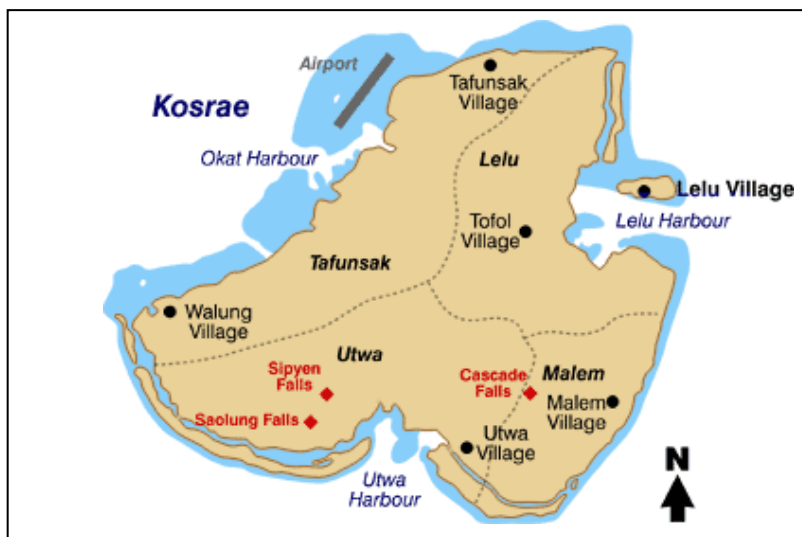


2010 HIV sero prevalence and behavioral survey among youth and young adults in Kosrae

Figure 1: Map of the Federated States of Micronesia and the northern Pacific¹



Figure 2: Map of Kosrae State, Federated States of Micronesia²



¹ Maps compliments BBC and Google respectively

² Maps compliments BBC and Google respectively

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List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
ANC	Antenatal Clinic
BSS	Behavioural Surveillance Survey
C.trachomatis	Chlamydia trachomatis
FHI	Family Health International
GAPR	Global AIDS progress report
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
IDU	Injecting drug use
IQR	Inter quartile range
MHRDC	Micronesia Human Resource Development Center
MDG	Millennium Development Goals
MOH	Ministry of Health
NACA	National Advisory Committee on AIDS
NGO	Non-Government organization
NRL	National Reference Laboratory
PCR	Polymerase Chain Reaction
PICTs	Pacific Island Countries and Territories
PLWHA	People living with HIV or AIDS
SGS	Second Generation HIV Surveillance
SPC	Secretariat of the Pacific Community
STI	Sexually transmitted infection
TPPA	Treponema Pallidum Particle Agglutination test
UNGASS	United Nations General Assembly Special Session
UNICEF	United Nations Children's Fun
VCCT	Voluntary Confidential Counselling and Testing
VDRL	Venereal Diseases Research Laboratory test

Executive summary

In 2009/2010, an STI biological and behavioral survey among youth and young adults in Kosrae, in the Federated States of Micronesia was conducted. Its aims were to assess the prevalence of key STIs among adults in Kosrae as well as evaluate certain knowledge and risk behaviours in order to better identify how to deliver targeted interventions aiming to reduce risk of HIV and STI infections. 361 participants aged between 15 and 49 were recruited from Kosrae. Key findings from the survey are listed below:

- The median age of sexual debut was 16 with 75% having debuted between the age of 15 to 18.
- The percentage of coerced sex among participants that had ever had sex was 20%.
- Low condom use was reported, even among unmarried participants with multiple partners.
- Unemployment among participants over 18 years was 66% but (possibly due to close kinship ties and communal responsibility for individuals) has had no apparent influence on transactional sex. Yet the role of unemployment in risky behavior can possibly still be argued in terms of sexual activity while intoxicated. The assumption being that drunkenness is partly the result of being idle and that once inhibitions are lowered because of inebriation, individuals do not necessarily act in the way they would otherwise.
- The majority of the respondents were married but this does not necessarily influence the number of sexual partners; 22% per cent of married respondents had had multiple partners, although the questionnaire did not distinguish between recently married versus long term marriage.
- Although no HIV was detected, the high-risk behaviors observed such as multiple concurrent³ sexual partnerships coupled with low condom use create a conducive environment for STI spread.
- Although not emphasized in this study, the departure of the majority of PLHIV from FSM has to be addressed in terms of advocacy around HIV issues and stigma in particular.

³ Multiple concurrent partnerships refer to sexual relations with more than one person during the same period.

