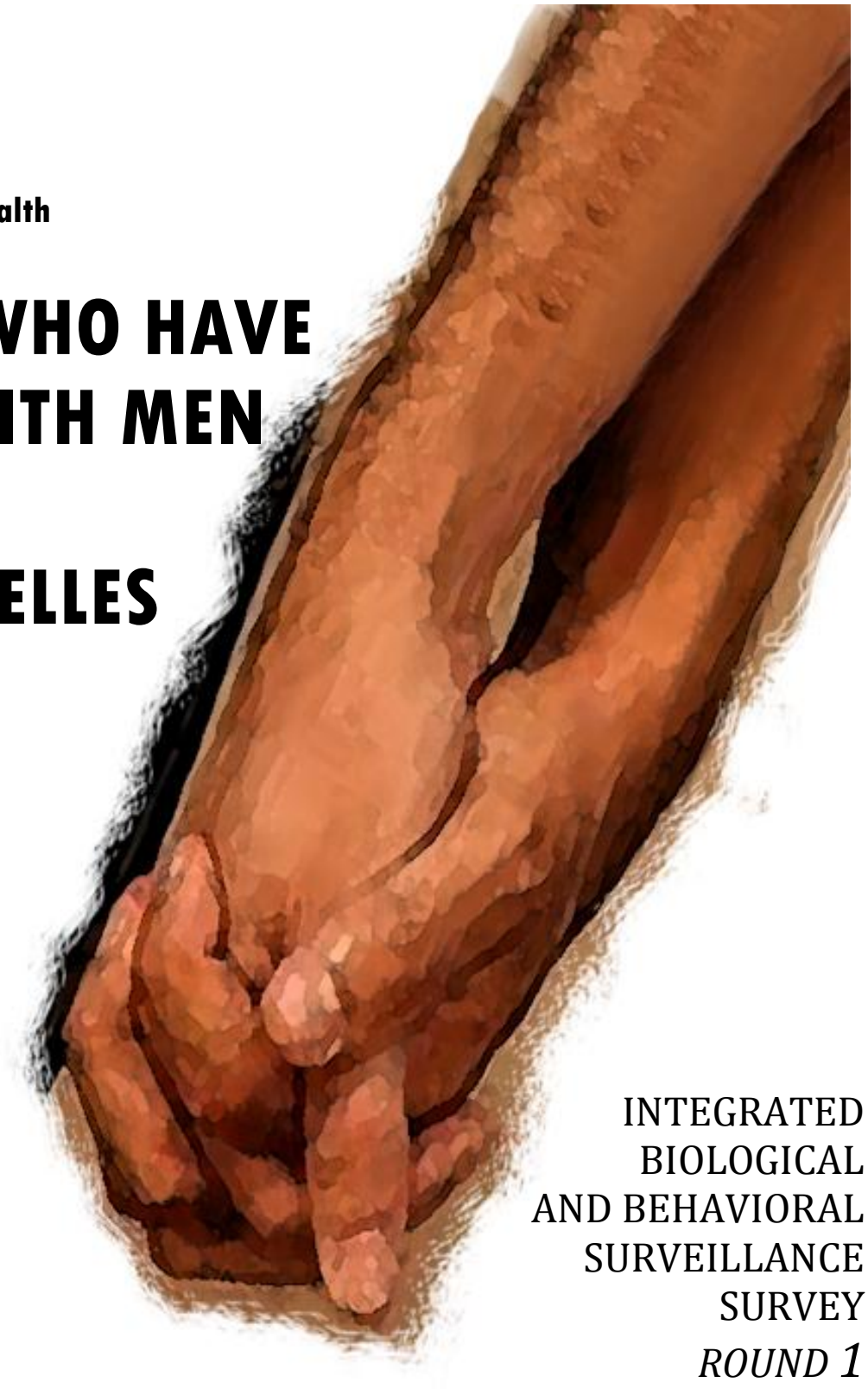
Ministry of Health

MEN WHO HAVE SEX WITH MEN IN SEYCHELLES

2011



INTEGRATED BIOLOGICAL AND BEHAVIORAL SURVEILLANCE SURVEY

ROUND 1

AIRIS-COI

COMMISSION DE L'OCEAN INDIEN

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Biological testing and processing

All biological tests were performed at the Ministry of Health, Clinical Laboratory, at the Seychelles Hospital in Victoria.

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ABBREVIATIONS/ACRONYMS

ART	Antiretroviral Therapy
CDCU	Communicable Disease Control Unit
DEFF	Design Effect
HbsAg	Hepatitis B
HCV	Hepatitis C
HIV	Human Immunodeficiency Virus
IBBS	Integrated behavioural and biological surveillance
IDU	Injection Drug Use
MARP	Most At Risk population
MSM	Men who have sex with men
NGO	Non-Governmental Organization
PLWHIV	People living with HIV
AIRIS-COI	Projet d´Appui à l´Initiative Régionale de prévention du IST/VIH/SIDA dans les Etats membres de la Commission de l'Océan Indien
RDS	Respondent Driven Sampling
RDSA	Respondent Driven Sampling Analyst
RDSAT	Respondent Driven Sampling Analysis Tool
STI	Sexually Transmitted Infection
UNGASS	United Nations General Assembly Special Session
UNODC	United National Office of Drugs and Crime
VCT	Voluntary Counselling and Testing
WHO	World Health Organization

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EXECUTIVE SUMMARY

This report presents findings of the first round of an integrated behavioural and biological surveillance (IBBS) survey conducted from June to August 2011, among men who have sex with men (MSM) in the Republic of Seychelles. The primary objective of this survey was to provide information on the prevalence of HIV infection and associated risk factors among MSM to inform programmatic and policy responses and to provide a baseline from which to monitor epidemic trends. While the prevalence of HIV infection in Seychelles remains below 1% in the general population[1], prevalence was expected to be much higher among high-risk groups such as female sex workers, injecting drug users, and MSM.

The Republic of Seychelles MSM HIV IBBS survey was carried out by the Ministry of Health, of Seychelles, in collaboration with the Projet d´Appui à l´Initiative Régionale de prévention du IST/VIH/SIDA dans les Etats membres de la Commission de l'Océan Indien (AIRIS-COI project), National AIDS Trust Fund, and World Health Organization (WHO). Funding for technical support was provided by AIRIS-COI, United National Office of Drugs and Crime (UNODC) and WHO. This surveillance survey used respondent-driven sampling (RDS) to obtain a final sample of 176 MSM in Seychelles. Eligible men were those who reported having sex with another man in the last six months, aged 18 years and older, residing in Seychelles and speaking Creole or English.

RDS is a chain-referral sampling method specifically designed to obtain probability-based samples of 'hidden' and hard-to-reach populations that are socially networked. After providing informed consent, respondents completed an interview and provided blood specimens to be tested for HIV, syphilis, and Hepatitis B and C. Data were entered into a database in SPSS. Population frequencies and corresponding 95% confidence bounds were adjusted using the successive sampling estimator in RDS Analyst (www.hpmrg.org). Graphics of recruitment chains were created using Netdraw in UCINET 6.0.Key variables (HIV, age groups, marital status and IDU self-identify) were checked for equilibrium using RDSAT 6.0.1 before analysis in RDS Analyst.

The findings from this survey will provide a baseline for monitoring and evaluation, identify gaps in existing programs and help the development of long-term intervention and prevention strategies responsive to the needs of MSM in Seychelles.

[1]Republic of Seychelles: Progress Report on Declaration of Commitment on HIV and AIDS 2010.UNGASS Report.Accessed at: www.unaids.org/.../seychelles_2010_country_progress_report_en.pdf.

KEY FINDINGS

Below is a presentation of the key findings from the IBBS survey conducted among MSM in the Republic of Seychelles.More findings are presented in the remainder of the report.

Biological test results:
HIV prevalence among MSM was 13.2% and prevalence of Hepatitis C (HCV) was 41.9%. Among MSM who tested positive for HIV, 20.6% were co-infected with HCV. No one was found to have a positive reaction forHepatitis B (HbsAg) or Syphilis.

***High-risk sexual behaviors*:**
MSM have multiple types of sexual partners, including occasional and commercial. More than half of MSM reported having anal sex with commercial partners and 37.3% reported having anal sex with occasional partners in the past six months. MSM reported inconsistent condom use with all partner types.

Passive and Active anal sex without condoms:
Almost all MSM reported penetrative anal sex during which they were in the top (active/insertive) position and almost three quarters of MSM reported penetrative anal sex during which they were in the bottom (passive/receptive) position. MSM reported a median number of two sex partners in the past six months in both the top and bottom positions.

Sex with females:
Most men self-identified as bi-sexual or heterosexual, indicating active sex with females, including partners considered to be wives and girlfriends. Among those who reported having sex with a female in the past six months, 41.7% reported having ≥4 female sex partners. Less than half of MSM used a condom during intercourse with their last non-paid female sex partner.

***High-risk alcohol and drug use practices*:**
MSM consume alcohol, use injection and non-injection drugs. Among those having consumed alcohol in the past six months (88.6%), 43.1% of MSM reported doing so weekly. Eighty percent of MSM reported ever using illegal non-injection drugs. Cannabis was the most popular, smoking heroin was the second most popular drug, and more than half of MSM ever injected drugs, mostly heroin.

***Low HIV transmission and STI knowledge*:**
Almost all MSM have heard of diseases (other than HIV) that can be transmitted through sexual intercourse, however most MSM could not correctly describe any specific signs and symptoms of sexually transmitted infections (STIs)in females and just over half could

correctly describe any specific signs and symptoms of STIs in males. The majority of MSM reported having signs or symptoms of an STI (urethral or anal discharge, genital or anal ulcers) in the past 12 months. Although all MSM had heard of HIV/AIDS, only 60.5% had correct knowledge about HIV transmission based on the United Nations General Assembly Special Session (UNGASS) composite scale of modes of transmission.

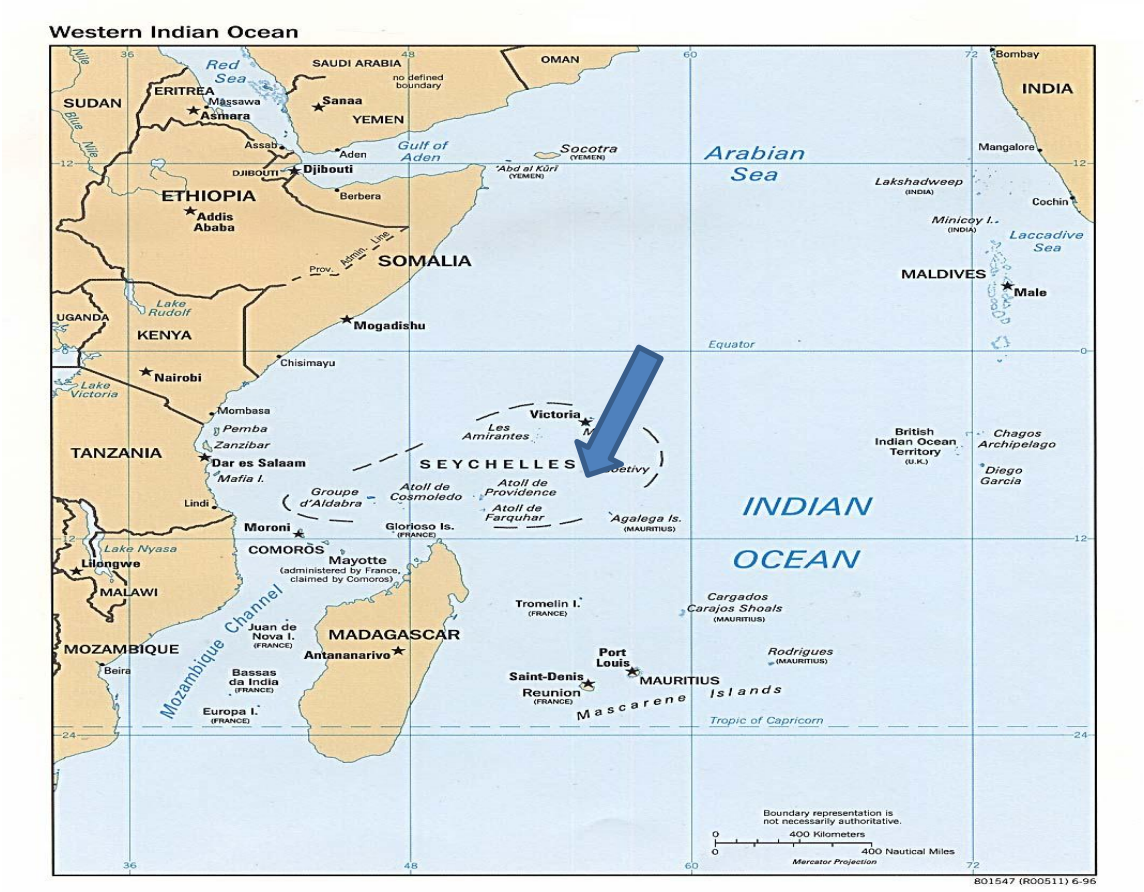
***High acquisition of HIV test results among MSM who get tested*:**
Almost all MSM know where to get an HIV test and among those tested in the past year, almost all received an HIV test. A high percentage of MSM also received their HIV test results in this study but few took advantage of the referrals for HIV follow up care and treatment.

Given the success of RDS to recruit MSM in Seychelles, it is recommended that on-going IBBS be conducted in this population using the same methodology every two to three years. This will also ensure that findings can be compared over time across studies and districts.

BACKGROUND: HIV IN SEYCHELLES

Seychelles

The Republic of Seychelles (population 89,000) is an island country spanning an archipelago of 115 islands in the Indian Ocean, some 1,500 kilometres (932 mi) east of mainland Africa, northeast of the island of Madagascar (Figure 1)[2]. Other nearby island countries and territories include Zanzibar to the west, Mauritius and Réunion to the south, Comoros and Mayotte to the southwest.



