

# Same-sex sexual behavior of men in Kenya: Implications for HIV prevention, programs, and policy

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## Abstract

Unprotected anal sex has long been recognized as a risk factor for HIV transmission among men who have sex with men (MSM). In Africa, however, general denial of MSM existence and associated stigma discouraged research. To address this gap in the literature, partners conducted the first behavioral surveys of MSM in Kenya. The first study was to assess HIV risk among MSM in Nairobi, and the second study a pre-post intervention study of male sex workers in Mombasa. The 2004 behavioral survey of 500 men in Mombasa revealed that MSM were having multiple sexual partners and failed to access appropriate prevention counseling and care at Kenya clinics. A 2006 capture-recapture enumeration in Mombasa estimated that over 700 male sex workers were active, after which a pre-intervention baseline survey of 425 male sex workers was conducted. Awareness of unprotected anal sex as an HIV risk behavior and consistent condom use with clients was low, and use of oil-based lubricants high. Based on this information, peer educators were trained in HIV prevention, basic counseling skills, and distribution of condoms and lubricants. To assess impact of the interventions, a follow-up survey of 442 male sex workers was implemented in 2008. Exposure to peer educators was significantly associated with increased consistent condom use, improved HIV knowledge, and increased use of water-based lubricants. These results have provided needed information to the Government of Kenya and have informed HIV prevention interventions.

**Key words:** HIV prevention, men who have sex with men, male sex workers, Africa, condoms, surveys.

## Introduction

### *Anal sex and HIV transmission*

Since the discovery of the human immunodeficiency virus (HIV) epidemic in the early 1980s, unprotected anal sex between men has been recognized as a risk factor for transmission. By 1988, an estimated 50,000 cases of acquired immune deficiency syndrome (AIDS) were identified, and HIV prevalence rates among homosexual men were estimated to range from 20% to 50% (Curran et al., 1988). In 1990, an estimated 63% of male HIV diagnoses in

the United States were among men who have sex with men (MSM) (Karon et al., 2001).

There have been a number of studies that estimate the probabilities of HIV transmission via anal and vaginal sex (Baggaley et al., 2010; Boily et al., 2009). Analysis of these studies may infer that the per-act probability or risk of HIV infection from unprotected anal sex is about 18 times higher than unprotected vaginal sex (Grulich and Zablotska, 2010). Men who practice unprotected receptive anal intercourse (URAI) with partners are estimated to have about twice the HIV vulnerability of men who only practice unprotected insertive anal intercourse (UIAI).

## *HIV prevention interventions*

A variety of HIV-focused interventions for MSM have been designed and tested. Behavioral interventions may include counseling, linking of clients to services, media campaigns, or condom use education (Johnson et al., 2008). Examples of biomedical interventions may include male circumcision, rectal microbicides, or pre-exposure medicinal prophylaxis (Padian et al., 2008). Structural interventions address social, cultural, economic, and political factors which impact HIV transmission (Altman, 2007). Public health legislation, support for human rights, and/or provision of ‘safe spaces’ are examples of structural interventions which might improve the ability of health systems to reach MSM (Sumartojo, 2000).

Overall, many behavioral interventions have been found to be effective among MSM and other at-risk populations (Mullen et al., 2002). One review found that behavioral interventions for MSM resulted in significant decreases in unprotected anal sex and sex with multiple partners, and significant increases in condom use. Risk reduction was more likely to be associated with interventions which were based on behavioral theory models, incorporated interpersonal skills training and innovative delivery strategies, and that administered multiple sessions or doses over limited periods of time (Crepaz et al., 2006).