Introduction

FSM Overview: The Federated States of Micronesia (FSM) consists of four major island groups forming the states of Kosrae, Pohnpei, Chuuk and Yap. Together, these groups comprise 607 Islands, of which most (>75%) are uninhabited. All states apart from Kosrae consist of a main island on which the state urban centre is located, and a series of outer islands. The national population is estimated to be 102,600 with 37.5% aged 14 years and under. About half of the population (47%) of the FSM resides in the state of Chuuk however, the population is very mobile. Despite considerable decline in recent years fertility rates in FSM remain relatively high, with an estimated TFR of 3.5 in 2010⁴. There is a significant out-migration for employment and educational purposes.

There is a high level of unemployment or under-employment, especially among young people. The economy is largely dependent on the fishing industry and licensing fees, migrant labor, and funds from the United States through the Compact of Free Association and other aid grants. Just over half of all people in paid jobs are employed in the public sector. Household incomes (which support an average of 6.8 people) are generally low, with a median of USD 4,662 per year,

While each state has its autonomous health infrastructure and bears financial responsibility for healthcare⁵, medical staff and equipment are inadequate and access is limited. Voluntary counseling and testing (VCT) services are increasingly available. The number of HIV cases remains low in contrast to high STI rates amongst some population groups. By the end of 2011, a total of 38 cases of HIV had been detected in FSM: 28 had died as a result of AIDS-related illnesses and 3 had left the country. Most of the cases were male, aged between 25 and 44 years and heterosexual sex was the main reported mode of transmission.⁶ Six people living with HIV (PLHIV) remained; of whom 4 were on antiretroviral treatment (ARV).

Kosrae state is the smallest of the four states of FSM with a population of 6,616 (FSM Census 2010). Unlike the other three states, Kosrae has no outer island groups. From 2003 to 2007 Kosrae averaged 695 HIV tests per year, representing approximately 20% of the population aged

⁴ http://www.unicef.org/infobycountry/micronesia_statistics.html

⁵ Patients do contribute in part to their health care,

⁶ UNGASS 2010 report

between 15 and 44 years (FSM UNGASS Report 2008). Up to December 2009, Kosrae had detected only four cases of HIV, two of which had since died. Limited information is available regarding STI rates in Kosrae and on behavioral risk factors associated with HIV and STIs.

HIV epidemiology in the Pacific region: There is a very low prevalence across the region. The estimated prevalence among adults aged between 15-49 years in the remaining 16 PICTs is low and ranges from 0.002 % to 0.078 %. Since 1984 a total of 1,609 HIV cases have been reported. The 1,363 cumulative HIV cases in four PICTs (Fiji (UNAIDS, 2012), New Caledonia (DASS, 2012), French Polynesia (BISES, 2012) and Guam (DPHSS, 2012)) represent 84 % of all reported cases, with only 246 (16%) from the remaining 17 PICTs. The current distribution of the 631 active cases as of December 31st 2011 is similar (Wanyeki, 2011). FSM has had a total of 38 HIV cases, 28 deaths due to AIDS, and there are currently 6 people living with HIV in FSM (FSM, GAPR 2011). Heterosexual transmission was the reported mode of transmission was for 24 of the 38 cases (63%) and via Male to male sex for 7 of the 38 cases (18%).

Transmission routes: The primary mode of HIV transmission in the 21 PICTs is heterosexual contact, with over half of all HIV infections attributed via this route. Over one quarter (27%) of HIV infections were via men who have sex with men and five percent via injecting drug use (IDU). This varies significantly by country.

SGS background: Second generation surveillance (SGS) involves strengthening the existing HIV surveillance systems to improve the quality and breadth of information. Between 2006-2008 six surveys were undertaken in FSM (specifically in Chuuk, Yap and Pohnpei) (SGS, 2006). In 2010 a behavioral survey was conducted among female sex workers in Chuuk. This is the first survey of its kind undertaken in Kosrae.

Survey goal: From November 2009 to February 2010 a biological and behavioral survey among youth and adults was conducted. Its aims were to assess STI prevalence levels and some key knowledge, attitudes and risk behaviors in order to better understand the epidemiology of the STIs in Kosrae. This paper describes and discusses the results.

