

SECOND GENERATION
SURVEILLANCE SURVEYS IN THE
FEDERATED STATES OF MICRONESIA,
2006 to 2008

Acknowledgements

Pohnpei

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List of Abbreviations

AIDS	Acquired Immune Deficiency Syndrome
BSS	Behavioural Surveillance Survey
C.trachomatis	<i>Chlamydia trachomatis</i>
HIV	Human Immunodeficiency Virus
N.gonorrhoeae	<u><i>Neisseria gonorrhoea</i></u>
PCR	Polymerase Chain Reaction
PICTs	Pacific Island Countries and Territories
RPR	Rapid Plasma Reagin
SGS	Second Generation HIV Surveillance
SPC	Secretariat of the Pacific Community
STI	Sexually transmitted infection
TPHA	Treponema Pallidum Haemagglutination Assay
UNGASS	United Nations General Assembly Special Session

Executive summary

The Federated States of Micronesia (FSM) consist of four major island groups forming the states of Kosrae, Pohnpei, Chuuk and Yap. A total of 35 positive HIV cases were confirmed in FSM as of December 2007 (UNAIDS 2008) and limited data exists on the behavioral dimensions of HIV and STI transmission in FSM. Between 2006 and 2008, six SGS surveys were conducted in FSM across three of the four states (Yap, Pohnpei, Chuuk) in four different population groups (PNC Women, Police, Youth, and Outer Island Communities).

The main findings from the survey in PNC women in Pohnpei were:

- 25.8% of the women tested positive for Chlamydia.
- Nearly half of the women had unplanned or unintended pregnancies.
- Of the women the women that did not plan their pregnancy 78% were not using any form of contraceptive in the 3 months prior to becoming pregnant.
- 35% had ever used a condom
- One-third had heard of a female condom but none had ever used one.
- Less than 50% of women were aware that HIV can be transmitted from mother to child during breast feeding.
- 30% of women had been tested for HIV.
- 10% had experienced symptoms of STI in the previous 12 months. 14% of these sought treatment from a health professional.
- Positive attitudes towards people living with HIV were low
- 20% of women had correct knowledge of HIV prevention and transmission.

The major findings from both of the youth studies were:

Yap

- Male youth more likely to have first sex under the age of 15.
- Male youth more likely to have had multiple partners in the past 12 months.
- One third of male youth who had sex with multiple partners in the past 12 months reported using a condom the last time they had sex.
- Female youth are less likely to have ever used a condom and to have used one the last time they had sex.

- Main reasons – partner did not want to; none easily available.
- Youth that had ever tried marijuana were less likely to have used a condom the last time they had sex.
- 17% of male youth indicated that the reason they did not use a condom the last time they had sex was because they were too drunk or too high.
- Youth have varying attitudes towards people living with HIV.
- 38% of youth had ever been tested.
- 21% were tested voluntarily.
- 60% received pre-test counseling.
- 14% of youth had experienced the symptoms of an STI in the past 12 months; 24% sought help from a health worker; only 7% of female youth sought help.

Pohnpei

- Male youth more likely to have ever had sex
- Male youth more likely to have had first sex under 15 years of age
- Male youth more likely to have had multiple sex partners in the past 12 months
- Females less likely to report having ever used a condom
- Females less likely to have reported condom use at last sex
 - Main reasons – a condom was not readily available; sex does not feel as good.
- 25% of male youth reported binge drinking on a weekly basis
- Those youth who reported binge drinking as a “normal” drinking behaviour were more likely to have had multiple partners in the past 12 months.
- Female youth had lower knowledge of prevention methods than male youth
- 20% of youth had ever been tested for HIV.
- Of the youth that experience symptoms of STI in the past 12 months, about 30% sought treatment from a health professional.

