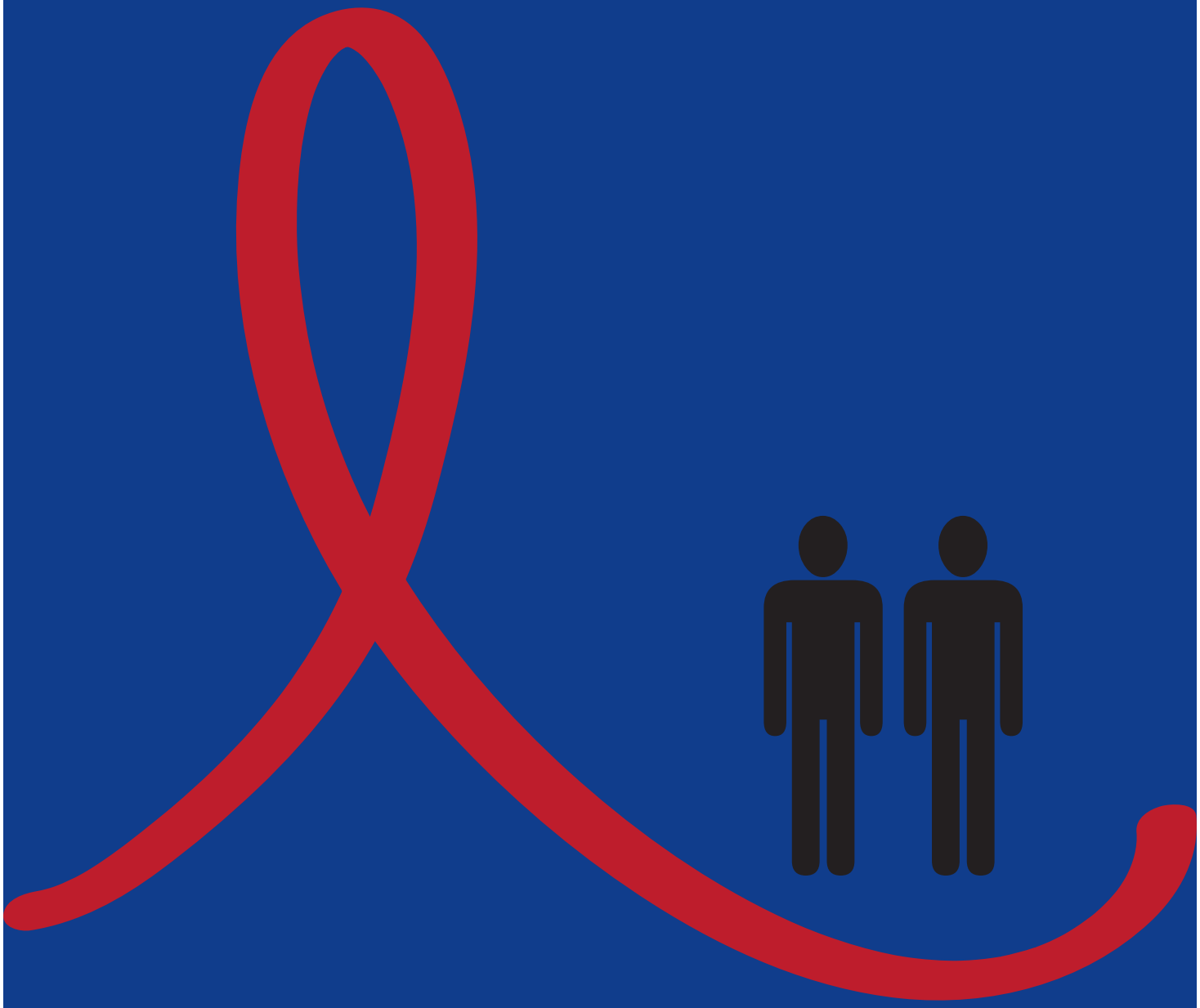
Exploring HIV Risk among MSM in Kigali, Rwanda



Exploring HIV Risk among MSM in Kigali, Rwanda

Dr. Agnes Binagwaho ▪ *Ministry of Health, Rwanda*

Jenifer Chapman ▪ *MEASURE Evaluation, Futures Group International, USA*
Andrew Koleros ▪ *MEASURE Evaluation, Futures Group International, Rwanda*
Yves Utazirubanda ▪ *MEASURE Evaluation, Futures Group International, Rwanda*
Elisabetta Pegurri ▪ *UNAIDS, Rwanda*
Rose Gahire ▪ *AIDS Healthcare Foundation, Rwanda*

Table of Contents

List of Tables

List of Figures

Acknowledgements

The study was led by the National AIDS Control Commission (CNLS) of Rwanda, with technical assistance from MEASURE Evaluation and financial assistance from UNAIDS and USAID. This study was managed by a committee housed at CNLS. The insightful and reliable contributions of committee members, Dr. Anita Asiimwe, Executive Secretary of CNLS; Justus Kamwesigye, M&E Specialist at USAID; and Marie Claire Nyiransabimana, Head of Research Department at PSI/Rwanda, are gratefully acknowledged.

This project would not have been possible without the three study staff – also management committee members: Yves Utazirubanda, Celestin Ndikumana and Reine Kamagaju. Their dedication and commitment in pursuing this story and, with that, the rights of MSM in Rwanda is commendable. We thank Walter Obiero, MEASURE Evaluation/Futures Group and Sharon Weir, MEASURE Evaluation/UNC for their expert review of the study protocol and data collection tools. We are grateful to Cheikh Traoré, Senior Advisor, Sexual Diversity, UNDP for his expert review of this report. Finally, we give our sincere thanks to study respondents and workshop participants for their generosity and honesty in answering our questions and for sharing their unique experiences with us.

List of Acronyms

BSS	Behavioral surveillance study
CCU	Consistent condom use
HIV/AIDS	Human immune deficiency virus/Acquired immune deficiency syndrome
IRB	Institutional review board
MSM	Men who have sex with men (man who has sex with man)
PLWH	Person/People living with HIV
RWF	Rwandan Franc
STI	Sexually transmitted infection
UIC	Unique identifier code
UNGASS	United National General Assembly
URAI	Unprotected receptive anal intercourse

Executive Summary

This report presents findings from a behavioral surveillance study (BSS) of men who have sex with men (MSM) in Kigali carried out in 2008-2009. The aim of this study was to describe the population of MSM in Kigali and explore the nature of sexual activity between MSM.

This study utilized a snowball sampling strategy involving peer recruiter/s with a double-incentive structure. That is, men completing the questionnaire were asked to recruit their friends, acquaintances and sexual partners into the study and they received a small incentive for completing the study and for each eligible respondent that they recruited. The questionnaire was interviewer-administered and took approximately one hour to complete.

Ninety-eight (98) MSM aged 18 to 52 years, participated in the study. Key results include:

- Ninety-four respondents reported previous anal sex with another man, and 88 reported anal sex with another man in the 12 months prior to survey. Men reported an average of two male sexual partners in the 12 months prior to survey (median; mean=3.4; range: 1 to 36).
- Thirty-seven respondents reported casual sex in the one month prior to survey and 18 of these men reported unprotected sex with a casual sex partner in this timeframe.
- MSM have wide sexual networks. Sex with men whilst traveling outside Kigali was commonly reported. One-quarter of respondents reported sex with a woman in the year prior to survey and one in seven men reported commercial or transactional sex with a woman in the same timeframe.
- Condom use among MSM in Kigali is low. Thirty-four respondents reported that they had never previously used a condom with a male or female sexual partner. Among men reporting sex with another man in the 12 months prior to survey, one-third reported consistent condom use with all male partners. One-third of respondents reporting sex with a female partner in the 12 months prior to survey reported condom use at last sex with a female partner.
- A high proportion of MSM in Kigali may engage in commercial and/or transactional sex: one in ten respondents reported exchanging sex for money in the year prior to survey.
- MSM may be at heightened risk for HIV/STI transmission due to high alcohol consumption. Nearly one-quarter of respondents reported drinking alcohol every day during the month prior to survey. Reported drug use was limited; however, one respondent reported injecting drugs in the 12 months prior to survey.
- Twenty-seven respondents reported experiencing at least one STI symptom previously and 13 respondents reported a prior STI diagnosis.
- Fifty-five respondents reported a previous HIV test for which they obtained their results.
- Respondents expressed a need for psychosocial services and safe sex tools such as condoms and lubricant.

This study has provided introductory data as a first step to shaping the HIV response for MSM. However, much information is still lacking. We suggest that further research is urgently needed to assess HIV/other STI prevalence among MSM. We also recommend further research into MSM sexual networks (i.e., commercial and transactional sex, sex with women, sex and travel). The results of this exploratory study suggest MSM in Kigali are at elevated risk for HIV infection compared to the general population, and require specific HIV/STI prevention services/support. Specific programmatic recommendations include:

- Within a sensitive human rights framework, HIV/STI awareness-raising campaigns targeting MSM should be carried out in a method that maximizes privacy and safety, and avoids any unintended population-directed stigma and discrimination.
- Health services should be reoriented to ensure that they are MSM-friendly and focused on the specific sexual health needs of MSM. Most urgently, efforts should be made to improve access to sexuality-sensitive psychosocial services, e.g., counseling, for MSM.
- Safe sex tools, such as condoms and appropriate lubricants, should be procured and distributed.

Background

Internationally men who have sex with men[1] (MSM) have been identified as a high risk group for HIV acquisition, due to a tendency towards higher risk sexual behaviors and greater numbers of casual (and often commercial) sexual partners. Globally, MSM are 19 times more likely to be infected than the general population (Baral et al., 2007). Although heterosexual transmission dominates the sub-Saharan African epidemic, there is growing recognition of the HIV prevention needs of MSM. A 2007 analysis of data from 38 low and middle income countries found an HIV prevalence of 19% among MSM in Africa — African MSM are nearly four times more likely to be infected with HIV than the general population (Baral et al, 2007).

As of yet, Rwandan HIV policy has not addressed HIV prevention among MSM, primarily due to a lack of data on the nature of homosexual (risk) activity in Rwanda.

1. We use the term "men who have sex with men" to describe those males who sometimes or exclusively have anal or oral sex with other males, regardless of whether or not they ascribe to a personal or social identity associated with that behavior, such as being 'gay' or 'bisexual' (UNAIDS, 2009).

Study Aims and Objectives

The purpose of this exploratory study was to obtain preliminary data on the nature of MSM HIV risk activity in Kigali to influence national HIV/STI prevention and care policy, as well as to inform a more comprehensive national survey of MSM. This study also provided data to meet Rwanda's reporting commitments under UNGASS. This was the first study of MSM in Rwanda.

The aim of this study was to describe the population of MSM in Kigali and explore the nature of sexual activity between MSM. Study objectives were as follows:

- To obtain exploratory data on types of sexual partnerships (including commercial and transactional), condom (and lubricant) use in those types of partnerships, STI symptom and diagnostic history, HIV testing history.
- To determine men's attitudes regarding a number of possible HIV prevention strategies for MSM.
- To explore the feasibility of a more comprehensive Bio-Behavioral Surveillance (BSS) study of MSM nationally (i.e., acceptability, MSM network structure).

Methodology

SETTING

Study participants were recruited from Kigali only for the following reasons: (1) HIV prevalence is highest in Kigali; (2) MSM behavior is likely to be more common in an urban environment with the increased sexual opportunities it offers to MSM who may lack sexual partners in rural areas and smaller towns; and (3) feasibility constraints, as this was the first such study conducted in Rwanda.

ETHICS

This study was designed to maximize respondent confidentiality, safety, and comfort in line with international best practice in research governance. No names or other identifying information were collected. Ethics approval was gained from the Rwanda's National Ethics Committee and the Health Media Labs IRB in the United States. Study results were shared with (and validated by) study respondents who chose to provide their contact information in a sealed box (unlinked to the questionnaire) and those who did not participate in the study, but who attended the validation workshop: see below.

Box 1. Operational definition of "MSM"

A biological man reporting at least one of the following behaviors in the last 12 months:

- insertive oral sex with another man; and/or
- receptive oral sex with another man; and/or
- insertive anal sex with another man; and/or
- receptive anal sex with another man.

