Vanuatu Integrated Bio-Behavioural Survey and Population Size Estimation with Men Who Have Sex with Men and Transgender People, 2011

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ACRONYMS AND ABBREVIATIONS

AIDS	Acquired Immune Deficiency Syndrome
CCU	Consistent condom use
FSW	Female sex worker
HIV	Human Immunodeficiency Virus
IBBS	Integrated Behavioural and Biological Surveillance
KPH	Kam Pusum Hed Clinic
PDPT	Patient delivered partner therapy
PICT	Pacific Island Countries and Territories
PSDN	Pacific Sexual Diversity Network
PWID	People who inject drugs
RDS	Respondent Driven Sampling
SGS	Second Generation Surveillance
SPC	Secretariat of the Pacific Community
STI	Sexually Transmitted Infection
WHO	World Health Organisation
WSB	Wan Smolbag Theatre

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EXECUTIVE SUMMARY

Background

Whilst HIV prevalence in Pacific Island Countries and Territories (PICT), with the exception of Papua New Guinea, is low, the prevalence of STI, particularly chlamydia, in PICT are among the highest in the world. There is limited epidemiological data on men who have sex with men (MSM) and transgender people (TG) in PICT, a key population at higher risk. Given the evidence for high rates of STI in the Pacific, it is pertinent that robust, comprehensive and continuous data is collected to assess which groups have a higher burden of disease, what behaviours are associated with increased prevalence and whether interventions have had an impact on reducing incidence.

Rationale and study objectives

The overall aim of the research was to fill gaps in information on HIV and STI prevalence and risk behaviours among MSM and TG in Vanuatu through Integrated Bio-Behavioural Surveillance (IBBS) and support interventions in Vanuatu.

The study was collaboration between the Burnet Institute, Wan Smolbag Theatre and the Vanuatu Ministry of Health. Three research objectives were identified:

1. To estimate the prevalence of chlamydia, gonorrhoea, syphilis and HIV among MSM and TG;
2. To describe knowledge, attitudes and risk behaviours among MSM and TG in Port Vila; and
3. To estimate population size of MSM and TG in Port Vila.

These research objectives were addressed through two research components implemented in parallel:

- Integrated Bio-Behavioural Survey with MSM and TG; and
- Population Size Estimation of MSM and TG.

Methods

Integrated Bio-Behavioural Survey

The Vanuatu IBBS with MSM and TG was a cross-sectional study conducted with MSM and TG (aged 18+ years living in or near Port Vila and report having anal sex with a man in the previous 12 months) in Port Vila, Vanuatu recruited between November 2011 and April 2012.

Consented participants were recruited using Respondent Driven Sampling (RDS) and completed an interviewer-administered sexual behaviour questionnaire and provided biological samples. Questionnaire data collected included network size and composition (for use for analysis of data collected RDS), sexual behaviour information, self-reported sexually transmitted infections and symptoms, alcohol and drug use and HIV knowledge and attitudes. The Vila Central Hospital Laboratory conducted HIV, syphilis, chlamydia and gonorrhoea testing. Additional blood specimens were collected for HIV and syphilis testing at NRL in Australia. All participants received reimbursements for their time participating in the study.

Analysis

Capture-recapture was used to estimate the size of the MSM & TG population in Port Vila using standard procedures. Descriptive analyses (n and %) on the sample are presented. Where possible, Global AIDS Reporting Progress Reporting (GARPR) Indicators are included in this report.

Key findings

Recruitment of MSM and TG

- A total of 52 MSM and TG were recruited from five seeds; significant challenges were experienced in meeting the anticipated sample size for this study. As a hidden population, RDS remains a potential recruitment strategy for future studies with MSM and TG however it should not be implemented until formative research has been conducted

Size of combined MSM and TG population in Vanuatu

- The estimated population size of MSM and TG in Vanuatu was calculated to be 327 (95% confidence interval 764-2032), comprising between 2% and 3% of the total male population in Port Vila aged 20-54 years;

Risk behaviours identified

- TG appear to have some riskier behaviours than MSM, including age of sexual debut (16 years for MSM vs 12 years for TG) and lower rates of condom use (a condom was not used at last anal sex by 57.8% of MSM and 75% of TG);
- The rate of partner change, and possible concurrent sexual relationships, of MSM and TG coupled with the low rate of CCU is of great concern, as it highlights the potential for STI transmission within TG and MSM population;
- Sexual contact with women was common; One–third of TG (31.8%) and nearly all MSM (88.9%) reported ever having sex with a female partner. This highlights the interconnectedness of heterosexual and homosexual sexual networks in Vanuatu and the potential for rapid STI transmission in the face of low CCU;
- The level of forced sex reported by both MSM and TG is concerning; two thirds of TG (63.4%) and one-third of MSM (35.7%) report ever being forced to have sex. Further research is needed to more closely investigate the prevalence of forced sex;

STI Testing and treatment among MSM and TG

- All TG and many MSM that had a genital symptom in the previous year did not seek treatment; among the 35.7% of MSM and 18.2% of TG that reported having a genital symptom in the previous year, 70% of MSM and 0 TG sought treatment. Fear was identified by many as the main reason for not seeking treatment. Many STIs among MSM and TG in Vanuatu are going unrecognised and untreated, increasing the risk of partner transmission. It is important that the health care seeking behaviour of MSM and TG is explored to understand why treatment was not sought.

HIV knowledge

- There was limited understanding among MSM and TG regarding transmission of HIV through anal sex. Whilst knowledge regarding condoms was high, it is possible that condoms are not being used due to perceived lack of need for use of condoms during anal sex;

STI prevalence

- Three in ten (29.7%) MSM and TG that participated in this study had at least one STI
- Chlamydia was the most common STI detected among MSM and TG, with 17.7% of MSM and 20.8% of TG having a positive test result for chlamydia;
- Gonorrhoea was detected in 11% of MSM and 8% of TG;
- Syphilis was detected in 11.4% of MSM and 4.8% of TG;
- HIV was not detected in any MSM or TG.

Recommendations

Recommendation 1: Qualitative research with MSM and TG

Despite the small sample size, this study has revealed important differences in sexual risk behaviours between MSM and TG. Given the dearth of information on MSM and TG in Vanuatu, qualitative research is urgently needed to investigate and understand the social and cultural context of sexual behaviours and health care seeking behaviour among MSM and TG. In particular, qualitative research is needed to unpack the differences in sexual risk behaviours between MSM and TG, including the prevalence and experience of forced sex, the role that kava has on condom use, health care seeking differences, HIV knowledge.

Recommendation 2: Formative research to assess appropriateness of RDS recruitment strategies with MSM and TG

Formative research is needed to assess appropriateness of RDS recruitment strategies with MSM and TG. Formative research should assess MSM and TG ability and willingness to participate in the study and extent of social networking and other issues such as selecting an appropriate site location for conducting the survey, identification of appropriate incentives and acceptability of HIV and/or STI testing to improve recruitment outcomes in future studies.

Recommendation 3: Support for, and investment in, organisations that currently provide services and programs for MSM and TG in Port Vila and other parts of Vanuatu

It is imperative that organisations that currently provide services and programs for MSM and TG in Port Vila and other parts of Vanuatu such as Wan Smolbag receive funding to ensure the continuation and expansion of existing programs. It is also recommended that such programs are resourced appropriately and supported to expand the range of programs to include the training of a network of MSM and TG peer educators across Vanuatu. A key focus of peer education programs need to be increased increase knowledge about HIV and STI transmission, promotion of HIV and/or STI testing and facilitation of MSM and TG access to health services. In particular, peer education programs that target MSM and TG should review STI education content and refresher training for peer educators should be held on an ongoing basis.

Recommendation 4: Support and investment for the establishment of a community-based organisation representing MSM and TG in Vanuatu, and inclusion of this group on the National AIDS Committee

Community-based organisations representing MSM and TG play an invaluable role in STI prevention and treatment globally and play an important role in facilitating access to health services, promoting and distributing condoms, advocating for the rights of MSM and TG and community mobilisation, among others. A community-based organisation representing MSM and TG does not currently exist in Vanuatu, and support

and investment should be directed towards the establishment of such an organisation in Vanuatu. Further, this group should be included on the National AIDS Committee and other relevant committees to ensure the needs of MSM and TG are reflected in national strategies.

Recommendation 5: **Review of existing health services that provide HIV and other STI testing, counselling and treatment to assess and improve their appropriateness and acceptability to MSM and TG in Vanuatu**

A review of existing health services that provide HIV and other STI testing to MSM and TG in Vanuatu should be conducted to explore barriers and experiences of sexual health service utilisation and treatment. This is required to ensure that services are accessible and acceptable to MSM and TG populations in Vanuatu. The potential for a specific service targeting MSM and TG should be investigated.

Recommendation 6: **Investigation of partner notification strategies**

The use of partner notification and treatment for partners of infected MSM and TG should be investigated. In particular, the acceptability and opportunity for patient delivered partner therapy (PDPT) by MSM and TG as well as the general population who are chlamydia or gonorrhoea positive should be explored.

Recommendation 7: **Ongoing behavioural surveillance with MSM and TG**

The evidence gathered in this study suggests that MSM and TG have a range of risky sexual behaviours that need to be monitored on an ongoing basis. Behavioural surveillance should be conducted with MSM and TG on an ongoing basis until such a time that HIV and/or STI testing (used in IBBS) becomes acceptable to MSM. The role of strengthened social networks and other community empowerment strategies implemented in parallel to formative research is likely to improve the acceptability of IBBS methodologies over time. As a hidden population, RDS remains a potential recruitment strategy however it should not be implemented until formative research (described above) has been conducted.

Recommendation 8: **Repeat population size estimation methods**

Given the recruitment challenges experienced in this study, several of the assumptions for conducting capture-recapture methods for population size estimation were violated, and thus the estimate presented in this report should be used with caution. It is recommended that a repeat population size estimate is embedded into the next behavioural surveillance survey to verify the estimate presented in this report.

Recommendation 9: **Development of a comprehensive national condom strategy**

A comprehensive national condom strategy is urgently needed to improve access to, availability and use of condoms by the general population and key populations, including MSM and TG. The strategy should include distribution through a range of settings and organisations, including (but not limited to) health services, community centres and hospitality venues, and reflect on successful experiences in condom distribution and access across PICT. The strategy should have a clear focus on improving knowledge about STIs and their prevention and improving the social desirability of condom use.

1 INTRODUCTION

1.1 Background

Vanuatu consists of a Y-shaped chain of four main islands and 80 smaller islands, located in the Pacific Ocean between Australia and Hawaii. The official languages of Vanuatu include Bislama (local language), English and French, however there are over 100 other local languages [1]. Vanuatu is part of Melanesia, which also includes the Solomon Islands, Papua New Guinea, Fiji and New Caledonia; the term Melanesia denotes an ethnic and geographical grouping of islands that are distinct from Micronesia and Polynesia. Vanuatu has a highly structured, hierarchical, village-based community social organisation.

The 2009 census recorded the population of Vanuatu as 234,023; approximately one-fifth of the population lives in the capital, Port Vila (population 44,040 [1]. The majority of the population live in villages of less than 200 people. Vanuatu's human development index value in 2012 was 0.626, in the medium human development category, positioning the country at 124 out of 187 countries and territories [2]. Similar to many other of 22 Pacific Island Countries and Territories (PICT[1]), Vanuatu has increasing urbanisation with the urban population comprising of 24.4% of the total population in 2009, up from 21.5% in 1999 [1]. Also similar to many other PICT, the population is young with 62% of the population aged 24 years and younger [3]. Youth unemployment is high, with the most recent estimate of unemployment of young people aged 15-24 years as 9.2% [4].

1.2 Rates of sexually transmitted infections in PICT

The prevalence of STI, particularly chlamydia, in PICT are among the highest in the world [5, 6]. Antenatal clinic data from several PICT in 2004-2005, commonly used as a proxy for STI prevalence among the sexually active adult population in the absence of representative population surveys, found an overall prevalence of chlamydia was 18.0%, with prevalence highest among pregnant women aged younger than 25 years (26.1%) [7]. Widespread prevalence studies in the region support these findings, with positivity rates for chlamydia in some female populations as high as 29% [6]. In Vanuatu, the 2008 SGS among antenatal women found no HIV among antenatal women, and reported chlamydia and gonorrhoea prevalence to be 25% and 3%, respectively [8]. The 2008 SGS survey reported almost a 100% increase since the 2005 SGS, which reported a chlamydia prevalence of 13% among antenatal women [8, 9]. There is limited additional information on the prevalence of STI among the general population or specifically targeting males or females in addition to STI prevalence surveys among antenatal populations.

Whilst STI prevalence is high, few HIV infections have been documented among PICT outside of Papua New Guinea [10]. More than 90% of all identified HIV cases from PICT have been in Papua New Guinea (PNG)[5, 11]. It is widely accepted that the small number of reported infections in most PICT is an underestimate due to low testing rates, however the degree of underestimation is unknown [12, 13]. The cumulative number of

[1] PICT countries include American Samoa, Cook Islands, Federated States of Micronesia, Fiji, French Polynesia, Guam, Kiribati, Marshall Islands, Nauru, New Caledonia, Niue, Northern Mariana Islands, Palau, Papua New Guinea, Pitcairn Islands, Samoa, Solomon Islands, Tokelau, Tonga, Tuvalu, Vanuatu, and Wallis and Futuna

HIV cases detected in Vanuatu until the end of 2012 is nine; four of these cases were detected in 2012 [14]. The mode of transmission for these cases has not been reported.

Heterosexual transmission has been identified as the main mode of HIV transmission for the majority of countries in the Pacific (excluding Papua New Guinea), however the contribution of male-to-male sexual varies by country; almost half (43%) of all cases of HIV in Guam, New Caledonia and French Polynesia is through male to male sexual contact [14].

The ratio of male to female HIV cases over the past 20 years also shows that the proportion of female cases is increasing; females comprised 26% of cases between 1983 and 1989 and this increased to 49% between 2004-2004 [7]. Among the nine HIV cases detected in Vanuatu until the end of 2012, five (56%) were female [14].

1.3 Socio-cultural determinants of sexual health in the Pacific

There are several socio-cultural determinants of sexual health that contribute to the high rates of STI observed in PICT. These include the young median age in the region (21 years in Melanesia, 23.1 years in Polynesia, and 23.4 years in Micronesia) and low rate of condom use [7]. The Commission on AIDS in the Pacific also highlighted several additional risks and vulnerabilities, including: the role of gender inequality and gender-based violence; the interplay or alcohol, drugs and unsafe sex; the role of commercial and transactional sex; mobility and migration; and male-to-male sex [15]. Compounding these issues are the programmatic and logistical barriers to STI control in PICT, including the vast geographical spread of islands, limited health care budgets of governments, inconsistent and expensive supply of medical and testing equipment and lack of gold-standard laboratory testing facilities [7].