The main findings from the twp police surveys were:

Yap

- One-third reported sex with multiple partners in the past 12 months
- One-third of married men reported having sex with multiple partners in the past 12 months

- 66% had ever used a condom
- 20% reported using a condom the last time they had sex.
- 20% of those having sex with multiple partners in the past 12 months reported using a condom the last time they had sex.
- Of those men reporting “casual sex”, 11.8% reported using a condom the last time they had casual sex.
- Policemen in Yap had high levels of HIV prevention and transmission knowledge.
- 75% of policemen in Yap said they had not participated in peer education or workplace education in the past 12 months.
- 40% of had ever been tested for HIV; 30% of those who reported sex with multiple partners in the past 12 months have been tested for HIV.

Pohnpei

- 46% reported having multiple sex partners in the past 12 months; 77% of these policemen were currently married.
- 26% reported “casual sex” in the past 12 months; however 71% did not answer this question. Of those who did answer the question, 90% reported casual sex in the past 12 months and 90% were currently married.
- Of those who answered the question about casual sex, none reported using a condom the last time they had casual sex.
- 47% reported having ever used a condom.
- 9% reported using a condom the last time they had sex with a live in partner.
- Of the 32% of men that reported sex with both a live in and a casual partner in the past 12 months:
 - 65% said they never used a condom with a live in sex partner in the past 12 months;
 - 77% said they never used a condom with a casual sex partner in the past 12 months.
- HIV Prevention and Transmission knowledge was high with 40% of the policemen correctly answering all 5 questions correctly.
- Positive attitudes towards people living with HIV were low.

- 57% of policemen had not participated in any peer education or workplace education program in the past 12 months.
- 41% of policemen had ever been tested for HIV

And the major finding from the Chuuk survey in the Pattiw Island group were:

- Males were more likely to have had multiple sex partners
- Males were more likely to have had first sex before the age of 15 years
- 15 to 24 year age group were more likely to have had first sex before the age of 15 years
- 22% of participants reported ever having been forced to have sex against their will
- Of those reporting sex with multiple partners, 30% used a condom with their last casual partner
- 51% had ever used a condom
- Low levels of MSM and Transactional Sex
- Males drink alcohol more, and more heavily than females.
- Males more likely to have ever used marijuana.
- HIV prevention and transmission knowledge low
- Low accepting attitudes towards people living with HIV
- 10% of participants had ever been tested for HIV
- 21% of those experiencing symptoms of STI in the past 12 months sought treatment from a health professional.

Introduction

The Federated States of Micronesia (FSM) consist of four major island groups forming the states of Kosrae, Pohnpei, Chuuk and Yap. Together, these groups comprise 607 Islands, of which many remain 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 110,899 with 60% aged 24 years and under. About half of the population of the FSM resides in the state of Chuuk; however, the population is very mobile. Fertility rates in FSM remain relatively high, with an estimated TFR of 3.16 in 2006, although the number of children born per woman has declined considerably over recent decades, from 8.2 in 1973, 4.7 in 1997, and 4.4 in 2001 (UNAIDS 2008).

There is a high level of unemployment and 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 are generally low, with a median of USD 4,662 per year, households are large with an average of 6.8 people, and there are few paid livelihood opportunities outside of the public sector.

HIV epidemiology in the Pacific

Most Pacific Island countries and territories (PICTs), other than Papua New Guinea, have been classified as low prevalence settings by the World Health Organization (WHO 2006). HIV cases have now been reported in every PICT apart from Niue, Tokelau and Pitcairn Island with 19, 179 cumulative HIV infections reported up to December 2007 (SPC 2009). HIV infections in PNG account for over 90% of these cases. Overall 3,230 AIDS cases and 651 AIDS-related deaths have been reported in the Region, however this is believed to be an underestimate of the true burden as diagnosis of AIDS in the Region is difficult for a number of reasons, including poor uptake of testing and limited access for most at-risk populations. The majority of HIV transmission in the Pacific has been attributed to heterosexual contact.

HIV epidemiology in FSM

A total of 35 positive HIV cases were confirmed in FSM as of December 2007 (UNAIDS 2008). The majority (62.8%) of these cases were aged between 25-44 years and 68.5% were male. The

main mode of transmission is via heterosexual intercourse. Of the 35 confirmed cases in FSM, the majority (23) of have been from Chuuk State.