SAMPLING & RECRUITMENT

Inclusion criteria for participation were: consenting men meeting the operational definition of MSM (see Box 1 above) who are currently resident in Kigali and 18 years or over. This study utilized a snowball sampling strategy involving peer recruiter/s with a double-incentive structure. To start, we recruited three peer recruiters or "seeds" to complete the questionnaire. Seeds were asked to recruit a maximum of ten friends, acquaintances and sexual partners into the study. Seeds provided contacts with study information and a two-part invitation slip. Seeds kept one half to enable reimbursement and gave the other to new recruits. Men completing the questionnaire were asked to recruit others in the same way. Respondents received a primary incentive for completing the questionnaire, and a secondary incentive for every man they recruited into the study who completed the questionnaire.

We aimed for a sample size of 100. As this study was exploratory, and the sample was non-random, we did not carry out a sample size calculation[2]. Please see Appendix A for details on sampling and recruitment procedures.

DATA COLLECTION

Instrument — As well as collecting basic demographic indicators, the questionnaire contained questions on the following topics:

- Characteristics of the MSM network in Kigali
- Sexual relationships
- Sexual health
- Knowledge and attitudes regarding HIV and STIs
- Views on future HIV prevention programming and research

Where possible, questions were sought from validated questionnaires. The questionnaire was translated by a professional translator from English, to French and Kinyarwanda. All translations were piloted among five MSM to ensure validity locally.

Procedures — Recruits initiated contact with the Study Coordinator (an MSM himself) by calling the telephone number indicated on their invitation slip. The Study Coordinator set up an interview time between the recruit, himself and the Interviewer. Potential participants were asked to set the appointment themselves, while the study coordinator's task ensured that two appointments didn't coincide in order to ensure confidentiality.

It was originally decided to recruit a professional woman with research experience. This choice worked to a certain extent, but some participants made it clear that they were not comfortable to talk to a woman, while other potential participants expressed reluctance

2. This study will provide data for the calculation of a sample size for future studies. It will also provide lessons learned on the feasibility of snowball sampling methodology in this population.

to confide to a person they may meet in other circumstances in the future. Thus, after one month, one of the foreign, co-investigators was added as a second option for participants who felt comfortable conducting the interview in French or English. However, the challenge of participants who preferred conducting the interview in Kinyarwanda posed problems for this scenario. After consultation with several participants during data collection, an MSM from Kigali was finally selected as interviewer. The confidentiality agreement that he signed was explained to each participants and measures were taken to ensure that there was no previous sexual history between the interviewer and participant.

A restricted zone within a public venue was identified as a study location. Respondents were given two location options for completing the questionnaire: the study site, or another place of their choice. The study site was a two-room cottage on the grounds of a restaurant/bar in an area frequented by MSM in Kigali. This study location was surrounded by a wall and no other activity was conducted on this location, which allowed for secrecy and security. Participants were also allowed to propose a meeting place where they felt comfortable. For interviews that took place in public places chosen by the participant, a budget was provided towards transport of personnel and non-alcoholic drinks.

Recruits were greeted by the Study Coordinator who collected the recruit's invitation slip and screened the candidate to ensure he was eligible for participation, i.e., met all inclusion criteria and had not already participated in the study. The Study Coordinator then sought informed verbal consent in the presence of the Interviewer. Recruits were presented with information on the study including confidentiality clauses, rights to refuse participation and to choose not to answer any question, as well as rights to withdraw from the study and seek redress. We emphasized that participation was purely voluntary.

Following consent, the interviewer then administered the survey in the recruits chosen language. Upon completion, the interviewer placed the completed questionnaire in an envelope and in a locked filing case. After completing the questionnaire, the respondent was reimbursed 1,200 RWF for travel expenses ($2 US, enough for return travel anywhere in Kigali) and given condoms, lubricant, as well as general HIV prevention literature. Respondents were asked to recruit their friends into the study. Respondents who consented to this received between 2,500-5,000 RWF in mobile phone vouchers, depending on whether they were "seeds" or not.

Data analysis — All data were double-entered into an Excel database and the frequencies of individual responses were tabulated. As this was an exploratory study, we chose to explore trends within the dataset to identify the important HIV risk factors among the MSM community in Kigali. This study was not powered for complex statistical analysis.

In order to validate results with the MSM community, we held a half-day workshop in July 2009 during which results were presented and discussed, both in plenary and in small groups. Throughout data collection, all participants were asked if they would be interested in participating in further dissemination and/or research activities concerning HIV risk among MSM. Nearly half of all study participants filled out a confidential form sharing their contact information. (Respondents completing this form dropped it into a locked box themselves, which was separate from the locked box containing questionnaires.) Respondents were subsequently contacted to participate in the dissemination workshop, in addition to other MSM in the community who did not participate in the study.

During the dissemination workshop, the key results of the study were presented to all participants. Participants were subsequently organized into small groups to validate the results by discussing if the participants thought the results were representative of the MSM community in Kigali. A representative from each small group presented the group reactions. Common themes from each group were discussed in plenary, providing some qualitative insight into some of the results.

In addition, the key HIV prevention programmatic recommendations were posted throughout the conference room. Participants were asked to vote if they "agreed" or "disagreed" with the programmatic results.

Results

Ninety-nine men responded to the questionnaire. Not all men answered all questions due to skip patterns, and non response. Sample sizes for each question are given.

PARTICIPANT DEMOGRAPHICS

Age — The age range of respondents was 18 to 52 years. The average age was 26, the median age was 24.

Education — All respondents reported attending school at some point in their lives; the range of years of education was two to eighteen years. Over four-fifths reported completing secondary school, and nearly one-fifth had attended college or a tertiary-level institution (N=99). Please see Figure 1 on page 36. Primary and secondary education attainment held no relationship. This is expected as the minimum age to participate in this study was 18 years. Respondents reporting tertiary education were slightly older (median age of 27, compared to 22 for those with secondary school only, and 24 for those with primary school only.)

Income — Just over half of all respondents (55%) reported that they were currently earning an income (N=99). A diversity of professions was reported including businessman, teacher, driver, and houseboy. One respondent reported he was a professional sex worker. Monthly income range varied substantially from under 25,000 RWF (16%) to over 100,000 RWF (45%).

Marital status — Three respondents reported being married at the time of interview, with three others reporting being separated or divorced. Four of these six men who had ever been married said they got married due to family pressure, one said that he got married so that he could have children, and the other was not sure why he got married.

Living arrangements — Respondents had been living in Kigali for an average/median of 13 years (range: 6 months to 34 years) (N=98). A diversity of living arrangements was reported, although the majority lived with family — parents, grandparents, and/or siblings. Four respondents reported living with their wife and nine reported living with a male sexual partner. Please see Figure 2 on page 36.

Mobility — Although all were Kigali residents, nearly two-thirds of respondents reported sleeping outside of Kigali at least once (and up to 100 times) in the last 12 months (n=64, N=98). Total time spent outside of Kigali ranged from less than one week (five respondents) to more than six months (4 respondents). Please see Table 1 on page 31.

Respondents reported significant travel within Rwanda: 34 and 36 men reported visiting other major urban centers in Rwanda (Butare and Gisenyi) in the last 12 months. Forty-two men reported visiting other locations in Rwanda over the last 12 months. Thirty-three respondents reported traveling outside Rwanda in the last 12 months to countries including: Uganda, Democratic Republic of Congo, and Kenya. Forty-four of these men (70%) reported socializing with other MSM when travelling outside Kigali, indicating potential for high sexual network overlap between regions.

Alcohol and drug use — Alcohol use was relatively common among respondents. Nearly one quarter (n=22, N=99) reported drinking alcohol every day during the month prior to survey. Respondents reporting daily alcohol use were slightly older than those reporting less frequent use (median age of 28 years compared to 23 among those reporting no alcohol use in last one month). Please see Table 2 on page 31. No discernable relationship was found between alcohol use and income level, or a history of selling or buying sex.

Respondents reported limited drug use. The most commonly used substance was kanyanga (n=23), a locally distilled alcohol made from tubers and roots, followed by marijuana (n=8, N=98). Three respondents had tried cocaine and two had tried heroin (N=98). One respondent reported injecting drugs in the last 12 months.

SEXUAL ORIENTATION & DISCRIMINATION

Self-described sexuality — The majority of respondents described themselves as either homosexual (49%) or bisexual (33%). Approximately one in ten men was unsure how to describe their sexuality, and 4% self-described as heterosexual. Please see Figure 3 on page 36. Men describing themselves as heterosexual or who replied that they were unsure of their sexual orientation were older; respondents describing themselves as homo- or bi-sexual were younger. See Table 3 on page 31. Nine men reported that their families were aware of their homo- or bi-sexuality (N=99). Seven of these

nine respondents had discussed their homo- or bi-sexuality with their families, and of these, only two said their families were supportive of their sexual orientation choices. Respondents who had not discussed their sexuality with their families said that this was due to fear that their families would not understand. Others noted that they were still trying to come to terms with their own sexuality and were not ready to discuss it, or had not yet found an appropriate time to initiate this discussion.

Felt stigma — To assess felt stigma, respondents were asked if they would disclose their sexuality to a health professional during a consultation, in the event that a health professional explicitly asked about their sexual behavior. Just over half of all respondents (55%) said that they would disclose; however, 22% said they would not, 17% said "it depends", and 6% said they would definitely not disclose (N=97).

Discrimination and abuse — One in five respondents reported being mistreated due to their sexuality or sexual behavior, with 12 men reporting physical abuse, and 15 men reporting verbal abuse (N=98)[3]. Environments where abuse was reported include: work (n=4), school (n=3), bars (n=2), prison (n=2), and public places such as the street (n=8). Seven men reported mistreatment among family and/or friends. Seventeen men reported a history of forced sex (N=98)[4]; eight of these men reported being forced to have sex in the last 12 months.

HIV/STI KNOWLEDGE & ATTITUDES

Knowledge — Seven respondents reported that they had never heard of HIV or AIDS (N=96)[5]. Twenty-seven men reported that they had never heard of sexually transmitted infections (STIs)/diseases (N=96)[6]. An additional 11 men reported that they had heard of STIs but were not able to name any STI symptoms. Only two respondents were able to name the six most common symptoms: urethral/penile discharge, anal discharge, burning/pain during urination, genital or anal sores/ulcers, genital or anal warts/swellings, and mouth sores/ulcers. Please see Figure 4 on page 36.

Respondents who had heard of HIV/AIDS were asked a number of questions regarding HIV transmission. Misconceptions were evident. Importantly, five respondents were not sure about the effectiveness of condoms in protecting against HIV, and 29 men thought that HIV could be transmitted through kissing or were unsure (N=88). Eighteen respondents answered all knowledge questions correctly. Please see Table 4 on page 31 for a summary of responses.

Attitudes — The questionnaire also elicited respondent attitudes towards people living with HIV/AIDS (PLWH). Overall, stigma was relatively low; however approximately roughly one-third of those who had heard of HIV/AIDS said that if a family member was HIV positive, they would want the fact to be kept a secret[7]. Please see Table 5 on page 31.

SEXUAL RELATIONSHIPS WITH MEN

First sex with a man — Age of first anal or oral sex with another man varied from seven to 32 years with an average of 18 (mean and median). For one-third of respondents, their first male sexual partner was "about the same age" as them, and one in 10 men said their first male sexual partner was younger than them. For over half of respondents, their first male sexual partner

3. The age range among those reporting mistreatment due to their sexuality was 18 to 29 years.
4. Seven men reporting physical mistreatment due to their sexuality also reported a history of rape; ten men reporting a history of rape did not report previous physical mistreatment due to their sexuality.
5. This high proportion of respondents reporting that they had never heard of HIV or AIDS could be explained by a limitation of the Kinyarwanda translation of the questionnaire. The translation of the question "Have you ever heard of HIV or AIDS" in Kinyarwanda precisely asks "Do you have any information about HIV or AIDS", as this is the best translation of the phrase. This may have clearly caused confusion among respondents who had heard of HIV and AIDS, but did not have information about it. Respondents reporting that they had never heard of HIV or AIDS were between the ages of 18 and 27. Four reported a primary education and three had completed secondary school.
6. Clearly, a majority of respondents did not categorize HIV as an STI.
7. Of those that had heard of HIV/AIDS, all but three reported that they knew someone infected with HIV and/or someone who has died of AIDS (two of the three were not sure).

was older than them. Sixteen men reported that their first male sexual partner was more than 10 years older than them. Please see Figure 5 on page 36.