1.4 Key populations at increased risk of HIV and other STI

In settings with a low HIV prevalence, the most effective and efficient strategy to reduce HIV and STI transmission is to target key populations at increased risk [7]. Until recently, there have been few epidemiological and vulnerability studies undertaken to determine which populations are at greatest risk of HIV and STI infection in the region. Nonetheless, HIV and STI strategic plans of many PICT note that interventions should target key populations at increased risk. A vulnerability study conducted in PICT identified female sex workers (FSW), men who have sex with men (MSM), seafarers, uniformed services and prisoners as the key populations at increased risk of HIV and other STI [6, 9].

1.5 Description of MSM including TG in PICT

Male-to-male sex occurs in all countries of PICT, however the term MSM is problematic in PICT as it does not reflect the complex way in which gender and sexuality is expressed. Buchanan-Aruwafu [16] notes that culturally defined transgender roles for men are found in Fiji Islands, French Polynesia, PNG, Samoa, Marshall Islands and Tonga, however male-to-male sex also occurs with men who do not identify as transgender or as ‘homosexual’, and who identify as heterosexual and have sex with women. Buchanan-Aruwafu also notes that identification of MSM is also problematic in PICT due to societal and religious stigma, discrimination, laws that criminalize homosexuality or sodomy, and physical violence and emotional abuse directed at sexual minorities. Male-to-male sex between adults is illegal in nine of the 22 PICT (Cook Islands, Samoa, Tonga, Tuvalu, PNG, Solomon Islands, Kiribati, Nauru, Palau) [17]

1.6 STI and risk behaviours among MSM and TG

Despite being identified as key population at risk of HIV and STI there is limited information on the prevalence of HIV and other STI among MSM and TG in PICT. Only one IBBS has been conducted with MSM and TG in the region; this study, conducted in 2011 in Fiji, revealed one-quarter of MSM and TG in Lautoka and one fifth of MSM and TG in Fiji had an STI; the most commonly detected STI was active or past syphilis [18]. Behavioural surveillance surveys (BSS) are more common and have been conducted with MSM and TG populations in the Cook Islands in 2009 [5], Fiji in 2010 [19],31} Tonga in 2008 [20] and Guam in 2007 [21]. Additional surveys are also reported to have been conducted in Samoa in 2008 and the Northern Mariana Islands in 2006 however data is not available. Available data from these surveys revealed different levels of risk behaviours among MSM and TG; the number of MSM and TG that reported using a condom at last anal sex with a male partner ranged from 21% in Tonga [20] to 55% in the Cook Islands [5]. It is important to note that data collected in these surveys are not consistently presented separately for MSM and TG; for example, the 2008 Tonga BSS, the 2009 Cook Island BSS and the 2007 Guan BSS presented data for MSM as one group (i.e. TG were a subset of a broader MSM grouping). Given the socio-cultural context for male-to-male sex and TG in PICT, it is important to consider individuals self-described gender when exploring sexual risk and associated behaviours.

1.7 MSM and TG in Vanuatu

In Vanuatu, male-to-male sex was asked of male participants in the 2008 Second Generation Surveillance with Youth (aged 15-24 years); of the 155 males recruited through convenience sampling, 13% reported that they had ever had anal sex with another male [8]. In comparison, UNICEFs Knowledge, Attitude and Practices study looking at HIV and AIDS among adolescents and young people between 2008-2009 reported that 8% of sexually active male participants have had male-to-male sex [22]. These data suggest that male-to-male sex is not uncommon in Vanuatu. To date, targeted risk behaviour or prevalence surveys have not been undertaken with TG or MSM in Vanuatu and risk behaviours and STI prevalence is unknown.

1.8 MSM and TG community-based organisations in Vanuatu

Whilst there are several community-based MSM and TG organisations in PICT such as Amithi and MEN in Fiji, the Tonga Leiti Association in Tonga, the Te Tiare Association in the Cook Islands, Huon and Friends in Papua New Guinea and the Samoa Faafafine Association in Samoa, a comparable organisation does not exist in Vanuatu. At the time of study implementation in Vanuatu, a community-based MSM and TG organisation does not exist in Vanuatu.

Wan Smolbag is a youth-focussed non-governmental organisation that delivers a range of health programs, many with a HIV/STI focus, since 1989 (www.wansmolbag.org) and has developed an MSM group however this group is not community led.

1.9 Surveillance of key populations at increased risk

Epidemiological surveillance of STI and risk behaviours among FSW and MSM and TG populations is more difficult than the general population due to stigma and barriers to testing and counselling [5, 23]. In many PICT, these barriers are intensified by religious and cultural factors, unequal gender roles and secrecy in anticipation of public shame and humiliation [5, 24].

Routine passive STI surveillance in PICT, based on laboratory and/or clinical diagnosis, does not include behavioural characteristics of positive cases. Second generation surveillance surveys provide important information on behaviours among populations at higher risk that can be monitored over time, however these surveys do not collect biological samples beyond HIV. Conversely, routine passive STI surveillance in PICT, based on laboratory and/or clinical diagnosis of STI, does not include behavioural characteristics of positive cases and the minimum data set for HIV and other STI, developed in 2008 by the Sexually Transmitted Infections Working Group for the Pacific, does not include any behavioural characteristics for countries to collect and report [6]. As a result, STI positivity among key populations at increased risk cannot be monitored routinely at a national or regional level. Given the evidence for high rates of STI in PICT, it is pertinent that robust, comprehensive and continuous data is collected to assess which groups have a higher burden of disease, what behaviours are associated with increased prevalence and whether interventions have had an impact on reducing incidence.

1.10 Research Rationale

The overall aim of the research was to fill gaps in information on HIV and STI prevalence and risk behaviours among MSM and TG in Vanuatu through Integrated Bio-Behavioural Surveillance (IBBS). Information gathered in the IBBS will be able to support interventions being implemented by Wan Smolbag and other organisations working with MSM and TG in Vanuatu.

1.11 Research Objectives and Components

The study was collaboration between the Burnet Institute, Wan Smolbag Theatre and the Vanuatu Ministry of Health. Three research objectives were identified:

1 To estimate the prevalence of chlamydia, gonorrhoea, syphilis and HIV among MSM and TG;
2 To describe knowledge, attitudes and risk behaviours among MSM[2] and TG[3] in Port Vila; and
3 To estimate population size of MSM (including TG people) in Port Vila.

These research objectives were addressed through two research components implemented in parallel:

- Integrated Bio-Behavioural Survey with MSM and TG; and
- Population Size Estimation of MSM (including TG).

1.12 Research team

Vanuatu

- **Study Coordinator In-Country:** Siula Bulu (Wan Smolbag Theatre)
- **Data Manager**: Jennifer Harris
- **RDS Manager**: Jayline Malverus
- **Research Nurses:** Leimako Simon, Norly Jack

[2] The term men who have sex with men (MSM) is used throughout this report to describe behaviour among men rather than sexual orientation. We acknowledge that many men who have sex with men do not self-identify as homosexual or homosexual.

[3] The term transgender is used to reflect self-identified gender

- **Laboratory Technicians:** Timothy Phatu, Richard Malilu, Marie Renee, Helen Wamle, Kalkie Sero (Port Vila Central Hospital, Vanuatu Ministry of Health)
- **Laboratory Consultant**: Steve Badman (Independent)
- **Reference laboratory**: Stephen Gilmour (NRL)
- **Field Researchers:** Jayline, Madoline, Gibson, Loic, Warista, Roderick
- **Data entry:** Jennifer Harris

Outside of Vanuatu

- **Principal Investigator:** Tamara Kwarteng Independent consultant (formerly Burnet Institute)
- **Study Coordinator/Epidemiologist**: Caroline van Gemert (Burnet Institute)
- **Research Assistant:** Alyce Vella (Burnet Institute)
- **Technical advisor:** Mark Stoové (Burnet Institute)
- **Research design:** Isabel Bergeri (WHO, formerly from Burnet Institute)

1.13 Funding

This work was funded by the Pacific Island HIV and STI Response Fund Grant, a collaborative funding mechanism by the Australia and New Zealand governments and managed by the Secretariat of the Pacific Community. Laboratory testing of specimens at the Port Vila Central Hospital was provided by the Global Fund Round 7 Grant through the Vanuatu Ministry of Health. The Study Coordinator/Epidemiologist received a travel grant from the Ian Potter Foundation to receive specialised training in the analysis of data collected by Respondent Driven Sampling.

1.14 Ethical approval

This study received ethical approval from the Alfred Hospital Ethics Committee (project number 307/10) and the Ministry of Health, Government of the Republic of Vanuatu (reference number DPH 02/2-LT/mhd).

2 METHODS

2.1 Study design

The Vanuatu IBBS with MSM and TG was a cross-sectional study conducted with MSM and TG in Port Vila, Vanuatu recruited between November 2011 and April 2012. The study design was guided by Family Health International's Guidelines for Repeated Behavioral Surveys in Populations at Risk of HIV [25] and WHO and UNAIDS Guidelines on Surveillance Among Populations Most at Risk for HIV [26].

2.2 Population group and selection criteria

The eligible population were TG or men that were aged 18+ years living in or near Port Vila and report having sexual contact (anal sex) with a man in the previous 12 months.

2.3 Sample size

The sample size identified for this study was 150. Given the lack of baseline data and expected small population size, it was not possible to use statistical methods to calculate a sample size.

2.4 Recruitment

All participants gave informed verbal consent to participate. Participants were recruited between November 2011 and April 2012 using Respondent Driven Sampling (RDS). In RDS, participants are nominated by their peers rather than being selected randomly or by convenience (i.e. being in the same place). Recruitment in a RDS study starts by recruiting seeds, and then recruiting his or her peers, and then his or her peers, and so on.

Initial participants, 'seeds', were TG or MSM that fit the eligibly criteria, selected purposively for their close linkages with the study population (that is, linked in with other TG or MSM) and for diversity of individual attributes (such as age, occupation) to ensure effective recruitment of a broadly representative study population.

At the completion of the interview, seeds were given three coupons to distribute to their peers who met the eligibility criteria. These peers then contacted the study coordinator and arrange a time to be interviewed; participants receive an incentive to encourage people to participate. At the end of their interview, the nominated participants were given three coupons and the process continued.

2.5 Data collection

2.5.1 Behavioural data

Three trained male researchers obtained informed verbal consent before conducting interviews. Interviews involved completion of an interviewer-administered sexual behaviour paper-based questionnaire in Bislama. The questionnaire took approximately 30 minutes to complete. Interviews were conducted in the field office at Wan Smolbag in a private interview room.

The behavioural questionnaire (see Appendix 4) was developed based on previous behavioural questionnaires conducted in Vanuatu and previous behavioural surveys conducted internationally with

MSM. The questionnaire was reviewed by the research team, translated into Bislama and pilot tested with MSM and TG. Data collected from all participants can be categorised as:

- Network size and composition (for use for analysis of data collected RDS)
- Behavioural information
    - Background demographic characteristics
    - Sexual risk behaviours
    - Self-reported sexually transmitted infections and symptoms
- Alcohol and drug use
- HIV knowledge and attitudes

2.5.2 Biological data

Following completion of the questionnaire, field researchers facilitated the referral of the participant to the on-site health clinic for specimen collection. Specimens collected for the study included blood, urine and rectal swabs. Once collected, specimens were stored in a refrigerator on site at the KPH Clinic by the research nurses before being transported to the Vila Central Hospital laboratory.

The Vila Central Hospital Laboratory conducted HIV, syphilis, chlamydia and gonorrhoea testing. Blood specimens were screened for HIV with Determine, a rapid point of care test. Positive reactive samples were tested with two subsequent rapid confirmatory tests (Insti and Unigold). Blood specimens were also tested for syphilis with an RPR screening test. Positive reactive samples tested were then tested with Determine Syphilis TP and Dilution testing. Urine and rectal swabs were tested for chlamydia with BD probe Tec NAAT (please note that the urine specimen results are not included in the calculation of prevalence estimates). Additional rectal swabs were tested for gonorrhoea by culture.

Additional blood specimens were collected for HIV and syphilis testing at NRL in Australia. A laboratory consultant oversaw the spinning, lifting of an aliquot of serum and freezing of serum in preparation for shipment to NRL in Australia. This was undertaken in accordance with UN7733 transportation requirements.

NRL conducted additional HIV and syphilis testing. Blood specimens were screened for HIV with DiaSorin Murex HIV-1.2.0 EIA and for syphilis with DiaSorin Murex ICE* Syphilis EIA.

2.6 Participant incentive

All participants received 1500 vatu (approximately AU$15) at completion of the interview. A secondary incentive was also offered for each successful recruit (500 vatu per person recruited, approximately AU$5). Participants returning to the clinic to receive their results received an additional 500 vatu (approximately AU$5).

2.7 Case definitions

Following are case definitions were used for the calculation of prevalence estimates among MSM & TG:

Chlamydia	Detection of Chlamydia trachomatis by nucleic acid testing from a genital tract specimen
Gonorrhoea	Detection of Neisseria gonorrhoea by nucleic acid testing from a genital tract specimen and/or Detection of typical Neisseria gonorrhoea by culture from a genital tract specimen

HIV	Positive result from an HIV antibody screening test confirmed by a positive result from two supplemental HIV antibody tests
Syphilis	Reactive non-treponemal test AND reactive Enzyme Immunological Assay

2.8 Data management

All data were entered into a Microsoft Access database at Wan Smolbag in Vanuatu. Data was transferred electronically in a password-protected file to the Burnet Institute in Australia. Data were then transferred to STATA version 11 for data cleaning and management. Data was carefully reviewed for inconsistencies or omissions. Data was then cleaned and several new derived variables were generated before being analysed.

2.9 Population size estimation

Capture-recapture was used to estimate the size of the MSM (including TG) population in Port Vila. Capture re-capture methodology involves obtaining two samples of the population of interest at two time points ("captures"). The two time points used in this study were:

1) First capture: population tagging

Before the tagging was done, a comprehensive map of sites where MSM and TG could be found in Port Vila was conducted by field researchers and the study coordinator. The sites were attended by peer educators and MSM and TG were "tagged"; a tag is a small item that population members will remember receiving. A small novelty key chain was used as the tag. The tagging process was conducted over a one-week period.