Available knowledge on the efficacy of biomedical and structural interventions for MSM is more limited. Male circumcision has been found to have a decisive protective effect among generalized populations and in Kenya specifically (60%, 95% CI: 32-77; Bailey et al., 2007), but results from international studies examining male circumcision among MSM are mixed (Buchbinder et al., 2005; Millett et al., 2007). Results from the Pre-exposure Prophylaxis Initiative (iPrEx) trial reported 44% fewer HIV infections among men taking pre-exposure prophylaxis (PrEP) compared to those taking a placebo, indicating potential for PrEP as a key MSM prevention strategy (Grant et al., 2010). There is also more recent investigation on rectal application of microbicides, including a study where a tenofovir gel was reported to have a significant protective effect in macaques (Cranage et al., 2008). Studies evaluating rectal microbicide human safety and acceptability are ongoing, which includes assessment of candidate microbicides at early pre-clinical development stages (McGowan, 2010).

## *Condoms and lubricants*

One of the most common prevention interventions for MSM is increasing the availability of condoms. The efficacy of correct and consistent condom use

in HIV prevention is well documented (Pinkerton and Abramson, 1997; Davis and Weller, 1999). Additionally, water-based lubricants are also commonly distributed by MSM prevention programs. This is believed to be an essential safety provision to reduce tears or damage to the rectal area, which may facilitate transmission of the HIV virus (Carballo-Diequez et al., 1996). Lubricant use is also encouraged to prevent condom breakage, and the use of oil-based lubricants – such as petroleum jelly – with latex condoms is commonly discouraged.

## *MSM and HIV in Kenya*

Since HIV was first diagnosed in Africa, HIV and AIDS policies were based on a common perception that unprotected heterosexual contact was the primary driver of the African epidemic (Melbye et al., 1986; Ronald et al., 1988; Hunter, 1993). The identification of a “heterosexual” driver of the African HIV epidemic was essential towards enabling African policymakers to adopt and accept HIV programming. Homosexuality in Africa is widely perceived to be abnormal or contrary to cultural norms, and believed to have been adopted from western countries. This is often reflected in African media opinion pieces and public statements by African heads of state (Geibel et al., 2010).

In the 1990s, MSM research in Africa was primarily limited to occasional qualitative studies or book chapters (Teunis, 1996; McKenna, 1996; Roscoe and Murray, 1998). Before 2001, no larger population-based surveys or assessments of African MSM subpopulations had been implemented. This resulted in a significant knowledge gap in estimated MSM population sizes, HIV vulnerability, HIV prevalence, and contribution to overall HIV incidence in African settings.

Most gay and other same-sex practicing Africans live in highly stigmatizing and discriminatory settings, which put them at risk of emotional and/or physical harm. General denial of MSM existence and associated stigma has also discouraged Africans from conducting MSM research for fear that others would ridicule them or even question their sexual orientation (Tapsoba et al., 2004). In most African countries except South Africa, same-sex sexual behavior is criminalized. Sections 162 to 165 of the Kenya Penal Code, for example, specify that “unnatural offences... against the order of nature” may be penalized with up to fourteen years in prison (Government of Kenya, 2012). African MSM, therefore, rarely publicly declare their sexual orientation. Therefore, much of the MSM research from the 1980s and 1990s focused primarily on gay populations in western or developed countries (Stall

et al., 2000). Documentation of Kenyan MSM in the literature was extremely limited during this period.

In 1998, Amory described homosexual cultures at the East African coastal region and discussed a number of sexual identities and terminologies. Men who played passive or receptive roles during anal sex often described themselves as *knanith* or *hanisi* (or *hanithi*), *shoga*, or *senge*. Men who took on more active – or insertive – roles during anal sex were commonly referred to as *basha*, a term that means king in local language. Amory went on to describe various cultural roles of these sexual identities including “marriage” practices, clothing, and lifestyle. At the same time, western cultures obviously influenced MSM language and identity terms in the region and that HIV/AIDS programming remained heterosexual-focused (Amory, 1998).