Male partners in last 12 months — Ninety-four respondents reported previous anal sex with another man, and 88 reported anal sex with another man in the 12 months prior to survey (N=98)[8]. Men reported an average of two male sexual partners in the 12 months prior to survey (median; mean=3.4; range: 1 to 36; N=96)[9]. Sixty-eight respondents (74%) reported at least one casual male sex partner in the 12 months prior to survey, and 50 respondents (54%) reported at least one "one-night-stand" over the last year; four respondents reported six or more (two of these reported 18 and 20, respectively). Please see Table 6 on page 32.

Sexual mobility — A considerable proportion of respondents reported having sex with a man outside Kigali in the last 12 months (N=96): 15 men reported having sex with another man in Gisenyi, six reported having sex with another man in Butare, and 20 reported having sex with another man in another location in Rwanda. Nineteen respondents reported having sex with another man outside of Rwanda in the last 12 months (N=93), in locations including: Uganda (11), Kenya (7), South Africa (1), DRC (3), and Burundi (1). Please see Figure 6 on page 36.

Boyfriends — Forty-six respondents reported having a boyfriend at the time of survey. These men met their current partners at a diversity of locations, including bars, work, school, and prison: please see Table 7 on page 32. A majority of these relationships were long-term, with 27 men reporting that they had begun a sexual relationship with their partner more than one year before the time of survey, and seven others reporting that they had been with their partner for more than six months (N=44). Only two respondents had begun their sexual relationships with their boyfriend less than one month prior to the time of survey. Please see Table 8 on page 32. Approximately half of men reporting a boyfriend said that their relationships were monogamous (n=21; N=46), and two more said that they were monogamous, but that they were not sure if their partners were faithful.

Condom use in relationships — Less than half of men reporting a boyfriend at the time of survey reported using a condom the first time they had sex with this partner (n=30; N=46). Reasons for non-condom use varied, and included a lack of knowledge that HIV can be transmitted via anal sex. Please see Table 9 on page 32 for a synopsis of responses.

Over time, condom use with boyfriends remained the same. Exactly half of men reporting a boyfriend at the time of survey said that they used a condom the last time they had sex with their partner (n=23, N=46). Reasons for non-condom use varied slightly, with more men citing "confidence in partner", and fewer men citing a lack of knowledge regarding transmission methods, as the relationships progressed. Please see Table 10 on page 32.

Overall, respondents varied in their reported frequency of condom use with their boyfriends: 22 men reported that they used condoms every time or almost every time, whereas 24 men reported never using condoms, or sometimes using condoms[10]. Please see Figure 7[11] on page 37. Seventeen men reported at least one occurrence of unprotected anal sex with their boyfriend in the last month (N=46). Five of these men reported having unprotected anal sex with their boyfriend between four and ten times over the month prior to survey.

Casual sex partners — Forty-two men reported being "single" at the time of interview. Single respondents reported meeting their last male sexual partner in a

8. Fifty-eight respondents reported oral sex with another man in the last 12 months (N=98), with an average of two (median) partners (mean=3.6; range=1 to 36). Only men reporting anal sex with another man in the last 12 months were asked following questions on recent sexual behavior with men.
9. Of men reporting more than 10 partners over the 12 months prior to survey (n=5), two reported exchanging anal sex for money in the last 12 months.
10. Importantly, three men who reported always using a condom (with all partners) reported "sometimes" using a condom with their boyfriend, and one other reported "never" using a condom with his boyfriend.
11. There was some consensus at the validation workshop that this condom use data (with regular partners) is inflated.

diversity of locations including: bars, their village, through the internet, and in prison. Please see Table 11 on page 32 for a summary of findings.

Single respondents reported an average (mean) of one male sexual partner in the month prior to survey (range: 0 to 8). Twenty single respondents reported no sexual partners in the month prior to survey. Among those reporting being in a relationship at the time of interview, 15 reported sex with someone other than their boyfriend in the month prior to survey (N=46)[12]. Among them, eight reported no other male sexual partners in the month prior to survey, five reported one other partner, nine reported between two and four other partners, and one reported 20 other partners (mean=2.2; median=1; range: 0 to 20).

Condom use in casual sex — Among those reporting being "single" at the time of interview, 23 (N=42) reported using a condom the last time they had sex with a male partner[13]. The most common reasons for not using condoms included: dislike of condoms (n=10), did not have a condom at time of sex (n=4), and perceived confidence in partner (n=2). Of the 22 "single" respondents who reported a male sexual partner in the month prior to survey (N=42), 11 reported unprotected anal sex with at least one of their partners in the same timeframe. Seven of these men reported more than one episode of unprotected anal sex in the month prior to survey; four respondents reported between four and ten episodes of unprotected anal sex in same timeframe.

Among the 15 "partnered" respondents who reported casual sex with someone other than their boyfriend in the month prior to survey, half reported not using a condom at last sex with this person (n=7). Two of these men reported unprotected receptive anal sex with someone other than their boyfriend once during the last month, two reported this two to three times, and two reported this between four and ten times[14].

In total, 37 respondents reported casual sex in the month prior to survey and 18 of these men reported unprotected sex with a casual sex partner in this timeframe.

COMMERCIAL & TRANSACTIONAL SEX: SELLING

In total, 30 respondents reported a history of ever exchanging anal sex for money and/or goods, and 25 men reported exchanging anal sex for money and/or goods in the 12 months prior to survey (N=98). Please see Table 12[15] on page 33.

Exchanging anal sex for money — Twenty-two men reported ever receiving money in exchange for anal or oral sex (N=98). Eighteen respondents reported receiving money for anal sex in the 12 months prior to survey[16]. Six of these men reported receiving money in exchange for anal sex at least once per week over the last year, sometimes with the same commercial partner.

- *Commercial partners:* Among the 18 men who reported receiving money for anal sex in the 12 months prior to survey, five reported only one commercial partner in this timeframe; three reported two to three different partners, six reported four to ten different partners, and four men reported more than 10 different partners. Fourteen men reported at least one foreign commercial sex partner (N=18). Of these, 11 men reported more than one foreign commercial sex partner, and four of these men reported more than four foreign commercial sex partners.

- *Condom use with commercial partners:* Ten men (N=18) reported using a condom with their last commercial partner. Reasons for non-condom use included: dislike of condoms (n=4), did not have a condom at time of sex (n=1), partner refusal

12. None of the men reporting monogamous partnerships reported other partners in the last one month.
13. Validation workshop participants felt that this statistic of condom use in casual relationships was too low.
14. None of the men reporting condom use at last sex with a partner other than their boyfriend reported non condom use over the course of the month prior to survey with any non-regular partner.
15. Validation workshop participants felt that data on commercial sex was accurate but that transactional sex figured more prominently that found in this study. Workshop participants suggested that one-third of sexual encounters between MSM had a transactional element.
16. Nine of these 18 men also reported receiving money for oral sex in the last 12 months.

(n=2), perceived low risk of infection (n=2). Seven men reported using condoms consistently with all commercial partners in the 12 months prior to survey; seven men reported never using condoms with commercial partners; four reported sometimes using condoms (N=18).

Exchanging anal sex for goods — Eighteen respondents reported a history of receiving rent, favors, or other items of value in exchange for sex (N=98). Fifteen men reported receiving rent, favors, or other items of value in exchange for anal sex in the 12 months prior to survey[17]. Six of these respondents reported receiving rent, favors, or other items of value in exchange for anal sex at least once per month (three of these reported this daily).

- *Transactional partners:* Just under half of men who reported having received rent, favors, or other items of value in exchange for anal sex in the 12 months prior to survey, reported one transactional sex partner; three men reported two to three such partners, two men reported between four and ten such partners, and two men reported more than 10 such partners (N=14). Seven men (N=14) reported receiving rent, favors, or other items of value in exchange for anal sex from at least one foreigner (six men reported two to three foreign transactional sex partners).

- *Condom use with transactional partners:* Six of 14 men reported using a condom at last sex with a man who gave them rent, favors, or other items of value in exchange for anal sex. Reasons for non condom use included: partner refusal (n=4), dislike of condoms (n=3), and perceived confidence in partner (n=1). Over the last 12 months, four of 14 men reported "always" using condoms, three reported "almost always" using condoms, one reported "sometimes" using condoms, and six reported never using condoms with transactional sex partners.

COMMERCIAL & TRANSACTIONAL SEX: BUYING

In total 24 respondents reported a history of exchanging money and/or goods for anal sex, and 20 men reported exchanging money and/or goods for oral and/or anal sex in the 12 months prior to survey (N=98). Please see Table 13 on page 33.

Exchanging money for anal sex — Eighteen men reported a history of exchanging money for sex with another man (N=98), 12 men reported exchanging money for anal sex[18] in the last 12 months, and an additional four reported buying oral sex in the last 12 months.

- *Commercial partners:* Of the 12 respondents who reported buying anal sex in the last 12 months, eight reported buying sex in the last one month. These eight men reported a range of one to three different commercial partners in the last one month; however, two men reported buying sex between four and ten times in the last one month (presumably sometimes from the same partner) (N=7). All but one respondent (N=11) reported buying sex from three or fewer men over the 12 months prior to survey.

- *Condom use with commercial partners:* Seven respondents (N=11) reported condom use at last sex with a commercial partner. Reasons for non condom use included: did not have a condom at the time (n=1), dislike of condoms (n=1), cannot insist if selling sex (n=1), cannot be infected [with HIV] (n=1). Six respondents reported always using a condom with their male commercial partners in the 12 months prior to survey; five reported never using a condom (N=11).

Exchanging goods for anal sex — Twelve men (N=98) reported a history of giving rent, favors, or other items of value to another man in exchange for sex, with seven men reporting giving rent, favors, or other items of value to another man in exchange for anal sex in the last 12 months, and three in the last one month.

- *Condom use with transactional partners:* Five men of seven who reported giving rent, favors, or other items of value to another man in exchange for anal sex in the last 12 months, reported using a condom the last time they had sex with another man to whom they gave rent, favors, or other items of value in exchange for anal sex. These five

17. Nine of these men also reported exchanging oral sex.

18. Seven of these men also reported buying oral sex in the last 12 months.

men also reported consistent condom use with all transactional male sexual partners over the last 12 months (N=7).

SEXUAL RELATIONSHIPS WITH WOMEN

Previous sex with women[19] — Thirty-nine men (N=98) reported previous sex with a woman, and 25 reported sex with a woman in the last 12 months[20]. The average age of first sex with a woman was 16 (median; mean=17, range=8 to 28 years, N=39). Reported sex with women was linked to self-described bisexuality, but not heterosexuality. None of the four men describing themselves as heterosexual reported sex with a woman in the last 12 months. Approximately half of the respondents who self-described as either heterosexual or bisexual reported sex with a woman in the 12 months prior to survey. Please see Table 14 on page 33.

In addition to the six men that reported a marriage history, nine others reported having a girlfriend or regular female partner at the time of interview[21]. Two of these men reported that they were currently living with this female partner.

Respondents who reported sex with a woman in the 12 months prior to survey (N=25) reported between one and ten female partners in the same time frame, although only four men reported four or more female partners in this time. Seventeen men reported sex with a woman in the one month prior to survey. Eight men (of 17) reported two or more female partners in this timeframe. See Table 15 on page 33.

Among men reporting sex with a woman in the 12 months prior to survey, the majority reported very infrequent sex with women. Fourteen men reported having sex with a woman 10 or fewer times in the 12 months prior to survey; six men reported weekly or daily sex with women. Please see Table 16 on page 33.

Condom use with women — Nearly one-third of men reporting sex with a woman in the last 12 months reported not using a condom at last sex (n=9, N=25). Reasons given for non-condom use included dislike of condoms (n=3), a perception that condom use was unnecessary (n=2), not having a condom at the time of sex (n=2), and partner refusal (n=1) (multiple responses possible, N=7). Over the last 12 months, seven men reported never using a condom with their female partner/s, three respondents reported sometimes using a condom, one reported almost always using a condom, and 14 reported always using a condom (N=25).

Transactional sex with women — Fourteen men reported giving women money, clothes, favors or other items of value in exchange for sex in the 12 months prior to survey (N=98).

- *Condom use with female, transactional partners:* Six of the 14 respondents who reported giving women money, clothes, favors or other items of value in exchange for sex in the 12 months prior to survey, reported not using a condom the last time they had commercial/transactional sex with a woman. Reasons for non condom use included dislike of condoms (n=2), a perception that condom use was unnecessary (n=2), and partner refusal (n=1) (multiple responses possible, N=6).