2) Second capture: IBBS study participants

Participants recruited into the IBBS comprised the second capture.

2.10 Analysis

2.10.1 IBBS

Data were analysed as a snowball sample. It was not possible to use methods for the analysis of RDS data due to short recruitment chains (that is, the number of "waves" of people recruited). Descriptive analyses on the sample are presented. Despite the overall small sample size, data is presented for MSM and TG separately to differentiate the important sociocultural distinction between identifying as a male or TG and to provide a platform on which to investigate sexual risk behaviours. Statistically significant differences in proportions are presented.

2.10.2 Population size estimation

Data on the size of both captures and the proportion captured in both were used in a mathematical formula to calculate the total size of the population, including the "unseen" portion [27].To calculate the number of people tagged in both captures, participants were asked if they received the novelty key ring.

Further information on the methods used for estimating the size of the MSM (including TG) population is presented in Appendix 3.

2.10.3 Global AIDS Reporting Progress Reporting Indicators

Where possible, Global AIDS Reporting Progress Reporting (GARPR) Indicators are included in this report. The following calculations were used, as per the Global AIDS Response Progress Reporting Guidelines 2012 [28].

Indicator	**Description**	**Calculation**
GARPR Indicator 1.12	Percentage of MSM and TG reporting the use of a condom the last time they had anal sex with a male partner	The number of MSM and TG that reported that a condom was used the last time they had divided by the number of MSM and TG who reported having had anal sex with a male partner in the last six months
GARPR Indicator 1.13	Percentage of MSM and TG who received an HIV test in the past 12 months and know their results	Number of MSM and TG who have been tested for HIV during the last 12 months and who know their results divided by the number of MSM and TG responding to these questions
GARPR Indicator 1.14	Percentage of MSM and TG who are living with HIV	Number of MSM and TG who test positive for HIV divided by the number of sex workers tested for HIV

3 RESULTS AND DISCUSSION

3.1 Recruitment

A total of 52 MSM and TG were recruited from five seeds. An additional two seeds were excluded from analysis as they did not recruit any participants. An additional 23 number of people were nominated by their peers for recruitment, however they did not participate.

3.1.1 Discussion

Significant challenges were experienced in meeting the anticipated sample size for this study, with just one third of the anticipated sample size (n=150) being reached. The dominant reason identified for refusal to participate was fear of MSM status being disclosed through participation as well as limited social networks. The potential for these challenges for the study were not identified during the study development phase, by MSM networks known to Wan Smolbag or during training of field researchers. An informal pre-survey assessment was conducted whereby Wan Smolbag discussed the acceptability of the study and proposed methodology with a small MSM network. Once the limitations became apparent during initial stages of recruitment, the research team implemented a range of strategies to promote recruitment including conducting interviews at a site of their choice, collecting behavioural data only and extending the timeframe of the project. Whilst the small sample size and possible recruitment bias impacts the generalisability of the data, these challenges highlight the need for qualitative research with MSM in Vanuatu to understand these barriers.

The challenges faced by this study to recruit MSM and TG can provide important lessons for similar studies with key populations in PICT and for future research with MSM and TG in Vanuatu, in particular those that use RDS methodologies. A review by Johnson et al of 128 studies to examine predictors of poor outcomes of RDS studies found that failure to reach the calculated sample size was most likely due to a lack of social networking among the target population [29]. Whilst there are several community-based MSM and TG organisations in PICT such as Amithi and Males Empowerment Network Fiji (MENFiji), the Tonga Leiti Association in Tonga, the Te Tiare Association in the Cook Islands, Huon and Friends in Papua New Guinea and the Samoa Faafafine Association in Samoa, a comparable organisation does not exist in Vanuatu and thus opportunities for development of community networks is limited. Wan Smolbag does some work with MSM, however it is not a peer-based organisation and the absence of a peer-based organisation in Vanuatu at the time of recruitment may have contributed to the recruitment issues faced. Since the completion of this study, a MSM and TG peer-led organisation, “Solidarity”, has been formed with the assistance of the Pacific Sexual Diversity (PSDN). The group has recruited (as of September 2013) between 20 and 30 members and holds regular meetings and runs other social activities. Wan Smolbag provides both financial and personnel resources to support these activities. The PSDN plays an important role regionally, particularly by providing support to informal networks at national level that are operating in hostile social and legal environments [30]. The 2011 Fiji IBBS with MSM and TG was a collaboration that involved MENFiji, a peer-led community based organisation, alongside research institutes and this collaboration provided important networks and buy-in that was a likely contributor to the success of the research.

As a hidden population, RDS remains a potential recruitment strategy however it should not be implemented until formative research has been conducted. A key component of formative research is to assess the extent of social networking to avoid this challenge in the future. Formative research should also assess MSM and TG ability and willingness to participate in the study, and other issues such as selecting an appropriate site location for conducting the survey and to identify appropriate incentives and levels to improve recruitment outcomes. The review also discussed the potential for the provision of HIV and/or STI testing to promote or motivator for recruitment; whilst the extent to which the provision of HIV and/ or STI testing and test results deterred or encouraged participants could not be assessed, studies conducted in South Africa and Bangladesh reported the populations' positive responses to receiving on-site testing and results as a motivator to participate in the RDS study [29]. In contrast, the experience in Vanuatu suggests that provision of HIV and STI testing was a deterrent to participation. Given this finding, it is important for formative research to assess the acceptability of HIV and/or STI testing to MSM and TG in Vanuatu, and for the potential role of behavioural surveillance rather than IBBS in Vanuatu until such a time that HIV and/or STI testing becomes acceptable to the group. The role of strengthened social networks and other community empowerment strategies implemented in parallel to formative research is likely to improve the acceptability of IBBS methodologies over time.

3.2 Socio-demographic characteristics

A total of 50 MSM & TG participated in the study; 28 (56%) identified as male and 22 (44%) identified as TG. Most MSM (57.1%) and TG (40.9%) were aged 20-29 years. The majority of both MSM and TG reported their highest level of education was secondary school (67.9% and 45.5% respectively), never being married (85.7% and 100% respectively) and Presbyterian religious affiliation (39.3% and 36.4% respectively) (Table I).

Table I: Demographic characteristics of MSM and TG, Vanuatu, 2011-2012

	MSM (N=28)		TG (N=22)		Total	p-value
	n	%	n	%	n	
Age group						
< 19 years	6	21.4	4	18.2	10	
20-29 years	16	57.1	9	40.9	25	
30-39 years	4	14.3	8	36.4	12	
40+ years	2	7.1	1	4.5	3	
Education level						
Some or all primary	2	7.1	7	31.8	9	*
Secondary	19	67.9	10	45.5	29	
Higher	7	25.0	5	22.7	12	
Married before						
No	24	85.7	22	100.0	46	*
Yes	4	14.3	0	0.0	4	
Religious affiliation						
Catholic	8	28.6	7	31.8	15	
Presbyterian	11	39.3	8	36.4	19	

Assemblies of God	1	3.6	0	0.0	1	
SDA	1	3.6	2	9.1	3	
Other	7	25.0	5	22.7	12	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.3 Sexual risk behaviours with men and women

3.3.1 Age of first sex

The majority of TG (72.7%) reported age of first sexual intercourse was younger than 16 years, whilst for MSM the most common age group was 16-19 years (42.9%). The median age of first sex for MSM was 16 (range 12-28) and for TG was 12 (range 7-22). Condom use at first sex was low by both MSM and TG; 6% of MSM and 9% of TG reported using a condom at first sex.

Table II Age of first sex

	MSM (N=28)		TG (N=22)		Total	p-value
	n	%	n	%	n	
Age of first sex						
<16 years	16	72.7	10	35.7	26	**
16-19 years	4	18.2	12	42.9	16	
20+ years	2	9.1	6	21.4	8	
Condom used during first sex						
No	20	90.9	24	85.7	44	
Yes	2	9.1	4	14.3	6	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.3.2 Ever used a male or female condom-

Approximately three-quarters of TG (72.7%) and MSM (75%) reported ever using a male condom, whilst very few TG (4.5%) and MSM (3.6%) reported ever using a female condom.

Table III Ever used a male or female condom

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%	n	
Ever used a male condom						
No	6	27.3	7	25.0	13	
Yes	16	72.7	21	75.0	37	
Ever used a female condom						
No	21	95.5	27	96.4	48	**
Yes	1	4.5	1	3.6	2	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.3.3 Sexual contact with male partners during the previous six months

Approximately two-thirds of TG (64.3%) and three-quarters of MSM (72.7%) reported sexual contact (anal or oral sex) with a male partner during the previous six months. Among these MSM and TG, all (100%) TG and approximately three-quarters of MSM (72.2%) reported oral sex with a male partner, and nearly all MSM (94.4%) and two thirds of TG (68.8%) reported anal sex with a male partner during this period.

The types of male sexual partners during the previous six months varied between MSM and TG. The proportion of MSM reporting at least one live-in partner, paid partner, paying partner and casual partner was 50%, 16.7%, 17.9% and 55.6%, respectively. The proportion of TG reporting at least one live-in partner, paid partner, paying partner and casual partner was 35.3%, 6%, 9.1% and 29.4%, respectively.

The median total number of partners reported by MSM was 3.5 (range 0-12) whilst the median number of partners TG was two (range 0-21).

Table IV Sexual contact with male partners of MSM and TG, Vanuatu, 2011-2012

	MSM (N=28)		TG (N=22)		Total	
	n (median)	% (range)	n (median)	% (range)	n	
Any sexual contact with a male partner in the previous 6 months						
No	10	27.3	7	35.7	16	
Yes	18	72.7	16	64.3	34	
Oral sex with a male partner in the previous 6 months*						
No	5	27.8	0	0	21	
Yes	13	72.2	16	100.0	29	
Anal sex with a male partner in the previous 6 months*						
No	1	0.0	5	31.2	6	**
Yes	17	94.4	11	68.8	28	
Sexual partners in the previous 6 months (had 1+ partner)						
Live-in partner	6	35.3	9	50.0	15	
Paid partner	1	5.9	3	16.7	4	
Paying partner	2	9.1	5	17.9	7	
Casual partner	5	29.4	10	55.6	15	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.3.4 Condom use with male partners

Condom use by MSM and TG varied according to partner type. Among those that reported having a live-in partner (n=9 MSM, n=6 TG), half of MSM (44%) and TG (50%) reported using a condom at last sex. Consistent condom use with live-in partners during the previous 6 months was low; no TG and approximately one in ten MSM (11.1%) reported always using a condom with live-in partners.

Four MSM and one TG and reported having a paid partner (that is, the participant exchanged money or goods for sex) during the previous 6 months. A condom was not used at last sex with a paid partner by both MSM and TG, and zero MSM and TG reporting having a paid partner in the previous 6 months reported always using a condom with paid partners.

Among the five MSM and two TG reported having a paying partner (that is, they received goods or money in exchange for sex) in the previous 6 months a condom was not used at last sex by the TG reporting having a paying partner, but was used by two of the MSM (40%). CCU with paying partners was low; 20% of MSM and no TG reported always using a condom with a paying partner during the previous 6 months.

Among the five TG and ten MSM that had a casual partner during the previous 6 months, two TG (40%) and two MSM (20%) reported using a condom at last sex with a casual partner. One MSM (10%) and zero TG and reported always using a condom with casual partners during the previous 6 months.

Table V Condom use with male and female partners by MSM and TG, Vanuatu, 2011-2012

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%	n	
Condom use at last sex						
With regular partners	3	50.0	4	44.4	7	
With paid partners	0	0.0	0	0.0	0	
With paying partners	0	0.0	2	50.0	2	*** *
With casual partners	2	50.0	2	20.0	4	
Consistent condom use						
With regular partners	0	0.0	1	11.1	1	
With paid partners	0	0.0	0	0.0	0	
With paying partners	0	0.0	1	20.0	1	
With casual partners	0	0.0	1	10.0	1	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.3.5 Condom use at last anal sex with a male partner (GARPR Indicator 1.12)

Seventeen MSM and 12 TG reported having anal sex with a male partner during the previous six months. Among these MSM and TG, the overall percentage that reported using a condom at last sex with a male partner was 34.5%; condom use was higher among MSM (42.2%) compared to TG (25.0%).

Table VI Condom use at last anal sex with a male partner

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%	n	%
Condom use at last anal sex with a male partner						

No	10	58.8	9	75.0	19	65.5
Yes	7	42.2	3	25.0	10	34.6

3.3.6 Sexual contact with female partners during the previous 6 months

One–third of TG (31.8%) and nearly all MSM (88.9%) reported ever having sex with a female partner. Most MSM and TG also reported sexual contact with female partners during the previous 6 months (71.4% and 87.5% respectively). The median number of female partners during the previous six months was two for both MSM and TG, however the range differed: 1-3 among TG and 1-11 partners among MSM.

Table VII Sexual contact with female partners by MSM and TG, Vanuatu, 2011-2012

	TG (N=22)		MSM (N=28)		Total	
	n (median)	% (range)	n (median)	% (range)		
Ever had sex with a female partner*						
No	14	66.7	3	11.1	17	***
Yes	7	31.8	24	88.9	31	
Had female partners in the previous 6 months						
Yes	5	71.4	21	87.5	26	
Number of partners according to type in the previous 6 months						
Median number of partners	2	(1-3)	2	(1-11)	26	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

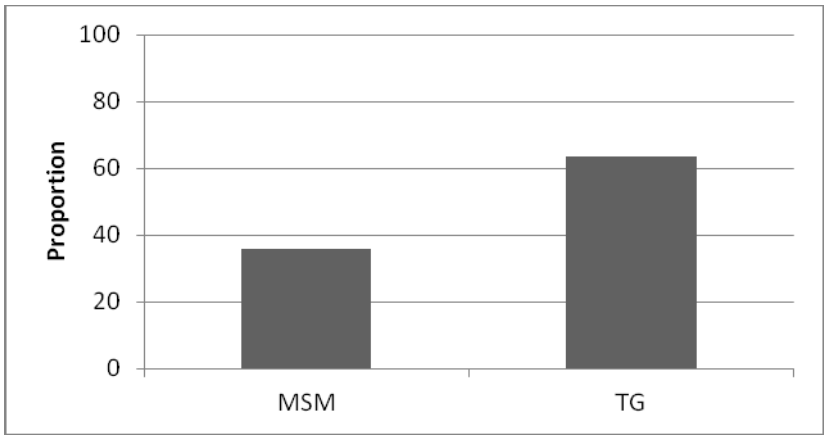
3.3.7 Forced sex

Two thirds of TG (63.4%) and one-third of MSM (35.7%) report ever being forced to have sex (Among MSM that reported ever being forced to have sex, one in ten reported last being forced to have sex by a client and the same number reported being forced to have sex by a neighbour. Among MSM, just one in ten reported last being forced to have sex with a client and one-fifth each reported last being forced to have sex by a partner, other relative or family friend.