In 1999, Kiama reported that many Kenyans believed homosexuality was practiced in boarding schools and prisons. Despite the existence of meeting areas for these men to socialize, however, homosexuality was an underground activity throughout Kenya and that these taboos prevented addressing HIV education and support issues among MSM. Additionally, the government had no evidence to suggest that MSM were a population of epidemiologic importance:

*“A representative of the Ministry of Health contends that HIV/AIDS transmission by homosexuals is so negligible that it does not justify attention. (Kiama, 1999)”*

From 2002 to 2003, however, formative and qualitative assessments in both Nairobi (Sharma et al., 2008) and Mombasa (Esu-Williams and Hawken, 2003) strongly suggested that MSM existed in larger numbers previously believed in Kenya. However, no survey or quantitative data on MSM had ever been gathered prior to these assessments.

It is against this backdrop that we proposed to address gaps in the knowledge by conducting larger sample surveys of MSM in Kenya. The first to survey was to be among general MSM in Nairobi, and then additional surveys among an MSM subgroup of male sex workers in Mombasa. We describe here the methods and results from these two study activities, with the aim towards establishing MSM in Kenya as a population at high risk of HIV infection. The impact of these findings and recommendations for policy, programs, and research are discussed.

## Methods

### Study sites

Research activities took place in Nairobi and Mombasa, which are respectively the first and second

largest cities in Kenya. Over three million people were living in Nairobi, the Kenyan capital and regional business and government center, in 2009. Mombasa is located on the coast of Kenya, with nearly one million people residing in the district area (Kenya National Bureau of Statistics, 2009). Mombasa district covers about 100 square miles, and the main industries are shipping and tourism.

According to the most recent Kenya AIDS Indicator Survey (KAIS), approximately 1.4 million Kenyans currently live with HIV/AIDS, or 7.4% of the population aged 15 to 64. Overall HIV prevalence in Nairobi is 8.8%, and in Mombasa it is 8.1%. As with HIV, herpes simplex virus type two (HSV-2) prevalence among men in both Nairobi and Mombasa are similar (37.8 and 39.7% HSV-2 prevalence in Nairobi and Mombasa respectively; National AIDS Control Council and Kenya Ministry of Health, 2009).

### Study design

#### Nairobi exploratory study

In Nairobi, a quantitative survey was implemented first in early 2004, followed by in-depth interviews and ethnographic observations. Respondents were eligible to be interviewed for the survey if they had a history of having sexual intercourse with one or more male partners, if they were 18 years of age or older, and were Kenyan citizens. In order to avoid attracting attention to MSM social sites in Nairobi, most of the interviews were done at a central location at the University of Nairobi. The survey questionnaire was made up of six sections on the following broad subject areas: socio-demographic characteristics, stigma and discrimination, sexual practices, knowledge of sexually transmitted infections (STIs) and HIV, knowledge of/access to services, and social networks.

#### Mombasa male sex worker enumeration

A collaborative effort between the Population Council, ICRH, and the Kenya Medical Research Institute (KEMRI) resulted in the first known attempt to enumerate male sex workers in Africa using capture-recapture methods. Over 70 locations were mapped in the Mombasa area where it was believed that male sex workers sought clients, and trained a team of over 30 enumerators (mostly MSM or male sex workers) to approach, identify, and confirm the sex worker status of men at the sites. These peer leader enumerators extended a recruitment leaflet to MSM who were identified as male sex workers. This activity was conducted on two consecutive Saturdays.

Record was kept of when, where, and by whom the invitation was extended and received, and of refusals. A capture-recapture calculation was utilized to derive a total estimate of male sex workers in the Mombasa area.

#### Male sex worker behavioral surveillance and intervention study

In 2006, a time-venue behavioral survey was designed to provide baseline estimates of male sex worker socio-demographic characteristics, sexual behaviors, prevention knowledge and practices, reported STI symptoms, discrimination, violence, and health service utilization. The male sex worker enumeration yielded a database of 65 locations within Mombasa District estimating male sex workers who sell sex to men present at each venue and the peak hours when they might be present. These locations served as the primary sampling units, or clusters, and included bars, nightclubs/discos, beach areas/bars, public streets and parks, and other private brothels, businesses, and estates. All clusters were selected at the first stage of sampling, and second stage selection was based on probability proportional to the number of male sex workers found at each venue in the enumeration database.