CONDOM & LUBRICANT USE

Only 63 respondents (N=97) reported having used a condom (at least once) previously. We asked men to list all of the places they knew where it was possible to obtain condoms (for free, or at a cost). The most common response was the supermarket (n=89), followed by a pharmacy (n=69), a health service (n=38), NGOs[22] (n=8), friends (n=7).

Reported frequency of condom use with different types of sexual partners varied. Overall, approximately one-third of respondents who reported anal sex with a man in the 12 months prior to survey reported always using condoms over this timeframe (n=32)[23], and nearly

19. All data on female partnerships was felt to be accurate by validation workshop participants.
20. Five of 25 men reporting sex with a woman in the 12 months prior to survey also reported anal sex with a woman in the 12 months prior to survey.
21. Eight of these men had described themselves as bisexual, and one other was unsure of his sexuality.
22. NGOs mentioned included: UNAIDS (1), TRAC (2), NACC (4), PSI (3), and UNICEF (2).
23. Validation workshop participants felt that this figure on consistent condom use with any partner was inflated, and that the real figure may be much lower.

40% reported never using condoms (n=35, N=88). Please see Figure 8 on page 37. Table 17 (on page 33) displays summary information of condom use at last sex, by partner type. Condom use at last sex was 50% within relationships, 51% among casual partners and 55% among commercial partners. Nearly two-thirds of respondents reporting a female partner in the last 12 months reported condom use at last sex with a female partner. Table 18 (on page 34) displays summary information on consistent condom use (CCU) in the 12 months prior to survey, by partner type. Reported CCU was higher in sexual partnerships with women, than with men (56% versus 37%), and lowest between boyfriends (24%).

Condom breakage — Among those respondents who reported ever using a condom, 17 reported a history of condom breakage, and 15 reported experiencing condom breakage in the last 12 months (N=63). Twelve respondents reported experiencing condom breakage one to two times in the last 12 months, and three men reported experiencing condom breakage three to ten times in this timeframe.

Lubricant use — Sixty-two respondents reported using lubricants during anal sex with men (N=97). Approximately half of men reporting lubricant use, reported always using lubricants during anal sex (n=34; N=57)[24]. There was no clear correlation between frequency of use and condom breakage. A range of lubricants were cited including: KY Jelly (n=22), Vaseline (n=39), hand lotion (n=4), baby oil (n=6), butter/cooking oil (n=11), soap (n=2), spit (n=2) (multiple responses possible). Numbers are too small to draw conclusions on the relationship between condom breakage and improper lubricant use. Please see Table 19 on page 34.

DISCUSSIONS ABOUT HIV WITH SEXUAL PARTNERS

Approximately half of all respondents (n=45, N=96) reported having previously discussed HIV/AIDS and/or STIs with at least one of their male sexual partners. Eight men (N=21) reported having discussed HIV/AIDS or STIs with at least one of their commercial male partners, at some time, and six men (N=18) reported having discussed HIV/AIDS or STIs with at least one of their male transactional partners. Eighteen respondents (N=39) reported previously discussing HIV/AIDS or STIs with a female partner. Please see Table 20 on page 34.

SEXUAL HEALTH

STI history — Twenty-seven men reported experiencing at least one STI symptom previously; 12 respondents reported previously experiencing multiple STI symptoms (N=96). The most frequently mentioned symptom was burning/pain during urination (n=14, N=96), followed by genital/anal sores (n=11, N=95), genital/anal warts (n=10, N=96), urethral discharge (n=9, N=96), anal discharge (n=3, N=96), and mouth sores (n=3, N=96).

Nearly one in five men reported experiencing at least one of these symptoms in the 12 months prior to survey (n=18, N=96). Thirteen respondents (N=96) reported being previously diagnosed with an STI by a health professional. Of these, seven men were diagnosed with gonorrhea, three men were diagnosed with syphilis, and three could not recall their diagnosis.

HIV testing behavior — Among respondents who reported that they had heard of HIV/AIDS, 55 reported a previous HIV test for which they obtained their results (N=88). Of those reporting a previous test, nearly three-quarters reported an HIV test in the last 12 months (n=42, N=57). Please see Table 21 on page 34.

Nearly 80% of respondents who reported that they had heard of HIV/AIDS (n=71, N=89) reported that they would definitely take an HIV test in the future if they were assured of confidentiality, including 16 men who have never tested. Eight men, all of whom reported never previously taking an HIV test, reported that they would not consider a future test. Please see Table 22 on page 34. The majority of respondents reporting a previous HIV test said that their most recent test was by choice. Six men reported that their last HIV test was required by their employer (n=4) or for an international visa (n=2).

VIEWS ON FUTURE HIV PREVENTION PROGRAMMING

Respondents were asked what HIV prevention services they felt were needed in Kigali for MSM. Half of all respondents felt there was a need for a dedicated, confidential health clinic for MSM, and more than

24. There was some consensus at the validation workshop that this self-reported data on regular lubricant use was inflated and that the actual figure is much lower.

one-third expressed a need for better availability of condoms and lubricants for anal sex. Nearly one third of respondents voiced a need for HIV/AIDS stigma reduction campaigns. Please see Table 23 on page 34 for a summary of responses. Workshop participants voted on HIV prevention programming priorities; a summary of responses is presented in Appendix C.

We asked study respondents about their sexual health services preferences, particularly whether they would prefer to attend an integrated sexual health service open to everyone or a sexual health service dedicated to MSM, if they were attending with symptoms of an STI, such as anal discharge. Nearly three-quarters of respondents (73%, N=94) said that they would prefer to attend a dedicated MSM service. Further, we asked respondents what the characteristics of their ideal sexual healthcare provider would be, in terms of gender and sexuality. Multiple responses were possible, however, the most common response was a homo- or bisexual male (n=58, N=95). Twenty men reported they would be happy with a heterosexual male provider, 17 men said they did not care, and eight said they would feel most comfortable with a female provider. Only one respondent said that he would not attend a clinic or hospital if he had anal discharge.

Study Limitations and Lessons Learned

LIMITATIONS

To our knowledge, this study has produced the first set of rigorously collected data on HIV risk among MSM in Rwanda, and has laid the foundation for more comprehensive, future research. The exploratory nature of this study has several limitations. The most significant limitations were its small sample size, restriction to Kigali residents, and that no biomarkers were collected for HIV/other STI testing. The small sample size has precluded multivariate analyses, but data highlight important areas for further inquiry, e.g., commercial and transactional sex among MSM. We limited the study to Kigali and to the collection of behavioral data due to human and financial resource constraints; however, we also felt that, as a pilot study, we wanted to better work out methodological challenges before expanding in size and scope. Of note, study respondents were very mobile both within Rwanda, and the East African region, suggesting that reported (Kigali-specific) data is likely reflective of trends across the country.

Study data also reflects limitations in the sampling and recruitment strategy. We applied a snowball sampling approach, informed by respondent-driven sampling procedures. Initial seeds were identified by the Study Coordinator, a gay man living in Rwanda and were limited to his social network. We aimed to reach a sample size of 100, rather than complete a pre-specified (high) number of "waves", the latter of which minimizes bias due to potential demographic and behavioral similarities between seeds, their recruits, and recruiting patterns. (Generally, the longer the referral chain, the smaller the potential for bias.) Some of the seeds led to three waves of recruitment, some two, some only recruited a small number of people (who never went on to recruit others), and some never recruited anyone. Please see Table 24 on page 35.

Also, some recruiters were more successful than others. The average (mean) number of recruits per seed was 8.5 (range=0-26), including 3.8 "direct" recruits (range=0-16), and 4.7 "indirect" recruits (range=0-22), i.e., Wave 2 and Wave 3 respondents[25]. Please see Figure 9 on page 37. Furthermore, many of our initial seeds experienced difficulties with recruitment, and we opted to bring on more seeds half way through the process. Although, inarguably, these challenges have limited the generalizability of findings to MSM across Rwanda, we feel that the range of responses and respondents is adequately diverse to ensure that identified trends are genuine.

More important, especially for future research, are the reasons why recruitment was challenging. Many of the seeds and recruits (some of which also became recruiters) voiced some initial trepidation about participating in the study due to safety concerns (related to a perception that same-sex relations is illegal in Rwanda), and/or an "unreadiness" to challenge the heterosexual norm in Rwanda (by participating in this study). Some of these concerns were allayed by enabling respondents to choose both the location of their interview and their interviewer.

We also received feedback from recruiters that some of their potential recruits wanted much more information about the study than they could provide, before they would make a decision. (These men were encouraged by their recruiters to call the Study Coordinator for more information, which in many cases they did.) Also, recruiters cited challenges in contacting potential recruits. Initially we had expected recruiters hand out the invitation slips during their regular social activities. However, it became clear early on that recruiters would need to call potential recruits on their mobile phones to pursue their attendance. We adapted the protocol and provided each recruiter limited — but generous — free air time to do this. Some recruiters felt this was inadequate and in a small number of cases recruiters lacked a mobile phone.

We also experienced challenges in developing a (standardized) data collection tool, produced in English, French and Kinyarwanda[26]. The questionnaire was originally drafted in English, and then translated to both French and Kinyarwanda. Only the French and Kinyarwanda versions were used for data collection.

25. Please note that this refers to 94 participants. Five respondents have an unknown referral chain.

26. Sixty-eight percent (68%) of respondents interviewed in Kinyarwanda.

The translation to Kinyarwanda was particularly challenging as many of the technical/medical terms are not easily translatable, e.g., STI symptoms, and some concepts simply do not have a linguistic representation, e.g., MSM, anal sex, and lubricant. In cases where an appropriate word could not be found, we used descriptive definitions. Although this affected question form, we feel strongly that meaning was preserved in all instances thereby limiting validity concerns. Importantly, the questionnaire was piloted in both French and Kinyarwanda among a small sample of MSM, as previously explained, and through this process validity and reliability challenges were addressed.

A young, Rwandese female was recruited to act as the Study Interviewer. Early in the study we found that a considerable proportion of respondents were uncomfortable interviewing with a woman. Upon discussing the issue with recruits, some said that they would prefer a Rwandese MSM, some said they would prefer a foreigner, and some said they would prefer a Rwandese female (i.e., the original Interviewer). We therefore introduced two other interviewers (a Rwandese man, and a foreign man) to act as Interviewers in select situations were the recruit was uncomfortable with the default arrangement (Rwandese female)[27]. Although we feel that the questionnaire was suitably structured to reduce inter-interviewer bias, having multiple interviewers undoubtedly reduced reliability.

LESSONS LEARNED

This was an exploratory study that aimed to obtain sexual behavior data, but also to explore the feasibility and acceptability of conducting behavioral research within the MSM community. In Appendix B we outline study findings related to the latter, and explore feasibility in more depth. Here we outline a number of overarching lessons learned throughout the research process:

- Snowball sampling is effective in this population, but requires considerable support from a dedicated team. Recruiters must be very well briefed and adequately resourced.
- Despite the information sheet distributed to recruiters (to give to recruits), potential participants still had many questions about the nature of the research and often required extensive consultation by phone with the Study Coordinator before accepting to participate. Potential participants should be encouraged to freely call the study telephone line at no charge in order to acquire additional information about the study.
- Due to the stigma that most MSM have encountered, an MSM interviewer was the most acceptable interviewer to respondents. However, some respondents still preferred a female and/or foreign interviewer indicating the importance of implementing a study flexibly to minimize any respondent distress.
- Some of the participants chose to have interviews in particular bars and restaurants where they felt comfortable (rather than that the default study site). Having been invited to participate in an interview, culturally they expected to be offered any drinks or any food they wanted. Participants need to be advised of any limits to this to avoid confusion and difficult situations for field staff.
- A minority of respondents exhibited signs of poor mental health linked to a high degree of perceived stigma and discrimination against MSM in Rwanda, and histories of sexual abuse. Psychosocial services (either on-site staff or referral services) need to be available for any participants experiencing psychosocial trauma.
- The translation of technical terms and somewhat abstract concepts from English into a local language requires extensive consultation with local participants, and data collection instruments require thorough field-testing.

27. Approximately 70% of interviews were done by the Rwandese MSM, 25% by the Rwandese woman and 5% by the foreign man.

Recommendations

RESEARCH

Key research recommendations include: conduct HIV and other STI sero-surveillance, and seek a better understanding of the informal and formal male sex industry, and sexual network structures of MSM in Rwanda.