Figure II, p<0.05). The relationship to the person that last forced sex differed between MSM and TG (Among MSM that reported ever being forced to have sex, one in ten reported last being forced to have sex by a client and the same number reported being forced to have sex by a neighbour. Among MSM, just one in ten reported last being forced to have sex with a client and one-fifth each reported last being forced to have sex by a partner, other relative or family friend.

Figure II).

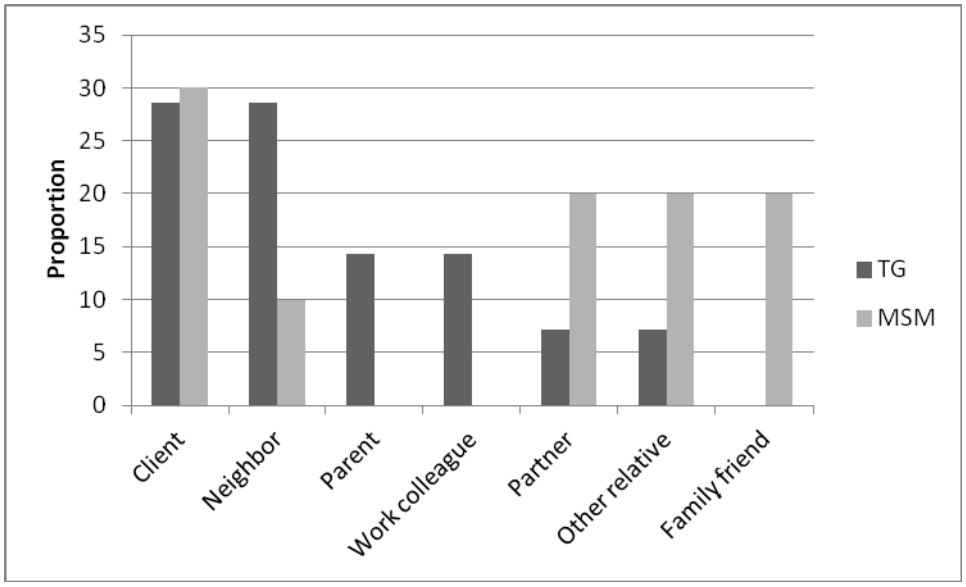
Figure I Proportion of MSM and TG who report ever being forced to have sex



Note: Difference in proportions 0<0.1

Among MSM that reported ever being forced to have sex, one in ten reported last being forced to have sex by a client and the same number reported being forced to have sex by a neighbour. Among MSM, just one in ten reported last being forced to have sex with a client and one-fifth each reported last being forced to have sex by a partner, other relative or family friend.

Figure II: Relationship to the person that last forced sex



3.3.8 Summary discussion

There is evidence to suggest that TG appear to have some riskier behaviours than MSM. TG had an earlier age of sexual debut and an overall lower rate of CCU than MSM. In addition, the proportion of TG that had ever been forced to have sex was double that of MSM. It is important that the contextual differences between sexual behaviour and risk factors of MSM and TG are further explored to more comprehensively understand risk between these two groups.

Condom use was low by both MSM and TG, and a condom was not used at last sex with the majority of partners for both MSM and TG. As presented previously, available data from BSS conducted in the region reveal different levels of risk behaviours among MSM and TG; the number of MSM and TG that reported using a condom at last anal sex with a male partner ranged from 21% in Tonga [20] to 55% in the Cook

Islands [5].The proportion of MSM and TG that reported using a condom at last sex falls within this range, highlighting the need for regional strategies to improve condom use by MSM and TG. CCU was alarmingly low by both MSM and TG. The level CCU by MSM and TG is similarly low to that reported by youth in the 2005 BSS among youth in Vanuatu (11%), and lower than the level of CCU reported in the 2010 BSS with MSM and TG in Fiji which reported that 21.6% always used condoms during anal sex with any MSM or TG partners [19]. This finding highlights the overall low level of condom use in Vanuatu, and the need for this to be urgently addressed.

Existing condom distribution programs targeting young people operate through non-governmental organisations including Wan Smolbag and Save the Children. Wan Smolbag peer educators distribute condoms at kava bars, night clubs, bars, on the street and through personal networks. Save the Children has a social marketing of condoms distribution program, and condoms are also available for free at several NGO sites. There are anecdotal reports that many young people are embarrassed to be seen purchasing condoms or taking condoms from places where they are freely available and it is likely that this is also a potential factor implicated for the low use of condoms by MSM and TG. Broader strategies need to be considered to ensure that condoms are freely accessible to MSM and TG, and it is recommended that such strategies be identified through consultation with the MSM and TG community. Improving usage rates would require the development of a national condom strategy that is implemented in partnership with the MSM and TG community.

The number of male partners reported by MSM and TG is higher to that reported by youth in the 2005 BSS among youth and STI clinic attendees in the 2005 HIV Surveillance Survey. Youth reported a median of one sex partner (range 0-18) and STI clinic attendees reported a median of one partner (range 0-17 partners) in the previous 12 months. The rate of partner change, and possible concurrent sexual relationships, of MSM and TG coupled with the low rate of CCU is of great concern, as it highlights the potential for STI transmission within TG and MSM populations. Further, given the finding that many MSM and TG have had recent sexual contact with women there is the potential for STI transmission to and from heterosexual populations.

Sexual contact with women was common. Nearly all MSM reported ever having a female partner, most of which reported having sexual contact with a female partner in the previous 6 months. Around one-third of TG had ever had sex with a female partner, most of which also reported sexual contact with a female partner in the previous 6 months. Ever and recent sexual contact with female partners among MSM was similar to that reported in the 2010 BSS with MSM and TG in Fiji (among bisexual and straight identifying men) but sexual contact with women by TG was higher in this study than in Fiji. Compared to the 2011 IBBS with MSM and TG in Fiji where 68% of MSM and 41% of TG, fewer TG and more MSM in Vanuatu had ever had sex with a woman. The social and cultural context of male-to-male sex varies greatly between the two countries and thus it is not appropriate to further dissect these differences. Nonetheless, the finding highlights the interconnectedness of heterosexual and homosexual sexual networks in Vanuatu and the potential for rapid STI transmission in the face of low CCU.

The level of forced sex reported by both MSM and TG is concerning. The 2010 BSS with MSM and TG in Fiji found that 41% of men identifying as gay and 40% of TG had ever been forced to have sex against their will. This study provides some evidence that the level of forced sex is higher among MSM and TG in Vanuatu, however it is warranted for a more detailed study be conducted to investigate this.

3.4 Self-reported history of STIs and sexual health care seeking behaviour

3.4.1 Ever diagnosed with an STI

Five MSM (17.9%) reported ever being diagnosed with an STI (**Error! Reference source not found.**); all reported previously being diagnosed with gonorrhoea (not in table). No TG reported ever being diagnosed with an STI.

Table VIII Ever diagnosed with an STI

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%		
Ever had an STI (self-reported)						
No	23	82.1	22	100.0	46	**
Yes	5	17.9	0	0.0	4	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.4.2 Genital symptoms and treatment during the previous 12 months

One-third of MSM (35.7%) and one-fifth of TG (18.2%) reported having a genital symptom in the previous year (**Error! Reference source not found.**).Among those with genital symptom/s in the previous year, 70% of MSM and 0 TG sought treatment. Among the MSM that did seek treatment, the most common place where treatment was sought was the KPH Clinic (71.4%). Most MSM and TG that had a genital symptom in the previous year did not provide a reason why treatment was not sought; those that did reported that they were too scared (n=4), didn't realise it was abnormal (n=2) and that symptoms were recent (n=2).

Table IX Symptoms and treatment during the previous 12 months

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%		
Had genital symptom/s* during the previous 12 months						
No	18	64.3	18	0.0	36	
Yes	10	35.7	4	18.2	14	
Had treatment for previous STI (among those with symptoms)						
No	3	30.0	4	100.0	7	**
Yes	7	70.0	0	0.0	7	
Place where treatment was sought						
Hospital	1	14.3	0	0.0	1	
KPH Clinic	5	71.4	0	0.0	5	
Other	1	14.3	0	0.0	1	

*Symptom = genital discharge, genital ulcer or sore, burning or sharp pain on urination, rash or genital itching

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.4.3 HIV testing (GARPR Indicator 1.13)

The percentage of MSM and TG that had a HIV test in last 12 months and know the result was 80%; the percentage was higher amongst MSM (92.9%) compared to TG (61.9%).

Table X Percentage of MSM and TG that had a HIV test in last 12 months and know the result

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%	n	%
Percentage of MSM and TG that had a HIV test in last 12 months and know the result						
No	26	92.9%	13	61.9%	39	80.0%
Yes	2	7.1%	8	38.1%	10	20.0%

3.4.4 Summary discussion

All TG and many MSM (30%) that had a genital symptom in the previous year did not seek treatment. This suggests that a large amount of STIs among MSM and TG in Vanuatu are going unrecognised and untreated, and it is pertinent that the barriers to seeking sexual health care and treatment are removed. This finding also suggests that there are health care seeking behaviour differences between MSM and TG. Among participants that had a genital symptom but did not seek treatment, fear was identified by many as the main reason for not seeking treatment. As noted, this study also identified a significant level of fear among MSM and TG when recruiting participants. Further research exploring barriers and experiences of sexual health service utilisation and treatment need to be investigated to ensure that services are accessible and acceptable to MSM and TG populations in Vanuatu. The potential for a specific service targeting MSM and TG should be investigated. A training program to reduce stigma and discrimination among health care workers in their treatment of MSM and TG should also be investigated.

A greater proportion of TG than MSM reported having a HIV test in the previous 12 months and knowing the result. A reason for this may be the role of information networks and the understanding of the TG community for regular STI testing, however the finding should investigated further given the finding that TG were less likely to seek treatment for a genital symptom.

3.5 Alcohol consumption and drug use

3.5.1 Alcohol consumption during previous 12 months

All MSM and 80% of TG reported drinking alcohol during the previous 12 months. Over half of MSM (54.5%) and TG (60.7%) reported drinking alcohol at binge levels (more than six drinks on one occasion) during the previous 12 months. Most MSM (58.3%) and TG (58.8%) reported binge drinking on a monthly basis or less frequently.

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%		
Drank alcohol in previous 12 months#						

No	0	0.0	5	19.2	5	**
Yes	22	100.0	21	80.8	43	
Drank alcohol at binge levels in previous 12 months (> 6 drinks in one session)*						
No	10	45.5	4	15.4	14	**
Yes	12	54.5	17	60.7	29	
Frequency of binge drinking during previous 12 months						
Monthly or less	7	58.3	10	58.8	17	
Weekly or more frequent	5	41.7	7	41.2	12	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.5.2 Kava

Most MSM (77.3%) and TG (92.6%) reported ever using kava, among which most (88.2% MSM and 88% TG) reported recent use (within the previous month).

Table XI Kava use

	MSM (N=28)		TG (N=22)		Total
	n	%	n	%	
Ever used kava#					
No	5	22.7	2	7.4	7
Yes	17	77.3	25	92.6	42
Used kava in the last month					
No	2	11.8	3	12.0	5
Yes	15	88.2	22	88.0	37

3.5.3 Illicit drugs

Approximately half of MSM (45.5%) and TG (57.1%) reported ever using illicit drugs. The most common illicit drug ever used was cannabis, by 72.7% of MSM and 50% of TG. Approximately one in ten MSM (13.6%) and one-quarter TG (28.6%) reported recent use of illicit drugs. Cannabis was the only illicit drug used within the previous month. There was no injecting drug use reported by MSM or TG.

	MSM (N=28)		TG (N=22)		Total
	n	%	n	%	
Ever used illicit drugs					
No	12	54.5	12	42.9	24
Yes	10	45.5	16	57.1	26
Illicit drug/s ever used~					
Cannabis	16	72.7	9	50.0	25

Cocaine	1	4.5	1	5.6	2
Heroin	1	4.5	1	5.6	2
Ecstasy	1	4.5	0	0.0	1
Used illicit drugs in the last month					
No	19	86.4	20	71.4	39
Yes	3	13.6	8	28.6	11
Illicit drug/s used in previous month~					
Cannabis	3	13.6	8	44.4	11
Injected drugs in previous year#					
No	22	100.0	28	100.0	50

* Illicit drugs include Cannabis, Cocaine, Ecstasy, Heroin, Ice, Inhalants, Steroids, Acid and Speed.

~ Multiple answers permitted

3.5.4 Summary discussion

Drug and alcohol use among MSM and TG is high, particularly alcohol and kava use. Information on condom use following drug or alcohol use was not collected in this study, and it is recommended that further research be undertaken to investigate the role that kava has on condom use. Illicit drug use was common, particularly cannabis, with nearly half of TG reporting recent cannabis use. Future research should also investigate differences in drug taking behaviour between MSM and TG.

3.6 HIV knowledge

HIV knowledge amongst MSM and TG varied. With the exception of one question regarding potential transmission of HIV through saliva (39.3% correctly responded), over half of MSM responded correctly to questions (range 60.7% to 96.4% correct). The proportion that correctly responded to all questions was low, however (10%). Similarly, over half of TG also responded correctly to the majority of questions (50% to 95.5%). A similarly low proportion of TG (13.6%) answered all knowledge questions correctly.

