thrice the chance of being HIV positive (10.9%) compared to those below 25 years (3%).

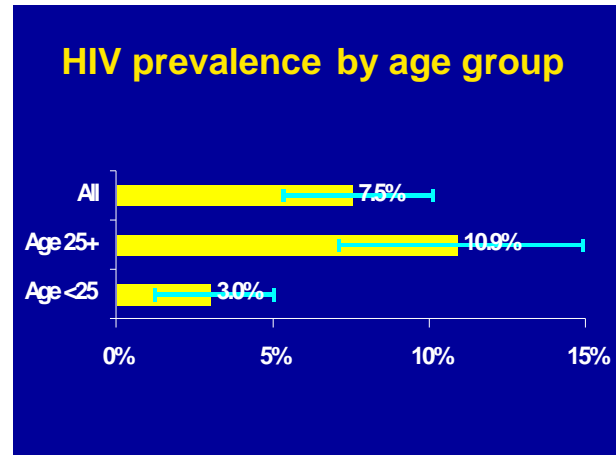


Figure showing prevalence of HIV by age group among boda-boda riders in Kampala, March 2009

### HIV testing History

Only 37% have ever had an HIV test, and of these only 1% reported that they were HIV-infected.

## Risk factors for HIV

### Factors associated with HIV infection

Factors associated with HIV were any reported STI symptom, age 25 and above, ever having been married, unknown HIV status, and alcohol use before sex.

### Factors not associated with HIV infection

Factors not associated with HIV infection include Increasing education, drug use, circumcision, ever having sex with men, condom use, never using lubricants, ever having anal sex, engaging in casual sex, large number of lifetime sex partners, ever been forced to have sex and any other STI.

## Discussion

Older boda-boda riders (25+ and above) have three times higher prevalence of HIV than younger boda-boda riders (10.9% v. 3.0%).

HIV prevalence in boda-boda riders (7.5%) is higher than that of Kampala men in the general population (4.5%, The Uganda Health and Behavioral Survey 2004/05). More than 25% of boda-boda riders reported multiple sex partners, and a high proportion of boda-boda riders practice transactional sex. Boda-boda riders also report same-sex attraction and anal sex with both women and men. Self-

reported STD symptoms are much higher than confirmed STI results.

### **Recommendations**

Peer education programmes among boda-boda riders should be emphasized. STI testing and management for boda-boda riders should be encouraged. Continued HIV related surveillance among Boda-boda riders may be warranted.

## CHAPTER 8 - UNIVERSITY STUDENTS

One of the groups surveyed were university students enrolled in major Kampala universities.

### Eligibility criteria and sampling

Participants were students enrolled in one of five major Kampala universities for at least one year. They had to be aged between 19 and years, and must have made their sexual debuts. Virgin students presenting a coupon were not included in analysis but were asked to refer their peers to keep the recruitment chains intact. Six hundred forty-four students were sampled from September 2008 through April 2009 from five major universities in Kampala. These were Kyambogo University, Kampala International University, Kampala University, Makerere University and Makerere University Business School. Both men and women could refer participants of either gender and any of the five universities. The sampling was very successful as the population was non-stigmatized and well networked. Refer to the figure below for more information.

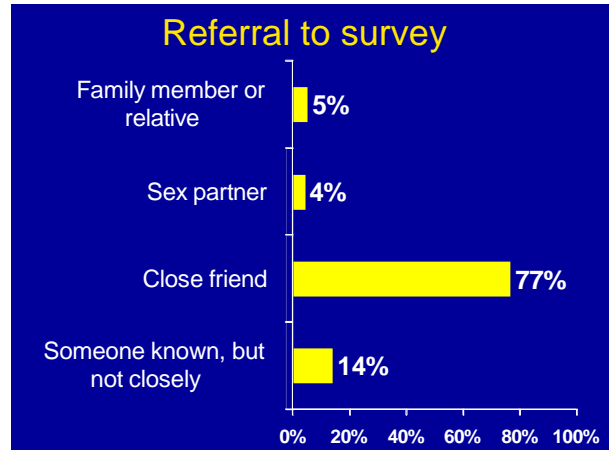


Figure showing referral to the survey by fellow university students. More than three quarters of those referred were close friends with those who referred them networking.

### Ineligible screened participants

Eight hundred seventy-three were screened, and 694 (79%) were eligible. Of the ineligible students, 62 students had never had sex and the rest were outside the eligible age range or had spent less than one year at the university.

### Baseline demographics

The median age of participants was 22 years, and the majority were Ugandan nationals (94%). 43% were female.

As for religion 36% were Protestants, 32% Catholics, 18% evangelical Protestants, 12% Muslims, 2% Adventists and 1% did not have a religion.

### Marriage and cohabitation

Most of the university students sampled (94%) did not live with a sex partner. Only 5% lived with their sex partners but were not married, and only 1% of them were married.

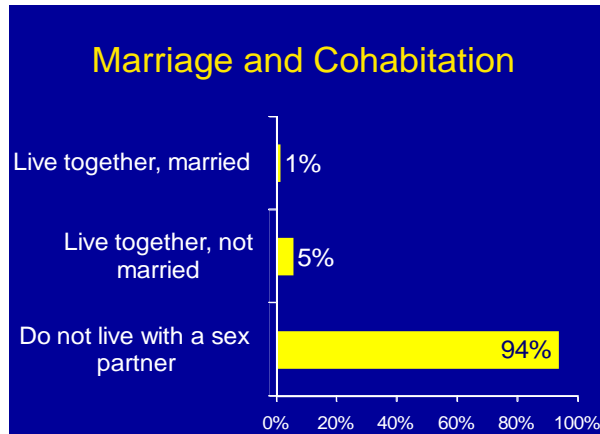


Figure showing marriage and cohabitation among university students from the sampled universities. Most (94%) of them did not live with a sex partner.

### Pregnancy and fatherhood

Of all female students, 25% had ever been pregnant, and 18% had ever had an abortion. Nine percent of the men had fathered children.

### Baseline demographic summary

Nearly all Participants were Ugandan. Almost all were unmarried or cohabitating, some have already been pregnant and others fathered children, and they represented many of Uganda's major religions. The majority reported mostly/only opposite-sex attraction with large proportions reporting bi-sexuality. There is anecdotal evidence however that some students may have misperceived the term "bisexual".

## Sexual behaviour

### Sexual attraction and orientation

**Males:** The majority (95%) said they were mostly or only attracted to women. 3% were attracted to both men and women, while those attracted to mostly or only men were 2%.