MSM peer mobilizers were assigned to male sex worker venues at certain times, and engaged in a similar identification and confirmation process used in the enumeration. Once the peer mobilizer was confident that the contact had a history of having sex with men, he would ask the contact if he had recently sold, and is currently willing to sell sex in exchange for money and/or goods. If the contact was confirmed as a male sex worker who sells sex to men, and was 16 years of age or older, the peer mobilizer then gave a brief description and justification of the research activities, and offered to escort the contact to a central location where they were introduced to the study coordinator and interview team. Male sex workers who rejected the offer to participate were recorded as refusals. At the interview sites, a structured behavior questionnaire was administered.

After the baseline quantitative survey was completed, three focus group discussion groups and ten in-depth interviews were conducted with male sex workers purposively selected from survey participants. Selection was based on pre-selected IDI subgroups based on diversified sexual partnerships with men and/or women, age, and other social and economic factors. While IDIs elicited views on topics at the individual level, FGDs were conducted to record debate or consensus on the same topics. Structured interview guides discussed contexts of first sexual experiences with men, obtaining clients

and negotiations, sexual practices and risks, condom use, sexual identity, stigma and discrimination, and health service utilization.

Immediately after completion of the baseline survey, ICRH commenced implementation of interventions for male sex workers in Mombasa. The primary interventions included the training of MSM peer educators in basic counseling and harm reduction, and the opening of a drop-in center in the centre of Mombasa town where MSM or male sex workers were welcome to come for health information, condoms and lubricants, or HIV counseling and/or testing. Condoms and lubricants were also distributed by peer educators in the community.

After twelve months of intervention implementation, a follow-up survey of male sex workers was conducted from October to December 2008, using the same methods described for the baseline survey.

#### Data management and analysis

Standardized questionnaires and qualitative guides were used, and in the Nairobi study paper-assisted personal interviews (PAPI) were administered, where computer-assisted personal interviews (CAPI) were conducted in Mombasa using handheld computers. For in-depth interviews and focus group discussions in Mombasa, conversations were recorded on audio cassettes or recorded in notes on paper, depending on whether participants agreed to be recorded.

Univariate and multivariate analyses were utilized to describe both Nairobi and Mombasa study populations, as well as determine factors associated with (a) inconsistent or no condom use in Nairobi and Mombasa and (b) peer educator exposure in Mombasa. SPSS 11.5 (SPSS Corporation, Chicago, IL) was used for data cleaning for both the Nairobi and Mombasa studies, while Intercooled Stata versions 8.0, 9.2, and 10.1 (Stata Corporation, College Station, TX) were used for analysis of the male sex worker survey data.

#### Ethical approvals

All study activities in this thesis were approved by the Population Council Institutional Review Board in New York, NY, USA; and locally in Kenya by the Kenyatta National Hospital Ethics and Review Committee.

#### *Methodological challenges in conducting research among MSM in Kenya (Onyango-Ouma et al., 2009)*

Despite difficulties in obtaining ethical approvals, reaching MSM and assuring confidentiality, a constrained legal environment, and high levels of

community stigma, the first large study of MSM in Kenya was successfully and safely completed, with 500 MSM reached and interviewed. This established precedent for conducting MSM research and broke ground for the Mombasa male sex worker study and other studies that followed.

## Results

### *Identifying and enumerating men who sell sex to men in Kenya (Geibel et al., 2007)*

The capture-recapture enumeration exercise conducted in 2006 resulted in two counts. The first week, 284 men were counted and 89 men refused to participate. The second week, 484 men were counted and 75 men refused. Of the 484 men counted in the second week, 186 were 'recaptures,' or 'matches' from week one. These numbers were incorporated into a capture-recapture formula, and we obtained an estimate of 739 (95% confidence interval, 690-798) male sex workers who sell sex in the Mombasa area. It was concluded that male sex workers in Mombasa represented a sizable population at risk of HIV in need of further assessment and prevention interventions.