SGS background

Second generation surveillance (SGS) involves strengthening existing HIV surveillance systems to improve the quality and breadth of information. SGS uses information from ongoing routine data collection systems *and* includes periodic collection of behavioural and biological data. SGS includes both surveillance of both the general population and specific high risk subgroups.

SGS aims to:

- Increase the understanding of trends over time
- Increase knowledge of risk behaviours driving trends
- Use flexible tools that can change according changes over time
- Make better use of existing surveillance data

Recommended frequency and type of surveillance differs according to the level of the HIV epidemic. HIV epidemics can be broadly classified into three levels:

Low: HIV is present in 'high risk' population subgroups, such as sex workers, injecting drug users, and men who have sex with men. HIV may have been present in these groups for sometime, but prevalence remains low and stable.

Concentrated: There has been a rapid increase of HIV in high risk population sub-groups, but HIV is not yet prevalent within the general community.

Generalized: While high risk groups have a disproportionately high prevalence, HIV is also established within the general population. ¹

SGS in Low Prevalence Settings

SGS aims to provide an early warning of groups who are a high risk and the associated risk behaviors.

Comprehensive SGS surveillance activities in low-level epidemics include

- cross-sectional behaviors surveys

¹ UNAIDS/WHO Working Group on Global HIV/AIDS and STI Surveillance, Guidelines for Second Generation HIV Surveillance, 2000

- surveillance of STIs,
- HIV serosurveillance,
- HIV and AIDS Case reporting
- screening donated blood.

Pohnpei, FSM conducted Second Generation Surveys in Prenatal women, youth and police population groups. All participants completed a questionnaire which provides information on demographic characteristics, sexual risk behaviors, alcohol and other drug use, HIV knowledge, attitudes and access to testing, and STI history.

Questionnaires were based on surveys developed by the Family Health International organization, and modified for use in the Pacific by the University of New South Wales (NSW) in Australia, the World Health Organization (WHO) and the Secretariat of the Pacific Community (SPC).

The behavioral questionnaires are similar for all population groups. The surveys have been adjusted to make them relevant to that population of interest and enable reporting of population-specific indicators.

Surveys Conducted in Country

A total of six surveys were conducted in FSM from 2006 to 2008:

1. STI Prevalence Survey (SPS) in the Pattiw Islands in Chuuk;
2. Behavioral Surveillance Surveys (SPC) among youth in Yap and Pohnpei;
3. STI Prevalence Survey (SPS) among pregnant women in Pohnpei;
4. Behavioral Surveillance Surveys (BSS) among policemen in Yap and Pohnpei.

All three surveys in Pohnpei received ethics approval by the Pohnpei Department of Health Services, and the survey in Chuuk received ethics approval by the Chuuk Department of Health Services. Yap has no formal ethical reviewing committee designated to approve, monitor and review studies. An arranged meeting involved the Director of Health Services, Director of Waab Community Health Center, Chief of Public Health and the HIV/AIDS & STI Core Team approved the survey.

Specimen collection and testing

STI prevalence surveys involve the collection of urine samples to test for the presence of Chlamydia and gonorrhoea, and blood for syphilis, hepatitis B surface antigen and HIV antibody testing. HIV prevalence surveys involved the collection of blood for syphilis, hepatitis B and HIV antibody testing.

Participants who took part in SPS were asked to provide a 10-15 ml first catch urine sample. Specimens were transferred to the central laboratory in country and frozen at -20 degrees Celsius until subsequent shipment to the testing laboratory.

Frozen urine specimens were sent to the Molecular Microbiology Laboratory at the Royal Women's Hospital in Melbourne, Australia to test for Chlamydia and gonorrhoea. Laboratory testing involved amplification of *C.trachomatis* and *N.gonorrhoeae* sequences undertaken using the ROCHE COBAS Amplicor (Roche Diagnostics, Branchburg, New Jersey, United States of America). All positive *N.gonorrhoeae* specimens were then confirmed by an alternate test, another assay using primers and probes directed at a 90 base pair region of the OPA gene.²

For participants involved in the SPS, a 10 ml blood sample was taken for testing. Blood specimens were tested in the national laboratories in country, except for HIV confirmatory tests, which were sent to the regional confirmation laboratory for the country.