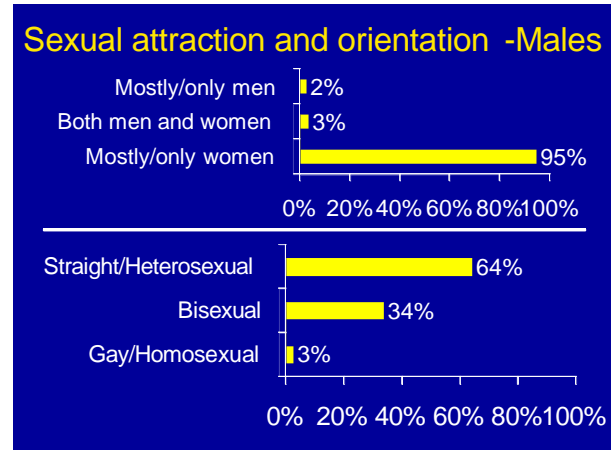


Figure showing sexual attraction and orientation among male university students.

In a previous male same-sex survey by Kajubi et al. (2007), students represented 45% of MSM who were less than 25 years old.

**Females:** Most females (91%) said they were mostly or only attracted to men, 5% to both men and women, 2% to mostly or only women and another 2% were not attracted to either.



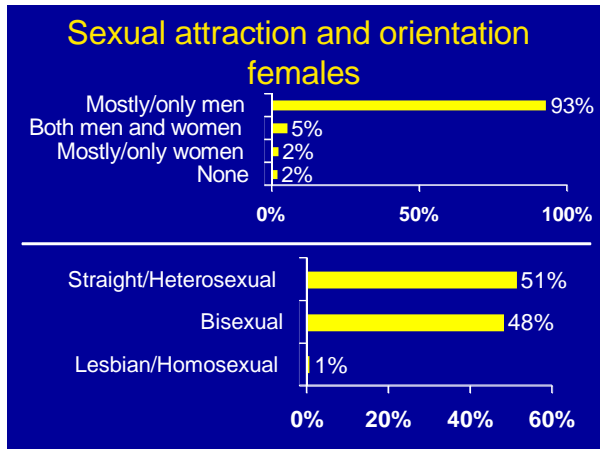


Figure showing sexual attraction and orientation among female university students.

### Number of times males had sex with females

In the last six months, the median number of times that males had vaginal sex with women was 9 with an interquartile range of 2 – 19. The median number of times that males had anal sex with women was 2 with an interquartile range of 1 – 9, half (50%) of them using a condom. No male had ever had oral sex with a woman.

### Number of times males had sex with males

Six percent of all university males reported having sex with another man in the past six months. The median number of times males had insertive anal sex with a man was 0 with an IQR of 0 – 1, half (50%) of them using a condom. The median number of those who had receptive anal sex with a man was 0 with an IQR of 0 – 2, a third (33%) using condoms.

### Males reporting multiple sex partners by partner type in the past 6 months

Most male students who reported multiple sex partners had more than two steady

female partners and more than two casual female partners. Refer to the figure below.

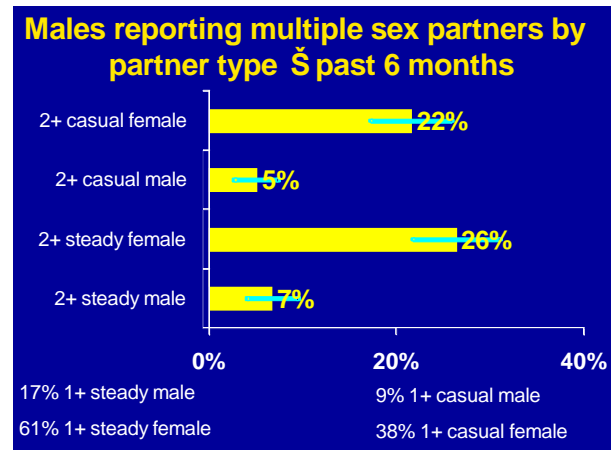


Figure showing male respondents reporting multiple sex partners by partner type in the past 6 months among sampled universities students.

### Females reporting multiple sex partners by partner type in the past six months

27% of female students reported multiple sex partners (2 or more). Refer to the figure below.

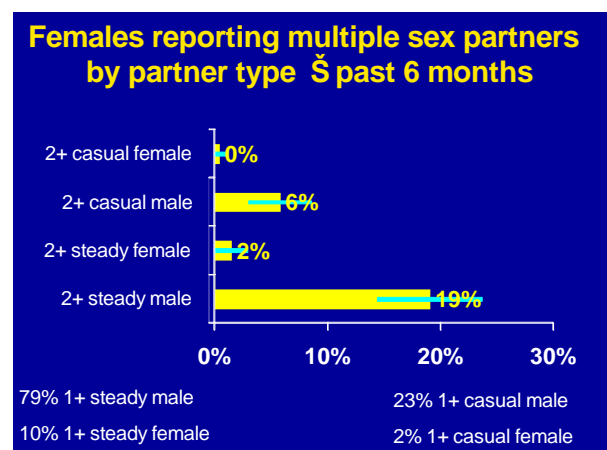


Figure showing female respondents reporting multiple sex partners by partner type in the

past 6 months among sampled universities students.

### Ever had anal sex

5% of the male participants had ever had anal sex while 6% of the females had also had anal sex.

### Sex with university lecturers

Three percent of all participants reported having had sex with a lecturer in the last six months. Of these, 1.4% were males and 2.9% were females.

### Last sex act characteristics

#### Females

At last sex act, more than a third of the female university students had used condoms, 6% had been forced to have sex, 3% had drunk alcohol, and only 1% had used drugs.

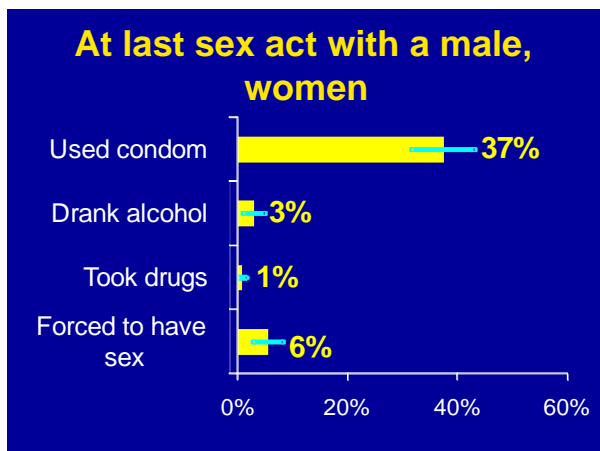


Figure showing the last sex act characteristics of females with a male partner. Median age of last male partner was 25 years.