Methodology

Table 1: Survey methodology summary

Methodology	Survey details
Population	People aged over 15 years living in Kosrae
Survey type	Behavioral and biological survey
Sampling method	Convenience
Inclusion criteria	People aged 15 years and older, living in Kosrae
Target Sample Size	341
Final Sample Size	362
Interview location(s)	Lelu, Malem, Tafunsak, Utwe
Survey administration	Interview administered by trained interviewers
Type of consent	Verbal
Time required for interview	15-30 minutes
Specimens collected	Urine and blood
Laboratory testing	Chlamydia and Gonorrhoea by PCR and HIV
Data collection period	November 2009 to February 2010

Questionnaire

The questionnaire was based on the 2006 survey that was initially developed by FHI and was modified for use in the Pacific by the WHO, SPC and CDC. It was trimmed down by SPC to capture a few selected behavioral questions in 2009. A copy of the questionnaire is available (Appendix A).

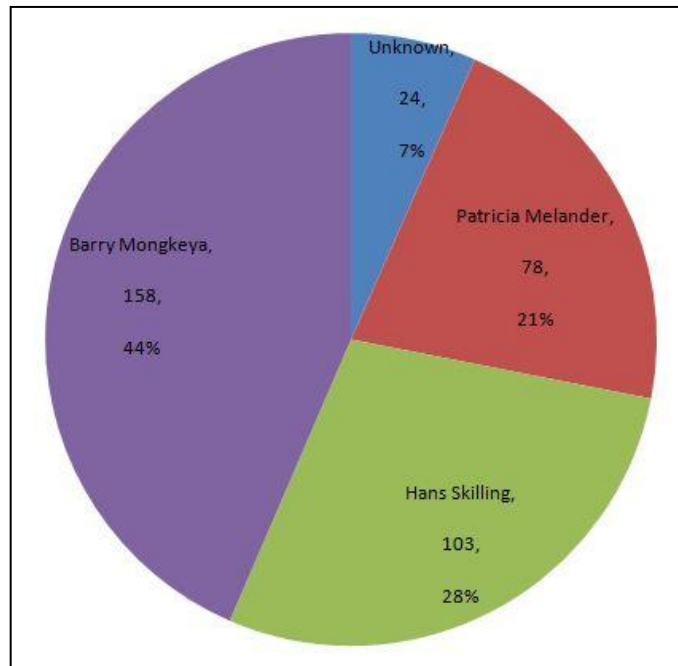
Ethics approval

The SGS survey protocol was approved by the health ethics committee.

Sampling method and recruitment

Convenience sampling was utilized. Three trained surveyors conducted the interviews figure 3. The training included discussion of the concepts surrounding each survey item and an understanding of how the Kosraean translation of each would be worded. The survey form was in English; however the interviews were conducted in both English and Kosraean. No incentives were provided to participate in the survey.

Figure 3: Number and percentage of surveys conducted by surveyor:



Sample size

The sample size was determined based on the following assumptions. 2% would be infected with HIV. A 95% confidence interval and a 1.5 % margin of error was used. Non response was estimated to be 2%. The target sample size was 341.

Inclusion criteria

Any youth or adult aged 15 years and above who resided in Kosrae at the time of the survey was eligible to participate. Each participant could only participate once in the study.

Survey administration

Surveys were administered manually by three trained surveyors. The survey was conducted in the late afternoon and evening hours in conjunction with the WHO NCD STEPs Survey which was also being administered at this time. The STEPs and the SGS survey teams traveled together to the sites. Having both activities conducted simultaneously was thought to diminish participation barrier stigma which may have existed had participants been observed being interviewed by the HIV program. The surveyor explained the survey to each participant and participants were asked whether they were willing to participate with verbal informed consent obtained. There was 1 participant that declined to participate. The survey took approximately 15 minutes to

complete, although some took up to 30 minutes as some participants required clarifications and translation into the Kosraean language.

Data management

The questionnaire results were manually entered into an electronic database. The dataset was then analyzed using EpiInfo 3.5.4. The quality of the data recorded is largely reliable. However, there are problems with some mutually exclusive questions that have contradictory responses. For example, with the questions on sex, a “no” response automatically rules out the response on the number of partners. However, in some instances a number was still given. In these cases, the “no” is treated as the real response and the number is ignored.