As the islands of Seychelles had no indigenous population in the first millennium AD, the Seychellois are composed of people who immigrated to the islands in the second millennium AD. The largest ethnic groups are those of African, French, Indian, and Chinese descent. French and English are official languages along with Seychellois Creole, which is primarily based upon French.

[2] Downloaded on October 18, 2011 from http://www.google.com/imgres?imgurl=http://www.lib.utexas.edu/maps/islands_oceans_poles/indian_ocean_w_96.jpg&imgrefurl=http://www.lib.utexas.edu/maps/indian_ocean.html&h=1286&w=1066&sz=193&tbnid=6uoZvfB15DzmHM:&tbnh=90&tbnw=75&prev=/search%3Fq%3DMap%2Bof%2BIndian%2BOcean%26tbm%3Disch%26tbo%3Du&zoom=1&q=Map+of+Indian+Ocean&docid=d8HtSjmVM9CRzM&hl=en&sa=X&ei=HGadTrqvF9DpOc6axZAJ&ved=0CCoQ9QEwAQ&dur=44.

HIV in Seychelles

The first case of HIV/AIDS was detected in Seychelles in 1987. As of December 2010, 460 cases of HIV/AIDS had been detected, of which males represented 58% (265 cases) and females represented 42% (195 cases). Productive workforce portions of the population (15 to 49 year olds) comprise more than half of the population of Seychelles. This group is disproportionately sexually active and represents 84% of those testing positive for HIV in Seychelles. Increased morbidity and mortality caused by the continued spread of HIV/AIDS present major challenges for the future socio-economic development of Seychelles.

Although these statistics are based on laboratory surveillance data conducted at sentinel points of the Communicable Disease Control Unit (CDCU), District Health Centres, private health centres, antenatal clinics, the Occupational Health Unit and the blood bank in the Ministry of Health, they are currently the only available evidence of the extent of the HIV/AIDS epidemic in the country. These statistics are not valid because there is no random collection of data and therefore present biases that cannot be measured. Unfortunately, there have been no representative data collected using probability based sampling techniques on any populations in the Seychelles that could provide an accurate picture of HIV prevalence and sexual and drug use behaviours.

Though Seychelles has a seemingly low estimated prevalence of HIV/AIDS among the general population, there are numerous high risk behaviours that indicate an accelerated spread of HIV. According to the CDCU, in the past years there has been an increase in the use of intravenous and other illicit drugs and the numbers of sexually transmitted infection (STI) cases, as well as an increase in the early onset of first sexual intercourse.

Men who have sex with Men and the HIV Epidemic in the Seychelles

The HIV/AIDS epidemic in Seychelles is classified as 'low level' as HIV prevalence is estimated to be about0.1% among the general population. For low HIV prevalence countries, public health professionals recommend focusing resources on estimating HIV prevalence and associated risk factors among "high-risk" or "Most at Risk" Populations,[3] which comprise Injecting Drug Users (IDU), Female Sex Workers (FSWs), and Men having Sex with Men (MSM). The following section provides background on the HIV epidemic in the Seychelles with a focus on MSM.

As in many countries in Africa, male-to-male sex in Seychelles is illegal and is punishable by imprisonment.[4]In spite of this law, no one has been charged or convicted in the last 15 to 20

[3]UNAIDS.*A framework for monitoring and evaluating HIV prevention programmes for most-at-risk populations.* Geneva, Switzerland, UNAIDS, 2008. Accessed on 25 December 2009 at: http://data.unaids.org/pub/Manual/2007/JC1519_me_Framework_en.pdf.

[4]Republic of Seychelles Penal code 489. November 26, 1962. Ottosson, Daniel (2008). State-sponsored Homophobia: A world survey of laws prohibiting same sex activity between consenting adults. International Lesbian and Gay Association (ILGA).pp. Page 25.Accessed at: http://www.ilga.org/statehomophobia/ILGA_State_Sponsored_Homophobia_2008.pdf.As of December 2011, The Seychelles has given its intention to decriminalize homosexuality as part of the country's feedback to the United

years. Also similar to many countries, MSM remain 'hidden' and are difficult-to-reach for research purposes due to social stigma and discrimination. Many MSM often feel the need to hide their same-sex relations from friends, family and society and may be less likely to seek health and other services for fear of being 'exposed' as homosexual. In addition, stigma and discrimination towards MSM foster an environment whereby MSM marry and have sexual relationships with females in order to maintain a heterosexual persona. Males who hide their sexual preference for male sexual partners in order to appear heterosexual increase the risk of HIV transmission to their female sexual partners.

Many countries in the region are just starting to recognize the need to include MSM in their HIV surveillance systems. Conducting HIV surveillance in this population is critical for monitoring emerging trends and setting national prevention priorities for this population. Prior to this study, little was known about the MSM population in the Seychelles and there are no specific interventions targeting them. Among all HIV positive male patients seen in CDCU, 22% are MSM. HIV and other infections prevalence among MSM have been reported in several parts of East Africa and the Indian Ocean countries. For instance, in a recent integrated biological and behavioral survey (IBBS) of 362 MSM using respondent driven sampling (RDS) conducted in Mauritius in 2010[5], 8% were found to be HIV sero-positive, 14.2% tested positive for hepatitis C (HCV) and 5% tested positive for syphilis. No participant tested positive for hepatitis B (HbsAg). Sixty-four percent of MSM who tested positive for HIV were also infected with HCV, whereas only 6.4% of those who tested positive for HIV were also infected with Syphilis.

In another IBBS conducted in Zanzibar in 2007, also using RDS, MSM were found to have an HIV prevalence of 12.3%, a syphilis prevalence of 0.2%, HbsAg prevalence of 4.6% and a HCV prevalence of 14.7%. Forty-three percent of MSM infected with HIV also tested positive for HCV infection. MSM in both studies were found to engage in numerous high risk behaviors, including multiple sexual partnerships, commercial sex work, and unprotected anal intercourse.[6] In Zanzibar 13.9% of MSM reported also injecting drugs[7].

Current programs addressing HIV among MSM

HIV intervention and prevention efforts to address the needs of MSM do not exist in the Seychelles.

Nations Human Rights Council and the Universal Periodic Review process (accessed at: http://www.awid.org/Library/Seychelles-to-Decriminalize-Homosexuality-Other-Countries-Say-No)

[5]Republic of Mauritius. (2010). Country progress report: Declaration of commitment of the United Nations General Assembly Special Session (UNGASS) on HIV/AIDS. Accessed August 21 at: http://www.unaidsrstesa.org/files/u1/mauritius_2010_country_progress_report_en.pdf.

[6]Dahoma M, Johnston LG, Holman A, Miller L, Mussaa M, Othman A, Khatib A, Issa R, Kendall C, Kim A. HIV, viral hepatitis, syphilis and associated risk behaviors among men who have sex with men in Zanzibar, Tanzania.*AIDS and Behavior*. 2011. 15(1):186-92.

[7]Johnston LG, Holman A, Dahoma M, Miller LA, Mussa M, Othman AA, Kim E, Kim A, Kendall C, Sabin K. HIV risk and the overlap of injecting drug use and high-risk sexual behaviours among men who have sex with men in Zanzibar (Unguja), Tanzania. 2010. *International Journal of Drug Policy*. 21: 485–492

STUDY METHODS TO SAMPLE MSM IN THE SEYCHELLES

Sampling MSM to gather data on HIV prevalence and risk behaviors

This is the first attempt by Seychelles to study HIV and other infections prevalence and associated risk factors among MSM in the context of an IBBS study using respondent driven sampling (RDS). RDS is a chain-referral sampling method specifically designed to obtain probability-based samples of 'hidden' populations.

Data collection began with seven eligible respondents who initiated the recruitment process. After providing informed consent, eligible respondents completed an interview about their socio-demographic background; sexual risk behaviours with male and female partners; access to and use of HIV services; alcohol and drug use; HIV transmission and STI signs, symptoms, and knowledge; stigma and discrimination; and a measurement of their social network size (the number of people they know who fulfil eligibility for the study). The interview also included questions about MSM's visits to a service provider and whether they received a unique object (which was handed out as part of the study before recruitment began) which was used to estimate the size of the MSM population using the multiplier technique.

Once the interview was completed, respondents received HIV pre-test counselling and provided a blood specimen to be tested for HIV, syphilis and Hepatitis B (HbsAg) and C (HCV). Respondents were provided their test results with post-test counselling approximately two weeks after their enrolment. Those who had positive test results were referred for treatment and/or for further management at the CDCU.

A diverse mix of 177 MSM were recruited and tested for HIV, syphilis and HbsAg and HCV over the course of two months from June 4 to August 5, 2011. Eligible males were those who reported having sex (oral and anal sex) with another man in the last six months, aged 18 years and older, and living in Seychelles. This report provides survey findings and offers some recommendations on how to use these data to respond to the HIV prevention and intervention needs of MSM in Seychelles.

Eligibility Criteria

Eligibility criteria for MSM were:

- born male
- 18 years and older
- having sex (oral and anal sex) with another man in the last six months
- residing in the Seychelles
- having a valid coupon (except for seeds)

Persons who meet the eligibility criteria may be excluded from enrolment in the study on the following grounds:

- Unable to understand or provide informed consent: this includes recruits who are thought to be under the influence of alcohol or drugs.
- Already enrolled in the survey.
- No coupon or received coupon from a stranger (does not know recruiter).
- Unable to speak English or Creole.

Specific Objectives

Specific objectives of the survey were to determine the prevalence of HIV and syphilis and associated risk behaviours (using the UNGASS indicators) among MSM in Seychelles, and to provide a baseline for monitoring trends in HIV epidemic prevalence.

In addition, the study objectives included:

- Measuring key socio-demographic characteristics.
- Quantifying alcohol and drug use.
- Assessing the knowledge of and attitudes towards HIV/AIDS.
- Evaluating attitudes of stigma and discrimination towards people living with HIV (PLWHIV).
- Assessing personal stigma associated with having sex with men.
- Measuring STI occurrence and treatment seeking behaviours.
- Evaluating HIV and STI knowledge.
- Estimating the size of the MSM population.
- Strengthening the research capacities of national teams.
- Developing recommendations to guide programs and expand services.

Respondent Driven Sampling (RDS)

This survey used respondent-driven sampling (RDS) to recruit MSM in Seychelles. RDS is a variant of a chain referral sampling method which, when implemented and analyzed properly, yields data representative of the populations from which the samples were gathered[8,9]. Several theoretical and mathematical techniques borrowed from various disciplines (e.g., social network theory, physics, statistics, etc.) are used to develop a sampling frame and to mitigate several well-known biases generally associated with chain referral methods. RDS is specifically designed to sample hard-to-reach and hidden

[8]Heckathorn DD. (1997) Respondent-driven sampling: A new approach to the study of hidden populations. *Sociological Problems*. 44 (2), 174-199.
[9]Heckathorn, DD. (2002). Respondent driven sampling II: deriving valid population estimates from Chain-Referral samples of hidden populations. *Sociological Problems*,49(1), 11-34.

populations such as MSM and has also been successfully used among other HIV high-risk populations, including IDU and FSWs.[10]

Recruitment in RDS is initiated with a number of purposefully selected members of the study population referred to as "seeds". After enrolling and completing the steps in the survey, each seed is given a fixed amount (usually no more than three) of uniquely numbered coupons with which to recruit peers (other eligible MSM) into the survey. These recruited peers who also enrol in and complete the survey steps are considered the first wave of respondents. Each respondent in the first wave who enrols in and completes the survey steps is then provided a fixed number of coupons with which to recruit their peers into the survey. Successive waves of recruitment, ideally resulting in long recruitment chains of respondents, continue until the appropriate sample size is reached.

Each respondent is asked his social network size which is directly tied to the eligibility criteria and sets up the probability of each recruit's selection into the sample. Self-reported social network sizes are considered the sampling frame which is used to produce weights for deriving estimates. Weights are applied inversely whereby those with larger social network sizes (the ability to recruit more participants and normally overrepresented in a standard snowball sampling method) are provided relatively less weight and those with smaller social network sizes are provided relatively more weight. Furthermore, data are analyzed with mathematical modelling of the recruitment process (social network ties of recruits-recruiters) to generate relative inclusion probabilities and to measure the level of recruitment effort and homophily (the non-random recruitment of persons with characteristics similar to the recruit). The recruitment process of who recruited whom is monitored through the unique numbers on each participant's recruitment coupon. The unique coupon numbers also permit respondents' anonymity by linking each respondent to their questionnaire and biological test results, thereby avoiding the need to collect names, addresses or other personal information.

When all methodological and theoretical requirements are fulfilled, RDS yields estimates of population parameters upon which inferences can be made about characteristics and behaviors of the sampled population.

Sample Size Calculation

The sample size needed to conduct behavioural and biological surveys can be based on the number of participants needed in each round (or year) to detect a change in the proportion of an indicator from one round to the next.

[10]Malekinejad M, Johnston LG, Kendall C, Kerr L, Rifkin M, Rutherford G. (2008) Using respondent-driven sampling methodology for HIV biological and behavioral surveillance in international settings: a systematic review. *AIDS and Behavior,* 12(suppl. 1), 105-130.

The sample size calculation for this study was based on calculation for countries which do not have accurate information. Prior to this study, there were no accurate estimates for HIV prevalence among IDU and MSM in Seychelles. Based on the lack of any accurate data on HIV estimates, the estimates for calculating the sample sizes for IDU and MSM was calculated based on HIV estimated prevalence automatically set at 50%[11] and change over time at 65% (to detect a 15% difference over time). Power was set at 80% and significance at 95% and the design effect at 2.