#### Males

At last sex act, almost a half of the male university students used condoms, 8% had drunk alcohol, 1% had used drugs, and 0.3% had anal sex.

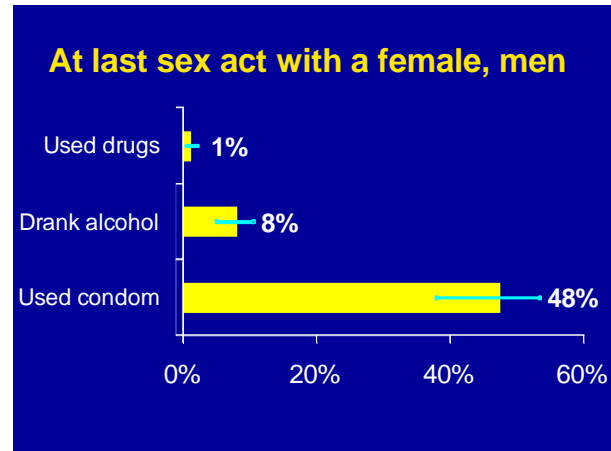


Figure showing the last sex act characteristics of males with a female partner. The median age of last female partner was 20 years.

### Prevalence of HIV and selected STIs

Eighteen percent of students had an STI (including HIV and bacterial vaginosis (BV)); 3.1% had syphilis and 0.6% had HIV.

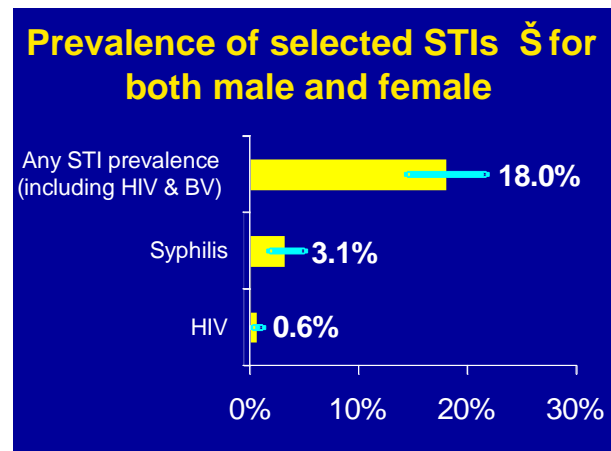


Figure showing the prevalence of selected STIs for both male and female university students. BV: Bacterial Vaginosis

#### Males

Among males, 5.7% had any STI including HIV, 4.7% had syphilis and 0.9% had urethral Chlamydia. The HIV prevalence was 0.6% and there was no case of urethral gonorrhoea. Refer to the figure below.

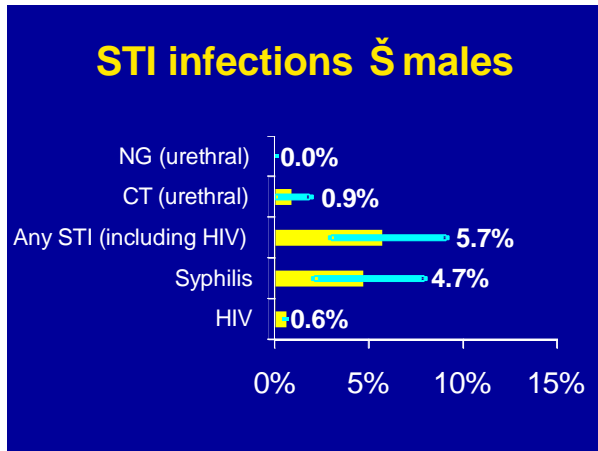


Figure showing STI infections among male respondents from the sampled universities. Syphilis was the single most common STI in this group. CT: Chlamydia trachomatis, NG: Neisseria gonorrhoeaea

**Females**

Among the females, 31.8% had at least one STI. Bacterial vaginosis was the most commonly diagnosed infection, all other infectious agents were present in less than 2% of female students: 1.7% had syphilis, 1.6% had vaginal Chlamydia, 1.3% had vaginal gonorrhoea and 1.2% had *Trichomonas vaginalis*. The HIV prevalence was 1.4%, and there was only 1 case of rectal gonorrhoea. Refer to the figure below.

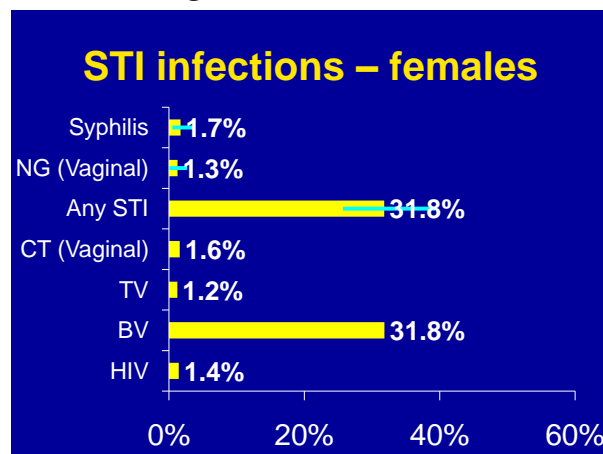


Figure showing STI infections among female respondents from the sampled universities.

TV: *Trichomonas vaginalis*, BV: bacterial vaginosis.

**Knowledge and perceptions**

**Perceived HIV Status**

Only 55% of the respondents in the sampled universities had ever had an HIV test. Most of those who perceived themselves as HIV infected were actually uninfected. Almost all respondents who perceived themselves as uninfected were actually uninfected, and almost all respondents who did not know their status were uninfected. Refer to figure below.

Actual	Stated or Perceived		
	Positive	Negative	D/K
Positive	3 (0.4%)	1 (0.2%)	2 (0.3%)
Negative	7 (1.1%)	467 (75.0%)	143 (23.0%)

Figure showing perceived against actual HIV status among university students.

**Do you agree with this statement?**

**“I am not as careful about HIV and sex now because there is better treatment for AIDS”**

Ninety-three percent did not agree to the statement while 7% agreed to it.

**“Compared to vaginal sex, how important is it to use condoms for anal sex?”**

Forty-two percent said it was more important, 38% equally important and 20% less important.

### Stigma and health care seeking behaviours

Most students (71%) felt comfortable getting STI treatment at a clinic while 18% felt stigmatized by STI clinic staff.

### KAP Summary

Just over half of the sampled students had ever tested for HIV. Nearly three in five did not know their HIV status. Over 90% report still being careful about HIV even in the era of treatment, a large proportion have good condom use knowledge, and most do not feel stigmatized when seeking STD treatment.