### *Sexual behavior of male sex workers: Identifying HIV prevention issues (Geibel et al., 2008; Okal et al., 2009; Luchters et al., 2011)*

A baseline survey of 425 male sex workers in Mombasa was completed in late 2006. Key findings revealed that this population was at high risk of HIV transmission. Additionally, only 21.2% of respondents correctly knew that a water-based lubricant should be used with latex condoms. Lack of knowledge of anal sex as a risk behavior was a significant predictor of unprotected anal sex [adjusted odds ratio (AOR) 1.92; 95% confidence interval (95% CI), 1.16-3.16]. Other associated factors included drinking alcohol more than 2 days per week (AOR, 1.63; 95% CI, 1.05-2.54), self-report of burning urination within the past 12 months (AOR, 2.07; 95% CI, 1.14-3.76), and having never been counseled or tested for HIV (AOR, 1.66; 95% CI, 1.07-2.57; Geibel et al., 2008).

Immediately following the baseline survey, focus group discussions and in-depth interviews with a total of 36 male sex workers confirmed that a majority of their male sexual partners were Kenyan, and that first sexual experiences with men often took place during adolescence with friends or acquaintances. For some men, though, poverty and coercion also were reported as factors contributing to starting male sex work. Victimization to verbal, physical, and

sexual violence was also reported to be common. Condom was subject to common constraints, including partner interference and desires or requests of clients. Participants discussed further the perception that anal sex is less risky than vaginal sex, and revealed that anal sex was thought to be a biologically dry pathway in which the HIV virus cannot easily move. Traditional family values, stereotypes of abnormality, gender norms and cultural and religious influences were reported to also contribute to intense stigma and discrimination (Okal et al., 2009).

In 2008, the follow-up survey of 442 male sex workers was implemented in Mombasa, and special attention was given to measurement of alcohol use and abuse, given its association with inconsistent condom use in the baseline survey. Three measures of alcohol use were assessed: frequency of drinking, binge drinking (six or more drinks on one occasion), and the Alcohol Use Disorders Identification Test (AUDIT). The AUDIT scale scored participants from 0 to 40 to assess any harmful, hazardous, and/or dependent use of alcohol. About 70% of male sex workers reported drinking alcohol and 51% drink two or more times a week. Binge drinking in the past month was also common (38.9%). As defined by AUDIT categorization, 35% of participants who drink measured as hazardous drinkers, 15% harmful drinkers, and 21% dependent drinkers. Compared with abstinence, alcohol dependence was associated with inconsistent condom use (AOR = 2.5, 95% CI = 1.3-4.6), penile or anal discharge (AOR = 1.9, 95% CI: 1.0-3.8), and two-fold higher odds of sexual violence (AOR = 2.0, 95% CI = 0.9-4.9). Frequent drinking was associated with inconsistent condom use (AOR = 1.8, 95% CI = 1.1-3.0) and partner number, while binge drinking was only linked with inconsistent condom use (AOR = 1.6, 95% CI = 1.0-2.5). Compared with indicators of drinking frequency or pattern, the AUDIT measured stronger associations with inconsistent condom use, STI symptoms and sexual violence, which suggests that the AUDIT tool may be useful for future studies and requires further assessment (Luchters et al., 2011).

### *Evaluating HIV prevention interventions for male sex workers (Geibel et al., 2011)*

A primary objective of the Mombasa male sex worker study was to determine the feasibility and efficacy of interventions to reduce HIV risk. After implementation of the 2006 baseline survey, 40 male sex worker peer educators were trained in HIV prevention and basic counseling skills. Additionally, 20 health-care providers from Mombasa-area hospitals and clinics were trained and sensitized to MSM

issues including diagnosis of STIs and HIV counseling. Condoms and water-based lubricants were distributed via a drop-in center and by peer educators. As previously mentioned, the follow-up survey of 442 participants was conducted in early 2008.