The general formula for the needed sample size (N) is:

$$N = \frac{D\,[Z_{1-\alpha}\sqrt{(2P(1-P))} + Z_{1-\beta}\sqrt{(P1(1-P1) + P2(1-P1)}]^2}{(P2 - P1)^2}$$

Where:

N	=	Sample size required per survey round (year).
D	=	Design effect = 2
$Z_{1-\alpha}$	=	The z score for the desired confidence level, usually 1.96 for 95%
$Z_{1-\beta}$	=	The z score for the desired power, usually 0.83 for 80%
P1	=	The proportion of the sample reporting indicator in year 1 = 0.5
P2	=	The proportion of the sample reporting indicator in year 2 = 0.65
P	=	(P1 + P2)/2
α	=	1.65
β	=	0.84

Using the formula above, a sample size of 266 is appropriate. The final sample size was calculated as 266 MSM (see table 1).

[11]Family Health International.Guidelines for repeated behavioral surveys in populations at risk of HIV. 2003. Family Health International. Arlington, VA. Accessed at: http://www.fhi.org/en/topics/bss.htm.

Table 1. Definitions for the sample size calculation formula to survey MSM in the Seychelles

Formula term	Calculation
D (design effect) The design effect helps to mitigate biases associated with the sampling technique and to account for common random biases such as respondents enrolling in a study more than one time and interviewer and response biases.	2
p1 (baseline)-Proportion at baseline	0.5
p2 (final evaluation) Proportion expected in the next round	0.65
Zα (95%)-standard error associated with a level of confidence of 95%)	1.64
Zß (80%)-level of power in for the analysis	0.84
n (sample size)	266

Given that MSM have never been sampled in the Seychelles, it was uncertain whether this sample size would be reached.

Formative research

Formative research was conducted in February 2011 on the islands of Mahe, Praslin and La Digue to identify potential sampling issues related to RDS (e.g., social network sizes, network properties, acceptability of RDS, etc.), to resolve study logistics (e.g., amount for incentives, preferred interview site location, hours of operation, openness to HIV testing and results, etc.) and to identify seeds to initiate the study. Information was also gathered to help develop the final behavioral questionnaire. Formative research questions used in the qualitative data collection were adapted from the manual, *Introduction to Respondent Driven Sampling.*[12] Data were collected through focus group discussions, key informant interviews and observational site visits to identify interview facilities. Findings from the formative research activities were incorporated into the design of the survey and the development of the questionnaire.

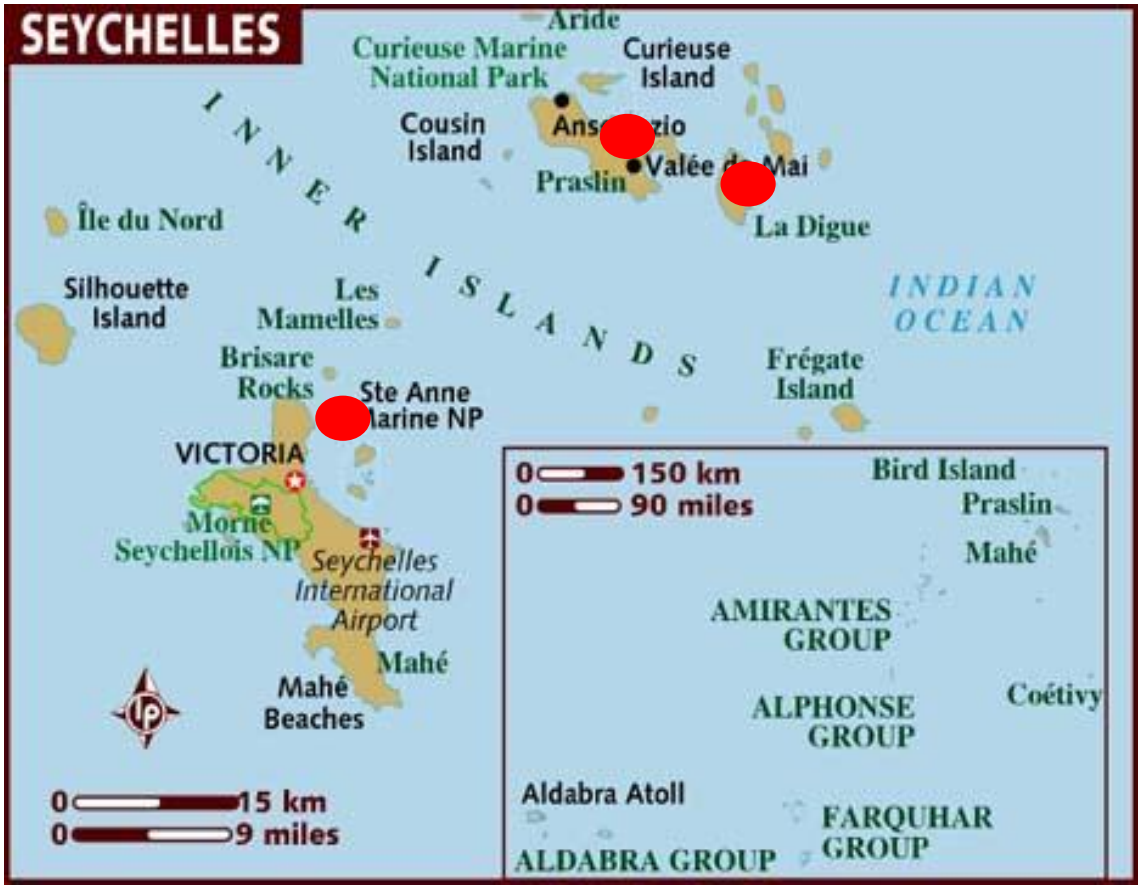
Data collection locations

MSM were sampled from three islands in Seychelles: Mahe, the largest island in Seychelles and includes the capital city, Victoria, (population: 80,000); Praslin, second largest island

[12]Johnston LG. (2008) Behavioural Surveillance: Introduction to Respondent Driven Sampling (Respondent Manual). Centers for Disease Control and Prevention-Global AIDS Program (CDC-GAP), Atlanta, GA. http://globalhealthsciences.ucsf.edu/PPHG/assets/docs/respondent-driven-sampling-2008.pdf

(population: 6,500); and La Digue (population: 2,000) (See Figure 2 in which interview locations are identified with red dots)[13].

Figure 2. Map of the Seychelles, identifying Mahe, La Digue and Praslin[14]



[13]Downloaded on October 28, 2011 from http://www.google.com/imgres?imgurl=http://www.lonelyplanet.com/maps/africa/seychelles/map_of_seychelles.jpg&imgrefurl=http://www.lonelyplanet.com/maps/africa/seychelles/&h=350&w=466&sz=51&tbnid=XZOEb07_TBnaGM:&tbnh=83&tbnw=111&prev=/search%3Fq%3DMap%2Bof%2BSeychelles%26tbm%3Disch%26tbo%3Du&zoom=1&q=Map+of+Seychelles&docid=ptyT8T8zH5cUiM&sa=X&ei=vWSdTq3zAo2WOt7nnYUJ&ved=0CEQQ9QEwBQ&dur=3554

Recruitment Process

Five seeds (initial recruits) in Mahe, one in Praslin and one in La Digue were identified through outreach and health workers.

Seeds identified for the study population were each given three uniquely coded coupons which were used in recruiting their peers into the survey. Respondents who presented a valid recruitment coupon to any of the survey sites were screened for eligibility and provided informed consent for a face-to-face interview, HIV pre-test counselling and a blood specimen for HIV, syphilis and HbsAg and HCV testing. Interviews were conducted in Creole or English by trained interviewers and took approximately 45 minutes to complete. The questionnaire collected data on socio-demographic characteristics; sexual, alcohol, and drug risk behaviours; HIV transmission; HIV and STI signs and symptoms; HIV knowledge and perceptions; stigma and discrimination; information about respondents' social network sizes; and access to and utilization of HIV related services. Following the interview, each respondent was provided a set number of coupons (not more than three coupons) to use in recruiting eligible peers.

Respondents received a primary compensation of 200 Seychelles Rupees (approximately 16$USD) and 100 Seychelles Rupees for each (a maximum of three) recruit who was eligible and consented to participate in and completed the survey. Survey completion consisted of completing the behavioural questionnaire and providing a blood specimen. As explained to them during the consent process, respondents would not receive their compensation or recruitment coupons if they decided not to provide blood specimen.

No personal identifying information was collected. To permit confidentiality, respondents' questionnaires and biological tests were identified using a unique study identification number provided on the recruitment coupons.

Tools development

The MSM IBBS protocol and final questionnaire were developed by a team from Seychelles Ministry of Health using information from the formative research and other questionnaire templates. The protocol and questionnaire were submitted for ethical review and approval to the Seychelles medical research ethical committee in May, 2011.

Staffing

Staff members for the survey were recruited through the Seychelles 'Ministry of Health and comprised staff from Ministry of Health, non-governmental organizations (NGOs), peer outreach workers and members of the target population. All staff members were trained for one week in June of2011 about staff roles and responsibilities; seed selection and

respondent recruitment; the ethical consent process; coupon and respondents tracking; the compensation process; administration of the behavioural questionnaire; blood specimen collection, processing, and transportation; and provision of blood test results and referrals.

Staff members comprised two separate teams: one for Mahe and the other for Praslin. The site in La Digue had staffing of only one or two nurses who performed all rolls and who also worked in Praslin on some days. The Mahe and Praslin teams had the following staff:

- Screener (one in each site): responsible for checking validity of the coupons being redeemed, screening for eligibility and membership in the population of interest, obtaining consent, managing coupon tracking and completing management forms as needed.
- Interviewer (three in each site, except for La Digue): responsible for conducting face-to-face interviews in English or Creole and completing the questionnaire.
- VCT counsellor (one in each site): responsible for HIV pre-test counselling, obtaining blood specimens from respondents, and labelling and storing blood samples. The counsellors were also responsible for conducting HIV post-test counselling; providing HIV, syphilis, HbsAg and HCV test results; and making referrals for care, treatment and management when necessary.
- Nurse: responsible for collecting blood specimens from respondents using standard guidelines and procedures. After the specimen collection, the nurse labelled the specimen container with a lab number and recorded in a 'log book' for anonymous linking to the respondent's coupon identification number.
- Coupon manager (one in each site): responsible for explaining the RDS recruitment procedure and compensation system, filling in the coupon number and expiration dates onto coupons and coupon management forms, providing respondents with the appropriately numbered coupons, paying out primary and secondary incentives, completing a follow-up form for IDU recruiters who return to the interview site to receive a secondary incentive, and for distributing informational materials and condoms.
- Study coordinator (one in each site): responsible for overseeing the general flow of the study, updating the steering committee on recruitment progress and seeking technical advice when needed.

LABORATORY PROCEDURES

Biological specimen collection, storage, transport and processing

Seven millilitres (7 mL) of whole blood were drawn from each respondent at the interview location by venipuncture into vacutainer tubes. Tubes were left upright on a test tube rack until the blood has clotted. All specimens were stored in a cool box maintained at 4-8 C and transported daily to the Clinical Laboratory, Ministry of Health at the Seychelles hospital in Victoria. Blood specimens collected in Praslin or La Dique, were airlifted daily to the Clinical Laboratory, Ministry of Health at the Seychelles hospital in Victoria.

At the Clinical Laboratory blood specimens were centrifuged for 10 minutes at 2500 rpm. Three 0.5-ml serum tubes were aliquoted for each sample by laboratory technicians into cryotubes from the vacutainer tube. The aliquoted sera were stored at -20C. At the time of testing only one aliquot per test was retrieved from the stored sera and documented. The remaining serum was stored at the Clinical Laboratory at - 20 C for a maximum period of two years in case of possible future testing.

Blood specimens were tested using the national testing algorithms for HIV, syphilis and hepatitis. Technicians at the laboratory completed a testing worksheet which included the respondents' coupon number identification, date of specimen collection, assigned lab number, initials of personnel receiving specimen, and the results from the specimen processed. All testing conformed to manufacturer's instructions of individual test kits.

All test results were counterchecked and signed off by a senior technologist before dispatch. All test results were dispatched within 7 to 14 days (1 to 2 calendar weeks) of sample receipt in the laboratory.

HIV testing used a national serial algorithm for confirmatory testing. HIV antibodies were detected using Rapid Determine HIV 1 and 2 as a first line testing. Non-reactive results were recorded as Negative while reactive results were tested out in duplicates using Determine HIV 1 and 2. Confirmatory testing was conducted using Inno-lia line assay (ELISA) and these results were recorded as final.

Syphilis serological testing was performed using rapid plasma reagin (RPR) assays for screening and *Treponema pallidum haemagglutination assays* (TPHA) for confirmation.