### Partners HIV status

Almost half (47.2%) of the students did not know their partners' HIV status. Slightly more than a half (50.8%) thought their partners were HIV uninfected, and 2.1% thought they were infected.

### Prevalence of reported STD symptoms

The commonest STI symptom was genital discharge (reported by 33.8% of students), followed by genital ulcer symptoms which 24.6% of students reported. Ten percent of the respondents had anal ulcers or sores, 4.4% reported anal discharge and 3.1% reported anal warts. Refer to the figure below.

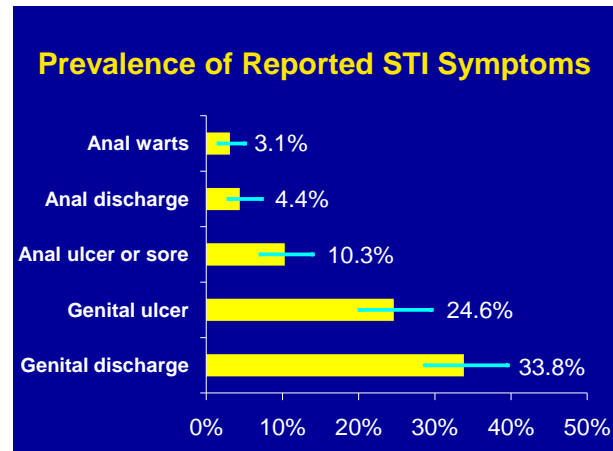


Figure showing the prevalence of reported STI symptoms among university students.

### Biomarkers and behaviours –summary

There is a high prevalence of reported STI symptoms despite extremely low HIV and low STI prevalence. The majority of the students only reported one sex partner for the past 6 months. There are reports of anal sex with same-sex and opposite-sex partners, there is a low frequency of sex with university lecturers and less than half reported condom use at last sex act.

### Discussion

HIV prevalence among university students was extremely low (0.6%), despite sub-optimal condom use at last sex. Both male and female students reported having anal sex. A high proportion (57%) did not know their HIV status. There is little attitudinal complacency towards HIV in the era of treatment. Few students, males and females, reported having sex with lecturers. The median age of female University students was similar to that of their male partners (22 and 25 years, respectively). There are frequent reports of bisexuality (misperceptions of this

terms appear possible), steady and casual same-sex partners, however, the majority of males and females only reporting one sex partner in the past 6 months.

### **Recommendations**

University students in Kampala do not constitute a HIV high risk group. HIV

prevention messages should be continued in this population to maintain and further decrease the low HIV prevalence. HIV and STI prevention strategies should be made accessible.

## **CHAPTER 9 - CROSS-GROUP OBSERVATIONS**

### **Rationale**

The rationale of the cross-group observations was to recap the key findings, put MARP-specific behaviours in context and demonstrate that MARP-specific behaviours are overlapping.

### **Objective**

The main objective was to provide a cross-group comparison for the most common outcomes / indicators for all the surveyed groups.

### **Marriage**

Generally, marriage is common among most MARPs. More than two-thirds (68%) of boda riders, almost two-thirds of (66%) of FSW, almost a half (49%) of PSW and 20% of MSM are currently married. University students were not asked about their marital status.

### **Sexual attraction**

#### **To mostly or only men**

In general, male-to-male sexual attraction was found in all surveyed male groups. Ninety-eight percent of FSW and 91% of female university students were mostly or only attracted to men (heterosexual attraction). More than two thirds (70%) of MSM, 3% of boda riders, 3% of PSW and 2% of male university students were mostly or only attracted to males.

#### **To mostly or only women**

Ninety-five percent of male university students, 95% of boda riders, 94% of PSW and 19 % of MSM were mostly or only attracted to women. Only 2% of university students and 1% of FSW were attracted to females (same sex attraction among females).

#### **To both men and women**

Twelve percent of MSM, 3% of PSW, 1% of boda riders, 1% of FSW, and about 4% of students were attracted to both men and women.

Same sex attractions are more common in males than are in females.

### **Sexual history**

#### **Ever had sex with a woman**

All (100%) PSW, 96% of boda riders, 88% of male university students and 78% of MSM have ever had sex with a female (heterosexual activity). Six percent of FSW and 2% of female university students had ever had sex with a woman.

#### **Ever had sex with a man**

All MSM, all FSW, 7% of PSW and 4% of boda riders had ever had sex with a man. 7% of PSW and 4% of boda riders can be considered MSM. There are no direct data for male university students on this indicator.

#### **Ever had sex with both men and women**

Seventy-eight percent of MSM, 7% of PSW and 6% of FSW have ever had sex with both men and women. However, none of the

university students or boda riders had ever had sex with both men and women.

### **Ever sold sex to men**

All FSW, more than a third (36%) of MSM, 18% of PSW, 1% of university students and 1% of boda riders had ever sold sex to men. 1% of boda riders and 18% of PSW had ever engaged in male-to-male commercial sex.

### **Ever sold sex to women**

Almost one third (31%) of PSW, 24% of MSM, 9% of boda riders, 3% of FSW and 2% of university students had ever sold sex to women. It may not be rare for women to be customers of transactional / commercial sex.

### **Median number of commercial partners, participants sold sex to in recall period**

All groups surveyed reported having sex in varying numbers and frequencies. The median numbers of commercial partners participants sold sex to in the recall period is 15 for FSW, 4 for MSM, 2 for PSW 1 for university students and 1 for boda riders.

### **Ever forced to have sex**

Forced sex is a frequent life event in all groups surveyed. Forty –six percent of FSW, 26% of MSM, 19% of university students, 18% of PSW and 10 % of boda riders had ever been forced into sex.

### **Proportion reporting ever having had anal sex**

All MSM, 21% of PSW, 19% of FSW, 6% of female university students, 5% of male university students and 4% of boda riders reported ever having had anal sex. Anal sex occurred in all groups surveyed.

### **Ever tested for HIV**

There is a relatively poor uptake of HIV testing among classic MARPs, and there is little correlation between testing and HIV prevalence. More than half of university students (55%) and FSW (54%) had ever tested for HIV. Less than half of the MSM (44%), boda riders (37%) and PSW (33%) had ever tested for HIV.

### **Do you agree with this statement: “I am not as careful about HIV and sex now because there is better treatment for AIDS”.**

Except among university students, there are high rates of complacency in the era of ART. More than half of FSW (60%), PSW (56%), and boda riders (51%) agreed to not being careful about HIV and sex now, because there is better treatment for AIDS. Almost half (49%) of MSM, but only 7% of university students agreed with the statement.