Obtain HIV and other STI prevalence data — HIV prevalence among men living in Kigali is 5.2%. The few epidemiological studies that have been conducted among MSM in Africa have uncovered heightened HIV prevalence among MSM reporting similar partner numbers as found here. A recent study of 285 MSM in Mombasa reported HIV prevalence to be 43% among men who have sex with men exclusively, and 12.3% among men who are behaviorally bisexual (Sanders, et al, 2007)[28].

An earlier study of a clinic-based sample of MSM in Kenya (N=780) found a lower HIV prevalence of 13% among men who have sex with men exclusively, and 9.6% among men reporting sex with both men and women (Angala et al, 2006). HIV prevalence data among samples of MSM in other sub-Saharan countries ranges from 9.3% (among 713 receptive MSM in Sudan, Elrashied et al, 2006) to 21% (among 200 MSM in Malawi, Baral et al, 2008) to 21.5% (among 463 MSM in Senegal, Wade et al, 2005) to 33% among MSM (N=641) in Zambia (Zulu et al, 2006) and Senegalese MSM seeking HIV testing (Moreau et al, 2007).

STI prevalence data among MSM in other African countries is patchy. One study in Senegal (N=442) found syphilis prevalence to be 4.8%; HSV-2 prevalence to be 22.3%; chlamydia prevalence to be 4.1%; and gonorrhea prevalence to be 5.4% (Wade et al, 2005). In this study one-quarter of respondents reported previously experiencing an STI symptom. Due to recall and acceptability bias and a lack of knowledge about STI symptoms as found here, it is likely that the true proportion of respondents who had previously experienced an STI symptom is much higher. Please see Appendix B for feasibility/acceptability data regarding the collection of biomarkers.

Clarify the context of male commercial and transactional sex — This study has uncovered a high degree of commercial and transactional sex among MSM in Kigali. Approximately 25% of respondents reported exchanging anal sex for either money or goods in the 12 months prior to survey, and 20% reported exchanging money or goods for anal sex in the 12 months prior to survey. However, sample size was too small for correlation/multivariate analysis. We recommend that future quantitative studies are designed to maximize information on high-risk sexual encounters. Furthermore, qualitative research on the context of buying and selling sex, and importantly transactional sex, in this environment would help shape future HIV/ STI prevention interventions.

Seek a better understanding of MSM sexual networks — Findings from this study indicate a high degree of overlap of sexual networks between MSM living in different regions in Rwanda, and perhaps in different countries in East Africa. Although Rwanda lacks HIV prevalence data among MSM, regionally HIV has been found to be highly prevalent among this group. We recommend that future quantitative research consider a respondent-driven sampling approach to allow for network analysis, and incidence modeling.

Furthermore, the potential convergence of an epidemic among MSM, and the generalized epidemic warrants attention. Approximately one-quarter of respondents reported sex with a woman in the past 12 months. Nearly 40% of these respondents also reported engaging in transactional sex with a woman in the past 12 months. Further research should consider effects of these sexual networks on transmission dynamics.

PROGRAMMATIC

To date, HIV/STI prevention campaigns in Rwanda have not targeted the MSM community. The results of this exploratory study suggest MSM in Kigali are at elevated risk for HIV infection compared to the general population, and require specific HIV/STI prevention services/support. To illustrate this, where possible, we have considered data on HIV-related knowledge, attitudes, behavior, and health from this study and com-

28. Sexual identity does appear correlated with HIV status. Another study of 200 MSM in Malawi found 26% prevalence among men self-defining as homosexual (N=79); 15% prevalence among men self-defining as bisexual (N=106); and no HIV positive cases among men self-defining as heterosexual (Baral et al, 2008).

pared it to data from the 2005 Rwandan Demographic and Health Survey (RDHS).

Develop HIV/STI awareness-raising campaigns — Study respondents and workshop participants both voiced a need for HIV/STI awareness-raising among MSM. Considering that HIV knowledge among both study respondents and validation workshop participants was inadequate, and that high risk sexual practices including a high degree of commercial and transactional sex were reported, the case for urgent messaging around risk-reduction is clear. Study respondents reported more sexual partners than men in the general population: among respondents reporting having had sex in the 12 months prior to survey, 66% reported two or more partners compared to 5.2% of urban male DHS respondents.

There were few differences in HIV-related knowledge and attitudes between study participants and the general male population[29], however, major misconceptions still exist. Please see Table 25 on page 35. Study respondents (who had heard of HIV/AIDS) were slightly more knowledgeable regarding HIV transmission than the general population and were marginally less likely to hold discriminatory views (although the sample size of this study was too small to enable statistical comparisons). Any and all HIV-related sensitization activity must be carried out within a sensitive human rights framework, and in a method that maximizes privacy and safety, and avoids any unintended population-directed stigma and discrimination.

Develop distribution structures for safer sex tools — Nearly 40% of study respondents reported not using a condom with their last sexual partner and one-third of study respondents reported having never used a condom. Both study respondents and workshop participants also expressed a need for improved availability of condoms and lubricants for anal sex as a strategy for improving condom use.

Re-orient health services to ensure they are MSM-friendly, needs-focused and incorporate psycho-social care and support — Importantly and optimistically, study respondents were far more likely to report a previous HIV test for which they had received results than men in the general population. Sixty-three percent of study respondents who reported having heard of HIV/AIDS reported this compared to 39.5% of male, Kigali residents (all ages). Importantly, the DHS was carried out five years ago and testing uptake in the general population is likely to have increased. Perhaps unsurprisingly, study respondents were far more likely to report an STI or STI symptom in the 12 months prior to survey than men in the general population (20% versus 3.2% of male Kigali residents). Over 50% of study respondents stated that a confidential clinic staffed with health professionals sensitive to MSM issues was needed in Kigali to improve health seeking behavior and facilitate treatment. Workshop participants expressed high need and desire for clinical psychosocial/counseling services. Urgent efforts are needed to identify appropriate and safe avenues for psycho-social counseling support for MSM.

29. Importantly, the fact that few differences were found reinforces our claims of validity and reliability in this study.

References

1. Angala P, Parkinson A, Kilonzo N, et al. (2006) "MSM as presented in VCT data in Kenya." XVI International AIDS Conference: Abstract no. MOPE0581.

2. Baral S, et al. (2008) "HIV epidemics among MSM in Africa: examples from Malawi, Botswana, Namibia, Nigeria and South Africa." Workshop R9 from The Invisible Men: Gay Men and Other MSM in the Global HIV/AIDS Epidemic. Pre-conference Satellite Session to the XVII International AIDS Conference, Mexico City.

3. Baral S, Sifakis F, Cleghorn F, Beyer C. (2007) "Elevated risk for HIV infection among men who have sex with men in low- and middle-income countries 2000-2006: A systematic review." *PLoS Medicine* 4(12): e339.

4. Elrashied S. (2006) "Prevalence, knowledge and related risky sexual behaviors of HIV/AIDS among receptive MSM in Khartoum State, Sudan, 2005." XVI International AIDS Conference: Abstract no. TUPE0509.

5. Institut National de la Statistique Ministére des Finances et de la Planification Économique Kigali, Rwanda and ORC Macro. (2005) *Rwandan Demographic and Health Survey*. Calverton, MD: MEASURE DHS.

6. Moreau A, Placide T, Abdoulaye L, et al. (2007) "Implementing STI/HIV prevention and care interventions for MSM in Dakar, Senegal." *Horizons Research Summary*. Washington DC: Population Council.

7. Onyango-Ouma W, Birungi H, Geibel S. (2006) "Understanding the HIV/STI prevention needs of MSM in Kenya." *Horizons Research Summary*. Washington, DC: Population Council.

8. Sanders EJ, Graham SM, Okuku HS et al. (2007) "HIV-1 infection in high risk MSM in Mombasa, Kenya." *AIDS*; 21(18): 2513-20.

9. UNAIDS (2009) "UNAIDS Action Framework: Universal Access for Men who have Sex with Men and Transgender People." Geneva: UNAIDS.

10. USAID (2006) "Strengthening HIV/AIDS Response Partnerships Behavioral and HIV Biomarker Study: Men who have sex with men in the Greater Accra Region — Draft Report." Accra: USAID, SHARP, AED Constella Futures.

11. Wade AS, Kane CT, Diallo PA, et al. (2005) "HIV infection and STIs among MSM in Senegal." *AIDS*; 19(18):2133-40.

12. Zulu K, Bulawo ND, Zulu W. (2006) "Understanding HIV risk behavior among MSM in Zambia." XVI International AIDS Conference: Abstract no. WEPE0719.

Appendix A
DETAILED SAMPLING AND RECRUITMENT PROCEDURES

This study utilized a snowball sampling strategy involving peer recruiter/s. The crux of this method is that men completing the questionnaire were asked to recruit their friends, acquaintances and sexual partners into the study. Please see Figure A-1.

To start, we recruited three peer recruiters or "seeds". Seeds completed the questionnaire and then were ask ed to recruit up to ten friends, acquaintances and sexual partners into the study. Seeds provided their contacts with information about the study verbally and an invitation slip (with a unique identifying code) with the contact information of the Study Coordinator. The invitation slip was suitably large, but did not contain any sensitive information, i.e., there was no reference to MSM or sexual health/HIV on the slip.

However, the nature of the incentive was printed on the slip (condoms, lubricant, and travel expenses) to reduce any participation by men not meeting inclusion criteria. The invitation slip was serrated. Seeds kept one half and recruits kept the other half. Both halves were printed with the same unique identifying code (UIC), with a stamp covering the serration to ensure slips were not copy-able. This enabled reimbursement of seeds. Seeds received a secondary incentive if they were able to produce the matching invitation slip of a recruit who had completed the study.

Recruits initiated contact with the Study Coordinator (an MSM himself) by calling the telephone number indicated on their invitation slip. At first, a landline telephone was the proposed mode of communication as it doesn't display the caller's number and offers maximum confidentiality. However, this was later seen as not practical since potential participants would only be able to call when the research coordinator was at the study site. Thus, a mobile phone was adopted rather than a landline telephone. In addition, a considerable number of potential participants didn't have the financial means to make a call to the study coordinator (or did not want to use their limited airtime credit to call the study phone) so they would simply call the mobile phone and let it ring once to register their number, so that the study coordinator could call them back to schedule an interview. This proved to be the preferred method of contact for the majority of participants and wouldn't

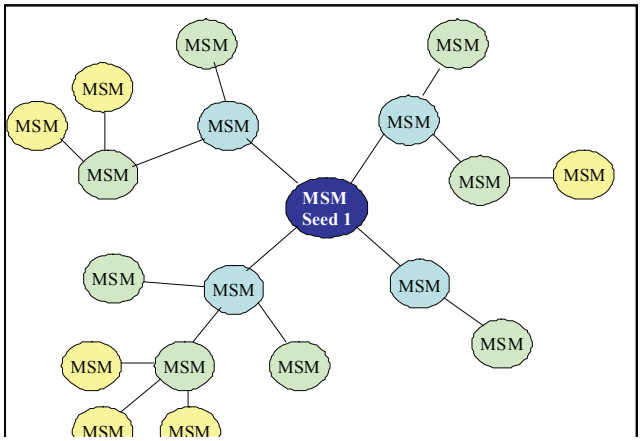


Figure A-1: Snowball sampling

have been an option with a landline phone. The Study Coordinator set up an interview time between the recruit, himself and the Interviewer. Potential participants were asked to set the appointment themselves, while the study coordinator's task ensured that two appointments didn't coincide in order to ensure confidentiality.

Three different types of interviewers were used over the course of the study (see Limitations section). The profile of the interviewer was an important decision, as homosexual behavior is very sensitive in Rwanda. As this was an exploratory study meant to inform further research with MSM in Rwanda, it was also important to determine which type of interviewer was the most acceptable to participants. During meetings of the management committee that prepared the research protocol, which included stakeholders from the MSM community, three profiles were chosen: a foreigner, a female professional from the medical sector, and a member of the MSM community in Kigali. A foreigner seemed best indicated because the participants could give the interviewer extensive information on their sexual lives without fear that they might be somehow connected socially to the interviewer.