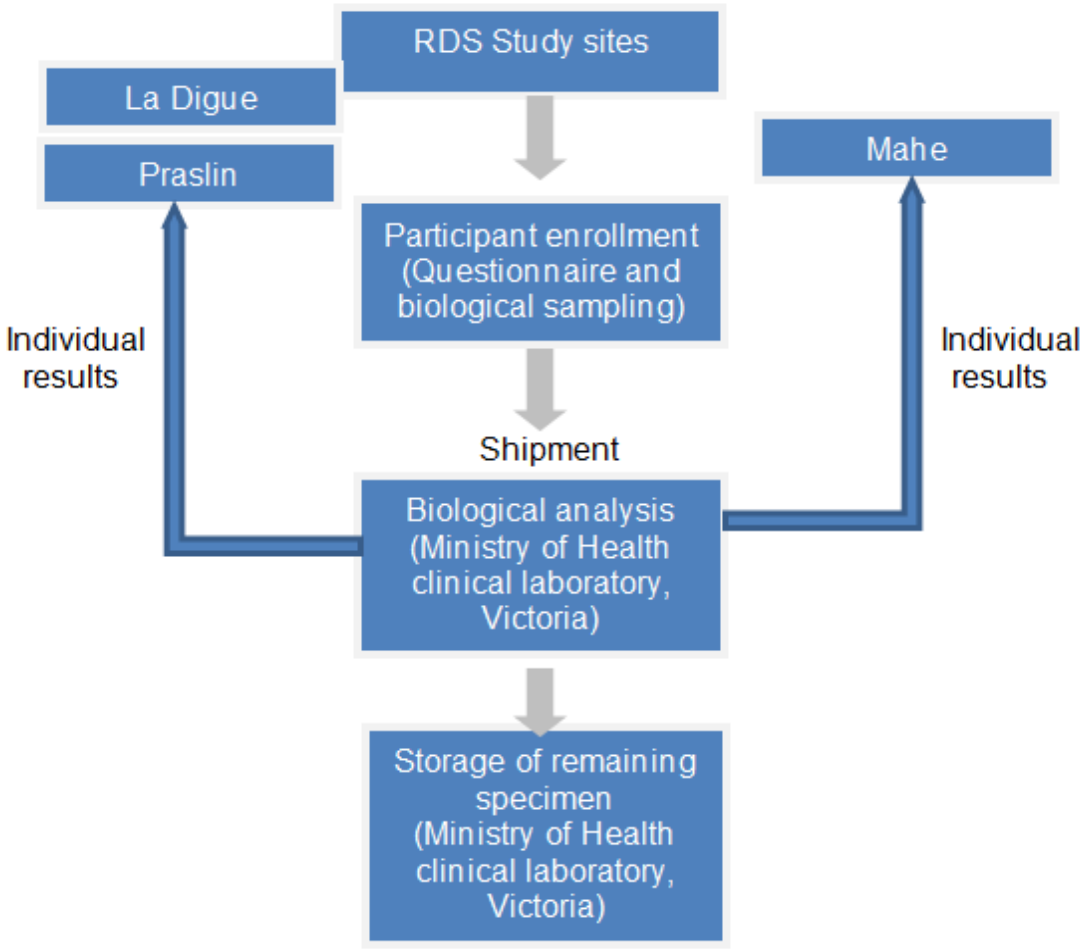
Hepatitis B antigen was detected using the Monalisa Hepatitis B ELISA test kit (Bio-Rad), a qualitative enzyme linked Immunosorbent assay for detection of HBsAg in serum or plasma.

Hepatitis C virus antibodies were detected using Monalisa anti–HCV PLUS (Bio-Rad) which detects antibody to HCV in serum or plasma.

Testing and results procedures

Test result procedures were adapted for the IBBS to include the RDS respondent's coupon number identification, date of specimen collection, assigned lab number, initials of personnel receiving specimen and the results from the specimen processed.

Figure 3: Diagram of testing and results procedures for the IBBS



DATA MANAGEMENT AND ANALYSIS

The database was developed and data were double entered after the study was completed. Final datasets underwent consistency checks. Frequencies and cross-tabulations were performed to check validity and logic of most variables in the datasets. Hard copies of completed questionnaires were stored in Victoria and referred to in order to correct any discrepancies. Questionnaires completed in Praslin or La Dique was airlifted daily to the Ministry of Health in Victoria.

Data were formatted and coded in SPSS before being transferred into an excel file and then a text file for analysis in RDS Analyst (www.hpmrg.org). Key variables (HIV, age groups, marital status and IDU self-identify) were checked for equilibrium using RDSAT 6.0.1 (www.respondentdrivensampling.org) before analysis in RDS Analyst. Population frequencies and 95% confidence intervals were derived with RDS Analyst using the Successive Sampling (SS) estimator. This applies a more rigorous adherence to RDS assumptions of Markov processes, (specifically, a probability proportional to size without replacement model), than do previously used estimators. Recruitment graphics for each sample were created using RDSAT version 6.0 and transformed into a debug log file (DL) using NETDRAW in UCINET version 6 for Windows (http://www.analytictech.com/ucinet/download.htm).

ETHICAL CONSIDERATIONS

In order to minimize social risks, consultations were held prior to the start of the survey and during data collection with key representatives from ad-hoc IDU groups, the Seychelles Ministry of Health, and members of the target communities. The background, purpose, and procedures of the survey, the measures taken by the investigators to permit confidentiality and privacy of the respondents, and applicability of study findings were discussed and agreed upon at these meetings. The outcomes of these discussions were used to adjust and to guide the implementation of the survey.

Study participation was voluntary and respondents were informed that they were free to withdraw from the study at any time during the survey process. Following careful explanation of the survey, study staff gave eligible respondents the consent form to read or, if necessary, the consent form was read to the respondents by a staff member. All respondents either signed or verbally stated that they understood and agreed to all of the items contained in the consent form before being enrolled in the survey. In order to enrol in the survey, potential participants had to agree to complete the behavioural interview and to give a blood sample.

To minimize discomfort due to the sensitive nature of the questions asked, the questionnaire was administered in a private and confidential setting. Respondents could refuse to answer any specific question. All respondents were provided the name and telephone number of the local survey coordinator in case they had questions about the survey or if they believed they had been injured or mistreated as the result of their involvement in the survey.

All study data, including biological and behavioural information, were kept in a confidential manner. The survey team did not record names, addresses or other personal identifiers on the survey questionnaires or on any of the laboratory specimens and results. In this survey, coupon identification numbers were assigned to each respondent and used to link questionnaire responses to management forms and laboratory test results. After data collection, questionnaires, forms and test results were kept in a secure location at the Seychelles Ministry of Health, Public Health Department, Department of Statistics and Epidemiology, in Victoria.

LIMITATIONS

This survey was subject to several limitations. Because behavioural data were self-reported in a face-to-face interview, social desirability bias may have resulted in the underreporting of risky sexual practices and drug use behaviours. Compensation for respondents is a crucial element of recruitment in RDS but it can be challenging to determine the appropriate amount for each population in a given country. If the compensation offered is too high, there is a risk that some recruits will fake eligibility requirements. If the amount is too low, recruitment may not be successful. For this survey, compensation amounts were set based on meetings with key experts and population members during the planning phases and during pre-survey formative research with MSM. However, during the recruitment process several men who showed up with valid coupons were found to be ineligible, had their coupons taken away, and were asked to leave the premises.

Around the time the sample reached 150 participants, recruitment started to slow down. Efforts were made to go out into the community to determine why recruitment was slowing down. Qualitative information revealed that some MSM believed the questions being asked of them during the interview were too personal. Also, around this same time, a sexual video involving certain MSM of Seychelles was widely disseminated in around the islands resulting in it being reported in the public media. This led to heightened social and community discrimination towards MSM. Needless to say, the MSM community became more hidden in response to these circumstances. In the end only 176 of the calculated 236 MSM enrolled in the survey which may impact the representativeness of these findings. In some cases the

small number of values for certain variables may limit our ability to derive accurate estimates and some confidence intervals are too wide for meaningful interpretation.

RESULTS

This section presents the behavioural findings and biological results from the HIV IBBS survey among MSM in Seychelles.

Unless otherwise noted, the text and figures provide the weighted proportion estimates as percentages. The tables additionally show the number of respondents and the 95% confidence intervals around each weighted proportion estimate.

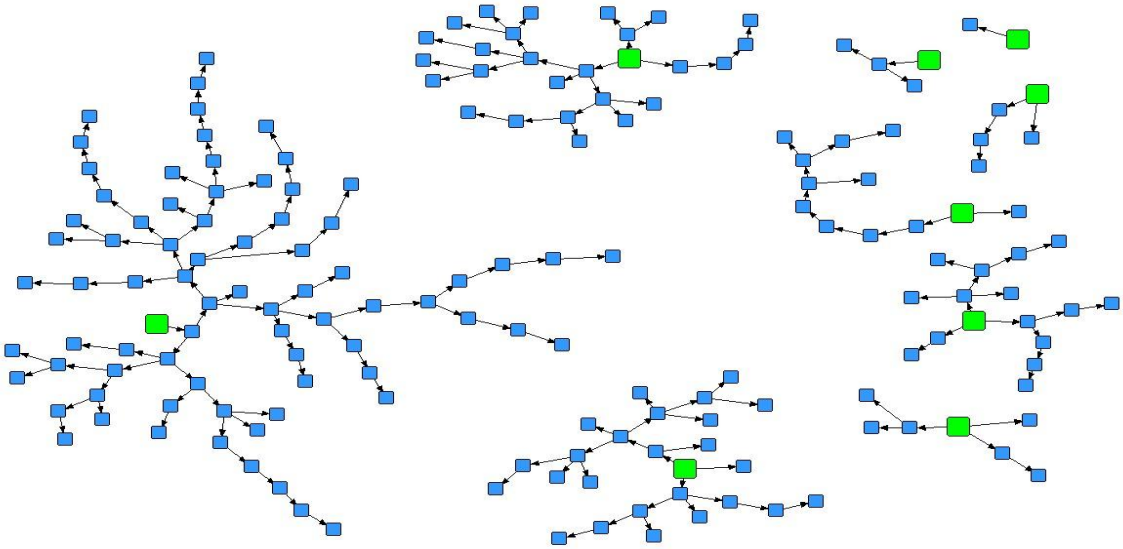
OVERVIEW OF STUDY FINDINGS

Overview: Men who have sex with men (MSM) in the Seychelles

Over the course of two months, beginning in June and ending in August 2011, 177 MSM (143 in Mahe, 13 in Praslin and 21 in La Digue) enrolled in the HIV IBBS survey. One participant (a seed in Mahe) was eliminated from the database leaving the final sample size at 176.

MSM recruited across recruitment locations qualitatively indicated that the social network of MSM formed one complete social network component, an important requirement in RDS. Two seeds only recruited one wave of participants. The overall mean social network size for MSM across all recruitment locations was 10 (8.9 in Mahe, 4.2 in Praslin and 19.7 in La Digue). The maximum number of waves reached in a recruitment chain was 11 (see recruitment graph, figure 4). Seeds are identified in the recruitment graph as larger squares and have arrows leading away from them rather than towards them.

Figure 4. Recruitment graph of the MSM sample (n=176), with nine recruitment chains*, Seychelles, 2011.



**The single large green square in each recruitment chain indicates a seed.*

Seed Characteristics

Table 2, below, displays some basic characteristics of each MSM seed and each seed's recruitment effort. Recruitment began with seven seeds (five in Mahe, one in Praslin and one in La Digue). Three seeds were added during the course of the survey to improve recruitment and one seed was eliminated from the database because it did not recruit

anyone. Social network sizes for MSM seeds ranged from four to 95. Age for MSM seeds ranged from 22 to 51 years and the average age of seeds was 38 years.

All but three seeds reported their sexual orientation as gay. Four of the nine seeds were HIV positive. Seed 2 from Mahe produced the longest recruitment chain (n=11 waves) and was the most efficient recruiter (76 recruits) The shortest recruitment chains (seeds 8 and 9) were composed of just one wave.

Table 2. Characteristics of seeds (n=9) in Seychelles.

	Social network size	Interview location*	Age	Sexual orientation	HIV status	Maximum number of recruits♦	Maximum number of waves♦	Percent of sample
Seed 1	20	MA	38	Homosexual	Pos.	4	3	2.8%
Seed 2	30	MA	43	Gay	Neg.	76	11	43.8%
Seed 3	14	MA	33	Bisexual	Pos.	15	4	9.1%
Seed 4	4	PR	22	Gay	Neg.	11	8	6.8%
Seed 5	3	LD	39	Gay	Neg.	25	5	14.8%
Seed 6	20	MA	51	Gay	Neg.	26	5	15.3%
Seed 7	95	MA	45	Gay	Pos.	6	2	4.0%
Seed 8	8	MA	36	Gay	Neg.	1	1	1.1%
Seed 9	18	MA	33	Homosexual	Pos.	3	1	2.3%

**MA=Mahe, PR=Praslin, LD=La Digue.*

♦*Excluding seeds*

SOCIO-DEMOGRAPHIC CHARACTERISTICS

Age group proportions were almost evenly split between those 29 years and below and those 30 years and above (Table 3, below). The median age was 28 years old. Fifty eight percent of MSM reported attending secondary school. Few MSM reported having any university education.

The largest proportion of MSM reported having employment in unskilled labour (e.g., hawker, street vendor, casual labourer) and the second largest proportion reported having employment in skilled labour, including being mechanics, factory workers and labourers. Twelve percent of MSM reported having no employment.

A small percentage of MSM reported being involved in illegal activities (i.e., selling drugs and prostitution) to generate income. The majority of MSM reported being single (84.8%) and 7% reported being "concubines", a term used to describe living with a male partner. Two percent reported being currently married and 8.1% reported having been married at least once in their lifetime.