Table XII HIV knowledge

	MSM (N=28)		**TG (N=22)**		**Total**	
	n	**%**	**n**	**%**		
Correct response to the following questions:						
Can a person reduce their chances of getting HIV, the virus that causes AIDS, by using a condom correctly every time they have sex?	27	96.4	21	95.5	48	
Can a person reduce their chances of getting HIV by avoiding anal sex?	18	64.3	13	59.1	31	
Can a person get HIV by sharing a meal with someone who is infected with HIV?	17	60.7	21	95.5	38	***
Can a person get HIV from mosquito bites?	18	64.3	15	68.2	33	
Can a person reduce their chance of getting HIV	28	100.0	19	86.4	47	**

by having only one uninfected, faithful sex partner?						
Can a person reduce their chance of getting HIV by abstaining from sexual intercourse?	27	96.4	19	86.4	46	
Do you think that a healthy looking person can be infected with HIV, the virus that causes AIDS?	21	75.0	14	63.6	35	
Can a person get HIV by getting injections with a needle that was already used by someone else?	26	92.9	19	86.4	45	
Can a pregnant woman infected with HIV or AIDS transmit the virus to her unborn child?	28	100.0	20	90.9	48	
A person can get HIV from the saliva of someone who has HIV or AIDS?	11	39.3	11	50.0	22	
All correct	3	10.7	3	13.6	6	

* p<0.10 ** p<0.05 *** p<0.01 **** p<0.001

3.6.1 Summary discussion

MSM and TG appear to have a very good level of knowledge of prevention of HIV through use of condoms, monogamous partnership, abstinence and of routes of HIV transmission through sharing of injection equipment and mother to child transmission. There was a lower level of knowledge regarding the potential for HIV transmission of HIV through anal sex, and incorrect perceptions that sharing a meal with someone, saliva and mosquito bites can transmit HIV. These findings highlight the need for improved HIV knowledge among MSM and TG in Vanuatu. Of note, whilst knowledge regarding condoms was high, it is possible that condoms are not being used due to perceived lack of need for use of condoms during anal sex. This misconception needs to be addressed with urgency and programs targeting MSM and TG should be implemented to ensure that relevant HIV and STI prevention messages reach this group.

3.7 Biological results

3.7.1 STI prevalence

Chlamydia was the most common STI detected among MSM and TG, with 16.7% of MSM and 20.8% of TG having a positive test result for Chlamydia. The overall prevalence of chlamydia was 19.5%. Gonorrhoea and syphilis were also detected in 11% of MSM. Eight per cent of TG also had a positive test result for gonorrhoea, and just fewer than 5% had a positive test result for syphilis. The overall prevalence of gonorrhoea and syphilis was 9.8% and 2.6%. Over one-third of MSM (35%) and one-quarter of TG (23.5%) had one or more STI.

Table XIII STI positivity among MSM and TG in Vanuatu, 2011-12

	MSM (N=28)		TG (N=22)		Total	
	n	%	n	%	n	%
STI positivity						
Chlamydia[#]	3	16.7	5	20.8	8	19.5
Gonorrhoea[#]	2	11.1	2	8.3	4	9.8
Syphilis[##]	0	11.8	1	4.8	1	2.6

HIV[##]	0	0.0	0	0.0	0	0
One or more STI[####]	7	35.0	4	23.5	11	29.7
Co-infection						
Chlamydia and gonorrhoea[###]	1	0.0	1	4.2	2	4.9

#denominator MSM=23, TG=18

##denominator MSM=21, TG=17

###denominator MSM=18, TG=16

denominator MSM=20, TG=17

3.7.2 Percentage of MSM and TG who are living with HIV (GARPR Indicator 1.14)

No MSM or TG were found to be living with HIV in this study.

3.7.3 Summary discussion

Three in ten MSM and TG that participated in this study had at least one STI; one in five MSM and TG that participated in this study was found to be infected with Chlamydia, and one in ten had gonorrhoea. The prevalence of chlamydia is comparable to studies in the Pacific among antenatal women (a proxy for the sexually active population) [9] but higher than the prevalence of gonorrhoea (range 0%-2.5% among antenatal women) [32] . The only comparable data among MSM and TG is from the 2011 Fiji IBBS with MSM and TG, which revealed a lower overall chlamydia and gonorrhoea prevalence of 8% and 11%, respectively (data for Suva and Lautoka combined) [18]. Further, one quarter of participants in the 2011 Fiji IBBS with MSM and TG were found to have a current infection with any STI; the most commonly detected STI was past or current syphilis (23% among MSM, 21% among TG). A lower prevalence was found among MSM and TG in this study 50% less among MSM and 75% less among TG).

Accessible and appropriate health services and treatment for MSM and TG are paramount in order to address the high rates of STI among MSM and TG in Vanuatu through treatment and partner notification and management. As noted above, this study has revealed that many STIs among MSM and TG in Vanuatu are going unrecognised and untreated, and it is pertinent that the barriers to seeking sexual health care and treatment are identified and addressed to ensure that services are accessible and acceptable to MSM and TG populations in Vanuatu. Further, the potential for a specific service targeting MSM and TG should be investigated.

The potential for partner notification and treatment for regular partners (and casual partners, where possible) should be investigated to ensure that the partners of infected MSM and TG are appropriately cared for. Given the high rates of STI in the general community, it is warranted that the potential for partner notification and treatment strategies is also explored for the general community. Partner notification strategies are an important component of STI control, and include identifying sex partners, informing them of their exposure, ensuring evaluation or treatment, and providing advice on preventing further infections [33]. WHO emphasises that all partner notification strategies need to be carried out with sensitivity and consideration of social and cultural factors to avoid ethical and practical problems such as rejection and violence, particularly against women [34].

In particular, the acceptability and opportunity for patient delivered partner therapy (PDPT) by MSM and the general population who are chlamydia or gonorrhoea positive should be explored. Reviews of the effectiveness of patient delivered partner therapy (PDPT) has shown it to be a successful strategy to reduce persistent infections and reinfections in both developing and developed countries [33], and there is some evidence in developing countries it may be more effective in reaching sexual partners of index STI patients for treatment compared to patient-oriented notification alone [35]. This recommendation is supported by the STI Regional Working Group policy background document "Breaking the Silence" that recommends that patient-initiated partner notification should be promoted, including patient delivered treatment, information and condom supply. The Working Group further notes that offering testing to sexual partners of positive cases is not recommended as it is not optimal use of clinical and laboratory resources [6].

3.8 Population size estimation

Table XIV Parameters used to estimate the population size of MSM and TG population in Vanuatu, 2011-12

		Capture 2 (RDS)		
		Yes	**No**	**Total**
Capture 1 (Key Chain)	**Yes**	24	127	151
	No	28	Unknown	Unknown
	Total	52	Unknown	Unknown

3.8.1 Estimated size of MSM and TG population in Port Vila

The estimated population size of MSM and TG in Port Vila was calculated to be 327 (95% confidence interval 764-2032), comprising between 2% and 3% of the total male population in Port Vila aged 20-54 years [36].

3.8.2 Discussion

Issues experienced in recruiting participants into the IBBS resulted in the extension of the initial planned recruitment period by two months. As a result, the recruitment period was over six months and it is possible that there was population in or out migration during this extended period. As a result, some of the assumptions for conducting capture-recapture methods for population size estimation were violated, and thus the estimate presented in this report should be used with caution. It is recommended that a repeat population size estimate is embedded into the next behavioural surveillance survey to verify the estimate presented in this report. Nonetheless, the estimate that MSM and TG comprise between 2% and 3% of the total male population aged 20-54 years is comparable internationally.

4 SUMMARY OF FINDINGS AND RECOMMENDATIONS

4.1 Key findings

Recruitment of MSM and TG

- A total of 52 MSM and TG were recruited from five seeds; significant challenges were experienced in meeting the anticipated sample size for this study. As a hidden population, RDS remains a potential recruitment strategy for future studies with MSM and TG however it should not be implemented until formative research has been conducted

Size of combined MSM and TG population in Vanuatu

- The estimated population size of MSM and TG in Vanuatu was calculated to be 327 (95% confidence interval 764-2032), comprising between 2% and 3% of the total male population in Port Vila aged 20-54 years;

Risk behaviours identified

- TG appear to have some riskier behaviours than MSM, including age of sexual debut (16 years for MSM vs 12 years for TG) and lower rates of condom use (a condom was not used at last anal sex by 57.8% of MSM and 75% of TG);
- The rate of partner change, and possible concurrent sexual relationships, of MSM and TG coupled with the low rate of CCU is of great concern, as it highlights the potential for STI transmission within TG and MSM population;
- Sexual contact with women was common; One–third of TG (31.8%) and nearly all MSM (88.9%) reported ever having sex with a female partner. This highlights the interconnectedness of heterosexual and homosexual sexual networks in Vanuatu and the potential for rapid STI transmission in the face of low CCU;
- The level of forced sex reported by both MSM and TG is concerning; two thirds of TG (63.4%) and one-third of MSM (35.7%) report ever being forced to have sex. Further research is needed to more closely investigate the prevalence of forced sex;

STI Testing and treatment among MSM and TG

- All TG and many MSM that had a genital symptom in the previous year did not seek treatment; among the 35.7% of MSM and 18.2% of TG that reported having a genital symptom in the previous year, 70% of MSM and 0 TG sought treatment. Fear was identified by many as the main reason for not seeking treatment. Many STIs among MSM and TG in Vanuatu are going unrecognised and untreated, increasing the risk of partner transmission. It is important that the health care seeking behaviour of MSM and TG is explored to understand why treatment was not sought.

HIV knowledge

- There was limited understanding among MSM and TG regarding transmission of HIV through anal sex. Whilst knowledge regarding condoms was high, it is possible that condoms are not being used due to perceived lack of need for use of condoms during anal sex;

STI prevalence

- Chlamydia was the most common STI detected among MSM and TG, with 17.7% of MSM and 20.8% of TG having a positive test result for chlamydia;
- Gonorrhoea was detected in 11% of MSM and 8% of TG;
- Syphilis was detected in 11.4% of MSM and 4.8% of TG;
- HIV was not detected in any MSM or TG.

4.2 Recommendations

Recommendation 1: Qualitative research with MSM and TG

Despite the small sample size, this study has revealed important differences in sexual risk behaviours between MSM and TG. Given the dearth of information on MSM and TG in Vanuatu, qualitative research is urgently needed to investigate and understand the social and cultural context of sexual behaviours and health care seeking behaviour among MSM and TG. In particular, qualitative research is needed to unpack the differences in sexual risk behaviours between MSM and TG, including the prevalence and experience of forced sex, the role that kava has on condom use, health care seeking differences, HIV knowledge.

Recommendation 2: Formative research to assess appropriateness of RDS recruitment strategies with MSM and TG

Formative research is needed to assess appropriateness of RDS recruitment strategies with MSM and TG. Formative research should assess MSM and TG ability and willingness to participate in the study and extent of social networking and other issues such as selecting an appropriate site location for conducting the survey, identification of appropriate incentives and acceptability of HIV and/or STI testing to improve recruitment outcomes in future studies.

Recommendation 3: Support for, and investment in, organisations that currently provide services and programs for MSM and TG in Port Vila and other parts of Vanuatu

It is imperative that organisations that currently provide services and programs for MSM and TG in Port Vila and other parts of Vanuatu such as Wan Smolbag receive funding to ensure the continuation and expansion of existing programs. It is also recommended that such programs are resourced appropriately and supported to expand the range of programs to include the training of a network of MSM and TG peer educators across Vanuatu. A key focus of peer education programs need to be increased increase knowledge about HIV and STI transmission, promotion of HIV and/or STI testing and facilitation of MSM and TG access to health services. In particular, peer education programs that target MSM and TG should review STI education content and refresher training for peer educators should be held on an ongoing basis.

Recommendation 4: Support and investment for the establishment of a community-based organisation representing MSM and TG in Vanuatu, and inclusion of this group on the National AIDS Committee

Community-based organisations representing MSM and TG play an invaluable role in STI prevention and treatment globally and play an important role in facilitating access to health services, promoting and distributing condoms, advocating for the rights of MSM and TG and community mobilisation, among others. A community-based organisations representing MSM and TG does not currently exist in Vanuatu, and support and investment should be directed towards the establishment of such an organisation in Vanuatu.

Further, this group should be included on the National AIDS Committee and other relevant committees to ensure the needs of MSM and TG are reflected in national strategies.

Recommendation 5: **Review of existing health services that provide HIV and other STI testing, counselling and treatment to assess and improve their appropriateness and acceptability to MSM and TG in Vanuatu**

A review of existing health services that provide HIV and other STI testing to MSM and TG in Vanuatu should be conducted to explore barriers and experiences of sexual health service utilisation and treatment. This is required to ensure that services are accessible and acceptable to MSM and TG populations in Vanuatu. The potential for a specific service targeting MSM and TG should be investigated.

Recommendation 6: **Investigation of partner notification strategies**

The use of partner notification and treatment for partners of infected MSM and TG should be investigated. In particular, the acceptability and opportunity for patient delivered partner therapy (PDPT) by MSM and TG as well as the general population who are chlamydia or gonorrhoea positive should be explored.

Recommendation 7: **Ongoing behavioural surveillance with MSM and TG**

The evidence gathered in this study suggests that MSM and TG have a range of risky sexual behaviours that need to be monitored on an ongoing basis. Behavioural surveillance should be conducted with MSM and TG on an ongoing basis until such a time that HIV and/or STI testing (used in IBBS) becomes acceptable to MSM. The role of strengthened social networks and other community empowerment strategies implemented in parallel to formative research is likely to improve the acceptability of IBBS methodologies over time. As a hidden population, RDS remains a potential recruitment strategy however it should not be implemented until formative research (described above) has been conducted.

Recommendation 8: **Repeat population size estimation methods**

Given the recruitment challenges experienced in this study, several of the assumptions for conducting capture-recapture methods for population size estimation were violated, and thus the estimate presented in this report should be used with caution. It is recommended that a repeat population size estimate is embedded into the next behavioural surveillance survey to verify the estimate presented in this report.

Recommendation 9: **Development of a comprehensive national condom strategy**

A comprehensive national condom strategy is urgently needed to improve access to, availability and use of condoms by the general population and key populations, including MSM and TG. The strategy should include distribution through a range of settings and organisations, including (but not limited to) health services, community centres and hospitality venues, and reflect on successful experiences in condom distribution and access across PICT. The strategy should have a clear focus on improving knowledge about STIs and their prevention and improving the social desirability of condom use.

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6 APPENDIX

Appendix 1. MOH ethics approval

GOVERNMENT
OF THE
REPUBLIC OF VANUATU

MINISTRY OF HEALTH

PRIVATE MAIL BAG 9009
TEL. 22512 – FAX: 25438

GOVERNEMENT
DE LA
REPUBLIQUE DE VANUATU

MINISTERE DE LA SANTE

SAC POSTAL PRIVE 9009
TEL. 22512 – FAX: 25438

DIRECTORATE OF PUBLIC HEALTH

Ref: DPH 02/2-LT/mhd

Date: 16th December 2010

Dr Tamara Kwarteng
Burnet Institute
Melbourne
Australia

Dear Dr Kwarteng,

Re: Integrated BioBehavioural Survey (IBBS) on HIV/STIs in Men who have sex with Men (MSM) and Sex Workers in Vanuatu

Thank you for submitting your research proposal entitled as above, and may I apologize for the delay in providing our response.