### **Proportion of who ever run short of condoms**

Forty-two percent of PSW, 40% of MSM, 36% of FSW 32% of boda riders and 17% of university students have ever run short of condoms. From participants’ reports, there are high rates of condom unavailability in times of need.

### **Proportion reporting at least one anal STD symptom in the last 12 months**

More than one third (36%) of MSM and almost one third (31%) of FSW did report at least one STI symptom in the last 12 months. Also 25% of PSW, 18% of boda riders and 13% of university students reported the same. The reported symptoms include anal ulcers/sores, discharge, and warts.



### Ever injected drugs for pleasure

There was a lifetime history of injecting drugs among all groups. There is almost twice as much (12%) of MSM who have used injectable drugs as compared to PSW (7%). Also 5% of FSW, 2% of boda riders and 0.5% of university have ever injected drugs for pleasure.

### HIV prevalence

The Uganda Health and Behavioral Survey 2004/05 revealed a prevalence of 12% for women aged 15 – 49 years, 4.5% for men aged 15 – 49 years, and 3.8% for youths

(males 0.6% and females 6.3%) aged 15 – 24 years. Among the MARPs, the prevalence was 33% for FSW, 18% for PSW, 13% for MSM, 8% for boda riders and only 0.6% for university students. The prevalence ratio for MARPs to the general population (same sex, similar age group) was triple for FSW, PSW and MSM and double for boda riders but only one-sixth for university students. University students were disregarded as a MARP because of the very low prevalence of HIV compared to the general population. Refer to figure below.

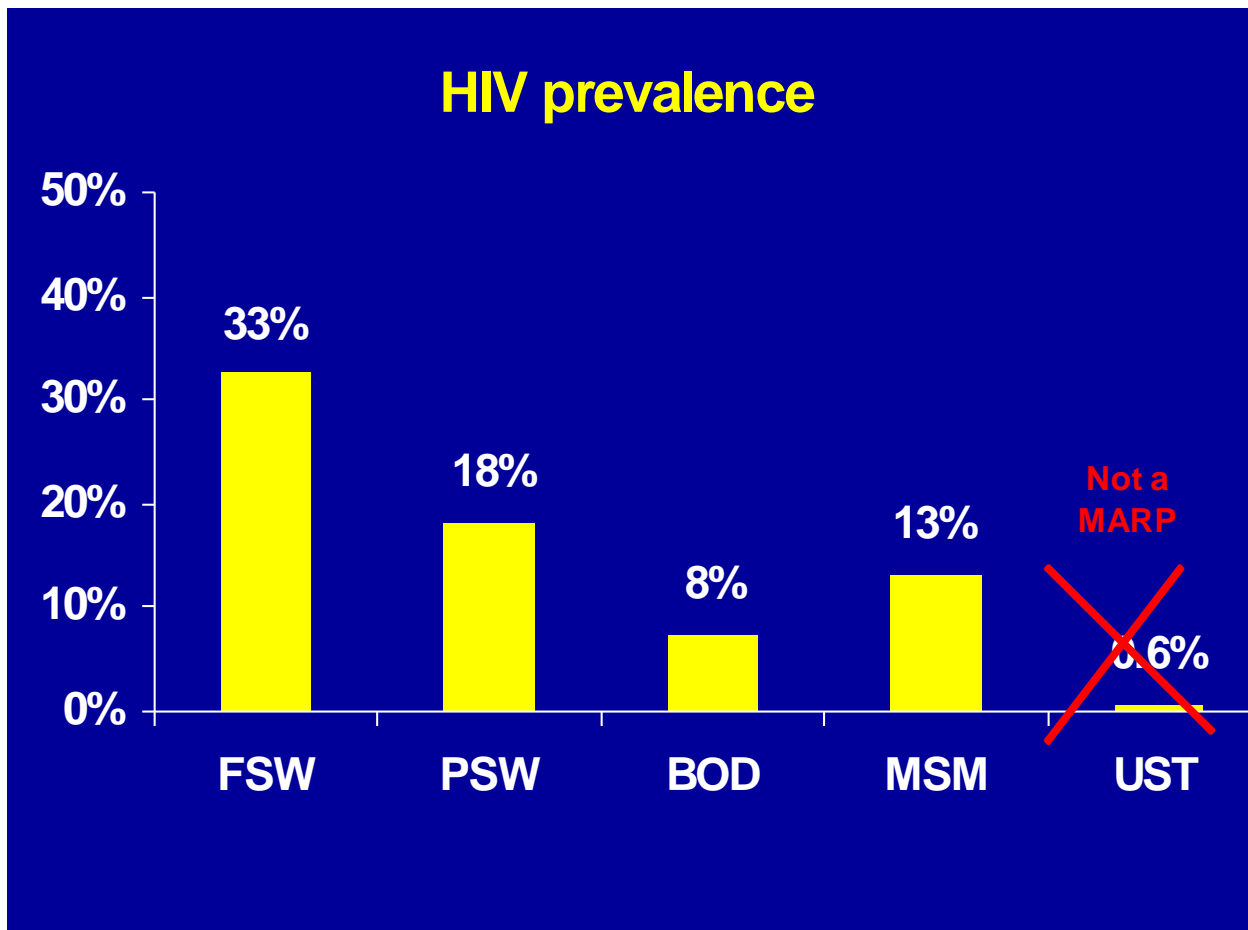


Figure showing a bar graph of HIV prevalences of FSW, PSW, boda riders, MSM, and university students. University students are disregarded as a MARP due to the low HIV prevalence compared to the general population.

### Comparison of HIV prevalence of overall age groups to those <25 years old and those ≥25 years in each MARP group

FSW less than 25 years are more than one and half times less likely to be found infected

compared to the overall age group. PSW, boda riders and MSM who are less than 25 years were three times less likely to be found HIV infected compared to the overall age groups of each group.