Table 3. Socio-demographic characteristics of MSM, Seychelles, 2011

	Seychelles (N=176)		
	n	%	95% CI
Age			
≤24	51	27.8	20.2, 35.2
25-29	47	27.0	17.6, 36.4
30-34	33	20.3	12.2, 28.5
35-39	23	13.3	6.7, 19.9
≥ 40	22	11.7	4.6, 18.6
Median age-years (min., max.)		28 (18, 56)	
Education			
≤Secondary	86	57.8	47.6, 69.0
Technical/professional school	85	41.6	30.6, 51.9
University	4	0.6	0.2, 0.9
Employment			
None	18	11.9	4.7, 19.4
Professional	18	7.7	3.1, 12.0
Service	15	5.2	1.0, 9.2
Skilled	68	32.5	21.8, 42.3
Unskilled	57	42.7	30.3, 56.3

Involved in illegal activities (prostitution/selling drugs)			
Yes	15	6.3	2.5, 9.8
No	161	93.7	90.2, 97.5
Current civil status			
Single	152	84.8	79.7, 89.9
Married	4	1.8	0.2, 3.8
"Concubine" (live-in partners)	11	7.0	2.4, 11.7
Divorced/Separated	9	6.3	1.6, 11.1
Ever been married			
Yes	13	8.1	2.8, 13.5
No	163	91.9	86.5, 97.2
Sexual orientation			
Real man/heterosexual	39	25.9	18.4, 33.7
Gay	24	14.5	7.7, 21.2
Homosexual/man who has sex with other men	46	16.7	10.4, 22.0
Bisexual	64	42.9	35.2, 51.2
Gender identity			
Masculine	143	86.8	81.1, 93.2
Feminine	31	13.2	6.8, 18.9

Forty-three percent of MSM reported their sexual identity as bisexual, followed by 25.9% reporting their sexual identity as "real man" (a term used to describe men who are often married with children who secretly engage in sex with men) or heterosexual. Roughly 30% of MSM reported their sexual identity as gay or homosexual/man who has sex with men. Most MSM reported their gender identity as masculine (86.8%).

ALCOHOL, INJECTION AND NON-INJECTION DRUG USE

Almost all MSM reported ever consuming alcohol; 88.6% reported doing so in the past six months (Table 4, below). Among those having consumed alcohol in the past six months, 43.1% of MSM reported doing so weekly. Eighty percent of MSM reported ever using illegal non-injection drugs with Cannabis being the most popular and smoking heroin being the second most popular drug. Just over one third (35.6%) of MSM reported initiating illegal non-injection drug use at 14 years of age or younger (median age 16, range 2-35 years).

More than half of MSM reported ever injecting drugs (54.2%) and injecting drugs in the past 6 months (51.1%). Yellow heroin (Heroin tanmaren) was the most widely used injection drug by MSM. Among those who reported injecting drugs in the past 6 months, 82.1% did so daily or almost daily and 12% reported using a needle/syringe previously used by someone else at last injection.

Table 4. Alcohol, injection and non-injection drug use among MSM, Seychelles, 2011

	Seychelles (N=176)			
	n	%	95% CI	
Ever consumed alcohol				
Yes	173	97.3	93.9,	99.9
No	3	2.7	0.2,	6.1
Consumed alcohol in the past six months				
Yes	153	88.6	82.7,	94.6
No	20	11.4	5.4,	17.3
Frequency of alcohol use in the past six months (among those reporting consuming in the past six months)				
Less than monthly	20	17.3	8.7,	26.4
Monthly	33	30.3	18.6,	42.9
Weekly	75	43.1	31.1,	54.5
Daily/almost daily	25	9.2	4.2,	13.7
Ever used illegal non-injection drugs				
Yes	134	80.4	72.6,	88.6
No	41	19.6	11.4,	27.4
Age for first using illegal non-injection drugs				
≤14	39	35.6	25.1,	46.5
15-19	61	49.4	38.3,	60.3
≥20	25	15.0	8.9,	20.8

Illegal non-injection drug used most often in the past six months				
Cannabis (marijuana, gandia, Hashish, kaka bef)	89	71.2	62.3,	79.8
Sniffing glue	1	0.9	0.1,	3.4
Smoking heroin	27	26.0	19.6,	32.7
Ever injected drugs				
Yes	79	54.2	39.7,	69.4
No	96	45.9	30.6,	60.3
Injected drugs in the past six months				
Yes	73	51.1	38.3,	64.8
No	102	48.9	35.3,	61.6
Age for first injection drugs				
≤14	1	0.8	0.1,	2.2
15-19	13	15.8	5.4,	26.3
≥20	64	83.5	72.5,	94.4
Injection drug used most often in the past six months				
Brown heroin	7	5.0	0.4,	9.9
White heroin	12	21.8	10.9,	32.8
Yellow heroin	52	73.2	59.8,	86.7
Frequency of injecting drugs in the past six months				
Monthly or less	6	5.8	0.9,	10.5
Weekly	6	12.1	5.4,	18.9
Daily or almost daily	55	82.1	73.6,	90.6
Used a needle/syringe previously used by someone else at last injection				
Yes	9	12.0	0.5,	29.1
No	65	88.0	70.9,	99.6

SEXUAL RISK BEHAVIORS WITH MEN

General sexual risk behaviours

Table 5, below, presents findings on general sexual history and behaviours. The majority of MSM reported having their first oral and anal sexual experience with another man when they were 20 years or older (oral: 52.2%, anal: 56.5%). The median age for both first oral and anal sex with another man was 20 years.

Eighty two percent of MSM reported having one regular male sex partner in the past six months.

Almost all MSM reported practicing penetrative anal sex during which they were in the top position (92.9%) and 71.9% reported penetrative anal sex during which they were in the bottom position. Among those reporting being in the top position, the majority reported having one male sex partner (median 2, range 1-15) and among those reporting being in the bottom position, the majority reported having two or more partners (median 2, 1-20).

Table 5. General sexual behaviours with male partners among MSM, Seychelles, 2011

	Seychelles (N=176)		
	n	%	95% CI
Age at first oral sex with a male partner			
≤14	35	14.6	8.7, 9.9
15-19	56	33.3	23.1, 43.5
≥20	81	52.2	41.6, 63.2
Median (min., max) age at first oral sex with a male partner		20 (6-34)	
Age at first anal sex with a male partner			
≤14	16	5.6	3.2, 7.9
15-19	68	37.9	27.3, 48.4
≥20	92	56.5	46.4, 66.9
Median (min., max) age at first anal sex with a male partner		20 (10-43)	
Frequency of male regular (permanent) sex partners in the past six months			
1	93	81.8	74.1, 89.8
2-3	24	16.1	8.1, 23.8
≥4	4	2.1	0.6, 3.5
Median (min., max) number of male regular (permanent) sex partners in the past six months		1 (1-7)	

Had penetrative anal sex in the top position in the last six months (insertive)			
Yes	144	92.9	86.9, 98.8
No	8	6.3	0.4, 12.4
Number of male sex partners in past six month with participant in top position			
1	66	52.0	41.6, 62.8
2-3	52	35.5	26.7, 44.1
≥4	23	12.5	6.3, 18.6
Median (min., max) number of male sex partners in past six month with participant in top position		2 (1-15)	
Had penetrative anal sex in the bottom position in the last six months (receptive)			
Yes	72	71.9	55.1, 88.4
No	15	28.1	11.6, 44.9
Number of male sex partners in past six month with participant in bottom position			
1	28	43.9	30.0, 58.2
2-3	27	36.2	22.7, 50.0
≥4	20	19.9	5.8, 33.3
Median (min., max) number of male sex partners in past six months with participant in bottom position		2 (1-20)	

Oral sex behaviours

Table 6, below, provides findings on oral sex behaviours of MSM. The majority of MSM (81.2%) reported having oral sex with another man in the past six months among which 31.1% reported using a condom. Few MSM reported always using a condom (14.9%) and 53.8% reported never using a condom during oral sex.

Table 6.Oral sex behaviours among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Oral sex with a man in the past six months			
Yes	137	81.2	73.7, 88.2
No	28	18.8	11.8, 26.3
Used a condom while having oral sex with a man			

Yes	42	31.1	22.5, 40.1
No	113	68.9	59.9, 77.5
Frequency of condom use during oral sex in the past six months			
Never	88	53.8	41.8, 65.3
Sometimes	37	31.2	20.5, 42.4
Always	21	14.9	8.8, 21.2

Male Commercial sex partners

Table 7, below, provides data about sexual risk with male commercial sex partners. The majority of MSM reported having anal sex with a commercial sex partner (67.4%). Among those, 21.9% reported having four or more partners whom they had paid for sex (median 3, range 1-12) and 11. 6% reported having four or more partners who paid them (the participant) for sex (median 2, range 1-12).

Most MSM reported using a condom the last time they had anal sex with a male commercial sex partner (67.4%). Among those who reported not using a condom the last time they had anal sex with a male commercial sex partner(32.6%), the majority reported that the primary reason they did not use the condom was because it was not pleasurable for the respondent (41.2%), followed by condoms not being available (27.3%) and the condom not being pleasurable for the partner (19.6%). Few MSM reported never (9.3%) using a condom and 53.1% reported always using a condom in the past six months with a male commercial sex partner.

Table 7. Sexual risk behaviours with commercial sex partners among MSM, Seychelles, 2011

Seychelles (N=176)			
	N	%	95% CI
Anal sex with a male commercial sex partner in the past six months			
Yes	114	67.4	57.1, 78.0
No	62	32.6	22.0, 42.9
Frequency of paid male sex partners in the past six months (among those who reported having paid a male sex partner)			
1	4	25.0	4.5, 45.5
2-3	9	53.1	28.0, 78.5
4+	6	21.9	3.6, 39.9
Median (min., max) number of paid male sex partners in the past six months		3 (1-12)	
Frequency of male clients in the past six months (among			

those who reported having received money from a male sex partner)				
1	37	48.7	37.3,	61.1
2-3	44	39.7	27.7,	51.4
4+	23	11.6	6.4,	16.1
Median (min., max) number of paid male partners in the past six months		2 (1-12)		
Used condom at last anal sex with male commercial sex partner				
Yes	75	66.5	55.7,	77.1
No	33	33.5	22.9,	44.3
Reasons why respondent did not use condom at last anal sex with male commercial sex partner (among those who reported not using a condom at last anal sex with commercial sex partner)				
No condom available	10	30	11.6,	48.5
Too expensive	1	0.65	0.6,	0.65
Not pleasurable for respondent	14	44.4	26.1,	62.8
Not pleasurable for partner	8	22.7	9.3,	36.1
Both are HIV positive	--	--	--	--
Both are HIV negative	--	--	--	--
Did not think of it	7	3.5	0.2,	9
Trust partner	3	6	0.2,	14.4
Too high or too drunk	5	14.4	4.3,	24.3
Claims to be allergic to condoms	--	--	--	--
No sexual infections	1	3.2	0.01,	702
Primary reason why respondent did not use condom at last anal sex with male commercial sex partner (among those who reported not using a condom at last anal sex with commercial sex partner)				
No condom available	8	27.3	5.1,	49.4
Too expensive	2	0.8	0.5,	0.9
Not pleasurable for respondent	13	41.2	15.1,	67.6
Not pleasurable for partner	41	19.6	4.9,	34.5
Didn’t think of it	1	1.0	0.6,	1.3
Trust partner	4	9.1	0.2,	18.6
Too high or too drunk	1	1.0	0.5,	1.4
Frequency of condom use in the past 6 months with male				

commercial sex partner			
Never	9	9.3	1.6, 17.0
Sometimes	43	37.7	25.0, 50.2
Always	53	53.1	39.1, 67.2

-- indicates no responses to these categories.

Male occasional sex partners

Table 8,below, provides data about sexual risks with occasional male sex partners. Sixty Four(64) MSM reported having occasional male sex partners in the past six months of which half reported having one such partner (median 2, range 1-24)in the past six months. 55.4% of the 64 who reported having at least one occasional male sex partner in the past six months reported using a condom the last time they had anal sex with an occasional partner.

Among those who reported not using a condom (44.7%) the last time they had anal sex with a male occasional sex partner, the majority reported that the primary reason they did not use the condom was because it was not pleasurable for the respondent (28.8%), followed by condoms not being available (24.1%) and that they "trust" partner (20%). Few MSM reported never using a condom (8.3%) and 40.3% reported always using a condom in the past six months with a male commercial sex partner.

Table 8. Sexual risk behaviours with occasional (casual) male sex partners among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Anal sex with a male occasional sex partner in the past six months			
Yes	64	37.3	26.5, 48.3
No	112	62.7	51.7, 73.5
Frequency of male occasional (casual) sex partners in the past six months			
1	33	50.5	34.4, 67.0
2-3	31	42.1	27.0, 57.1
≥4	8	7.4	0.5, 14.1
Median (min., max) number of male occasional (casual) sex partners in the past six months		2 (1-24)	
Used condom at last anal sex with male occasional sex partner			
Yes	42	55.3	37.8, 72.2
No	21	44.7	27.8, 62.2
Reasons why respondent did not use condom at last			

anal sex with male occasional sex partner (among those who reported not using a condom at last anal sex with occasional sex partner)				
No condom available	6	37.3	18.0,	57.3
Too expensive	--	--	--	--
Not pleasurable for respondent	12	46.1	29.3,	62.8
Not pleasurable for partner	2	19.0	12.3,	26.0
Both are HIV positive	--	--	--	--
Both are HIV negative	1	12.8	3.0,	22.5
Did not think of it	1	12.6	12.6,	12.8
Trust partner	4	6.8	4.3,	9.3
Too high or too drunk	1	12.6	6.6,	19.0
Claims to be allergic to condoms	--	--	--	--
No sexual infections	--	--	--	--
Primary reason why respondent did not use condom at last anal sex with male occasional sex partner (among those who reported not using a condom at last anal sex with occasional sex partner)				
No condom available	4	24.1	2.0,	45.8
Not pleasurable for respondent	10	28.8	12.2,	45.2
Not pleasurable for partner	1	13.6	1.2,	26.1
Both are HIV negative	1	13.6	0.1,	28.7
Trust partner	4	20.0	11.8,	28.5
Frequency of condom use in the past 6 months with male occasional sex partner				
Never	5	8.3	0.3,	19.5
Sometimes	29	51.4	31.9,	70.9
Always	27	40.3	17.6,	62.9

-- indicates no responses to these categories.