Study limitations and lessons learnt

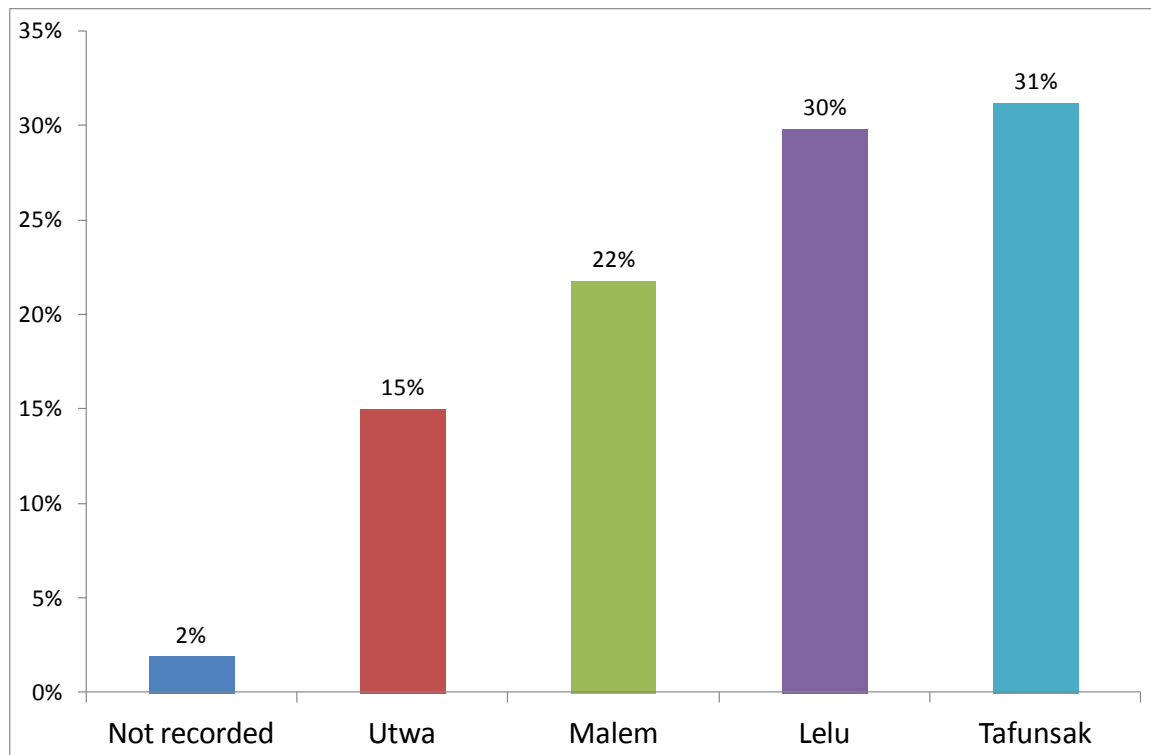
The primary limitations with the study were either related to inaccuracies with the interview language (including impromptu translation of English text into local languages) and/ or with interviewer training. Although the original version of the FHI developed questionnaire was field tested, the tool used in Kosrae had not been field tested there, and this may have lead to some misunderstanding for certain questions. As mentioned above, there were instances where there should have been no responses but where questions were answered. In some instances an age range was given for sexual debut. At these times, the mid age was used for data entry and analysis. There was a long delay in-between data collection and final analysis and write up of the report. Although this was supposed to be a linked survey with biological and behavioral data collected from the same individuals at the same time the linkage of the results to the survey forms was poorly managed and thus we need to report unlinked survey results, however as all results for HIV were negative this does not affect that particular analysis. For the other STIs, there were problems with locating the results reported from the Kosrae hospital laboratory and coding discrepancy were experienced with results obtain from the Pohnpei Hospital Laboratory. Therefore we only report results for HIV and participants behaviors. A good response rate was obtained with only one participant declining to participate.

Results

3.1 Demographics

- 362 participants were interviewed, 1 male participant declined to participate leaving a total of 361 participants completing the survey form, 215 (59%) were male, 148 (41%) female.
- The median participant age was 23 years with an IQR of 18 to 28. Among males it was 21 with an IQR of 18 to 27 and among females it was 25 with an IQR of 20 to 30.
- 54% (195/362) of the participants were youth aged between 15-24 years.
- 86 of the 250 participants (34%) over 18 years old indicated that they were working.
- Almost half of the participants 167/362 (46%) were married.
- Participants were selected from the 4 different municipalities (figure 4)

Figure 4: Participant village location



3.2 Sexual risk factors

	Numerator / Denominator	Percent
<i>Table 2: Reported sexual history</i>		
Ever had sex	292 / 362	(81)
Male participants (ever had sex)	162	
Sex with another male in the past 12 months	7	
Never use a condom	6	
Ever had sex (Youth 15-24)	120	
Sex before the age of 15	30 / 195	(15)