² Tabrizi S, Chen S, Tapsall J, Garland S. Evaluation of opa-based real-time PCR for detection of Neisseria gonorrhoeae. Sexually Transmitted Diseases

Infection	Specimen	Tests
Chlamydia	Urine	PCR Assay
Gonorrhoea	Urine	PCR Assay
Syphilis	Blood	TPHA RPP RPR titre (if RPR was reactive). Cases were recorded as infectious syphilis if titres were greater than or equal to 1:8.
Hepatitis B	Blood	
HIV antibodies	Blood	ELISA: Determine and Serodia
HIV Confirmatory	Blood	Confirmed according to the regional algorithm

Data analysis

Data was entered into an Epi Info database and checked for accuracy by reviewing 10% of the paper surveys against the database. Respondents missing data for sex and age were excluded from the analysis, as were respondents who did not fit the eligibility criteria. Data was analysed using Epi Info Version 3.5.1 and Microsoft Excel. Descriptive statistics were conducted and key results are presented in this report. Where appropriate, associations between key variables were assessed using chi square tests with Yates correction.

Surveys

STI Prevalence Survey of Prenatal Clinic Attendees, Pohnpei

Survey Methodology

Table 1 shows an overview of the survey methodology used for the survey with Prenatal Clinic Attendees.

Table 1: Overview of the Survey Methodology, Prenatal Women, Pohnpei, FSM, 2008

Methodology	Survey details
Population	<i>Prenatal women</i>
Survey type	<i>STI Prevalence Survey (SPS)</i>
Sampling method	<i>Consecutive recruitment</i>
Inclusion criteria	<i>Women attending the prenatal clinic for the first time for the pregnancy aged between 15 and 49 years of age.</i>
Target Sample Size	<i>250</i>
Final Sample Size	<i>248</i>
Interview location(s)	<i>Prenatal Clinic Pohnpei</i>
Administration of the survey	<i>Interviewer administered by nurses from the clinic</i>
Type of consent	<i>Verbal. Interviewers signed a declaration not to release any information without participants' approval.</i>
Time required for interview	<i>20-25 minutes</i>
Specimens collected	<i>Urine and blood</i>
Laboratory tests	<i>Chlamydia and Gonorrhoea PCR, Syphilis, HBV and HIV</i>
Data collection period	<i>January to April 2008</i>

Women attending their first routine prenatal visit at the Prenatal Clinic Pohnpei were consecutively recruited into the survey from January to April 2008. Clinic staff were trained to administer the questionnaires and interview participants to obtain demographic, behavioral and other information for the survey. Informed consent was obtained from all participants prior to participation. A blood sample and a urine specimen were collected from participants for

confidential linked testing for HIV and testing of other selected STIs (Chlamydia, gonorrhea, hepatitis B and syphilis).

Eligibility criteria

Women who were making their first prenatal clinic visit and were aged between 15-49 years were eligible to participate in this survey.

Results

Demographic characteristics.

Table 2 below summarizes the demographic characteristics of the women who participated in the survey.

Table 2: Reported Demographic Characteristics, Prenatal Women, Pohnpei, FSM 2008

	Number	Percentage		Number	Percentage
Age group (years)			Education		
15 to 24	122	49.2	Never attended School	0	0
25 – 44	126	50.8	Elementary School	32	12.9
Mean age	25.5	SD: 6.0	Some Elementary School	83	33.5
Country of Birth			High School	100	40.3
Pohnpei	235	94.8	Higher	33	13.3
Other States of FSM	10	4.0	Occupation		
Other Country	3	1.2	Housewife/ home duties	115	46.4
Ethnicity			Clerical/Office work	26	10.5
Micronesian	248	100.0	Not employed	84	34.3
Area of Residence			Other	22	8.9
Urban	134	54.0			
Rural	112	45.2			
Outer island	2	0.8			

All eligible participants agreed to take part in the survey. A total of 248 pregnant women were recruited between the ages of 15-44 years (mean age of 25.5 years), with 49.2% (122) under 25 years of age. Ninety-five percent of all the women were born in Pohnpei and all of them were of Micronesian ethnicity. The majority of the women indicated they were housewives (46.4%) or unemployed (34.3%). The most common occupations of the male partners were farmer (22.9%), and construction or laborer (21.2%). A further 21.2% of prospective fathers were not employed.