However, as the majority of the population speaks Kinyarwanda, language ability was seen as a limitation with this option. Taking a member of the MSM community as interviewer was also considered, but there were fears that the interviewer might know some of the participants, and could potentially have a sexual history with a participant, introducing bias into the results. A female professional from the medical sector was also

considered since medical professionals are trained to observe confidentiality and it was thought that a female interviewer would be more neutral than a male. Thus, it was decided to recruit a professional woman with research experience. This choice worked to a certain extent, but some participants made it clear that they were not comfortable to talk to a woman, while other potential participants expressed reluctance to confide to a person they may meet in other circumstances in the future. Thus, after one month, one of the foreign, co-investigators was added as a second option for participants who felt comfortable conducting the interview in French or English.

However, the availability of the foreigner during the preferred interview hours of the participants, including the challenge of participants who preferred conducting the interview in Kinyarwanda, posed problems for this scenario. After consultation with several participants during data collection, an MSM from Kigali was finally selected as interviewer. The confidentiality agreement that he signed was explained to each participants and measures were taken to ensure that there was no previous sexual history between the interviewer and participant. It was proposed by the MSM stakeholders on the management committee that interviews should be carried out in an informal setting, such as the backroom of a coffee house or a bar. The research project for the MSM in Kigali needed a location that offers maximum secrecy and security to participants and personnel, while offering anonymity to the MSM.

A restricted zone within a public venue was identified as a study location. Respondents were given two location options for completing the questionnaire: the study site, or another place of their choice. The study site was a two-room cottage on the grounds of a restaurant/bar in an area frequented by MSM in Kigali. This study location was surrounded by a wall and no other activity was conducted on this location, which allowed for secrecy and security. Originally, it was thought that every potential participant would feel safe to come to such a venue, but feedback from some potential participants indicated that some didn't feel safe to come to a location they did not choose themselves.

Therefore, participants were also allowed to propose a meeting place where they felt comfortable. For interviews that took place in public places chosen by the

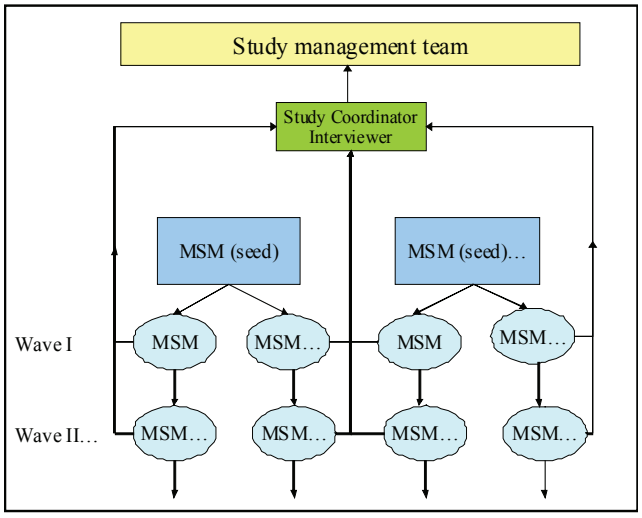


Figure A-2: Flowchart depicting recruitment methodology

participant, a budget was provided towards transport of personnel and non-alcoholic drinks.

Recruits were greeted by the Study Coordinator who collected the recruit's invitation slip and screened the candidate to ensure he was eligible for participation, i.e., met all inclusion criteria and had not already participated in the study. The Study Coordinator then sought informed verbal consent in the presence of the Interviewer. Recruits were presented with information on the study including confidentiality clauses, rights to refuse participation and to choose not to answer any question, as well as rights to withdraw from the study and seek redress. We emphasized that participation was purely voluntary.

Following consent, the interviewer then administered the survey in the recruits chosen language. Upon completion, the interviewer placed the completed questionnaire in an envelope and in a locked filing case. After completing the questionnaire, the respondent the respondent was reimbursed for travel expenses, and given condoms, lubricant, as well as general HIV prevention literature. Participants were then asked to recruit their peers into the study in the same fashion as described above. Recruits were given invitation slips when they completed the questionnaire. These "first wave recruits" were able to recruit a maximum of five peers into the study each. "Second-wave recruits" were asked to recruit a maximum of five peers into the study. Please see Figure A-2.

Appendix B
FEASIBILITY OF A NATIONAL BIO-BBS OF MSM

One of the objectives of this study was to explore the feasibility of a national bio-BSS-type study of MSM. To this end, we asked respondents a number of questions on their networks of MSM friends/acquaintances, as well as their views on the acceptability of the data collection procedures of the current study, as well as for a hypothetical future study involving biological indicators. Data and conclusions regarding the feasibility of a national bio-BSS of MSM in Rwanda are presented here.

Characteristics of respondents' MSM networks in Kigali — Respondents reported knowing an average (median) of 10 MSM living in Kigali (mean=18, range=0 to 100 men). Please see Figure B-1 for a summary of the numbers of MSM living in Kigali known to respondents. In the last month, respondents reported seeing an average (median) of five of these men (mean=9, range=0 to 50 men). Respondents reported knowing an average (median) of two MSM living in Rwanda, but outside Kigali (mean=10, range = 0 to 120 men). Please see Figure B-2 for a summary of the numbers of MSM living in Rwanda (but not Kigali) known to respondents. In the last month, respondents reported seeing an average (median) of two of these men (mean=4, range=0 to 50 men). Approximately 40% of respondents reported that none of their friends and acquaintances ever exchanged sex for money and/or material goods (n=36, N=92). On the other hand, just under one-quarter of respondents (n=21) reported that half or more than half of their friends and acquaintances sometimes exchanged sex for money and/or material goods.

Data collection preferences — For the current study, respondents telephoned the Study Coordinator to make an appointment to complete this survey. We asked men if they would have preferred to be able to come to the interview site at their leisure and to complete the survey, even if it meant waiting for a short while. The majority of respondents stated a preference for the procedures used in this study, i.e., appointments (n=83; N=94). Nine men stated that they would have preferred to "walk-in"; two men did not have a preference. For the current study, respondents telephoned the Study Coordinator on his mobile phone. We asked men if they would have preferred to call a fixed line (i.e., a line without call display) during working hours.

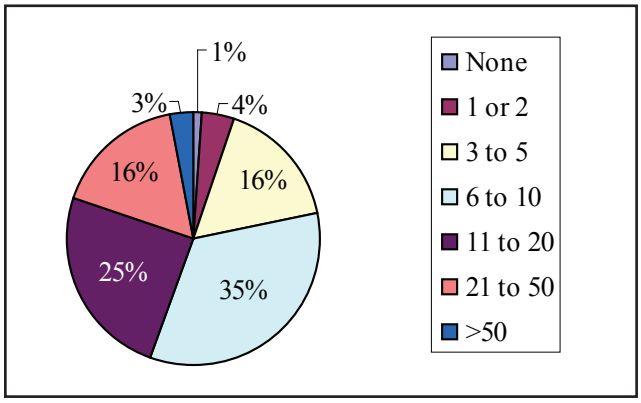


Figure B-1: Number of MSM living in Kigali, known to respondents (N=97)

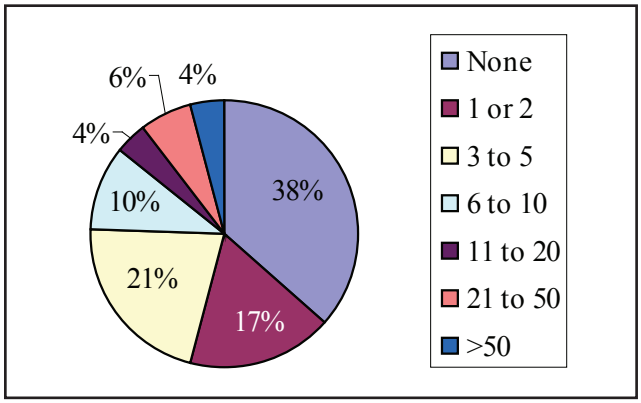


Figure B-2: Number of MSM living in Rwanda (not Kigali), known to respondents (N=98)

The majority stated a preference for calling a mobile phone (n=80, N=94). Seven respondents stated that they would have preferred to call a fixed line; eight respondents did not have a preference. For the current study, respondents were given two location options for completing the questionnaire: the study site, or another place of their choice.

The study site was a two-room cottage on the grounds of a restaurant/bar in an area frequented by MSM in Kigali. Approximately 25% of participants preferred a place of their choice to conduct the interview. We asked men where they would have felt comfortable completing the survey. The most common response was: a back room of a café, bar or restaurant, alike the site of the current study (n=63), followed by, a hotel room (n=45), a private apartment (n=15), and a clinic (n=7). Two men stated that they would not feel comfortable anywhere. The current survey was interviewer-administered.

We asked me whether this method was preferred, or whether they would have preferred a self-administered questionnaire. A majority expressed a preference for an interviewer-administered questionnaire (n=76; N=96). Seventeen men would have preferred a self-administered questionnaire, and three men had no preference.

Overall acceptability of current study — Overall, the majority of respondents (97%) felt the questionnaire (content) was very acceptable/acceptable. Please see Figure B-3. Also, the majority of respondents (95%) felt that the procedures for recruitment[30] into the study, i.e., by a friend, were very acceptable/acceptable. Please see Figure B-4. No respondents felt that the study was unacceptable.

Willingness to participate in future — A majority of respondents expressed a willingness to take part in another study like this in one year's time (n=90, N=98). Three men were unwilling, and five were not sure whether or not they would agree to take part. Likewise, a majority expressed willingness to recruit MSM friends/acquaintances into a future study (n=88, N=92). We told men that a future study would likely involve the collection of blood samples for HIV testing, and we asked if they would consider giving a blood sample for HIV testing if they were assured that results would be kept 100% confidential. Seventy-three men expressed a willingness to give a blood sample for HIV testing (including 14 men who had never been tested for HIV); 14 men were not sure if they would do this (10 of whom had never tested for HIV), and six men said that they would not give a sample.

Discussion and Conclusions — Results suggest that a bio-BSS among MSM in Rwanda is feasible, and may even encourage men who have not previously tested for HIV, to do so. We feel that a snowball-sampling approach is most feasible in this community, however there are limitations. Respondents' social networks of MSM were relatively small. On average respondents reported knowing 12 other MSM (10 in Kigali in addition to two outside Kigali), but reported seeing only seven of these men in the last month. This has implications for recruitment. Based on these data, and the challenges faced in recruitment during this study (see Limitations section), it is unlikely that future respondents/recruiters would be able to (directly) recruit more than five consenting adults in a reasonable amount of time. Due to the high mobility reported by respondents to this study, future efforts will need to take care to ensure that respondents participate one time only.

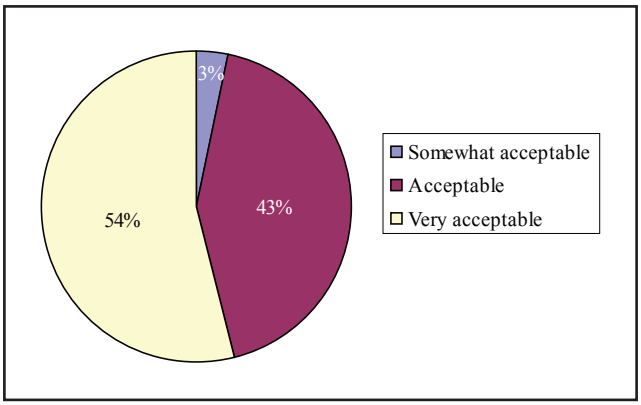


Figure B-3: Acceptability of questionnaire (N=93)

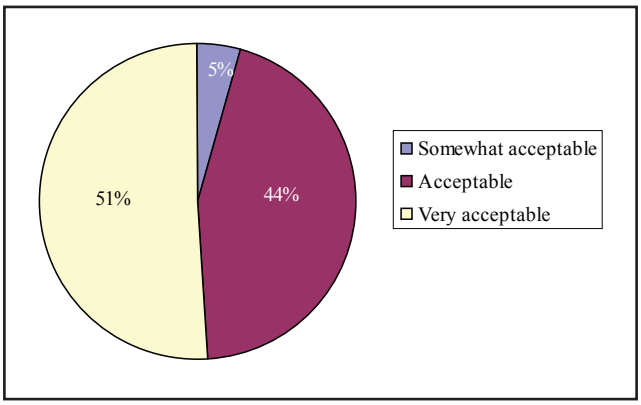


Figure B-4: Acceptability of recruitment procedures (N=88)

A majority of respondents were happy with the recruitment and data collection procedures applied in this study, although there was no consensus on preferences for ways to contact the Study Coordinator, interview location, or method of interview administration. We recommend that future research be implemented flexibly to ensure maximum participation by men who are more anxious about discrimination.