Male regular sex partners

Table 9 provides data about sexual risks with regular or permanent male sex partners. Most(71.4%) MSM reported having at least one regular male sex partner in the past six months among which 81.9% reported having just one such partner (median 1, range 1-7) 54.5% of those who reported having at least one regular male sex partner in the past six months reported using a condom the last time they had anal sex with a regular or permanent male partner.

Among those who reported not using a condom the last time they had anal sex with a male regular or permanent sex partner (45.5%), the majority reported that the primary reason they did not use the condom was because it was not pleasurable for the respondent (28.9%), followed by no condom was available (26.8%), followed by that they "trust" partner (21.9%). Few MSM (10.7%) reported never using a condom and 42.2% reported always using a condom in the past six months with a male regular sex partner.

Table 9. Sexual risk behaviours with regular (permanent) male sex partners among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Anal sex with a male regular(permanent) sex partner in the past six months			
Yes	121	71.4	62.7, 80.5
No	55	28.6	19.5, 37.3
Frequency of male regular sex partners in the past six months			
1	93	81.9	75.2, 88.7
2	24	16.1	9.2, 22.7
3	4	2.1	0.7, 3.4
Median (min., max) number of male regular sex partners in the past six months		1 (1, 7)	
Used condom at last anal sex with male regular sex partner			
Yes	72	54.5	42.7, 66.0
No	46	45.5	34.0, 57.3
Reasons why respondent did not use condom at last anal sex with male regular sex partner (among those who reported not using a condom at last anal sex with regular sex partner)			
No condom available	11	35.6	19.7, 53.8
Too expensive	0	--	--
Not pleasurable for respondent	14	27.9	17.4, 38.6
Not pleasurable for partner	5	16.5	13.1, 20.1
Both are HIV positive	1	1.2	0.1, 4.5

Both are HIV negative	0	--	--
Did not think of it	0	0	0, 0
Trust partner	16	19.3	10.5, 28.1
Too high or too drunk	1	7.0	0.1, 22.9
Claims to be allergic to condoms	2	2.8	0.1, 6.3
No sexual infections	0	--	--
Primary reason why respondent did not use condom at last anal sex with male regular sex partner (among those who reported not using a condom at last anal sex with regular sex partner)			
No condom available	8	26.8	5.6, 48.4
Not pleasurable for respondent	14	28.9	12.7, 44.9
Not pleasurable for partner	4	14.1	11.3, 17.2
Both are HIV positive	1	1.2	0.1, 5.1
Trust partner	17	21.9	7.9, 25.4
Too high or too drunk	1	7.0	0.1, 29.5
Frequency of condom use in the past 6 months with male regular sex partner			
Never	11	10.7	3.6,17.7
Sometimes	54	47.1	36.3, 57.9
Always	50	42.2	30.9, 53.6

-- indicates no responses to these categories.

SEXUAL RISK BEHAVIORS WITH FEMALES

General sexual risk behaviours with females

Table 10, below, provides data about sexual behaviours practiced by MSM with female sex partners. Ninety percent of MSM reported ever having sexual intercourse with a female partner and 31% reported having sexual intercourse in the past six months. One third reported that their last female sexual partner was a wife or girlfriend.

Among those who reported having sex with a female in the past six months, 41.7% reported having ≥4 female sex partners. The median number of female sex partners in the past six months was two (range 1-12).

Table 10 General sexual risk behaviours with female sex partners among MSM, Seychelles, 2011

	Seychelles (N=176)

	N	%	95% CI
Ever had sexual intercourse with a woman			
Yes	148	89.7	85.0, 95.0
No	27	10.3	5.0, 15.0
Sexual intercourse with a woman in the last six months			
Yes	41	31.0	18.9, 43.5
No	107	69.0	56.5, 81.1
Last female sexual partner was a wife or girlfriend (regular/permanent partner)			
Yes	34	32.6	19.3, 45.8
No	62	67.4	54.2, 80.7
Number of female sex partners in the past six months (among those who reported having female partners in the past six months)			
1	36	33.2	22.6, 43.4
2-3	29	25.1	15.0, 35.2
≥4	35	41.7	29.6, 54.3
Median (min., max.) number of female sex partners in the past six months			2 (1-12)

Female non-paid sexual partners

Among those who reported having an occasional (casual) sexual partner in the past six months (n=80), less than one third reported having ≥4 such partners (27.7%) (Table 11, below). The median number of non-paid female sex partners in the past six months was two (range 1-12). Just under half (43.1%) of MSM reported using a condom at last sexual intercourse with a non-paid female sex partner.

Among the 56.9% who reported not using a condom the last time they had sexual intercourse with a non-paid female sex partners, 82.2% reported that the primary reason they did not use the condom was because it was not pleasurable for the respondent. Seventeen percent of MSM reported never, 47.5% reported sometimes and 23.1% reported always using condoms with their non-paid female sex partners in the past six months.

Table 11. Sexual risk behaviours with non-paid female sex partners among MSM, Seychelles, 2011

Seychelles (N=176)			
	N	%	95% CI
Number of occasional female sex partners in the past six months (among those who reported having occasional female partners in the past six months)			
1	32	29.7	17.5, 41.6
2-3	31	42.5	29.5, 55.8
≥4	17	27.7	15.3, 40.4
Median (min., max.) number of occasional female sex partners in the past six months		2 (1-12)	
Used a condom at last sexual intercourse with non-paid female sex partner			
Yes	45	43.1	31.1, 54.9
No	49	56.9	45.1, 68.9
Reasons why respondent did not use condom at last sexual intercourse with non-paid female sex partner (among those who reported not using a condom at last sexual intercourse with a non-paid female sex partner)			
No condom available	4	3.7	0.2, 7.0
Too expensive	--	--	--, --
Not pleasurable for respondent	17	34.6	16.2, 53.1
Not pleasurable for partner	4	9.5	0.4, 18.5
Both are HIV positive	--	--	--, --
Both are HIV negative	--	--	--, --
Did not think of it	--	--	--, --
Trust partner	20	42.2	28.1, 56.2
Too high or too drunk	2	2.1	1.7, 2.3
Claims to be allergic to condoms	--	--	--, --
No sexual infections	1	2.9	2.2, 3.7
Why respondent did not use condom at last sexual intercourse with non-paid female sex partner (among those who reported not using a condom at last sexual intercourse with a non-paid female sex partner)			
No condom available	4	4.1	0.2, 9.9
Not pleasurable for respondent	17	39.4	19.8, 58.8
Not pleasurable for partner	2	8.2	0.1, 23.2
Trust partner	19	46.0	27.9, 64.3
Too high or too drunk	2	2.3	1.8, 2.7
Frequency of condom use in the past six months with non-paid female sex partners			
Never	15	16.43	8.64, 24.21

Sometimes	37	47.45	33.83, 61.33
Always	37	36.12	23.11, 48.90

-- indicates no responses to these categories.

Female paid sexual partners

Among the 39 MSM who reported having a female paid sexual partner in the past six months, 53.1% reported having 2-3 such partners and 21.8% reported having ≥4 such partners (Table 12, below). The median number of paid female sex partners in the past six months was two (range 1-10). Just over half (50.6%) of MSM reported using a condom at last sexual intercourse with a paid female sex partner.

Among the 49.4% who reported not using a condom the last time they had sexual intercourse with a paid female sex partner, the 86.9% reported that the primary reason they did not use the condom was because it was not pleasurable for the respondent. One quarter of MSM reported never and 35.8% reported always using condoms with their paid female sex partners in the past six months.

Table 12. Sexual risk behaviours with paid female sex partners among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Number of paid female sex partners in the past six months (among those who reported having paid female partners in the past six months)			
1	13	25.1	2.9, 47.1
2-3	17	53.1	27.2, 79.4
≥4	9	21.8	4.6, 38.9
Median (min., max.) number of paid female sex partners in the past 6 months		2 (1-10)	
Used a condom at last sexual intercourse with paid female sex partner			
Yes	22	50.6	23.6, 76.9
No	13	49.4	23.1, 76.4
Reasons why respondent did not use condom at last sexual intercourse with paid female sex partner (among those who reported not using a condom at last sexual intercourse with paid female sex partner)			

No condom available	2	7.7	0.1,	20.9
Too expensive	--	--	--	--
Not pleasurable for respondent	10	86.9	66.3,	99.9
Not pleasurable for partner	1	16.2	2.7,	30.1
Both are HIV positive	--	--	--	--
Both are HIV negative	--	--	--	--
Did not think of it	--	--	--	--
Trust partner	--	--	--	--
Too high or too drunk	--	--	--	--
Claims to be allergic to condoms	1	3.2	0.9,	5.6
No sexual infections	13	0.0	0.0,	0.0
Why respondent did not use condom at last sexual intercourse with paid female sex partner (among those who reported not using a condom at last sexual intercourse with paid female sex partner)				
No condom available	2	8.0	0.1,	19.5
Not pleasurable for respondent	9	83.2	68.4,	98.5
Trust partner	1	5.5	1.4,	9.5
Claims to be allergic to condoms	1	3.3	0.1,	13.8
Frequency of condom use in the past six months with paid female sex partners				
Never	5	24.6	0.3,	75.6
Sometimes	12	39.7	0.6,	99.0
Always	15	35.8	0.8,	86.9

-- indicates no responses to these categories.

CONDOMS AND LUBRICANTS

Condom usage and accessibility

Table 13, below, provides data about reported condom usage and accessibility. Few MSM (11.5%) had condoms with them when they were being interviewed. Just about all MSM (98.4%) reported that they knew where to obtain male condoms. MSM reported several places from where they obtained condoms with the most frequently mentioned being hospital (72.3%), voluntary counselling and testing (VCT) centres (43.1%) and friend or sexual partner (33.6%).

Table 13. Condom usage and access among MSM, Seychelles, 2010-2011

	Seychelles (N=176)			
	N	%	95% CI	
Respondent currently has condoms with them				
Yes	25	11.5	4.8,	82.0,
No	151	88.5	18.0	95.2
Knows where to obtain male condoms				
Yes	174	98.4	96.6,	99.9
No	2	1.7	0.1,	3.4
Places where respondent obtained condoms in the past 12 months				
Pharmacy	34	19.0	10.7,	27.2
Shop	16	6.7	2.6,	10.5
Disco	24	16.4	8.6,	24.5
School	2	0.4	0.1,	0.7
Guest house/hotel	3	0.4	0.2,	0.7
Peer educator	4	0.9	0.2,	1.9
Friend/sexual partner	61	33.6	22.3,	44.7
VCT centers	70	43.1	34.3,	52.2
Restaurant	1	2.0	0.1,	6.7
Boat	5	2.0	0.3,	4.8
Hospital	118	72.3	64.3,	80.8
Workplace	4	0.9	0.2,	1.8

Lubricant usage and access

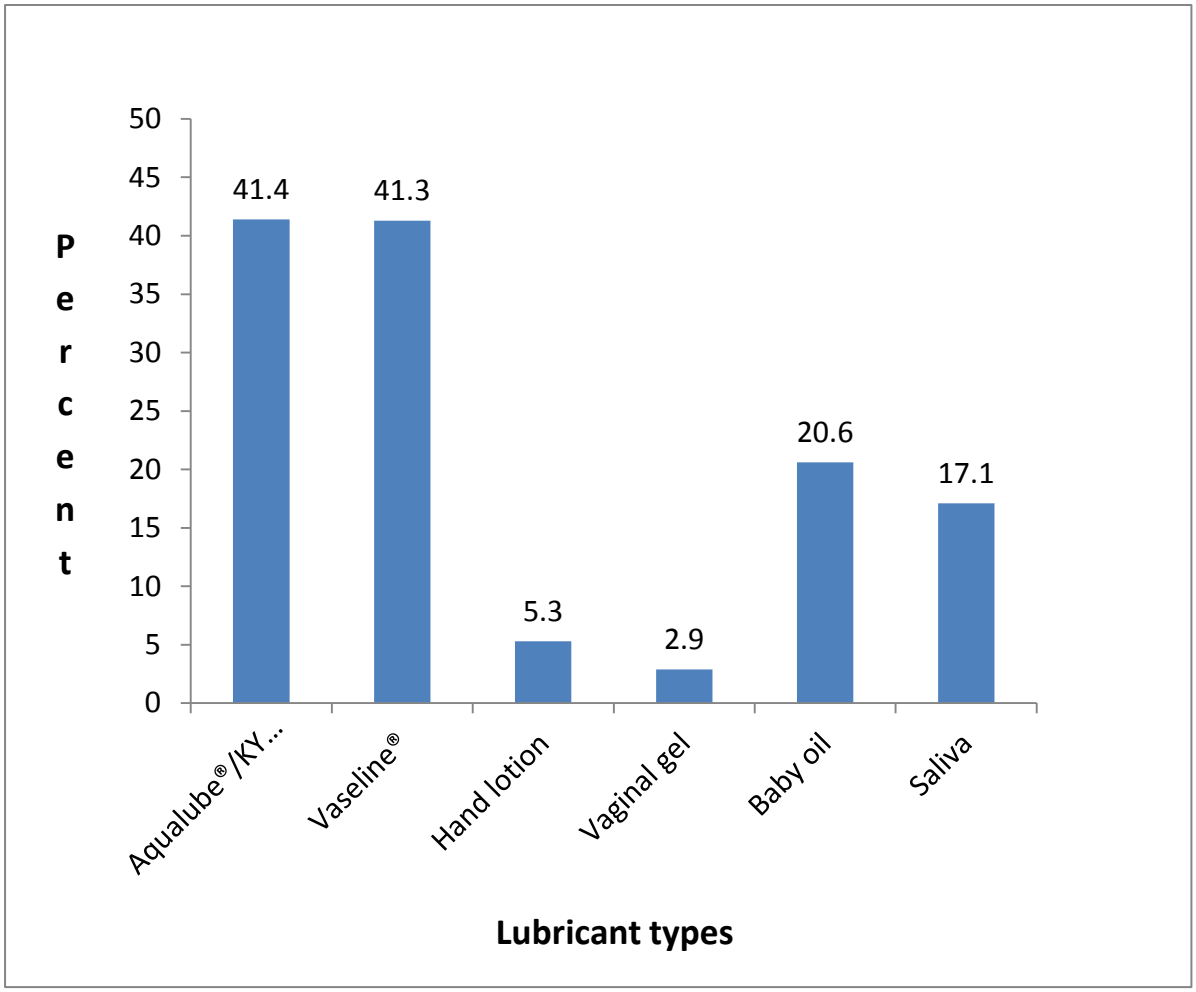
Table 14(below) provides data about lubricant usage and accessibility. Eighty percent of MSM reported ever using lubricant products when having anal sex with another man. Among those men who did not use lubricant products for anal sex, 29.4% reported that the reason was because they "do not like lubricants/there is enough lubricant in condoms" and 23.7% reported that it was because lubricants were "not available". Just over 72% reported that know where to obtain lubricant products. The most common ways to obtain lubricants was from a shop (48.5%), a friend or sexual partner (31.3%) or from a pharmacy 23.1%).