Significant increases between the 2006 baseline and 2008 follow-up surveys were recorded in correct knowledge of anal HIV transmission (65% to 73%,  $P < 0.01$ ), correct knowledge of use of water-based lubrications with latex condoms (20% to 40%,  $P < 0.001$ ), reported condom use with last male client (58% to 68%,  $P < 0.01$ ), and consistent condom use with male clients in the past 30 days (36% to 50%,  $P < 0.001$ ). Increased levels of peer educator contact, or dose-response, was also associated with consistent condom use, improved HIV knowledge, and use of water-based lubricants. Through careful training and community sensitization, this intervention approach was successful in providing HIV-prevention resources to male sex workers in the highly discriminatory community of Mombasa. At the same time, however, the overall reach of peer educators to the total male sex worker population was less than expected. In order to effectively mitigate HIV among this population, increased peer coverage as well as other prevention interventions such as PrEP, test and treat, or others may be needed.

#### *Key findings and their implications for policy (Geibel et al., 2010)*

A summary of key findings from the Nairobi and Mombasa surveys are highlighted in Table 1, establishing that some MSM in Kenya were at substantial risk of HIV infection. In Nairobi, 47% of respondents reported multiple male sexual partners within the past month, and 74% of male sex workers in Mombasa reported multiple male partners in the past seven days. Men in both studies also reported having female sexual partners, including some men who had female spouses. In Mombasa, 29% (2006) and 39% (2008) of male sex workers reported having a female paying or non-paying sex partner in the past 30 days.

Self-reported condom use in these studies was fairly common, with as many as 56% of MSM in Nairobi reporting consistent condom use in the past 12 months. Only 36% of male sex workers in Mombasa, however, reported consistent condom use in the 2006 baseline survey. A majority of men in both studies reported using oil-based lubricants. Only 26% of MSM in Nairobi and 21% of male sex workers in Mombasa knew that water-based lubricants might degrade latex condoms, and only 15% of male sex workers in the 2006 survey had used a water-based lubricant with their last male client. Re-

ported use of oil-based lubricants was significantly associated with ever experiencing condom breakage. While respondents considered condoms to be available and affordable, water-based lubricants were perceived to be scarce and costly.

The results from the Nairobi and Mombasa surveys were disseminated widely through published reports and peer-reviewed publications. The policy impact and influence of these findings are discussed further in the following section.

## **Discussion**

From 2004 through 2008, we conducted the first large-scale behavioral surveys of MSM in Kenya; the first being a descriptive study of MSM in Nairobi (Onyango-Ouma et al., 2005; Onyango-Ouma et al., 2009; Geibel et al., 2010). Following the success of this initial assessment, a capture-recapture enumeration (Geibel et al., 2007) and an intervention study of male sex workers (Geibel et al., 2008; 2012) were conducted in Mombasa. Further, qualitative perspectives were analyzed from male sex worker focus group discussions (Okal et al., 2009), and HIV risk factors associated with alcohol consumption measures among male sex workers were assessed (Luchters et al., 2011).

These studies did not measure any biological indicators, meaning no testing for HIV or STIs. Findings from other studies in the Nairobi and Mombasa areas, however, help put our findings in perspective with the rest of the Kenyan population. One study of a cohort of MSM (largely male sex workers) conducted in Mtwapa measured a crude HIV prevalence of 25% (Sanders et al., 2007). A recent study among MSM in Nairobi used respondent-driven sampling to estimate HIV prevalence at 18% among the total population of MSM in the Nairobi area (Geibel et al., 2011). HIV prevalence is at least twice as high among MSM as the general population in Kenya (9% in Nairobi and 8% in Mombasa; National AIDS Control Council and Kenya Ministry of Health, 2009).