30. The majority of respondents (n=70, N=97) were recruited into the study by a "friend". Eighteen men were recruited by a sexual partner; six by an acquaintance, and one by "other" (no specificity available).

Appendix C
OUTCOMES FROM THE DISSEMINATION AND RESULTS VALIDATION WORKSHOP

We held a half-day dissemination and results validation workshop with the MSM community in Kigali in July 2009. MSM were invited, via the MSM Study Coordinator and Interviewer, regardless of whether or not they participated in the study. The objectives of the workshop were to:

- feedback and discuss study results to those who had participated;
- provide an opportunity for those who had not had a chance to voice their views, as study participants, to do so; and
- share information about HIV risk among MSM with as wide a forum as possible.

The workshop was attended by approximately 40 MSM and members of the Study Management Committee including: Dr Agnes Binagwaho, Permanent Secretary, Ministry of Health of Rwanda and Andrew Koleros, MEASURE Evaluation. As participant safety was of foremost concern, we asked participants not to provide their real names, date or place of birth, or place of residence to other participants. Participants were only allowed into the dissemination workshop when presenting an invitation from the Study Coordinator. The study as an entirety was presented to participations, and was followed by small group discussions, a knowledge quiz, and a voting exercise on sexual health related programmatic recommendations. For the group work, as time was limited, only select topics were chosen for discussion, including sexual networks of MSM (boyfriends, casual male partners, transactional and commercial male partners, female partners), and condom use in different types of partnerships.

Programmatic Recommendations — Workshop participants were asked for vote to key programmatic recommendations. Study results indicating the percentage of study participants citing each key HIV prevention programmatic recommendation were posted throughout the conference room on flip charts. Participants were asked to vote if they "agreed" or "disagreed" with the programmatic results. For example, we wrote "55% of study participants stated that there is a need for MSM-specific health services" on a flip chart and attached an envelope to the wall just below. Participants were given green (agree) and red (disagree) cards and asked to put the appropriate color card in the corresponding envelope based on their perception. Outcomes from this exercise are summarized in Table C-1 below.

Table C-1: Programmatic recommendations

Recommendation	*Number who agreed with study results*
Counseling	24
Lubricant distribution structure	21
MSM-specific health services	18
Stigma reduction campaigns	17
Condom distribution structure	16
Sexual health awareness campaign	16
MSM associations	14

Appendix D
TABLES

Table 1: Total time spent outside Kigali in the last 12 months

Timeframe	*N*
None, never left Kigali	35
Less than 1 week	5
1-3 weeks	19
4-6 weeks	19
7 weeks to 6 months	16
More than 6 months	4
TOTAL	98

Table 2: Reported alcohol use

Frequency of use	*N*	*Median age*
Everyday	22	28
About once per week	40	25
About once during the last month	11	21
Never	26	23
TOTAL	99	n/a

Table 3: Sexuality, by age (N=94)

Sexuality	*N*	*Age range*	*Mean age*	*Median age*
Heterosexual	4	26 – 52	36	n/a
Homosexual	46	18 – 33	25	24
Bisexual	31	18 – 34	24	24
Other	2	20 – 24	22	n/a
Not sure	11	20 - 49	29	26

Table 4: HIV knowledge

Item	*True*	*False*	*Not Sure*	*TOTAL*
A person can acquire HIV from mosquito bites	9	74	5	88
HIV can be transmitted during oral sex	42	27	20	89
HIV can be transmitted by kissing	14	60	15	89
People can protect themselves from HIV by abstaining from sex	83	6	0	89
People can protect themselves from HIV by using a condom correctly every time they have vaginal sex	84	2	3	89
People can protect themselves from HIV by using a condom correctly every time they have anal sex	84	0	5	89
People can acquire HIV by sharing a meal with someone who is HIV+	3	85	1	89
People can acquire HIV by getting injections with a needle that was already used by someone else	87	2	0	89
A pregnant women who has HIV can transmit HIV to her unborn child	42	38	8	88
A woman who has HIV can transmit HIV to child when breastfeeding	76	5	7	88
A healthy-looking person can be infected with HIV	85	3	0	88

Table 5. Attitudes towards people living with HIV

Item	*Yes*	*No*	*Not sure*	*TOTAL*
Would you be willing to share a meal with someone you knew had HIV/AIDS?	80	8	0	88
If a member of your family had HIV/AIDS, would you want it to remain a secret?	33	51	4	88
Would you buy fresh vegetables from a vendor who you know has HIV/AIDS?	83	6	0	89

Table 6: Numbers of male partners in the 12 months prior to survey (N=96)

Number of partners	*N*	*%*	*%*
None	8	8	29% reported no casual male partners
One (boyfriend)	20	21	
One (casual)	10	30% reported 1-2 casual male partners	71% reported at least one casual male partner
2 partners	19		
3 partners	12	26% reported 3-5 male partners	
4 partners	9		
5 partners	4		
6 partners	5	15% reported >5 male partners	
7 partners	2		
8 partners	1		
10 partners	2		
20 partners	3		
36 partners	1		

Table 7: Meeting place of current boyfriend

Place	*N*
At school or university	7
He is from my hometown/village	5
At work	11
At the bar/night club	10
At a park or other open public place	2
Through friends	3
Internet	2
Prison	3
Other: neighbor (1); restaurant (1); hotel (1)	3
TOTAL	46

Table 8: Beginning of sexual relationship with current male partner

Timeframe	*N*
About 1 week or less	1
1 week to 1 month ago	1
1 to 6 months ago	8
6 to 12 months ago	7
More than 1 year ago	27
TOTAL	44

Table 9: Reasons for non-condom use at first sex with current male partner

Reason	*N*
We did not have a condom with us at the time	5
I do not like condoms	5
Partner does not like condoms/partner refused	1
I have confidence in my partner	1
It did not occur to me/My partner: "I never use it because I always do it when I am drunk"	1
Lack of knowledge that HIV can be transmitted through anal sex	4
Other	4
Not sure	1
TOTAL	22

Table 10: Reasons for non-condom use at last sex with current male partner

Reason	*N*
I do not like condoms	5
Partner does not like condoms/partner refused	2
I have confidence in my partner	7
It is not our habit	1
It did not occur to me/my partner: "I never use it because I always do it when I am drunk"	1
Lack of knowledge that HIV can be transmitted through anal sex	2
Other: Had an HIV test together; "I was afraid that the condom would stay inside me"	2
Not sure	1
TOTAL	21

Table 11: Meeting place of last sexual partner

Place	*N*
At a bar/nightclub	12
He is from my hometown/village	10
At school of university	4
At work	3
Through friends	3
Internet	2
Prison	2
At a park or other open public place	1
Other: at my place, at his place, on public transport; hotel; we live together	5
TOTAL	42

Table 12: Reported commercial/transactional sex (selling)

Exchange	*Ever*	*Last 12 months*
Exchanged oral and/or anal sex for both money and goods	10	8
Exchanged oral and/or anal sex for money only	12	10
Exchanged oral and/or anal sex for goods only	8	7
TOTAL	30	25

Table 13: Reported commercial/transactional sex (buying)

Exchange	*Ever*	*Last 12 months*
Exchanged both money and goods for oral and/or anal sex	6	4 (3 anal sex)
Exchanged money only for oral and/or anal sex	12	11 (9 anal sex)
Exchanged goods only for oral and/or anal sex only	6	5 (4 anal sex)
TOTAL	24	20

Table 14: Reported sex with women, by self-described sexuality (N=94)

Self-described sexuality	*Ever sex with a woman*		*Sex with a woman in last 12 months*
	No	Yes	
Heterosexual	2	2	0
Homosexual	38	8	3
Bisexual	7	24	19
Not sure/Other	8	5	2
TOTAL	55	39	24*

** Only 24 of 25 respondents who reported sex with a woman in the 12 months prior to survey also answered the earlier question on self-described sexuality*

Table 15: Number of female partners, in the 12 months and one month prior to survey

Number of partners	*In the 12 months prior to survey*	*In the 1 month prior to survey*
None	N/A	8
1 woman	10	9
2-3 women	10	6
4-10 women	4	2
Not sure	1	0
TOTAL	25	25

Table 16: Frequency of sex with women in the 12 months prior to survey

Frequency	*N*
1 – 2 times total	7
3 – 10 times total	7
1 – 2 times per month	4
1 – 2 times per week	4
Most days	1
> 1 time per day	1
Not sure	1
TOTAL	25

Table 17: Reported condom use at last sex, by partner type, among those reporting such a partner in the 12 months prior to survey

Type of partner	*N*	*%*	*TOTAL*
Last sex with boyfriend	23	50	46
Last casual male partner	19	51	37
Last commercial male partner: selling	10	55	18
Last transactional male partner: selling	6	n/a	14
Last commercial male partner: buying	7	n/a	11
Last transactional male partner: buying	5	n/a	7
Last female partner	16	64	25

Table 18: Reported consistent condom use in 12 months prior to survey, by partner type, among those reporting such a partner in the 12 months prior to survey

Type of partner	*N*	*%*	*TOTAL*
All male sex partners	32	37	87
Boyfriend	11	24	46
Commercial male partners (selling)	7	n/a	18
Transactional male sexual partners (selling)	4	n/a	14
Commercial male partners (buying)	6	n/a	11
Transactional male sexual partners (buying)	5	n/a	7
Female partners	14	56	25

Table 19: Correlation between condom breakage and type of lubricant used*

	Breakage reported	*No breakage reported*
Proper lubricant	2	8
Improper lubricant	10	25
No lubricant	5	0

Table 20: Discussions about HIV with sexual partners, by partner type

Partner type	*N*	*%*	*TOTAL*
Discussed HIV with at least one male sexual partner	45	47	96
Discussed HIV with at least one commercial male sex partner	8	38	21
Discussed HIV with at least one transactional male sex partner	6	33	18
Discussed HIV with at least one female sexual partner	18	46	39

Table 21: HIV testing history

History	*Yes*		*No*	*TOTAL*
	n	*%*	*n*	
Ever tested	57	65	31	88
Tested in last 12 months	42	48	46	88
Obtained results from most recent test (among those tested)	55	96	2	57

Table 22. Respondents' plans for future HIV testing, by testing history

Plans for future testing	*Ever tested*	*Never tested*	*TOTAL*
Would test in next 12 months	55 (96%)	16 (52%)	71
Not sure if would test in next 12 months	2	7 (23%)	9
Would not test in next 12 months	0	8 (25%)	8*
TOTAL	57	31	

** One respondent reporting that he would not test in the future did not respond to the earlier question on previous testing behavior.*

Table 23: Respondents' perceptions of HIV services needed in Kigali

Services needed in Kigali	*Respondents citing this (multiple responses possible)*	
	N = 91	*%*
Dedicated, confidential health clinic for MSM	46	51
Improved availability of condoms designed for anal sex	33	36
Improved availability of lubricants for anal sex	35	39
HIV/AIDS stigma reduction campaigns	28	31
Awareness-raising*	16	18
Counseling for MSM*	6	6.6
MSM associations/mobilization*†	4	4.4
Other*: physicians should be training to meet the needs of MSM (n=2); physicians should assure confidentiality (2); human rights issues related to MSM should be addressed (4); job seeking (2); phone booking for medical consultations (1)	11	N/A

** Unprompted responses*

†Nine men reported being aware of one or more organizations targeting MSM in Rwanda (N=98), and three of these men reporting being engaged with these organizations

Table 24: Number of waves, by seed

Seed	*Number of waves*
1	2
2	1
3	2
4	3
5	2
6	3
7	0 (only seed participated)
8	3
9	1
10	0 (only seed participated)

Table 25: A comparison of HIV-related knowledge and attitudes among study participants and the general male population

	% Yes	
	*MSM**	*All men†*
A person can acquire HIV from mosquito bites	16	10.7
People can protect themselves from HIV by abstaining from sex	93	82.3
People can protect themselves from HIV by using a condom every time they have sex	94	87.7
People can acquire HIV by sharing a meal with someone who is HIV positive	4	5.6
A woman who has HIV can transmit HIV to child when breastfeeding	86	87.5
A healthy-looking person can be infected with HIV	97	95.7
If a member of your family had HIV/AIDS, would you want it to remain a secret?	38	40.2
Would you buy fresh vegetables from a vendor who you know has HIV/AIDS?	93	88.4