Sex with more >1 partner in past 12 months (All Participants 15-49)	88 / 362	(24)
Sex with more >1 partner in past 12 months and used condom (All participants 15 – 49)	42 / 88	(48)

Sex with more >1 partner in past 12 months (Youth 15-24)	49 / 195	(25)
Sex with more >1 partner in past 12 months and used condom (Youth 15 -24)	18 / 49	(37)

Sex in the past 12 months	248	
Sex while under the influence in the past 12 months	107 / 248	(43)
Commercial sex in the past year	11 / 248	(4)

Ever been forced to have sex	58 / 292 (34 F , 24 M)	(20)

Number of partners (median # partners)	1	IQR (1, 1)

- 292 (81%) of the participants had at least one sexual encounter. The median age at first sex was 16 with an IQR of 15 to 18. Median sexual debut for males was 16 while for females it was one year later at 17. Age at first sex ranged from 7 years to 27 years.
- Among the youth that had ever had sex 25 % (30/120) had at least one sexual encounter before the age of 15. Of this subset of 30 youth there were 22 males and 8 females.
- Sex while under the influence in the past year was high with 107 (43%) participants having had sex while under the influence. Of this subset of 107 participants there were 91 males and 16 females.
- Commercial sex in the past year was low with 11 (4%) participants having had sex in exchange for money, drugs or gifts.
- 58 participants (20%) had been forced to have sex. 32 were female, 24 male and 2 were of unknown gender.

Knowledge of HIV Status

- 14 % (42/292) of participants that had ever had an HIV test.

3.3 Biological results

Table 3: Prevalence of STI's

	# positive	# tested	%	LCI	UCI
HIV	0	362	0	-	-
Gonorrhea*		362			
Syphilis*		362			
Chlamydia*		362			
Trichomonas*		362			

Results not available at the time of this report.

Discussion

This survey among youth and young adults in Kosrae provides important information for the future strategic direction of HIV/STI prevention programs. Although it should be complemented by further research into any changes in sexual behaviors with reference to the high prevalence of STI, the study provides a bird's eye view of attitudes towards sex and practice of safe sexual behaviors.

Demographics: The study includes 361 people and has a slight inclination towards male respondents (59%). The median age of respondents was 19 with the majority (54%) being aged 15- 24; mimicking the population spread in FSM where the majority of people are young. Participants were from all four municipalities; Tafunsak and Lelu had the most respondents, which may be partially due to the more urban nature of these villages. Forty six per cent of the respondents were married. This would have had an important impact on condoms use over the last 12 months as participants that are married may be expected to have lower condom use than those who are unmarried. When analysis was restricted to a comparison of married and non-married participants (195), condom use was similar.

Almost half of the respondents were married and the median age of participants was 19 coupled with a median sexual debut of 16. This shows that generally Kosraeans marry young with a median 3-year gap between sexual debut and marriage. Together, these factors, remove a significant number of individuals from the probability of having multiple sexual partnerships - even if one accepts the high level of extramarital sexual partnerships.

Kosrae has a high unemployment rate and this was also seen in the survey population where 66% of participants over the age of 18 were unemployed.

Sexual behaviors

The results of the survey indicate several risky sexual behaviors as indicated by early age of sexual debut, low condom use, multiple sex partnerships⁷ within the same time period, and a relatively high occurrence of forced sex. These standard indicators are defined by UNAIDS (GAPR, 2012) and have been identified as key behaviors that place people at higher risk of contracting an STI.

⁷ Defined as overlapping partnerships where sexual intercourse with one partner occurs between two acts of intercourse with another partner. This has been identified as one of the drivers of HIV transmission in countries with generalized epidemics, and low condom use.

When analysis was restricted to a comparison of married and non-married participants (195), multiple sexual partnerships increased from 19% (32/167) to 29% (56/195) among the unmarried group. 23 of the 32 married participants that had had multiple sexual partnerships were male.

The usual assumption is to make a correlation between unemployment and the pursuit of sex work. Yet, despite an unemployment rate among participants over the age of 18 at 66%, transactional sex remains low in Kosrae and at present there is little correlation between the two. This is probably because of the extended family structure in Kosrae, which provides a social safety net for individuals, but also the strong influence of the church and the small size of the community; secrets are not easy to hide. Anecdotal reports however suggest that when commercial sex does occur the main motivation is exchange for alcohol.