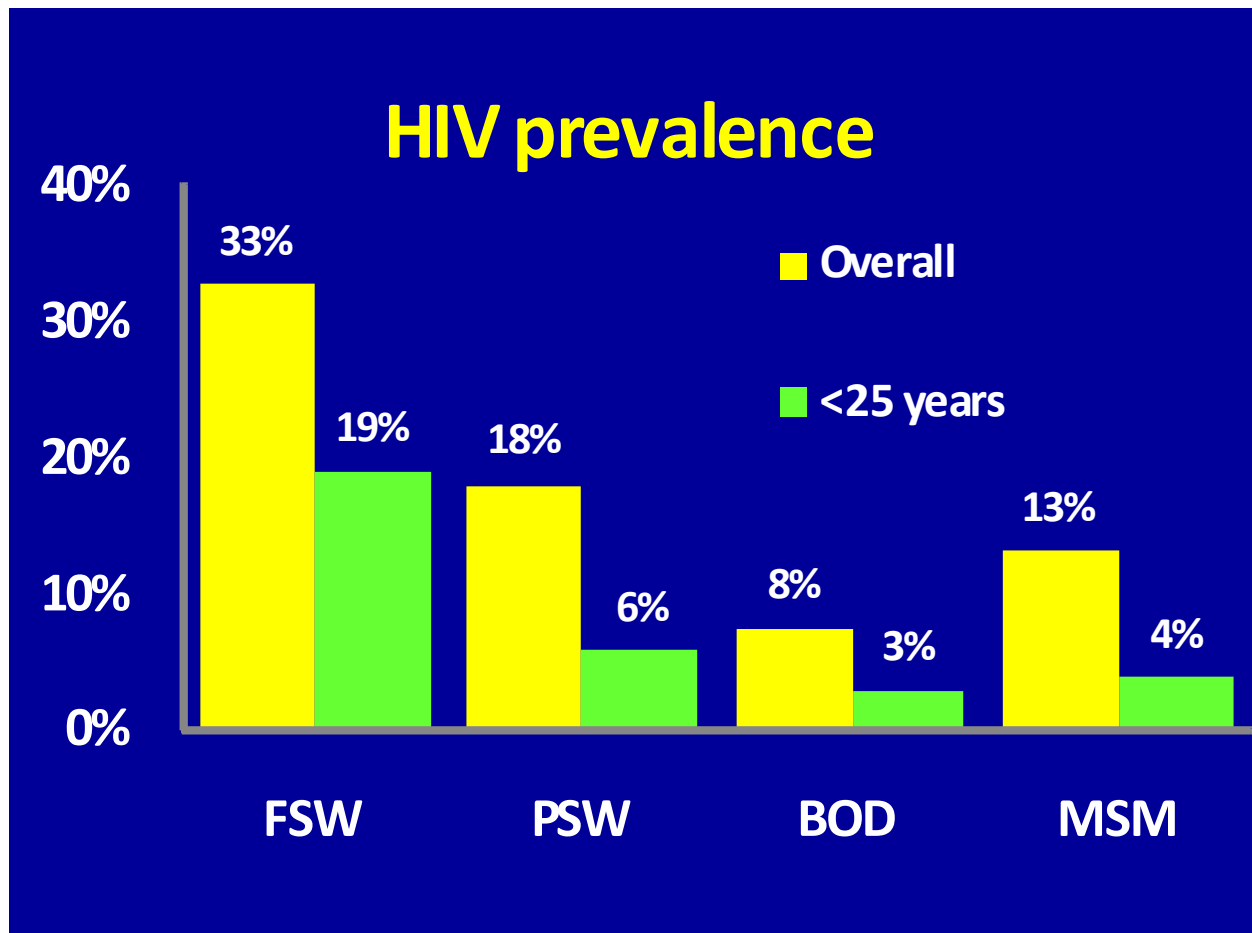


Figure showing a bar graph of HIV prevalence among different MARP groups. The groups were categorized into general, <25 years, and ≥25 years of age. University students were not included because they were all <25 years old.

Among MSM, participants who were 25 years and above were 5.4 times more likely to be HIV infected compared to those below 25 years of age. Older (25 years and over) PSW,

boda riders, and FSW were also 4.2, 3.6, and 2.3 times respectively more likely to be found HIV positive compared to those below 25 years of age. Refer to figure below.