Table 14. Lubricant usage and access among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Ever used lubricants when having anal sex with another man			
Yes	143	80.1	71.8, 88.0
No	30	19.9	12.0, 28.2
Why respondents do not use lubricants (among those who said they did not use lubricant)			
Partner objects	1	3.4	0.1, 11.0
Cannot get it/not available	11	23.7	0.6, 72.9
Do not like lubricants/ condoms have enough lubricant	9	29.4	14.4, 44.3
Do not where to get it	2	5.9	3.8, 8.1
Not available on the market	3	7.1	0.5, 13.7
Knows a place from where/person from whom to obtain lubricants			
Yes	126	72.4	64 .9, 79.9
No	50	27.6	20.1, 35.1
Places from where/persons from whom to obtain lubricants			
Pharmacy	28	23.1	12.3, 34.0
Shop	54	48.5	33.7, 63.7
Peer educator	4	1.2	0.2, 2.2
Friend/sexual partner	42	31.3	21.2, 41.3
VCT centres	13	8.7	0.8, 16.6
Boat	1	0.2	0.1, 0.5
Hospital	22	10.7	3.8, 17.0
Workplace	--	--	--

Among those who reported using lubricants for anal sex, 41.4% commonly used water based lubricants including Aqualube® and KY jelly®, and 41.3% commonly used Vaseline®, an oil based lubricant. Just over 20% reported using baby oil and 17.1% reported using saliva.

Figure 5. Types of lubricants commonly used for anal sex (among those who reported ever using lubricants, n=143)



SEXUALLY TRANSMITTED INFECTIONS (STIs)

STI knowledge, signs and symptoms

Almost all MSM (95.5%) had heard of diseases (other than HIV) that can be transmitted through sexual intercourse (Table 15, below). However, only 36.8% of MSM could correctly describe any signs or symptoms of STIs in females and 56.7% could correctly describe any signs or symptoms of STIs in males. A large percentage of MSM (86.5%) reported having a sign or symptom of an STI, identified as either a genital ulcer, ulcerations or lesions in the anal area or an anal discharge in the past 12 months.

Table 15. Sexually transmitted infections (STI) knowledge, signs and symptoms among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Has heard of diseases other than HIV that can be transmitted through sexual intercourse (STIs)			
Yes	170	95.5	91.4, 99.4
No	6	4.5	0.6, 8.6
Can describe any signs and symptoms of STIs (other than HIV/AIDS) in females			
Yes	64	36.8	29.2, 44.5
No	107	63.2	55.5, 70.8
Can describe signs and symptoms of STIs (other than HIV/AIDS)in males			
Yes	104	56.7	47.2, 65.7
No	66	43.3	34.3, 52.8
Has signs or symptoms of an STI (genital ulcer, ulceration/lesions in the anal area, anal discharge) in the past 12 months			
Yes	148	86.5	80.3, 92.8
No	25	13.5	7.2, 19.7

STI health seeking behaviours

Most MSM know where to go if they had an STI with the place most commonly cited being a government clinic (47.8%), followed by a private clinic (27.2%) (Table 16, below). Among those MSM who reported having had a urethral discharge, genital ulcer, ulcerations or lesions in the anal area, or an anal discharge in the past 12 months, 28.1% reported seeking an examination and medicine from a public health establishment and 21.6% reported that they did not do anything (Table 14, below).

Table 16. Sexually transmitted infections (STI) health seeking behaviors among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Knows where to go for treatment if respondent had an STI			
Yes	165	96.5	94.4, 98.7
No	6	3.5	1.3, 5.6
Places respondent knew where they could receive treatment for a STI			
Government clinic	70	47.8	29.6, 66.7
Traditional healer	4	1.6	0.2, 3.1
Private clinic	45	27.2	18.9, 35.5
Witch doctor	1	0.4	0.1, 1.3
Actions taken when respondent had genital/anal sore, ulcer or unusual discharge in last 12 months[15]			
Did not do anything	4	21.6	0.2, 50.1
Went to government health establishment for exam and treatment	8	28.1	2.9, 53.7
Went to private health establishment for exam and treatment	2	5.7	0.1, 11.5
Treated self at home	4	12.6	0.2, 26.4
Stopped having sexual intercourse when having symptoms	1	0.2	0.1, 0.3

[15] Not all participants responded to this question.

HIV CHARACTERISTICS

HIV knowledge and attitudes

One hundred percent of MSM have heard of HIV/AIDS (Table 17, below). However, only 60.5% of MSM had accurate knowledge about HIV transmission based on responses to a composite of several knowledge questions[16]. Seven percent of MSM reported that someone can get HIV by shaking hands with someone who is infected and11.6% reported that someone can get HIV by sharing a meal with someone who is infected with HIV. Twenty percent of MSM reported that they had no risk for HIV and 24.3% estimated their own risk for HIV to be high.

Table 17. HIV knowledge and attitudes among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Has heard of HIV/AIDS			
Yes	175	100.0	--
No	0	0.0	--
Has correct knowledge of HIV			
Yes	107	60.5	49.9, 71.0
No	68	39.5	29.0, 50.1
Believes someone can:			
Get HIV by shaking hands with someone who is infected	9	7.1	0.5, 14.1
Be contaminated with HIV by sharing a meal with someone who is infected	18	11.6	5.7, 18.9
Get HIV from mosquito bites	48	33.7	23.3, 44.8
Appear healthy and still be HIV positive	165	94.6	90.2, 99.0
Self- assessment of risk of getting HIV			
High	50	24.3	15.4, 32.5
Medium	41	27.6	17.6, 38.0
Low	42	27.9	19.6, 36.4
None	32	20.2	13.4, 27.1

[16]Correct HIV transmission knowledge was measured by answering all of the following questions correctly: Can having sex with only one faithful, uninfected partner reduce the risk of HIV transmission? (yes); Can a person get HIV by shaking hands with someone who is infected? (no); Can a person get HIV from mosquito bites? (no); Can using condoms reduce the risk of HIV transmission? (yes); Can someone who appears to be healthy still be HIV positive ? (yes).

HIV testing

Almost all MSM know where to go to obtain an HIV test (Table 18, below).Among the 59.1% that had ever been tested for HIV, 44.4% reported having been tested within the last year and among that proportion, 94.6% reported receiving their test results.

For those who never had an HIV test (n=64), the most commonly cited reason for never doing so was because they felt that they were not a risk for HIV (31.4%), 18.8% because they were afraid someone would find out that they had taken the HIV test, and 12.3% because they did not want to change their behaviour if positive or because they were afraid of getting their results.

MSM reported many reasons why it is beneficial to have HIV counselling and testing. The reasons with the highest percentage of responses were to plan the future or to have general knowledge of status (51.4%), to get treatment if infected (27.1%) and to avoid HIV infection (20.7%).

Table 18. HIV testing among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Knows where to go to have an HIV test			
Yes	169	96.0	91.8, 99.7
No	7	4.0	0.4, 8.2
Has ever been tested for HIV			
Yes	111	59.1	49.7, 67.9
No	64	40.9	32.1, 50.3
Was tested for HIV in the last 12 months			
Yes	56	44.4	33.1, 55.4
No	54	55.6	44.6, 66.9
Received HIV test result at testing			
Yes	98	94.6	84.9, 99.7
No	6	5.4	0.3, 15.1
Reasons why respondent never had an HIV test			
Testing centre too far away	1	4.9	0.1, 14.1
I do not have HIV (not being risky)	19	31.4	16.9, 45.6
Do not want to change behavior if positive/afraid of results	8	12.3	4.3, 20.2
Do not trust HIV testing staff	4	8.0	0.2, 16.3
I think I am positive	2	0.9	0.1, 1.7
Costs too much	0	0.0	0.0, 0.0
Do not know where to go	3	4.2	3.3, 5.0
Afraid someone will find out test he took the test	9	18.8	0.5, 38.5
Benefits of having counselling and testing of HIV			

Plan future/general knowledge of status	90	51.4	37.9, 64.9
Avoid infection	44	20.7	14.0, 27.1
Protect unborn child	2	0.8	0.1, 1.7
Get treatment if infected	52	27.1	18.5, 35.5
Learn to live with HIV if infected	18	9.6	3.4, 15.6
Receive social support	6	2.9	0.6, 5.1
Receive material support	4	2.1	0.2, 4.3
Receive HIV care	15	9.0	3.9, 14.3
No benefit	3	1.7	0.2, 4.3

HIV Stigma and discrimination towards people living with HIV

Overall, MSM show tolerant attitudes towards hypothetical situations which would put them into contact with people living with HIV/AIDS (Table 19, following page). Eighty four percent of MSM stated that they would share a meal with someone they knew had HIV; 96.5% would be willing to care for a male relative and 98.8% would be willing to care for a female relative in their household if this relative became ill with AIDS; 95.5% reported that if a teacher has HIV but is not sick, he or she should be allowed to continue teaching in school and 96.7% reported that if a student has HIV but is not sick, he or she should be allowed to continue attending school.

Only 66.6% of MSM reported that they would buy food from a shopkeeper or food seller if he knew they had HIV. Most MSM (86.3%) would want it to remain secret if a member of his family became ill with AIDS.

Table 19. Stigma and discrimination towards people living with HIV among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Would share a meal with a person you knew had HIV (the virus that causes AIDS)			
Yes	151	84.0	75.6, 92.3
No	25	16.0	7.7, 24.4
Would be willing to care for a male relative in his household if he became ill with AIDS			
Yes	169	96.5	93.3, 99.6
No	3	3.5	0.4, 6.7
Would be willing to care for female relative in his household if she became ill with AIDS			
Yes	171	98.8	97.3, 99.9
No	2	1.2	0.1, 2.7

If a teacher has HIV but is not sick, he or she should be allowed to continue teaching in school			
Yes	163	95.5	92.3, 98.8
No	10	4.5	1.2, 7.7
If a student has HIV but is not sick, he or she should be allowed to continue attending school			
Yes	169	96.7	93.6, 99.7
No	6	3.3	0.3, 6.4
Would you buy food from a shopkeeper or food seller if he knew they had HIV			
Yes	121	66.6	57.8, 75.0
No	50	33.4	25.0, 42.2
Would you want it to remain secret if a member of his family became ill with AIDS			
Yes	141	86.3	80.0, 93.1
No	33	13.7	6.9, 20.0

PERSONAL STIGMA, DISCRIMINATION, VIOLENCE AND ARREST

Forty-one percent of MSM reported that they had received verbal insults and 3.8% reported being hit, kicked or beaten in the past 12 months because someone believed respondent has sex with other men (Table 20). Twenty-seven percent of MSM reported being forced to have sexual intercourse when they did not want to at some point in their lives and, among those, 50.3% reported having been forced to have sexual intercourse in the past 12 months. Forty-four percent of MSM reported being arrested in the past 12 months.

Table 20.Personal stigma, discrimination, violence and arrest experienced by MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
Verbal insults in the past 12 months because someone believed respondent has sex with men			
Yes	75	40.6	29.8, 51.0
No	101	59.4	49.0, 70.2
Hit, kicked or beaten in the past 12 months because someone believed respondent has sex with other men			
Yes	8	3.8	0.9, 6.7
No	168	96.2	93.3, 99.1
Ever forced to have sexual intercourse when responded did not want to			

Yes	44	26.9	18.7, 35.0
No	127	73.1	65.0, 81.3
Forced to have sexual intercourse when respondent did not want to in the past 12 months			
Yes	22	50.3	33.6, 66.8
No	30	49.7	33.2, 66.4
Arrested in the past 12 months			
Yes	70	44.1	32.1, 56.6
No	104	55.9	43.4, 67.9

HIV, SYPHILIS AND HEPATITIS PREVALENCE

HIV sero-prevalence among MSM in the Seychelles was 13.2% and 41.9% of MSM were found to have antibodies to HCV (Table 21, below). No one was found to have a positive reaction to HBsAg or Syphilis. Among those who had positive test results for HIV, 20.6% (0.0, 60.3) also had positive reactions to HCV antibodies.

Table 21. Prevalence of HIV and Syphilis among MSM, Seychelles, 2011

	Seychelles (N=176)		
	N	%	95% CI
HIV			
Negative	149	86.8	80.2, 93.6
Positive	26	13.2	6.4, 19.8
Syphilis			
Negative	175	100	--
Positive	0	0	--
Hepatitis B			
Negative	175	100	--
Positive	0	0	--
Hepatitis C			
Negative	112	58.1	46.8, 68.7
Positive	63	41.9	31.3, 53.2

POPULATION SIZE ESTIMATION

One week prior to the commencement of the survey of MSM using RDS, 245 unique objects (yellow plastic key rings) were distributed to MSM throughout Seychelles by peer outreach groups. During the survey, 42MSM reported receiving the unique object. The RDS weighted estimator for those who responded that they had received the unique object was 22.1%. The calculation for the population size estimation using the unique identifier method is 245/.221 which provides a size estimation of 1084 MSM.