Table 3 provides data on the marital status and living arrangements of the women who were surveyed. Almost three-quarters of the women (71%) had ever been married, and 70.2% were currently married. The mean age of first marriage was 20.7 years. The majority of the women surveyed (80.6%) were still in a relationship with the father of their unborn baby and 71.4% were living with their spouse or sex partner.

Table 3: Reported Marital Status and Living Arrangements, Prenatal Women, Pohnpei, FSM 2008

Antenatal women	Number	Percentage		
Marital Status			Mean age first married	Range
<i>Ever married</i>	176	71.0	20.7	14-31
<i>Currently married</i>	174	70.2		
Still in a relationship with the father of your unborn child	200	80.6		
Living Arrangements				
<i>Living with your spouse</i>	172	69.4		
<i>Living with a sex partner (non-married)</i>	5	2.0		
<i>Not living with any sex partner</i>	69	27.8		

Pregnancy characteristics

Table 4 summarizes the pregnancy characteristics of the women surveyed.

Table 4: Reported Pregnancy Characteristics, Prenatal Women, Pohnpei, FSM 2008

	Number	Percentage	Married	Not married
Parity				
<i>First birth</i>	77	31.0		
<i>Mean gestation (weeks)</i>	22.2			
Planned pregnancy				
Yes	127	51.2	61.3%	26.7%
No	119	48.0	38.7%	73.2%
Use of birth control in the 3 months before pregnancy				
<i>No method</i>	192	77.4		
<i>Depo Provera/Injectables</i>	30	12.1		
<i>Birth control pills</i>	13	5.2		
<i>Male condoms</i>	2	0.8		
<i>Natural</i>	2	0.8		
<i>Emergency Contraception</i>	1	0.4		
<i>Other</i>	8	3.2		

Among the 248 women, 31% were having their first child and the mean gestation was 22.2 weeks (range 2- 40 weeks) at the time of their first prenatal visit. More than half (51.2%) stated that they had planned the pregnancy. Three quarters (77.4%) of all women were not using any form of contraceptive in the 3 months before they became pregnant. Of those women who did not plan to get pregnant, 76% were not using any contraceptive methods in the 3 months before getting pregnant. The most popular contraceptive methods were Depo-Provera (12.1%) and the birth control pill (5.2%). Married women were more likely to have planned their pregnancy than unmarried women ($\chi^2 = 23.24, p < 0.01$) and married women were also more likely than non married women to have used contraception in the 3 months prior to becoming pregnant ($\chi^2 = 10.79, p < 0.01$).

Sexual behaviours

Table 5 shows the reported sexual history of the women surveyed. The average age of first sex was 17.2 years. The women surveyed reported having between 4 to 5 sexual partners in their lifetime. Most women reported only one partner in the previous 12 months, with 15.3% indicating that they had more than one partner in the last 12 months. Women that were not married were more likely than married women to have had multiple sex partners in the last 12 months ($\chi^2 = 20.84$, $p < 0.001$).

Table 5: Reported Sexual History, Prenatal Women, Pohnpei, FSM, 2008

	Mean	Range
Age at first sex	17.2	11-25
Number of lifetime partners	4.5	1-21
Number of sex partners in the last 12 months	1.3	1-5
	Number	Percentage
Sex before the age of 15	23	9.3
More than one partner in the last 12 months	38	15.3

Table 6 summarizes reported knowledge of condoms and condom use amongst the women surveyed. . Whilst nearly all the women (97.2%) said that they have heard of a male condom, only a third (33.9%) had heard of a female condom, and none of the women reported ever using one. Nearly two-thirds (64.1%) reported never using a male condom, and 50% of women who reported sex with multiple partners in their lifetime reported never having used a condom.