We have reviewed the proposal carefully and are satisfied that the study protocol fulfills the Ministry of Health's ethical requirements. In this regard, ethical clearance is hereby granted for the said study to be undertaken in Vanuatu from early 2011, in collaboration with Wan Smol Bag Theatre.

However, you are to note the following:

- Approval is valid for 12 months only i.e. if the commencement of the study is delayed beyond 2011 then another ethics clearance needs to be obtained

- You are required to immediately report to the Ministry of Health's Health and Ethics Committee (HREC) anything which might warrant review of ethical approval of the protocol including:

a) Serious or unexpected outcomes experienced by research participants
b) Proposed significant changes to the protocol
c) Unforeseen events or new information (eg. from other studies) that might affect continued ethical acceptability of the project or may indicate the need for amendments to the protocol

- Any modifications to the project must have prior written approval and be ratified by any other relevant Human Research Ethics Committee, as appropriate.

- If the research is discontinued before the expected date of completion, the researcher is required to inform the MOH's HREC and other relevant institutions (and where possible, research participants), giving reasons.

Yours sincerely,

Len TARIVONDA
Director of Public Health & Interim Chair of MOH HREC

Cc.: Director General, MOH
File

Appendix 2. Alfred Hospital Ethics Approval

TheAlfred

ETHICS COMMITTEE CERTIFICATE OF APPROVAL

This is to certify that

Project No: 307/10

Project Title: Integrated BioBehavioural Survey (IBBS) on HIV/STIs in Men who have sex with Men (MSM) and Sex Workers in Vanuatu, 2010

Principal Researcher: Dr Tamara Kwarteng

Protocol: Version 2 **dated:** 27-Sep-2010

Participant Information and Consent Form version 2 **dated:** 12-Oct-2010

was considered by the Ethics Committee on ***21-Oct-2010*** *and* ***APPROVED*** *on* **10-Feb-2011**

It is the Principal Researcher's responsibility to ensure that all researchers associated with this project are aware of the conditions of approval and which documents have been approved.

The Principal Researcher is required to notify the Secretary of the Ethics Committee, via amendment or progress report, of

- Any significant change to the project and the reason for that change, including an indication of ethical implications (if any);
- Serious adverse effects on participants and the action taken to address those effects;
- Any other unforeseen events or unexpected developments that merit notification;
- The inability of the Principal Researcher to continue in that role, or any other change in research personnel involved in the project;
- Any expiry of the insurance coverage provided with respect to sponsored clinical trials and proof of re-insurance;
- A delay of more than 12 months in the commencement of the project; and,
- Termination or closure of the project.

Additionally, the Principal Researcher is required to submit

- A Progress Report on the anniversary of approval and on completion of the project *(forms to be provided)*;

The Ethics Committee may conduct an audit at any time.

All research subject to the Alfred Hospital Ethics Committee review must be conducted in accordance with the National Statement on Ethical Conduct in Human Research (2007).

The Alfred Hospital Ethics Committee is a properly constituted Human Research Ethics Committee in accordance with the National Statement on Ethical Conduct in Human Research (2007).

SPECIAL CONDITIONS

None

SIGNED: _____
Chair, Ethics Committee (or delegate)
R. FREW
SECRETARY
ETHICS COMMITTEE

Please quote Project No and Title in all correspondence

Appendix 3. Capture-recapture methodology

Following are the methods used for capture-recapture in this study:

3) Site mapping

A comprehensive map of sites where MSM and TG could be found in Port Vila was conducted by field researchers and the study coordinator.

4) First capture: population tagging

The sites were attended by peer educators and MSM and TG were "tagged". A tag is a small item that population members will remember receiving. We gave MSM and TG a small novelty keychain. The tagging process was conducted over a one-week period.

5) Second capture: study participants

Participants recruited through RDS comprised the second capture. To calculate the number of people tagged in both captures, participants in the survey were asked if they received the novelty key ring.

The population size estimate was then calculated using the following formula:

$$N = \frac{MC}{R},$$

Where:

N = Estimate of total population size

M = Total number of people "captured" and "tagged" on the first visit (that is, people who received key rings)

C = Total number of people "captured" and "tagged" on the second visit (that is, people who were recruited via RDS to the study to saturation)

R = Number of people captured on the first visit that were then recaptured on the second visit (that is, participants recruited via RDS who reported that they received a key ring when asked during the interview)

The 95% confidence interval was calculated as follows:

$$95\%CI = N \pm 1.96\ Var\ (N)$$

Where Var(N) is calculated as: $\frac{(M*C)*(M-R)*(C-R)}{R^3}$

The estimate is only valid where key assumptions are met. These assumptions and attempts to ensure their reliability are:

- The two samples must be independent and not correlated
    - Different methodologies were used for both captures and the methodologies were independent of each other

- Each population member has an equal, or known, chance of selection
    - The study team conducted a comprehensive mapping exercise to identify all potential sites where the eligible population could be found in Port Vila
    - Target population eligibility criteria were clearly outlined to ensure people were correctly identified
- Each member must be correctly identified as 'capture' or 'recapture'
    - A novelty key ring was used to ensure that people in the first capture would correctly identify as such
    - A picture of the novelty key ring was used with people in the second capture to correctly identify people captured in both captures
- No major in/out migration may occur
    - We attempted to ensure that the two samples were recruited in a close time frame to ensure no major in/out migration occurred
- The sample sizes of each capture must be large enough to be meaningful [27]

Appendix 4. MSM and TG Questionnaire

Men's Health Survey, Vanuatu 2011

1-CONSENT FORM

Confidentiality, one page information sheet and & written informed consent:

- ★ Participation in this project involves an interview about your behavior. This survey includes also a blood test and others tests for HIV/STI. I'm going to ask you some very personal questions that some people find difficult to answer.
- ★ If you agree to take part, your answers are completely confidential. Your name will not be linked to your survey data.
- ★ Everyone involved in the project has
    - o Signed a declaration that they will NOT disclose information obtained in the study to anyone without the participants consent. **Show interviewer non disclosure declaration page 2.**
    - o Sworn to maintain confidentiality and that if they breach this declaration will be held criminally and civilly liable
- ★ You do not have to answer any questions that you do not want to answer. You may end the interview at any time you want to. However, your honest answers to the questions will help us better understand what people like yourself think, say and do about certain kinds of behaviors.
- ★ We would really appreciate your help in responding to this survey. The survey will take about 30-40 minutes to complete.
- ★ Participation also involves having specimens collected for testing at the laboratory for HIV and other STIs; we will provide the results of these tests to you
- ★ The specimens we will collect are blood, anal swab and urine; a nurse will collect the blood sample but you will be able to collect the vaginal swab and urine sample in private. A nurse will instruct you how to do this.
- ★ Your decision whether or not to participate will not affect your relationship with WSB or KPH; or with the Ministry of Health or access to health services

Written informal consent of the participant

I hereby declare that I have been given sufficient information about the survey in a language that I understand, and that I received a one-page information sheet.
I have had an opportunity to ask questions and I am satisfied with the answers I have received.

I freely agree to participate in this research project, as described.

Participant Signature: _____ Date (dd/mm/yyyy): ____/____/_____

Non disclosure statement of the interviewer

I hereby declare that the respondent has been given oral information about the survey , has received the one page information sheet and has signed a written informed consent to be interviewed.
I also hereby declare that I will not disclose any information provided to me by the respondent unless the respondent first agrees to this disclosure.

Interviewer Signature: _____ Date (dd/mm/yyyy): ____/____/_____

Men's Health Survey, Vanuatu 2011

2-NETWORK QUESTIONS

Participant ID Number:										

	Question	Answer
1	How many men who have sex with men (MSM) do you think there are in Port Vila?	_____
	a) How many of these MSM do you know personally?	_____
	b) Of these people, how many do you know their name and they know yours?	_____
	c) Of these people, how many have you seen in the past month?	_____
2	Of all the MSM that you know in Port Vila (i.e. 1a above), how of the fall into the following categories?	
	a) Under 18?	_____
	b) MSM who live on another island but come to Port Vila to find partners?	_____
	c) How many of the MSM that you know in Port Vila are aged 18 years or older would you consider recruiting into this study?	_____
3	Would you recruit the same person who recruited you (gave you a coupon) into the study if they hadn't already given you a coupon?	☐ Yes ☐ No
4	Why did you accept this coupon and come into this study? (Ask for everyone except for seeds)	(check all that apply)
	a) For the incentive	☐
	b) Peer influence	☐
	c) For the clinical examination	☐
	d) The study seems to be interesting/useful	☐
	e) Had time to spend	☐
	f) Other (specify): _____	☐
5	Have you been given a key ring with a koala on it in the past month? (show example)	☐ Yes ☐ No
	a) Who gave this to you?	☐ WSB Peer educator ☐ Friend ☐ Other (Describe: _____)
	a) Where did you receive it?	_____
6	Have you ever been to this KPH clinic before?	☐ Yes ☐ No

Men's Health Survey, Vanuatu 2011

3- QUESTIONNAIRE

Q	Section One: Background Characteristics
101	Tick (☑) sex of respondent ☐ Male ☐ Transgender ☐ Female **(→End)**
102a	In what month and year were you born? |__|__| Month (01-12) ☐ Don't know ☐ No answer/refused
102b	|__|__|__|__| Year ☐ Don't know ☐ No answer/refused
103	How old were you at your last birthday? |__|__| Age in completed years ☐ Don't know ☐ No answer/refused **(Compare with Q102b and correct if needed)**
104	Which country were you born in? ☐ Vanuatu ☐ Other *(specify)* _____ ☐ No answer/refused
105	Where are you living now? ☐ Port Vila ☐ Rural village ☐ Outer Island ☐ Other ☐ No answer/refused
106	What is the highest level of education you have completed? Primary school (years 1-6), Secondary school (years 7-13) or Higher (eg INTV, VITE, university?) ☐ Never attended school ☐ Some Primary schooling ☐ Primary school ☐ Secondary school ☐ Higher ☐ No answer/refused
107	How long have you lived in your current place of residence? |__|__| completed years ☐ Don't know ☐ No answer/refused **(Record as "00" if less than one year)**
108	In the last 12 months have you been away from your home for more than one month continuously? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
109	What church do you go to? ☐ Never go to church ☐ Catholic ☐ Presbyterian ☐ Anglican ☐ Assemblies of God ☐ SDA ☐ Bahai' ☐ Revival ☐ Other *(specify)* _____ ☐ No answer/refused
110	To which ethnic group do you belong? ☐ Mixed ethnicity ☐ Melanesian ☐ Polynesian ☐ Micronesian ☐ Asian ☐ Caucasian ☐ Other *(specify)* _____ ☐ No answer/refused
111	What is your occupation? □ Transport worker *(e.g. driver)* □ Fisherman/seafarer □ Police/Military □ Farmer □ Businessman □ Government worker □ Factory/Cannery worker □ Construction/Laborer □ Clerical/Office worker □ Hospitality/Tourism worker □ Retail/Sales Assistant □ Health care □ Student □ Professional *(e.g. doctor, lawyer)* □ Not employed □ Other *(specify)* _____ □ Don't know □ No answer/refused

Q	Section Two: Marital Status
201	Have you ever been married to a woman? (in a formal ceremony in a court or church or under Vanuatu custom) ☐ Yes ☐ No **(→Q203)** ☐ No answer/refused
202	How old were you when you <u>first</u> married? |__|__| Years old ☐ Don't know ☐ No answer/refused
203	What is your current marital arrangement? **(Read out all options and tick one)** ☐ Currently married to a women, living with spouse ☐ Currently married, living with other male sex partner ☐ Currently married, living with other female sex partner ☐ Currently married, not living with any sex partner ☐ Not married, living with a male sex partner ☐ Not married, living with a female sex partner ☐ Not married, not living with any sex partner ☐ No answer/refused

Q	Section Three: Sexual History
Read out: Now I'd like to ask you some questions about your sexual partners…	
301	How old were you when you <u>first</u> had sexual intercourse? Sexual intercourse or "sex" is either oral, vaginal or anal sex. It includes any commercial or transactional sex (where money, goods or other resources were exchanged for sex) and also includes forced sex or rape |__|__| Years old ☐ Don't remember ☐ No answer/refused
302	Was a condom used during the first time you had sexual intercourse? ☐ Yes ☐ No ☐ No answer/refused
303	Have you ever <u>heard</u> of a <u>male</u> condom? **(Show a picture or sample of one)** ☐ Yes ☐ No ☐ No answer/refused
304	Have you ever <u>heard</u> of a <u>female</u> condom? **(Show a picture or sample of one)** ☐ Yes ☐ No ☐ No answer/refused
305	Have you and any sex partner <u>ever used</u> a condom (male or female) during sex? **Can tick both male and female condom** ☐ Yes, male condom ☐ Yes, female condom ☐ No ☐ No answer/refused
306	In the last 12 months, have you had anal sex? ☐ Yes ☐ No **(→Q307)** ☐ No answer/refused
306a	What is your relationship with the last person you had anal sex with? ☐ Live-in partner ☐ Client ☐ Non-live in, non-commercial partner ☐ Other *(specify)*: _____ ☐ No answer/refused
306b	The last time you had anal sex, did your partner use a condom? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
307	In the last 12 months, have you had sex with <u>two or more people at the same time</u> (in a group)? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
307a	The last time you had group sex, did it involve men, women or both? ☐ Men only ☐ Women only ☐ Both men and women ☐ No answer/refused

	307b	The last time you had group sex, were condoms used during <u>all</u> the sex acts that you had? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
308		Has any sex partner ever forced you, by hitting you or frightening you in any way, to have sex with them even though you did not want to? **(Arrange referral for counseling at end of interview if appropriate)** ☐ Yes ☐ No **(→Q401)** ☐ No answer/refused
	308a	What is your relationship with the last person who forced you to have sex? ☐ Client ☐ Partner ☐ Parent ☐ Other relative ☐ Neighbor ☐ Family friend ☐ Work colleague ☐ Stranger ☐ Other *(specify)*: _____ ☐ No answer/refused

Q	Section Four: Sexual Contact with Males

Read out: Now I'd like to ask you some questions about your male sexual partners…