However, other risky sexual behavior remains and almost half (43%) of respondents had had sex while drunk or high. Given that 63% of respondents with more than one sexual partner had not used a condom there is potential for a rapid spread of sexually transmitted illnesses. This is already evident through the high rates of STIs, in particular Chlamydia observed during the STI prevalence surveys conducted in FSM. (FSM, 2007, SGS survey).

The median age of sexual debut was 16. Sexual debut is relevant because it influences the number of partners and other risk factors such as forced or coerced sex and age of sexual partners. The age of sexual debut ranged from 7 to 27 years. Similar to rates seen in Chuuk (FSM, 2007, SGS survey) almost a quarter of all participants (20%) had been forced into sex. This proportion has important consequences for STI programming and advocacy around sexual consent and violence. Apart from emotional and physical harm that such behaviour may have on a person, forced sex is unlikely to involve condom use and thus increases the risk of STI transmission. Therefore, identifying strategies for addressing forced sex may be an important component for an effective HIV and STI prevention program.

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Appendixes

Appendix A: Survey form

1

Client Code
Client Consent to Participate: <input type="checkbox"/>

Kosrae STI & HIV Surveillance Survey Form 2009

Interviewer Name
Date ____/____/____

2

CLIENT INFORMATION

2.1 Gender <input type="checkbox"/> Male live? <input type="checkbox"/> Female	2.2 Date of Birth ____/____/____	2.3 In which village do you live? _____
2.4 Are you married? <input type="checkbox"/> Yes <input type="checkbox"/> No	2.5 Are you working? <input type="checkbox"/> Yes <input type="checkbox"/> No	

CLIENT RISK FACTORS

3

<p>3.1 Have you ever had sex? Yes <input type="checkbox"/> No <input type="checkbox"/> ---> <u>Proceed to testing (sect 4).</u></p> <p>3.2 How old were you when you first had sex? Age in years _____</p> <p>3.3 In the past <u>12 months</u>, have you had sex with a <u>male</u>? (vaginal or anal) Yes <input type="checkbox"/>-----> No. of partners _____ No <input type="checkbox"/></p> <p>3.4 In the <u>past 12 months</u>, have you had sex with a <u>female</u>? Yes <input type="checkbox"/>-----> No. of partners _____ No <input type="checkbox"/></p>	<p>3.5 Have you had sex in the <u>past 12 months</u>: (a) without using a condom? <input type="checkbox"/> Yes <input type="checkbox"/> No (b) in exchange for money, drugs or gifts? <input type="checkbox"/> Yes <input type="checkbox"/> No (c) while you were drunk or high? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>3.6 How often have you used a condom in the past 12 months? Always <input type="checkbox"/> Sometimes <input type="checkbox"/> Never <input type="checkbox"/></p> <p>3.7 Have you ever been forced to have sex even though you did not want to? Yes <input type="checkbox"/>-----> No. of partners _____ No <input type="checkbox"/></p> <p>3.8 Don't tell me the results, but have you ever had a HIV test? _____</p>
--	--

HIV AND STI TESTING

4

HIV Test 1	HIV Test 2	STI Testing
Test ID #: _____	_____	Chlamydia <input type="checkbox"/> Positive <input type="checkbox"/> Negative <input type="checkbox"/> Indeterminate
Sample Date: _____	_____	Gonorrhea <input type="checkbox"/> Positive <input type="checkbox"/> Negative
Specimen type: <input type="checkbox"/> Finger Prick <input type="checkbox"/> Blood Spot	<input type="checkbox"/> Finger Prick <input type="checkbox"/> Blood Spot	Syphilis <input type="checkbox"/> Positive <input type="checkbox"/> Negative
Test Result: <input type="checkbox"/> Positive	<input type="checkbox"/> Positive	

Kosrae STI & HIV Surveillance Survey Form

Informed Consent: (please read out loud the following points to the client)

- ❖ This survey includes blood and urine tests for HIV and STI and a short interview about your personal behaviors.
- ❖ Your test results and any information that you tell me during the interview are strictly confidential. Your name will not be linked to your answers.
- ❖ You do not have to answer any question and you may choose to stop the interview if you want to.
- ❖ We appreciate your participation and honest answers. The information we collect from the surveys will help us to prevent HIV and STI.
- ❖ The interview will last for about 15 minutes.

1. Are you willing to participate in the survey? YES NO → **DO NOT PROCEED**
2. Is it OK for me to interview you? YES NO → **Replace Interviewer**

Signature of interviewer

I hereby declare that the respondent has given verbal 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 Name: _____

Interviewer Signature: _____

Date: _____