** The denominator is all study respondents who reported having heard of HIV/AIDS. Although a substantial proportion of study respondents reported having no knowledge of HIV/AIDS, we feel this data is invalid, as discussed above.*

†*Kigali residents, all ages (RDHS, 2005)*

Appendix E
FIGURES

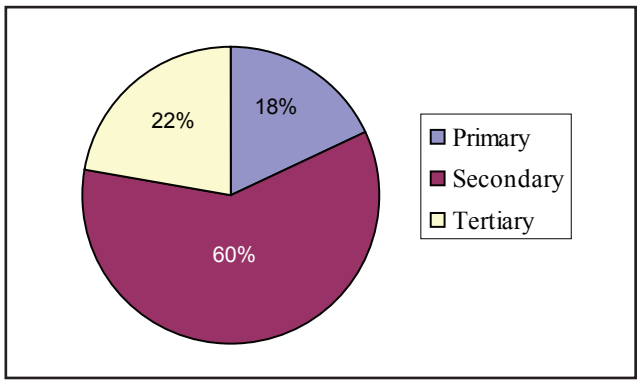


Figure 1: Highest level of schooling completed (N=99)

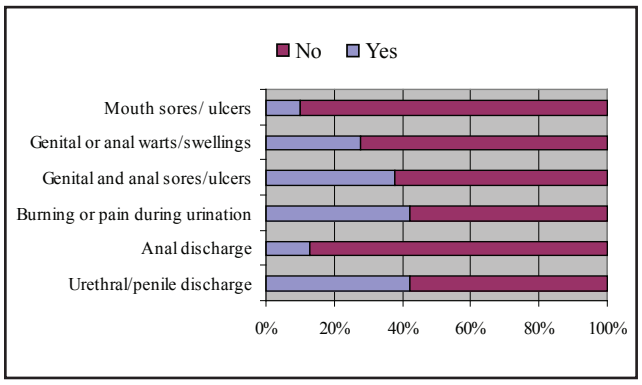


Figure 4: STI symptoms mentioned by respondent, unprompted (N=69)

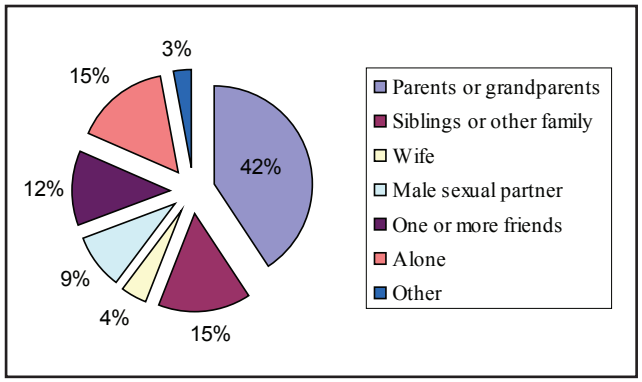


Figure 2: Current living arrangements (N=98)

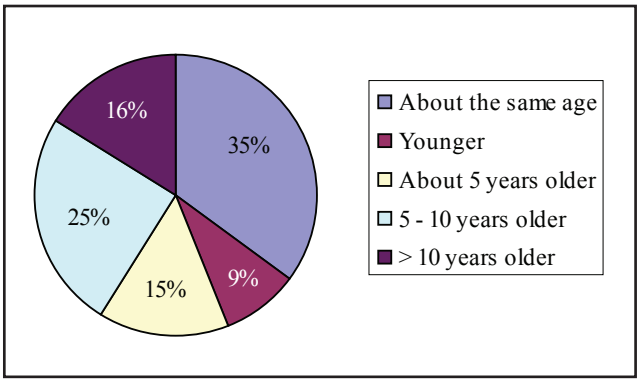


Figure 5: Relative age of first sexual partner

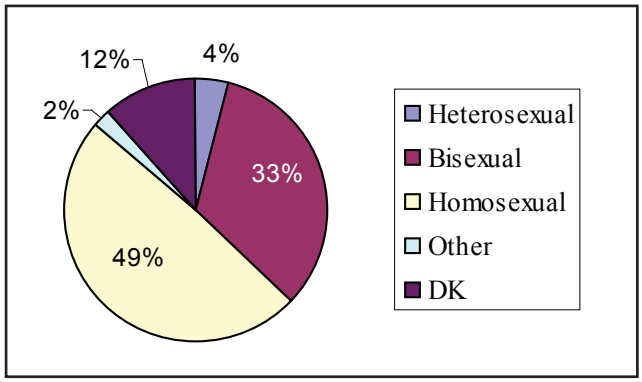


Figure 3: Self-described sexuality (N=94)

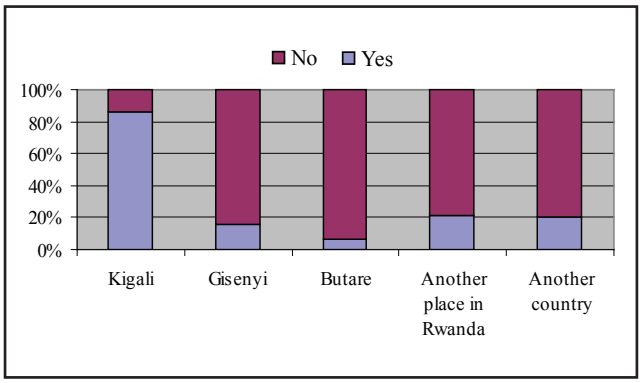


Figure 6: Reported anal sex with another man in the last 12 months, by location (all respondents)

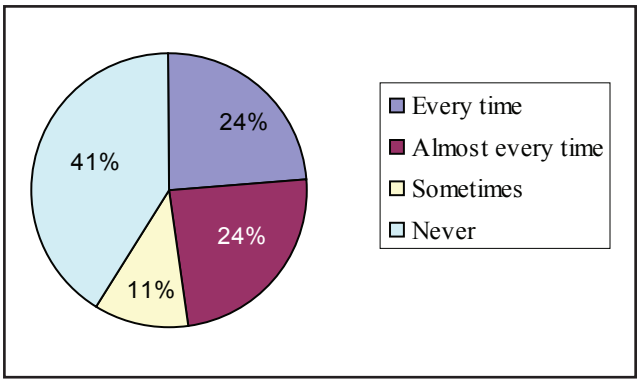


Figure 7: Reported condom use with boyfriend (N=46)

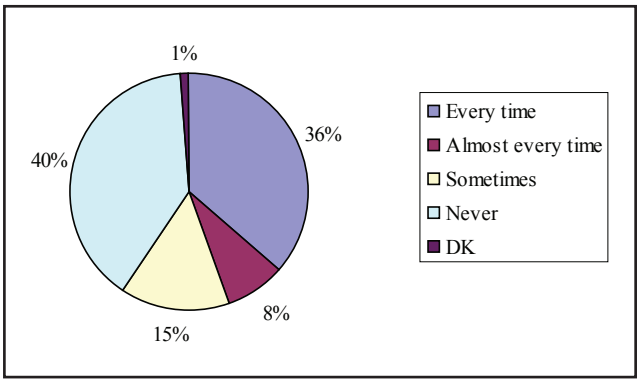


Figure 8: Frequency of condom use in last 12 months (N=88)

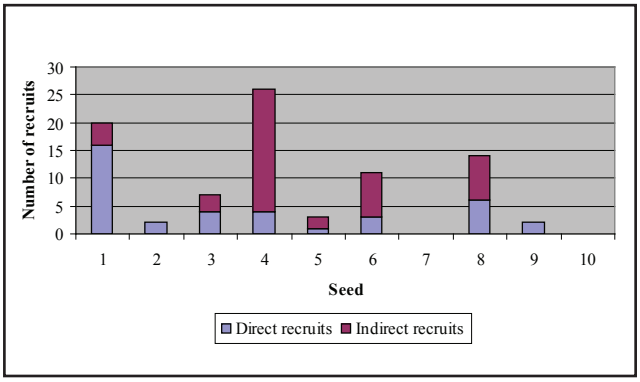
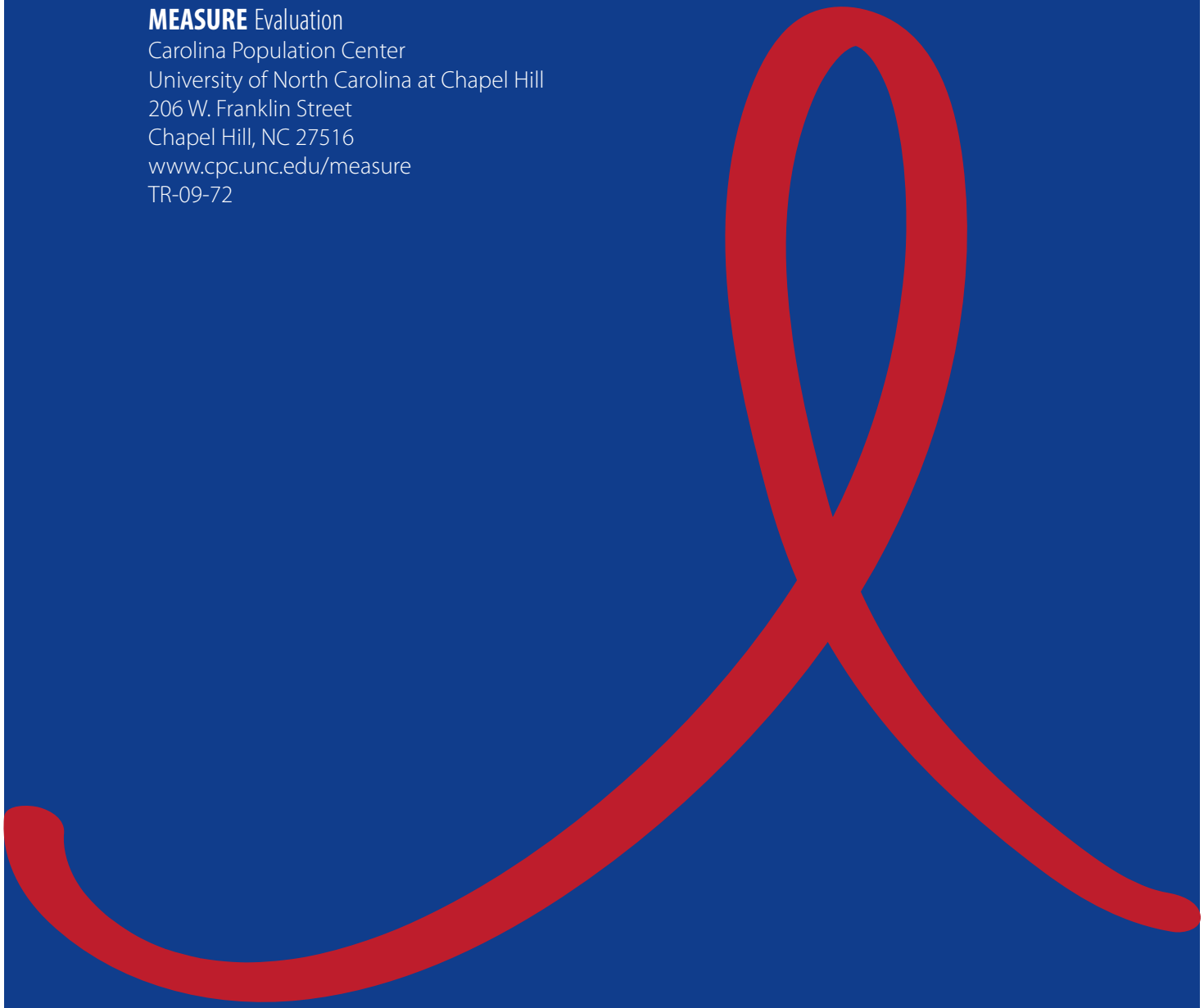


Figure 9: Recruitment success, by seed

MEASURE Evaluation
Carolina Population Center
University of North Carolina at Chapel Hill
206 W. Franklin Street
Chapel Hill, NC 27516
www.cpc.unc.edu/measure
TR-09-72



KOMISIYO Y'IGIHUGU ISHINZWE KURWANYA SIDA
CNLS

Joint United Nations Programme on HIV/AIDS
UNAIDS
UNICEF • WFP • UNDP • UNFPA • UNODC
ILO • UNESCO • WHO • WORLD BANK

USAID
FROM THE AMERICAN PEOPLE

MEASURE
Evaluation