401		In the <u>last 6 months</u> have you had any sexual contact with another man? That is, have had oral or anal sex or have you touched the penis of another man or had another man touch your penis for sexual arousal? ☐ Yes ☐ No **(→Q501)** ☐ No answer/refused
402		Have you had <u>oral sex</u> with any male partners in <u>the last 6 months</u>? That is, where another man has put his penis in your mouth or you have put your penis in his mouth? ☐ Yes ☐ No **(→Q403)** ☐ No answer/refused
	402a	In the <u>last 6 months</u>, <u>how many</u> different male partners have you had oral sex with? |__|__| partners ☐ Don't know ☐ No answer/refused
	402b	Have you ever found it difficult to use a condom while having oral sex with a male partner? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
	402c	The <u>last time</u> you had oral sex with a male partner, did you and this partner use a condom? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
	402d	In the <u>last 6 months</u>, <u>how often</u> did you and ALL your male partners use a condom while having <u>oral sex</u>? Would you say…….**Read out options from 'every time' to 'never' and tick response** ☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never ☐ Don't know ☐ No answer/refused
	402e	In the <u>last 6 months</u> did you <u>ejaculate</u> in another man's mouth or did a man ejaculate in your mouth <u>without</u> a condom on? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
403		In the <u>last 6 months</u> have you had <u>anal sex</u> with a regular male sex partner that <u>you live or lived with</u>? ☐ Yes ☐ No → **Q404** ☐ No answer/refused
	403a	<u>How many</u> regular sex partners (that you live or lived with) did you have anal sex with in the <u>last 6 months?</u> |__|__| regular partners ☐ Don't know ☐ No answer/refused

404b — Of these regular partners, for how many were you the

	Number of partners	Don't know	No answer/ refused
Both the inserive and receptive partner	|__|__|	☐	☐
Only the insertive partner *(your penis in his anus)*	|__|__|	☐	☐
Only the receptive partner *(his penis in your anus)*	|__|__|	☐	☐
Total *(should equal number in Q401a)*	|__|__|	☐	☐

403c — Thinking about your most recent regular male sex partner, how many times did you have anal sex with this person in the past 30 days?

|__|__| number of times ☐ Don't know ☐ No answer/refused

403d — Have you ever found it difficult to use a condom with regular male sex partners?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

403e — The last time you had anal sex with a regular male sex partner, did you and this partner use a condom?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

403f — In the last 6 months, how often did you and ALL your regular male sex partners use a condom during anal sex? Would you say…….**Read out options from 'every time' to 'never' and tick response**

☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (**→404)**

☐ Don't know (**→404)** ☐ No answer/refused (**→404)**

403g — In the last 6 months and when a condom was used during anal sex with your regular male sex partners, how often did you also use lubricant?

☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (**→404)**

☐ Don't know (**→404)** ☐ No answer/refused (**→404)**

404 — In the last 6 months have you had anal sex with a commercial male sex partner? These are partners whom **you paid** or gave goods or other resources such as gifts, food, clothes, alcohol or drugs to in exchange for sex

☐ Yes ☐ No **→ Q405** ☐ No answer/refused

404a — In the last 6 months, how many male commercial sex partners did you have anal sex with?

|__|__| commercial partners ☐ Don't know ☐ No answer/refused

404b Of these male commercial sex partners, for how many were you the

	Numbr of partners	Don't know	Noanswer/ refused
Both the insertive and receptive partner	|__|__|	☐	☐
Only the insertive partner *(your penis in his anus)*	|__|__|	☐	☐
Only the receptive partner *(his penis in your anus)*	|__|__|	☐	☐
Total *(should equal number in Q402a)*	|__|__|	☐	☐

404c Thinking about your most recent male commercial sex partner, what ethnicity were they?

☐ Ni-Vanuatu ☐ Other Pacific Islander ☐ Asian ☐ Caucasian

☐ Mixed ethnicity ☐ Other ☐ Don't know ☐ No answer/refused

404d Where did you meet your most recent male commercial sex partner?

☐ Mixed ethnicity ☐ Melanesian ☐ Polynesian ☐ Micronesian

☐ Asian ☐ Caucasian ☐ Other *(specify)* _____

☐ No answer/refused

404e Thinking still about your most recent commercial sex partner, how many times did you have sex with this person in the past 30 days?

|__|__| number of times ☐ Don't know ☐ No answer/refused

404f Have you ever found it difficult to use a condom with male commercial sex partners?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

404g The last time you had sex with a male commercial sex partner, did you and this partner use a condom?

☐Yes → **Q404h** ☐ No ☐ Don't know→ **Q404h** ☐ No answer/refused

404h What was your reason, or reasons, for not using a condom? **Multiple responses allowed**

☐ None easily available ☐ Too expensive ☐ I didn't want to

☐ Partner didn't want to ☐ Partner didn't mention it ☐ Don't like condoms

☐ Sex doesn't feel as good ☐ Trust partner ☐ Too drunk/high

☐ Other *(specify)* _____ ☐ Don't know ☐ No answer/refused

404i In the last 6 months, how often did you and ALL your male commercial sex partner use a condom during anal sex? Would you say…….**Read out options from 'every time' to 'never' and tick response**

☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never

☐ Don't know ☐ No answer/refused

40f	In the last 6 months, how often did you and ALL your male commercial sex partner use a condom during anal sex? Would you say…….**Read out options from 'every time' to 'never' and tick response** ☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (**→405)** ☐ Don't know (**→405)** ☐ No answer/refused (**→405)**
404g	In the last 6 months and when a condom was used during anal sex with your male commercial sex partners, how often did you also use lubricant? ☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (**→405)** ☐ Don't know (**→405)** ☐ No answer/refused (**→405)**
405	In the last 6 months has a male partner paid you or given you goods or other resources such as gifts, food, clothes, alcohol or drugs in exchange for anal sex? ☐ Yes ☐ No **→ Q406** ☐ No answer/refused
405a	In the last 6 months, how many male partners paid you to have anal sex? |__|__| paying partners ☐ Don't know ☐ No answer/refused

405b — Of these male partners who paid you to have anal sex, for how many were you the

	Number of partners	Don't know	No ans refus
Both the insertive and receptive partner	|__|__|	☐	☐
Only the insertive partner *(your penis in his anus)*	|__|__|	☐	☐
Only the receptive partner *(his penis in your anus)*	|__|__|	☐	☐
Total *(should equal number in Q403a)*	|__|__|	☐	☐

405c	Thinking about the most recent male partner who paid you to have anal sex, what ethnicity were they? ☐ Vanuatu ☐Other Pacific Islander ☐ Asian ☐ Caucasian ☐ Mixed ethnicity ☐ Other ☐ Don't know ☐ No answer/refused
405d	Where did you meet the most recent male partner who paid you to have anal sex? ☐ Karaoke Bar ☐ Other Bar/Club/Disco ☐ Street ☐ Massage Parlor ☐ Port/Harbor/Wharf/Boat ☐ Private House ☐ Hotel ☐ Friend/social network ☐ Beauty shop ☐ Don't know ☐ Other *(specify)* _____ ☐ No answer/refused
405e	Thinking still about your most recent male partner who paid you to have anal sex, how many times did you have anal sex with this person in the past 30 days? |__|__| number of times ☐ Don't know ☐ No answer/refused

405f Have you ever found it difficult to use a condom with a male partner who paid you to have anal sex?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

405g The last time you had anal sex with a male partner who paid you to have sex, did you and this partner use a condom?

☐ Yes → **Q405h** ☐ No ☐ Don't know→ **Q405h** ☐ No answer/refused

405gi What was your reason, or reasons, for not using a condom? **Multiple responses allowed**

☐ None easily available ☐ Too expensive ☐ I didn't want to

☐ Partner didn't want to ☐ Partner didn't mention it ☐ Don't like condoms

☐ Sex doesn't feel as good ☐ Trust partner ☐ Too drunk/high

☐ Other *(specify)* _____ ☐ Don't know ☐ No answer/refused

405h In the last 6 months, how often did you and ALL your male partner who paid you to have sex use a condom during anal sex? Would you say…….**Read out options from 'every time' to 'never' and tick response**

☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (**→406)**

☐ Don't know (**→406)** ☐ No answer/refused (**→406)**

405i In the last 6 months and when a condom was used during anal sex with your male partner who paid you to have sex, how often did you also use lubricant?

☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (**→406)**

☐ Don't know (**→406)** ☐ No answer/refused (**→406)**

406 In the last 6 months have you had anal sex with a casual male sex partner? That is, a partner whom you do not live with and with whom no money or other resources were exchanged for sex

☐ Yes ☐ No → **Q501** ☐ No answer/refused

406a In the last 6 months, how many casual sex partners did you have anal sex with?

|__|__| casual partners ☐ Don't know ☐ No answer/refused

406b Of these casual partners, for how many were you the

	Number of partners	Don't know	No answer/ refused
Both the insertive and receptive partner	|__|__|	☐	☐
Only the insertive partner *(your penis in his anus)*	|__|__|	☐	☐
Only the receptive partner *(his penis in your anus)*	|__|__|	☐	☐
Total *(should equal number in Q404a)*	|__|__|	☐	☐

406c Thinking about your most recent casual male sex partner, how many times did you have anal sex with this person in the past 30 days?

|__|__| number of times ☐ Don't know ☐ No answer/refused

406d	Have you ever found it difficult to use a condom with casual male sex partners? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
406e	The last time you had anal sex with a casual male sex partner, did you and this partner use a condom? ☐ Yes → **Q406f** ☐ No ☐ Don't know→ **Q406f** ☐ No answer/refused
406f	What was your reason, or reasons, for not using a condom? **Multiple responses allowed** ☐ None easily available ☐ Too expensive ☐ I didn't want to ☐ Partner didn't want to ☐ Partner didn't mention it ☐ Don't like condoms ☐ Sex doesn't feel as good ☐ Trust partner ☐ Too drunk/high ☐ Other *(specify)* _____ ☐ Don't know ☐ No answer/refused
405h	In the last 6 months, how often did you and ALL your casual male sex partner use a condom during anal sex? Would you say…….**Read out options from 'every time' to 'never' and tick response** ☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (→**501)** ☐ Don't know (→**501)** ☐ No answer/refused (→**501)**
404i	In the last 6 months and when a condom was used during anal sex with your casual male sex partner, how often did you also use lubricant? ☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (→**501)** ☐ Don't know (→**501)** ☐ No answer/refused (→**501)**

Section Five: Sexual History with Females	
501	Have you ever had sex with a woman? ☐ Yes ☐ No → **Q601** ☐ No answer/refused
501a	In the last 6 months, how many female sex partners did you have? |__|__| female partners ☐ Don't know ☐ No answer/refused
501b	Thinking about your most recent female sex partner, what is your relationship to her? ☐ Wife ☐ Live-in girlfriend ☐ Girlfriend (don't live with) ☐ Commercial partner ☐ Casual partner ☐ No answer/refused ☐ Other *(specify)* _____
501c	Still thinking about your most recent female sex partner, how many times did you have sex with this person in the past 30 days? |__|__| number of times ☐ Don't know ☐ No answer/refused

501d	Have you ever found it difficult to use a condom with female sex partners? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
501e	The last time you had sex with a female sex partner, did you and this partner use a condom? ☐ Yes → **Q501f** ☐ No ☐ Don't know→ **Q501f** ☐ No answer/refused
501ei	What was your reason, or reasons, for not using a condom? **Multiple responses allowed** ☐ None easily available ☐ Too expensive ☐ I didn't want to ☐ Partner didn't want to ☐ Partner didn't mention it ☐ Don't like condoms ☐ Sex doesn't feel as good ☐ Trust partner ☐ Trying to have baby ☐ Use other contraception *(specify)* _____ ☐ Too drunk/high ☐ Other *(specify)* _____ ☐ Don't know ☐ No answer/refused
501f	In the last 6 months, how often did you and ALL your female sex partner use a condom during sex? Would you say…….**Read out options from 'every time' to 'never' and tick response** ☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never (→**601)** ☐ Don't know (→**601)** ☐ No answer/refused (→**601)**
501g	In the last 6 months and when a condom was used during anal sex with your female sex partner, how often did you also use lubricant? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

	Section Six: Sexually Active Men
☒	**If a man has not had sex in the last 6 months** *('NO'' to Q401 & Q501 is "0")* → **Q701**
601	During the last 6 months did ANY of your sex partners, male or female, force you to have sex with them even though you did not want to? **Arrange referral to counseling at end of interview if appropriate** ☐ Yes ☐ No ☐ No answer/refused
602	During the last 6 months has there been any time when you have had more than one sexual relationship during the same time period, that is, they overlapped? ☐ Yes ☐ No ☐ No answer/refused
603	During the last 6 months where did you meet or look for male sex partners? **Tick all that apply and *circle the most common*** ☐ Karaoke Bar ☐ Other Bar/Club/Disco ☐ Street ☐ Massage Parlor ☐ Men's group ☐ Beauty shop ☐ Hotel ☐ Friend/social network ☐ Internet ☐ Don't know ☐ Other *(specify)* _____ ☐ No answer/refused

604 During the last 6 months, have you had sex with two or more men at the same time (in a group)?

☐ Yes ☐ No ☐ No answer/refused

605 The last time you had sex with ANY male partner, was a condom used?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

605a If yes, the last time you had anal sex, did you also use lubricant?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

606 During the last 6 months, have you traveled to another country outside of Vanuatu?

☐ Yes ☐ No **→Q701** ☐ No answer/refused

606a While you were overseas during the last 6 months did you have sex with anyone who lives outside of Vanuatu and who you are not married to?

☐ Yes ☐ No **→Q701** ☐ No answer/refused

606ai During the last 6 months, how many overseas partners did you have sex with?

|__|__| overseas partners ☐ Don't know ☐ No answer/refused

606aii What sex was your most recent sexual partner overseas?

☐ Male ☐ Female ☐ Transgender

☐ Don't know ☐ No answer/refused

606aiii The last time you had sex with an overseas sex partner, did you and this partner use a condom?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

Section Seven: Sex work

701 Have you ever been paid with money or other goods for sex? That is, sex with persons who paid you money or gave you goods or other resources for having sex with them. Goods or resources might be gifts, food, clothes, alcohol, drugs, shelter or other things you were given for having sex?

☐ Yes ☐ No **(→Q702)** ☐ No answer/refused

701a At what age did you first receive money, goods or other resources in exchange for sex? Goods or resources might be gifts, food, clothes, alcohol or kava, drugs, shelter or transport that you were given for having sex. Give your best estimate if you cannot remember exactly how old you were.

|__|__| Years old ☐ Don't remember ☐ No answer/refused

701b How were you first introduced to sex work?

☐ By a friend ☐ By a relative ☐ Someone made me

☐ I was approached by my first client and I agreed ☐ Other

702 In the last 12 months have you been paid with money or other goods for sex? That is, sex with persons who paid you money or gave you goods or other resources for having sex with them. Goods or resources might be gifts, food, clothes, alcohol, drugs, shelter or other things you were given for having sex.