Since these studies were launched four to eight years ago, much attention has been brought to MSM in several countries throughout Africa. Several behavioral or sero-prevalence studies have been completed or are ongoing in a number of African countries. The research and policy environment in Kenya has also greatly improved over the past six years. The directors of the National AIDS Control Council (NACC) and the National AIDS/STI Control Programme (NAS COP) openly support HIV-related MSM research and evidence-based programming for MSM. In 2008, NACC and the Population Council hosted an international MSM

**Table 1.** — Sample characteristics, sexual behaviors, and HIV prevalence of comparable populations\*.

	<b>Nairobi</b>	<b>Mombasa (baseline)</b>	<b>Mombasa (follow-up)</b>
<b>Sample characteristics</b>			
Year of survey	2004	2006	2008
Target population	MSM > = 18 years	Male sex workers > = 16 years	Male sex workers > = 16 years
Sample size	500	425	442
Type of study	Descriptive	Intervention	Intervention
Sampling methodology	Snowball	Time-location	Time-location
Mean age of men in sample	26	27	25
<b>Sexual behaviors</b>			
Consistent condom use with male partner (%, time period)	56%, past 12 months	36%, past 30 days	50%, past 30 days
Condom use at last sex with a male partner	75%	58%	68%
Had recent multiple male partners (time period)	47%, past 1 month	74%, past 7 days	63%, past 7 days
Had recent female sexual partners (time period)	5%, past 1 month	29%, past 30 days	39%, past 30 days
Received money for sex with a man (time period)	52%, past 12 months	87%, past 7 days	82%, past 7 days
<b>HIV prevalence among MSM (from other studies)</b>			
HIV prevalence among comparable population	18% (n = 563)**		25% (n = 285)***
National HIV prevalence among all adults age 15-49	9%****		8%****

\* Adapted from data summarized in Geibel S, Tun W, Tapsoba P, et al. HIV vulnerability of men who have sex with men in developing countries: Horizons studies, 2001-2008. *Public Health Rep.* 2010;125:316-24.

\*\* Adjusted population-based estimate from respondent-driven sampling; Source: Geibel S, Okal J, Tun W, et al. HIV and STI Prevalence among men who have sex with men in Nairobi: results from a respondent-driven sampling study. NACC First National Biennial HIV and AIDS Conference, Nairobi, Kenya. May 20, 2011. [Abstract no D028].

\*\*\* Unadjusted crude estimate from targeted snowball sampling; Source: Sanders EJ, Graham SM, Okuku HS, van der Elst EM, Muhaari A, Davies A, et al. HIV-1 infection in high risk men who have sex with men in Mombasa, Kenya. *AIDS* 2007;21:2513-2520.

\*\*\*\* National AIDS Control Council and Kenya Ministry of Health. Kenya AIDS Indicator Survey: KAIS 2007, Final Report 2009. National AIDS Control Council and Kenya Ministry of Health. Nairobi; 2009.

consultation of HIV researchers, policymakers, programmers and advocates in Nairobi. This helped to highlight the results from this study, and brought necessary attention to the issue of MSM and HIV at the regional level (National AIDS Control Council of Kenya and Population Council, 2009).

Conducting research in Kenya with MSM is no longer a lonely affair or the exclusive domain of foreign white investigators, as a number of heterosexual and gay Kenyan men and women are leading several research activities and service programs. The advocacy environment in Kenya has also become much stronger, as a number of gay and male sex worker organizations are now organized under the Gay and Lesbian Coalition of Kenya (GALCK). GALCK is becoming more active and involved in the research that investigates the health needs of gay men in

Kenya, as well as leading a strong human rights movement.

While inflammatory opinions are still expressed in Kenya's newspapers and television programs, supportive voices are also emerging and the media coverage seems more balanced than eight years ago. Debate on homosexuality in Kenya is ongoing, and new advocates for MSM health rights are emerging. This is in contrast to other African countries, many of which remain relatively more hostile towards MSM. In some countries, researchers even struggle to get MSM health studies passed through local research ethics committees.