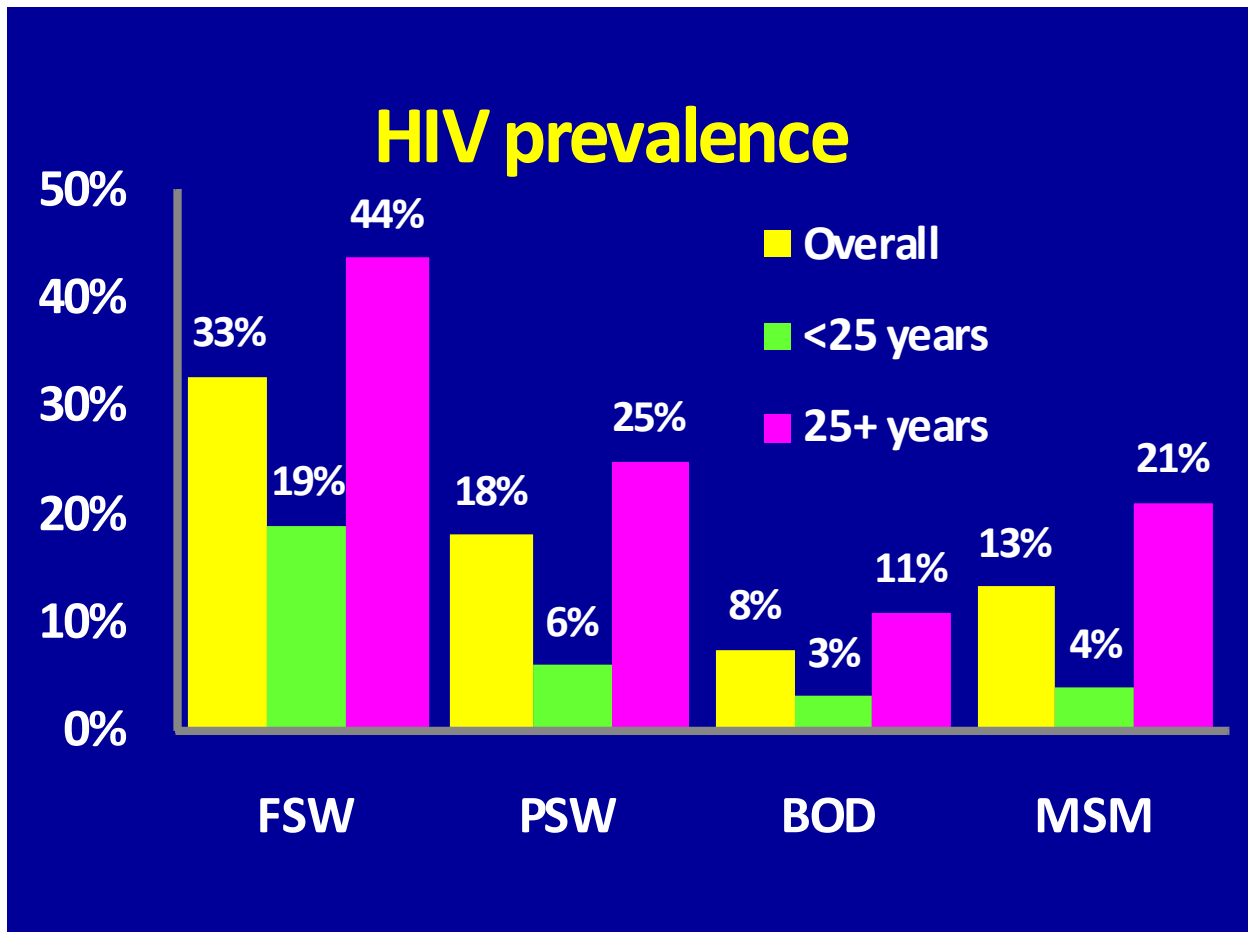


Figure showing a bar graph of HIV prevalences of FSW, PSW, boda riders and MSM categorized into general age group, <25 years and ≥25 years of age.

### Discussion

There are many married MARPs; they exhibit same sex attractions and have had consequent same-sex activity occurring among them. All MARP groups take part in transactional / commercial sexual activities and commonly experience forced sex, which is most frequent among sex workers. Older aged MARPs were much more likely to be HIV infected than younger ones in all groups except for university students.

### Conclusions

University students have a much lower HIV risk than the general population, and, thus, are not a MARP. FSW, PSW, and MSM have an HIV prevalence thrice as high as that of the general population. Boda riders' HIV risk about is twice that of the general population. Neither high-risk behaviours nor high-risk people are exclusive, i.e., isolated from the general population. To various degrees MARP-specific behaviors are present in all groups surveyed. Persons at high-risk are frequently married, have children, and have non-vaginal and commercial sex.

## CHAPTER 10 - POLICY AND PROGRAMMING

### IMPLICATIONS OF SURVEY FINDINGS

#### **UN principles for MARP policy programming**

According to the UN principles for MARP policy programming, actions must be grounded in an understanding of and commitment to **human rights** as per the **rights-based approach**. Actions must also be informed by **evidence** as per the **Know Your Epidemic**. **Partnerships** and the resultant synergies by involving the health sector, communities, the private sector, NGOs, UN, donors, etc are imperative in MARP policy programming.

#### **UNAIDS recommended interventions and services**

UNAIDS recommends safe access to information and education about HIV, STIs and other health hazards. It also recommends condom and lubricant provision, HIV counseling and testing, STI services, and sensitising health care staff to MARPs' specific issues and needs.

#### **What we have done so far in Uganda?**

##### **Current status of HIV services for MARPs**

There is no direct government involvement for most services to MARPs. Generally, the HIV services for MARPs are patchy with poor coverage and are poorly coordinated. There is also limited or no funding and no or little evaluation of effectiveness.

#### **Challenges in service provision**

According to the "Mapping of Programs and Interventions Targeting Most-At Risk and Vulnerable Population in Uganda", 2009, there are many challenges experienced in providing HIV services to MARPs such as fishing communities, internally displaced persons (IDP), truckers, FSW and MSM.

##### **Fisheries**

Fishing communities receive mobile prevention services, home-based VCT, behaviour change communication (BCC), condoms, and antiretroviral therapy (ART). However, HIV/AIDS prevention services have limited funds, which jeopardize outreach, and capacity.

##### **IDPs**

IDPs have a full range of services from prevention to ART, but there reportedly is inadequate health infrastructure and an uncoordinated approach.

##### **Truckers**

Truckers receive BCC, VCT and condoms and have been surveyed in the past, but only very limited funding is available for them.

##### **FSW**

FSW receive condoms, BCC, sports activities, magnet theatre, rehabilitation, and family

planning services. However, the challenges faced while providing services to FSW include minimal funding, understaffing and FSW's high mobility.

## **MSM**

Virtually no tailored services are available for MSM. To a minimal degree they receive sensitisation and awareness provision services, but there is a grave challenge posed by their illegal status, which impedes service provision. MSM are not covered in the National Strategic Plan 2007/8 – 2011/12. This is a crucial missed opportunity for prevention and treatment in curbing the HIV/AIDS epidemic. The Ugandan government is not listed as a direct service provider for MSM.

### **Are Some MARPS more illegal than others?**

Behaviors defining Intravenous drug users (IDU), MSM and FSW are all prohibited by Ugandan law. However, while there are no harm reduction activities for IDU or risk reduction for MSM in Uganda, there are HIV/AIDS control activities for FSW, though in just a few districts.

### **How much do we spend on MARPs?**

According to the National Strategic Plan 2007 – 2012 (Data for 2008/9), approximately US \$ 200,000 is allocated to FSW and their clients, but there is no allocation to MSM or IDU programmes. Among uniformed personnel, US \$ 2.5 million is allocated to the military and US \$ 5.5 million to prisoners, prisons staff, and the police. However, the total budget for

HIV/AIDS expenditure is approximately US \$ 347 million.

In neighbouring Kenya, the KEMRI (Kenya Medical Research Institute) Ethics Committee Chairman, Ambrose Rachier was quoted as saying *"You do not ignore a population because of their status in law. Even in prison, men are having sex with men. They have rights to health too and you cannot in your HIV interventions afford to ignore the group"*. Also from Kenya, *"... highly cost-effective Interventions are in high-risk groups defined by specific behaviors or Situations, such as prisoners, MSM, IDUs, sex workers, and fishing communities."*

The Kenya the National AIDS Strategic Plan includes MSM programmes with cost estimates in 2009 at US \$ 1million and 2012 at US \$ 3 million.

### **Are we doing enough for MARPs?**

Almost all HIV/AIDS control funding in Uganda is intended for non-commercial heterosexual HIV prevention, prevention of mother-to-child transmission (PMTCT) of HIV, and blood safety. The illegality and stigma has led to neglect of MARPS. Where MARP programmes exist there is poor coverage, unknown quality, lack of effectiveness, and little government involvement.

### **What could or should we do?**

As a reminder, we label MARPS at our own risk. Risk behaviours are often overlapping. All groups surveyed engage in anal sex, same sex, selling sex, buying sex, and using drugs to various degrees.

## **MARPs are really part and parcel of Uganda's HIV epidemic**

High-risk behaviours are practiced to varying degrees in the general population such as transactional sex as a form of commercial sex ("something for something love"), anal sex among heterosexuals, same-sex intercourse among "straight" people, and wide spread legal (alcohol) and illegal drug use.