Assuming that the adult male population comprises 75% of half of the total population of Seychelles or roughly 33,375 adult males, based on the estimate from the unique object multiplier, MSM make up 3.2% of that population.

DISCUSSION AND RECOMMENDATIONS

Concentrated epidemic among MSM in the Seychelles.
HIV sero-prevalence in this study was 13.2%. This is more than twice as high as the 5% minimum prevalence defined as a concentrated HIV epidemic. A recent estimate of HIV among MSM based on HIV testing conducted at the CDCU found 22% of MSM patients to be HIV positive. However, this estimate is likely to overestimate HIV prevalence given that mostly high risk individuals are more likely to seek HIV testing at the CDCU. A scale up and expansion of programs to provide targeted HIV outreach and services to MSM is essential to control the spread of HIV within this population.

Potential spread of Hepatitis C.
A high percentage of MSM were infected with HCV, a highly infective virus causing chronic morbidity. 20.6% of MSM were found to be infected with both HIV and HCV. Formal guidelines and interventions for prevention and management of both HCV and HCV-HIV co-infection are needed. Guidelines and interventions should include hepatitis education and prevention, HCV-HIV counselling, screening for HCV among MSM, referral for HCV services where appropriate and available, and integration of HCV prevention into HIV prevention programs.

MSM are mostly mature in age, educated, unskilled laborers and single.
Most MSM in the Seychelles are in their 20s and 30s. Although over half have a secondary education, most are unskilled. Few MSM have ever been married and almost all of them are single. As half of MSM had oral sex with another man and more than 40% had anal sex with another man before the age of 20, programs addressing safe sex practices would be effective if delivered through the primary and secondary educational systems.

High risk drug use practices.
A high percentage of MSM drinks alcohol weekly and use non-injecting drugs. It is well known that drugs and alcohol undermine the ability to make good decisions about safe sex. Programs and policies to reduce problem drinking and drug use need to be enhanced and provider initiated screening for alcohol and drug abuse should be conducted on MSM to determine whether associated risks (e.g., domestic violence and other crimes and high risk sex) should be addressed. MSM determined to abuse alcohol and drugs should be educated and monitored and enrolled into programs to decrease problem drinking and drug use.

Many MSM are injecting drugs.
Fifty four percent of MSM ever injected drugs, among which 51% did so in the last six months, among which 12% reported sharing in the last six months. Injection drug use seems to be a problem in the MSM population in Seychelles. Given that sharing needles already used by someone who is infected with HIV is an extremely efficient mode of HIV and HCV transmission, services for MSM should include linkages to injecting drug use services, including evidence-based risk reduction programs such as syringe exchange and opiate substitution therapy. If these programs are not widely available or do not currently exist, then steps should be taken to rapidly scale up or develop such programs to stem the spread of HIV and HCV among this population.

Currently, Seychelles has no opiate substitution programs (OSP). This is unfortunate as many MSM who reported injecting drugs, reported doing so daily or almost daily and are most likely addicted. Many people who are addicted to drugs will access OSP and other effective treatment programs if they are available.

High levels of risky sexual behaviours.
This study found that MSM commence oral and anal with other men sex while still in their teenage years, have multiple types of sexual partners, including occasional and commercial, and do not use condoms consistently with those partners.

More than 65% of MSM reported having commercial male sex partners and almost 40% reported having occasional male sex partners in the past six months. Condom use with these sex partners was inconsistent indicating numerous opportunities for the further spread of HIV in this population.

More MSM report sex in the top position compared to the bottom position.
A higher percentage of MSM reported active (top) anal sex compared to passive (bottom) anal sex. This study did not include questions about condom use during these sexual practices. However, given that MSM reported inconsistent condom use with all male sex partners, it can be assumed that inconsistent condom use occurs in both active and passive positions. It is widely known that HIV is more easily transmitted through passive anal sex

rather than through active anal sex. According to one study, the estimated per-contact risk of acquiring HIV from unprotected receptive anal sex is 0.82% when the partner is known to be HIV positive and 0.27% when partners of unknown serostatus are included.[17]Targeted condom use education is needed to inform MSM of the risks of not using condoms during anal sex so that men, especially those who will be the passive partner, will be encouraged to request their active partner to use a condom.

Most MSM have sex with females as well as males.

Most MSM reported their sexual orientation as bi-sexual or heterosexual and that they had sexual intercourse with numerous females, without always using condoms. It is not known whether these men are openly bisexual and communicate this with their female partners or whether they have an open heterosexual persona and a hidden homosexual persona. MSM in many societies feel societal pressures to engage in sexual relationships with women. These pressures increase the HIV vulnerability for both men and women. Men who feel the need to hide their sexual orientation may be less forthcoming about their sexual risk behaviors when seeking health care. In societies where MSM activity is secretive, withholding this information from female sexual partners can increase HIV transmission to the general population. In relationships in which sex partners have agreed to be monogamous, however one partner is not, a request for condom use would be viewed with suspicion.

Outreach efforts and policy changes, including decriminalizing homosexuality and reducing stigma related to male-to-male sex, must be developed to effectively address sexual health needs of these men and their partners. Furthermore, given that MSM practice inconsistent condom usage with female and male partners, strategies are needed to reduce HIV transmission among intimate partners. These should include scaling up HIV prevention interventions to emphasize the importance of protecting a regular female and male partners and conducting further research to improve understanding of the dynamics of HIV transmission among intimate partners[18].

More education needed about lubricant usage.

MSM in the Seychelles apparently use and have some access to lubricants. However, among those MSM that did report using lubricants, only 41% reported using water based lubricants. Lubricant availability from multiple access points should be enhanced for MSM.

[17]Vittinghoff, E, Douglas, J, Judson, F, McKirnan, D, MacQueen, K, Buchbinder, S.P. Per-Contact Risk of Human Immunodeficiency Virus Transmission between Male Sexual Partners. American Journal of Epidemiology August 1, 1999;150:306-11

[18]UNAIDS.(2009) HIV Transmission in Intimate Partner Relationships in Asia. Accessed on September 9, 2010 at: http://data.unaids.org/pub/Report/2009/intimate_partners_report_en.pdf

When men do not use enough lubricant, or use the wrong kind of lubricant, the likelihood of condom failure is increased, making transmission of HIV and other STI possible. Although water-based and silicone-based lubricants work best with condoms, many MSM reported using oil-based lubricants (such as Vaseline®, baby oil, and hand lotion), all of which can damage a condom and increase the likelihood that condoms will tear during sex. Education about correct lubricant use is important for MSM.

Low knowledge of STIs.

Although most MSM had heard of diseases, other than HIV, which can be transmitted through sexual intercourse, low percentages could correctly describe any signs and symptoms of STIs in males or females. However, when asked if MSM had any genital ulcer, ulceration or lesions in the anal area, or anal discharge in the past 12 months, most replied that they had. Although no one was positive for HbsAg or syphilis, future surveys of MSM should include testing for other genital STIs and for anal STIs.

Not knowing the correct signs and symptoms of STIs in either males or females may result in MSM not recognizing an infection on a sexual partner and not seeking advice and treatment when infected, thereby increasing the risk of acquiring or transmitting STIs. Continued systematic screening of genital and anal STIs (including provision of results and treatment) should be integrated into programs providing services to MSM. Health facility-based service providers should consider including systematic physical examinations for genital and anal STIs in people known or suspected to be MSM since signs or symptoms may not be self-recognized and not reported.

Monitoring STIs, especially those that result in genital ulcers, among MSM is essential as STIs are easily transmitted to sexual partners and associated with increased sexual HIV transmission[19].

Inconsistent knowledge about HIV.

Although all MSM had heard of HIV/AIDS, and more than 96.0% of MSM reported knowing where to go to obtain an HIV test, only 60.5% had correct knowledge about HIV/AIDS transmission (based on a composite scale of transmission modes) and just over a third believed that someone could get HIV from sharing a meal with an infected person or receiving a mosquito bite. All sexually active people should be exposed to education about the ways in which people can become infected with HIV.

MSM who get tested get their test results.

[19]Wasserheit J. (1999) Epidemiologic synergy interrelationships between human immune virus infection and other sexually transmitted diseases.*Sex Transm Dis*. 75(1): 3–17; Dickerson MC, Johnston J, Delea TE, et al. (1996) The causal role for genital ulcer disease as a risk factor for transmission of Human Immunodeficiency Virus: An application of the Bradford Hill Criteria. *Sex Transm Dis.* 23(5):429-440.

Most MSM know where to get an HIV test and among those who were tested in the past 12 months, almost all reported receiving their test results. Only a small percentage of MSM in this study returned to the study site two weeks later to receive their test results. Unfortunately, few MSM who tested positive for HIV took advantage of follow-up care and treatment provided through the study. In the next round of this study, efforts should be made to increase the number of MSM who get follow up care and treatment, perhaps by giving some type of incentive or transportation fee for those who go to the follow-up care and treatment facility.

Many MSM not being tested for HIV.

Forty-one percent of MSM had not had an HIV test prior to this study. The primary reasons for not having had an HIV test was that MSM felt they were not at risk, they were afraid someone would find out and they did not want to change behaviours/afraid of test results. Given that many MSM in Seychelles are sexually active and practice high risk behaviours, targeted HIV VCT is important in this population. Many MSM HIV VCT could be addressed in several ways: (a) Increase awareness about the importance of being tested and the availability of HIV testing locations; (b) Promotion of the use of existing services, with additional training for counsellors on how to receive and provide quality VCT services for this population, and (c) Providing more VCT services to MSM in 'gay friendly' settings.

In addition, future rounds of surveys among MSM and small scale qualitative surveys should further examine why some MSM, given their high risk behaviours, do not get tested (and why some men do) so that appropriate responses can be incorporated into new and existing prevention programs

MSM are fairly tolerant of people infected with HIV.

Most MSM reported that they would share meals or be willing to care for someone in their household who became ill with HIV. However, 86.3% would want it to remain a secret if a member of his family became ill with HIV indicating the perception by MSM that the larger society is not very tolerant to those living with HIV/AIDS.

Based on these findings, HIV prevention efforts should include general community education and outreach focused on reducing or responding to discrimination towards people living with HIV/AIDS.

MSM face stigma.

Just over 40% of MSM reported being verbally insulted because someone believed respondent has sex with other men indicating that this practice is not widely accepted in the Seychelles. Fortunately, few MSM reported being physically abused because someone believed respondent has sex with other men. The best method for addressing community stigma and discrimination towards vulnerable populations is to change national policy which

criminalizes same sex partnerships. The Seychelles recently signed the UN Human Rights Council UN resolution on the human rights of lesbian, gay, bisexual and transgender persons in June, 2011.

SUMMARY OF KEY RECOMMENDATIONS

- Develop and fund programs to provide targeted HIV outreach/services to MSM to control the spread of HIV;
- Include Syphilis, HCV and HBsAg screening in all HIV testing (rapid testing, confirmation and treatment);
- Test for additional STIs, especially those detected with anal swabs, in the next round of the BBSS among MSM.
- Ensure that the development of intervention and service programs for MSM are reach younger MSM;
- Enhance youth programs to include healthy lifestyle choices and support for young boys;
- Develop MSM services, including risk reduction programs such as syringe/needle exchange programs and opiate substitution therapy;
- Consider linking MSM and drug and alcohol abuse services;
- Increase outreach efforts/policy changes, including decriminalizing and reducing stigma related to male-to-male sex, to address sexual health needs of MSM and their partners;
- Conduct research to understand male-female dynamics (among females that have male partners that have sex with other males) and HIV transmission;
- Investigate whether MSM need access to the correct lubricants;
- Integrate systematic screening for STIs (which are unrecognized by MSM) into programs providing services to MSM;
- Adapt the new WHO guidelines for prevention and treatment of STIs among MSM: http://www.who.int/hiv/pub/guidelines/msm_guidelines2011/en/;
- Increase education access and availability about HIV risk and transmission for sexually active males;
- Provide an additional incentive, perhaps in the form of a transportation reimbursement, to encourage MSM to get follow-up care and treatment.

CONCLUSION

Study findings clearly identify and confirm the need for the establishment of programs targeting MSM in Seychelles. Currently there are no services specifically targeting MSM. These results support the need to develop packages for prevention, care, and treatment of HIV infection, provided in settings that are easily accessed by and comfortable to MSM. This package should build on existing services and integrate important messages on how to reduce sexual (and also drug use) risk, particularly among individuals that engage in multiple risk behaviours.

Any scale-up of programs and services will need to be appropriately defined and adapted according to the unique context and risks identified for the populations in their respective geographic location, endorsed by appropriate stakeholders in Seychelles, and once implemented, monitored appropriately.

This was the first use of RDS methodology among MSM in Seychelles. This first round of an IBBS survey conducted among MSM in Seychelles successfully captured a diverse sample of MSM (although the sample size was not reached due to heightened stigma during the survey period) and can serve as a foundation for the establishment of a HIV surveillance system. This baseline survey has provided important epidemiological data to better understand the current context of the HIV epidemic in Seychelles and should be used by policy makers and funders to prioritize their resources for HIV prevention. IBBS should be incorporated into an on-going surveillance strategy whereby surveys on HIV and other infections prevalence and associated risk behaviours are implemented every two to three years using the same sampling methodology (RDS) to monitor trends, identify and respond to failures, and measure successes.

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