Since 2008, the Population Council, the Centers for Disease Control (CDC), NACC, and NASCOP prepared to conduct the first phase of what hopefully will be ongoing biological and behavioral surveil-

lance of MSM throughout Kenya. In 2010, the Council and partners implemented the first such surveillance surveys of MSM in Nairobi and Kisumu. These surveys used respondent-driven sampling (RDS) for MSM recruitment, and measured HIV, syphilis, gonorrhoea (genital and rectal), and Chlamydia (genital and rectal) prevalence. As previously mentioned and shown in Table 1, results in Nairobi revealed 18% adjusted HIV prevalence among MSM, which is more than twice the general population of men in Nairobi (Geibel et al., 2011).

Currently, NASCOP is developing a strategic plan for implementation and funding of routine HIV surveillance of MSM in Kenya, including at Mombasa and the coastal region. While it is desirable that behavioral surveillance of male sex workers in Mombasa be continued—and HIV and STI testing incorporated—the more likely scenario will see the implementation of overall MSM surveillance in Mombasa, with male sex workers analyzed as a subgroup.

In order to address results and findings from the growing body of MSM research in Kenya, the following steps are recommended:

1. Incorporate and fund routine behavioral and biological HIV and STI surveillance into Kenya's national HIV monitoring and evaluation framework.
2. The Ministry of Health and NASCOP need to finalize HIV counseling guidelines for MSM, as well as provide specific STI diagnosis and treatment guidelines for anal STIs.
3. The Ministry of Health and Kenya's Medical Training Colleges should incorporate MSM sensitization, counseling, and treatment training specific to MSM prevention issues and anal sex.
4. Review of the legal and rights environment in Kenya, and its impact on MSM health-seeking behavior, is needed.

## Conclusion

An objective approach to research on MSM in Kenya produced study results which are currently being utilized to improve health services for MSM and male sex workers. Support from the Kenya government and local research community has been essential to this success. These studies have demonstrated that an African country can safely and effectively address HIV research and programming for MSM. Kenya is now considered a model for neighboring countries in the region, and we continue to collaborate with other research institutions and countries in hopes of replicating this success.

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### **What is already known**

Multiple sexual partners, hetero- and homosexual prostitution, unprotected intercourse and particularly anal intercourse and drug addiction are well established risk factors for the spread of HIV. Sex education on risk factors for HIV, preventive measures and above all the availability and affordability worldwide of retroviral drugs has confined the HIV epidemic.

It is generally perceived that HIV in Western countries is mainly spread through homosexual contacts and drug addiction while in Africa, being the cradle of the HIV epidemic, it is mainly associated with heterosexual contact. The role of homosexual activities in Africa is underestimated because homosexuality is outlawed in many African countries and in some homosexuality is punishable by death or life imprisonment.

### **What is new from this research**

In this thesis, the prevalence of homosexual sexual risk behaviors among MSM and male sex workers has been investigated in Nairobi and Mombasa, the two main cities of Kenya. Furthermore, the effect of counselling on 'safer' sex by male sex workers in Mombasa was investigated by a pre-post intervention study.

This study revealed that male sex workers are at high risk of HIV transmission and that they

represent a epidemiologically important fraction of the population at risk of HIV.

Lack of information on risk factors such as anal intercourse and the use of oil-based lubricants with latex condoms was prominent and these factors were the focus of the counselling in the intervention study. This intervention was moderately successful in terms of correct knowledge of anal HIV transmission, the use of water-based lubrications with latex condoms and more consistent condom use.

This studies contribute to the knowledge of the role of male sex workers in the spreading of HIV and its role in the spreading of HIV in Africa.

### **Which questions will this new findings arise**

This study stresses the need of further assessment and prevention interventions of STI's in general and HIV in particular and hopefully will help to break down the atmosphere of taboo that still lingers on homosexuality and its role in the spreading of HIV in Africa.

Counselling on safe sex, important as it may be, has, however, only a moderate effect on the reduction of risk factors. The focus of future studies should be on the role of preventive use of retroviral drugs in the containment of the HIV epidemic.

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