☐ Yes ☐ No **(→Q703)** ☐ No answer/refused

702a	On the last day you worked, how many clients did you have sex with? *Take your time and give your best estimate if you cannot remember exactly how many.* |__|__|__| Number of clients ☐ Don't know ☐ No answer/refused
702b	In the last 7 days, how many clients paid you money for having sex? *Give your best estimate if you cannot remember exactly how many.* |__|__|__| Paying clients ☐ Don't know ☐ No answer/refused
702c	How much money did your last paying client give you for having sex? Amount (state currency): _____ ☐ Don't know ☐ No answer/refused
702d	In the last 7 days, how many clients gave you goods or other resources for having sex? *Give your best estimate if you cannot remember exactly how many.* |__|__|__| Giving clients ☐ Don't know ☐ No answer/refused
702e	What were you given, the last time you received goods or resources for having sex? Goods/resources: _____ ☐ Don't know ☐ No answer/refused
702f	Have you ever found it difficult to use a condom with a client during sex? ☐ Yes ☐ No ☐ Don't know ☐ No answer/refused
702g	The last time you had sex with a client, did you and this client use a condom? ☐ Yes **(→Q702i)** ☐ No ☐ Don't know ☐ No answer/refused
702h	Why didn't you and your last client use a condom during sex? **(Tick all that apply)** ☐ Not available ☐ Too expensive ☐ Client objected ☐ Don't like them ☐ Used other contraceptive ☐ Didn't think it necessary ☐ Client looked healthy ☐ Client paid more not to use ☐ Too drunk/high ☐ Didn't care ☐ Trying to have a baby ☐ Didn't think of it ☐ Trusted partner ☐ Don't know ☐ Other _____ ☐ No answer/refused
702i	In the last 30 days, how often did you and all your clients use a condom during sex? **(Read out all options and tick response)** ☐ Every time ☐ Almost every time ☐ Sometimes ☐ Never ☐ Don't know ☐ No answer/refused
702j	Thinking about your most recent client, what ethnicity were they? ☐ Ni-Vanuatu ☐ Other Pacific Is ☐ Asian ☐ Caucasian ☐ Mixed ethnicity ☐ Other ☐ Don't know ☐ No an'sr/refused
702k	Where did you meet/pick-up your most recent client? ☐ Kava Bar ☐ Nightclub ☐ Street ☐ Motel ☐ Hotel ☐ Port/Harbour/Wharf/Boat ☐ Private House ☐ Other *(specify)* _____ ☐ No answer/refused
702l	In the last 12 months, which of the following places have you and your clients used to have sex? **(Tick all that apply)** ☐ Hotel ☐ Motel ☐ Guesthouse ☐ Sex worker's house ☐ Other *(specify)* _____ ☐ No answer/refused
703	Does anyone in your family know that you are doing sex work? ☐ Yes ☐ No **(→Q704)** ☐ No answer/refused
703a	What is their reaction to you? They … **(Tick all that apply and circle the most common reaction)** ☐ Do not like me ☐ Accept me ☐ Talk about me ☐ Treat me badly ☐ Other _____ ☐ No answer/refused

704 Does anyone else in your community know that you are doing sex work?
☐ Yes ☐ No **(→Q705)** ☐ No answer/refused

704a What is their reaction to you? They … **(Tick all that apply and circle the most common reaction)**
☐ Do not like me ☐ Accepted ☐ Talk about me
☐ Treat me badly ☐ Other _____ ☐ No answer/refused

705 Why do you do sex work? (**Tick all that apply and circle the primary reason)**
☐ To support myself ☐ To support relatives → No. people supported: [__|__]
☐ To pay off debts ☐ To buy alcohol and/or drugs ☐ Only thing I can do
☐ I enjoy sex work ☐ Someone forces me to do sex work
☐ Other (specify) _____ ☐ Don't Know ☐ No answer/refused

706 Do you earn money doing work other than sex work?
☐ Yes ☐ No **(→Q801)** ☐ Don't know ☐ No answer/refused

706a What other work do you do to earn money?
☐ Office work ☐ Housegirl ☐ Gardener ☐ Nurse
☐ Shop assistant ☐ Civil servant ☐ Police/military ☐ Farmer
☐ Student ☐ Labour ☐ Other _____ ☐ No answer

Q Section Eight: Sexually Transmitted Infections (STIs)

801 Have you ever heard of diseases that can be transmitted (caught) during sex?
☐ Yes ☐ No ☐ No answer/refused

802 Have you ever been diagnosed with a sexually transmitted infection or disease by a doctor or health worker?
☐ Yes ☐ No **(→Q803)** ☐ No answer/refused

802a Were you diagnosed with…? **(Read out each infection)**

	Yes	No	Don't know	No answer/ refused
Chlamydia	☐	☐	☐	☐
Gonorrhea	☐	☐	☐	☐
Syphilis	☐	☐	☐	☐
Genital Herpes	☐	☐	☐	☐
Genital Warts	☐	☐	☐	☐
Trichomonas	☐	☐	☐	☐
HIV	☐	☐	☐	☐
Hepatitis B	☐	☐	☐	☐
Other (specify)_____	☐	☐	☐	☐

803 In the last 12 months have you had a …

	Yes	No	Don't Know	No answer/refused
Genital discharge from the vagina?	☐	☐	☐	☐
Genital ulcer or sore on the vagina?	☐	☐	☐	☐
Burning or sharp pain on urination	☐	☐	☐	☐
Rash or genital itching	☐	☐	☐	☐

If NO to all, skip to Q901

804 Have you sought treatment for any genital symptoms in the last 12 months (eg genital discharge, ulcer, sore, pain or itching)?
☐ Yes ☐ No **(→Q804b)** ☐ Don't know ☐ No answer/refused

804a Where did you last seek treatment?
☐ Hospital ☐ KPH clinic ☐ VFHA clinic ☐ Private doctor

☐ Pharmacy/Chemist ☐ Traditional healer ☐ Other: _____ ☐ No answer

→**Q901**

804b Why have you not sought treatment?

☐ Too scared ☐ Too public ☐ Too busy

☐ Afraid of partner ☐ Might be painful ☐ Don't know

☐ Too expensive ☐ Other _____ ☐ No answer/refused

Section Nine: Alcohol and Drug Use and Tattooing

Read out: Now I would like to ask you about alcohol and drug use

901 During the last 30 days, how often did you have drinks containing alcohol such as beer, wine, spirits, home brew etc. Would you say…… **(Read out all responses)**

☐ 4 or more times a week ☐ 2 to 3 times a week ☐ 2 to 4 times a month

☐ Monthly or less ☐ Never **(→Q904)** ☐ Don't know ☐ No answer

902 During the last 30 days, how many standard drinks containing alcohol did you have on a typical day when drinking? A standard drink is a can a beer, a glass of wine or port, a nip of spirits etc. **(Read out all responses)**

☐ 20 or more ☐ 10-19 ☐ 7, 8 or 9 ☐ 5 or 6

☐ 3 or 4 ☐ 1 or 2 ☐ Don't know ☐ No answer

903 During the last 30 days, how often did you have six or more drinks on one occasion?

☐ Daily or almost daily ☐ Weekly ☐ Monthly ☐ Less than monthly

☐ Never ☐ Don't know ☐ No answer/refused

Read out: Next we would like to ask you about recreational drug use. Remember that all your responses are completely confidential and will not be released to anyone.

904 Have you ever tried… **Ask about each drug in turn**

	No	Yes, (ever tried)	If Yes, used in last 30 days?	No answer/ refused
Tobacco (smoking or chewing)	☐	☐→	☐	☐
Betel Nut	☐	☐→	☐	☐
Marijuana/Cannabis	☐	☐→	☐	☐
Kava	☐	☐→	☐	☐
Speed/Base/Other amphetamines	☐	☐→	☐	☐
Ecstasy/E/Eccies	☐	☐→	☐	☐
Ice/ Crystal meth	☐	☐→	☐	☐
LSD/Acid/Hallucinogens	☐	☐→	☐	☐
Cocaine	☐	☐→	☐	☐
Heroin	☐	☐→	☐	☐
Steroids (non-medical use)	☐	☐→	☐	☐
Inhalants	☐	☐→	☐	☐
Pills but do not remember which one	☐	☐→	☐	☐
Injected drug but do not remember which one	☐	☐→	☐	☐
Other? *Specify:* _____	☐	☐→	☐	☐

905 Some people have tried injecting drugs using a syringe. In the last 12 months, have you injected drugs for a non-medical purpose?

☐ Yes ☐ No **(→Q906)** ☐ No answer/refused

905a Have you ever found it difficult to find needles or syringes or other injecting equipment such as swabs and spoons that were NOT previously used by someone else?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

905b Think about the last time you injected drugs. Did you use a needle or syringe or other injecting equipment like swabs or spoons that had previously been used by someone else?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

905c Thinking about the times you injected drug in the last 30 days, how often did you inject with a needle or syringe that had previously been used by someone else? Would you say… **(Read out from 'never' to 'always' and tick response)**

☐ Never ☐ Occasionally ☐ About half the time ☐ Most times

☐ Always ☐ Did not inject in last 30 days

☐ No answer/refused

906 Have you ever had a tattoo?

☐ Yes ☐ No **(→Q1001)** ☐ No answer/refused

906a Who performed your last tattoo?

☐ Tattoo parlor (formal) ☐ Backyard Tattooist (informal) ☐ Friend/relative

☐ Other *(specify)* _____ ☐ Don't know ☐ No answer/refused

Section Ten: HIV/AIDS Knowledge, Attitudes and Access to Testing

1001 Have you ever heard of HIV or the disease called AIDS?

☐ Yes ☐ No **(→Q901)** ☐ No answer/refused

1002 Do you know anyone who is infected with HIV, or who has AIDS or has died of AIDS?

☐ Yes ☐ No **(→Q1003)** ☐ Don't know **(→Q1003)** ☐ No answer/refused

1002a Do you have a close relative or close friend who is infected with HIV, or who has AIDS or has died of AIDS?

☐ Yes, a close relative ☐ Yes, a close friend ☐ No

☐ Don't know ☐ No answer/refused

Read out: Now I'm going to read you some statements about how HIV may be transmitted. For each statement, please indicate whether you think it is possible or not or you don't know. (It is OK not to know – we are just trying to find out how good people's knowledge is of HIV transmission).

1003 Can a person reduce their chances of getting HIV, the virus that causes AIDS, by using a condom correctly every time they have sex? That is, every time they have oral, anal or vaginal sex?.

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1004 Can a person reduce their chance of getting HIV by avoiding anal sex?.

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1005 Can a person get HIV by sharing a meal with someone who is infected with HIV?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1006 Can a person get HIV from mosquito bites?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1007 Can a person reduce their chance of getting HIV by having only one uninfected, faithful sex partner?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1008 Can a person reduce their chance of getting HIV by abstaining from sexual intercourse?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1009 Do you think that a healthy looking person can be infected with HIV, the virus that causes AIDS?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1010 Can a person get HIV by getting injections with a needle that was already used by someone else?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1011 Can a pregnant woman infected with HIV or AIDS transmit the virus to her unborn child?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1012 Can a woman with HIV or AIDS pass it on to her newborn child through breastfeeding?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1013 A person can get HIV from the saliva of someone who has HIV or AIDS.

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

Read out: The next few questions are about HIV testing

1014 Is it possible in your community for someone to get a confidential test result to find out if they have HIV? Confidential means no one will know the result if the person being tested doesn't want them to know.

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1014a Why can't you get a confidential HIV test result? **Multiple responses allowed**

☐ Test not available ☐ Testing site too public ☐ Results not kept confidential ☐

Other *(specify)* _____ ☐ Don't know ☐ No answer/refused

1015 Please don't tell me the result, but have you <u>ever</u> had an HIV test?

☐ Yes ☐ No **(→Q1016)** ☐ Don't know **(→Q1016)** ☐ No answer/refused

1015a When did you have your last HIV test?

☐ 1 to 5 months ago ☐ 6 – 11 months ago ☐ Over a year ago

☐ Don't know ☐ No answer/refused

1015b Did you voluntarily undergo your <u>most recent</u> HIV test or were you required to have the test?

☐ Voluntary ☐ Required ☐ Don't know ☐ No answer/refused

1015c Please don't tell me the result, but did you receive the result of your <u>most recent</u> test?

☐ Yes ☐ No ☐ No answer/refused

1016 The following is a list of HIV prevention activities. Have you ever…….?

	Yes	No	No answer/ refused
Participated in an HIV peer education program	☐	☐	☐
Received STI screening	☐	☐	☐
Heard messages about HIV or AIDS on radio	☐	☐	☐
Seen messages about HIV or AIDS on TV	☐	☐	☐
Read messages about HIV or AIDS in newspapers	☐	☐	☐
Seen messages about HIV or AIDS on billboards	☐	☐	☐
Used the internet as a source of HIV information	☐	☐	☐
Seen the "Love Patrol" TV series on TV or DVD	☐	☐	☐
Attended HIV community event (eg World AIDS day, public meeting, drama production)	☐	☐	☐
Participated in an HIV education program (eg workshop, school program)	☐	☐	☐
Discussed HIV or AIDS with others such as friends, family members and work colleagues	☐	☐	☐

Section Eleven: Stigma and Discrimination

Read out: We have almost reached the end of the interview. The final questions are about your attitudes and beliefs. There are no right or wrong answers; we are just interested in your honest opinion.

1101 Would you be willing to share a meal with a person you knew had HIV or AIDS?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1102 If you knew a shopkeeper or food seller had HIV, would you buy food from them?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1103 If a relative of yours became ill with HIV, the virus that causes AIDS, would you be willing to care for them in your household

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1104 If a member of your family became ill with HIV, the virus that causes AIDS, would you want it to remain secret?

☐ Yes ☐ No ☐ Don't know ☐ No answer/refused

1105 All migrants to Vanuatu should be tested for HIV.

☐ Agree ☐ Disagree ☐ Don't know ☐ No answer/refused

1106 The names of all persons infected with HIV should be displayed in a public place for everyone to see.

☐ Agree ☐ Disagree ☐ Don't know ☐ No answer/refused

1107 All persons infected with HIV should live in a place all by themselves.

☐ Agree ☐ Disagree ☐ Don't know ☐ No answer/refused

- **Please give Jaylene the completed questionnaire**

- **Please fill out the Participant Tracking Form then take the participant to the nurse**