### **Barriers for HIV prevention**

HIV prevention among MARPs in Uganda has many barriers. There is little presence of FSW and marked absence of MSM, PSW, and IDU in the national AIDS control plan with generally low funding levels for MARP-specific activities. There is also associated criminalisation of risk behaviours, and stigmatisation, persecution and abuse of MARPs. In addition, there is infrequent or poor measurement of high-risk behaviours among MARPs; and HIV AIDS services are not tailored to MARPs needs.

### **Strengthening strategic information (SI) on MARPs**

There is a glaring gap for strategic information on MARPs, one that the Crane Survey attempts to help fill. SI activities need to measure anal sex, same-sex activity, drug use, commercial sex, stigma, abuse, sexual violence, and access to (tailored) health services in all HIV-related surveys. There is also a need to map and estimate the frequency (size) of high risk behaviours and groups.

## **What is the public health benefit to criminalizing MARP-specific behaviours?**

There is essentially no public health benefit in criminalising MARP-specific behaviours. Literature suggests that decriminalisation for commercial sex and homosexuality; access to services for MSM; and the harm reduction approaches for IDU are imperative to control of disease in high-risk populations.

### **Improving services for MARPs**

Condoms and water-based lubricants should be provided for sex workers and MSM; counseling and testing should involve probing for high risk behaviours; and STI services need to diagnose and treat anal STIs.

### **Statement by UN Secretary General (BMJ 2009)**

In August 2008 Ban Ki-moon, the UN Secretary General said *"In countries without laws to protect sex workers, drug users and MSM, only a fraction of the population has access to prevention. Conversely, in countries with legal protection and the protection of human rights for these people, many more have access to services. As a result, there are fewer infections, less demand for antiretroviral treatment and fewer deaths. Not only is it unethical not to protect these groups: it makes no sense from a health perspective. It hurts all of us"*. Some countries in the world persecute people guilty of same-sex acts. About eight or more countries carry out the death penalty, and others including Uganda imprison them from

about 11 years to life. However, some countries do protect people who practice same-sex behaviours while others have no specific legislation. Refer to the figure below.

### Are we ready to acknowledge that anal sex is not uncommon?

A report from Cape Town, South Africa by Kalichman revealed that 14% of men and 10% of women reported heterosexual anal intercourse.

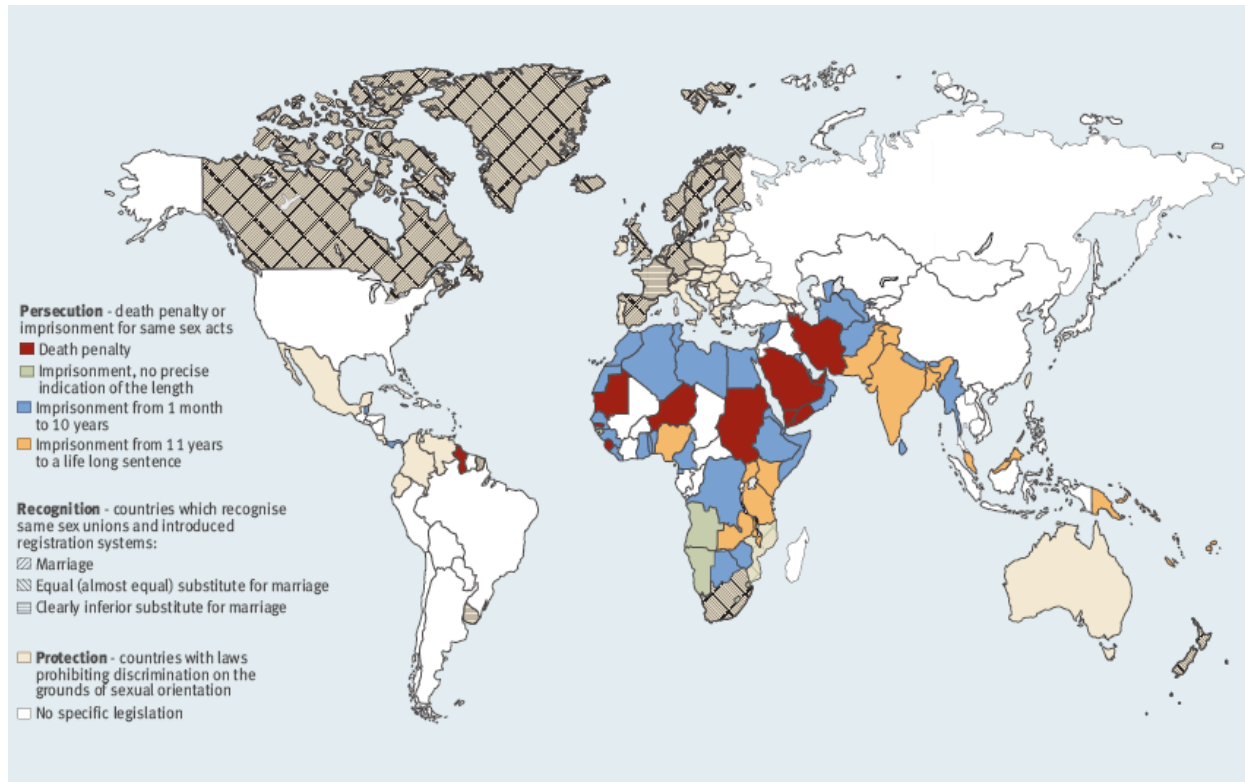


Figure showing countries in the world that persecute, recognize or protect same-sex acts.

## Conclusion

Continued MARP surveillance appears warranted. There is also a need to reflect anew on the distribution of new infections

and the specific needs of MARPs for HIV prevention in Uganda. The government needs to promote improved access to tailored MARP services, and donors should be more attentive to MARP programming.



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### **3000+ survey participants**

**Crane Survey summary data**

	<b>FSW</b>	<b>PSW</b>	<b>MSM</b>	<b>BOD</b>	<b>UST</b>
Number of participants	934	573	303	700	693
HIV prevalence	33%	18%	13.7%	7.4%	0.6%
Having at least one STD*	68%	32%	22%	14%	18%
Ever having had anal sex	19%	7%	100%	3.4%	5%
Same-sex or bi-sexual attraction	2%	5%	81%	4%	6.6
Ever same sex intercourse	6%	7%	100%	3.4%	3.6%
Ever selling sex	100%	35%	40%	13%	3.6%
Ever forced to have sex	46%	18%	26%	11%	19%

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\*Including HIV, syphilis, gonorrhea, chlamydia, trichomoniasis (women).