Table 6: Reported Knowledge of Condoms and Condom Use, Prenatal Women, Pohnpei, FSM, 2008

	Number	Percentage
Heard of male condom	241	97.2
Heard of female condom	84	33.9
Ever used a condom		
<i>Male condom only</i>	86	34.7
<i>Female condom only</i>	0	0.0

Alcohol and Substance use

Tables 7 and 8 show the reported frequency of alcohol and recreational substance use respectively, amongst the women surveyed.

Table 7 Reported Frequency and Consumption of Alcohol in the 12 months before becoming pregnant, and during pregnancy, Prenatal Women, Pohnpei, FSM, 2008

	Number	Percentage
Frequency of alcohol use		
<i>4 or more times a week</i>	14	5.6
<i>2 to 3 times a week</i>	18	7.3
<i>2 to 4 times a month</i>	14	5.6
<i>Monthly or less</i>	26	10.5
<i>Never</i>	174	70.2
Number of standard drinks usually consumed		
<i>1 to 2</i>	24	33.3
<i>3 to 4</i>	20	27.8
<i>5 to 9</i>	14	19.4
<i>10 or more</i>	9	12.5
Frequency of binge drinking (5 or more standard drinks on one occasion)		
<i>Never</i>	16	22.2
<i>Daily or almost daily</i>	5	6.9
<i>Weekly</i>	18	25.0
<i>Less than monthly</i>	6	8.3
<i>Monthly</i>	25	34.7
Has drunk alcohol while pregnant	22	8.9

The majority of the women (91.1%) did not consume any alcohol during their pregnancy. Over two-thirds of women (70.2%) indicated that they never drink alcohol and a further 10.5% reported drinking alcohol monthly or less frequently. Of those women who do drink, one-third (33.3%) reported drinking 1 to 2 standard drinks on a typical occasion, and 27.8% reported drinking 3 to 4 standard drinks. One in eight women (12.5%) reported consuming 10 or more standard drinks on typical occasion.

Table 8: Reported Recreational Substance Use, Prenatal Women, Pohnpei, FSM, 2008

Substance	Ever used		Used in last 12 months		
	Number	Percentage	Number	Percentage of ever users	Percentage of all respondents
Betelnut	175	70.6	152	86.9	61.3
Sakau	135	54.4	112	83.0	45.2
Tobacco	55	22.2	48	87.3	19.4
Marijuana/cannabis	30	12.1	15	50.0	6.0

The most commonly used substances were betelnut and sakau, with 61.3% and 45.2% of women respectively reporting use of these substances in the past 12 months. One in five women reported smoking in the last 12 months. Twelve percent of women had ever tried marijuana/cannabis, with 6% using it within the past 12 months.

HIV knowledge and attitudes

Table 9 summarizes HIV knowledge and misconceptions amongst the women surveyed. Three-quarters of the women were aware that HIV could be transmitted during pregnancy (75.8%); however, less than half of the women (42.7%) knew that HIV could be transmitted during breastfeeding. Most women (77.4%) knew that the risk of HIV infection can be reduced by having sex with only one, uninfected faithful partner and 71% knew that using condoms correctly can reduce the chances of HIV infection. In relation to these last two knowledge questions, 59.7% of women got both questions correct.

Three-quarters (75.8%) of women were aware that a healthy looking person can be infected with HIV. More than half of women (56%) correctly believed that they could not get HIV by sharing a meal with someone, and 31.8% correctly thought HIV was not transmitted by mosquitoes. In relation to these three questions on misconceptions, 25% of the women got all three questions correct.

Regarding both the prevention knowledge and the misconception questions, 20.6% of the women answered all the questions correctly. Eleven percent of the women answer all seven of the HIV knowledge questions in this section of the survey correctly.

Table 9: Responses to Knowledge Questions, Prenatal Women, Pohnpei, FSM, 2008

Knowledge Questions	Correct response		Don't know
	Number	Percentage	Number
<i>Knowledge of mother to child transmission</i>			
A mother can pass HIV to their baby during pregnancy	188	75.8	35
A mother can pass HIV to their baby during breastfeeding	106	42.7	89
<i>Knowledge of prevention strategies</i>			
Having sex with only one, uninfected, faithful partner can reduce the chance of getting HIV	192	77.4	21
Using condoms correctly can reduce the chance of getting HIV	176	71.0	41
<i>Rejects common misconceptions</i>			
A healthy looking person can be infected with HIV	188	75.8	33
A person can get HIV from mosquito bites	79	31.8	64
A person can get HIV by sharing a meal with someone who is infected with HIV	139	56.0	57
<i>Overall knowledge</i>			
Correct response to the two prevention strategies	148	59.7	
Correct response to all three misconceptions	63	25.4	
Correct response to all five questions	51	20.6	
Correct response to all seven questions	27	10.9	

Table 10 summarizes reported attitudes towards people living with HIV and AIDS amongst the women surveyed. Attitudes towards those living with HIV were assessed by responses to four statements shown in Table 10. The majority of women (85.5%) believed that all newcomers to Pohnpei should be tested for HIV, and over half (58.9%) believed that the names of all people with HIV should be displayed in public. About two-thirds of women (65.3%) believed that all

people infected with HIV should live apart from everybody else, and 70.6% said that knowingly passing HIV on to someone else should be a criminal offence.

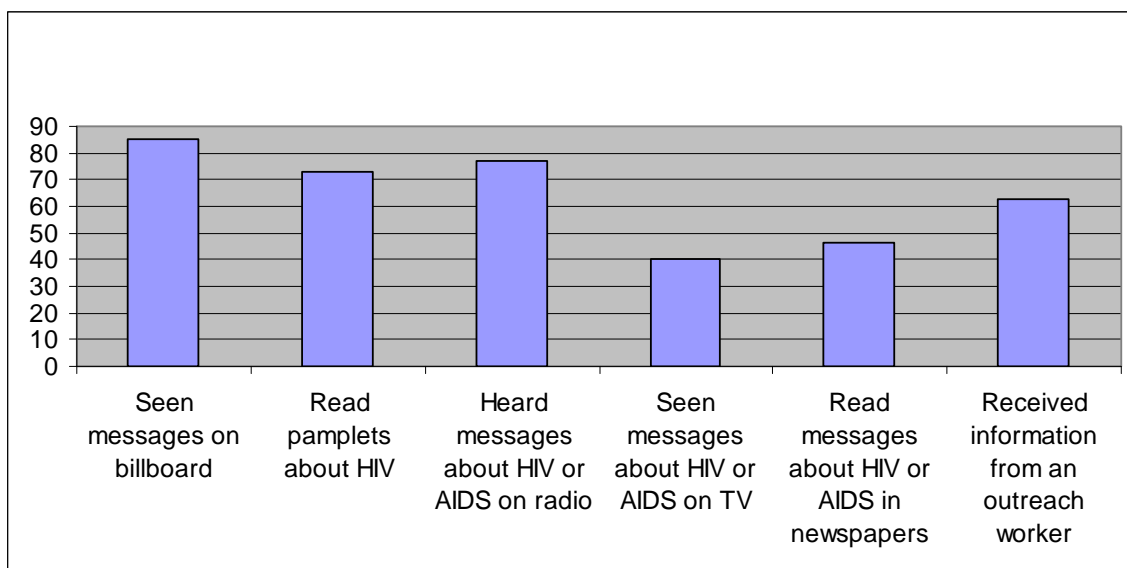
Table 10: Attitudes towards Those Living with HIV, Prenatal Women, Pohnpei, FSM, 2008

Attitude questions	Agreed with Statement	
	Number	Percentage
All newcomers to Pohnpei should be tested for HIV	212	85.5
The names of all people with HIV should be displayed in public	146	58.9
All people infected with HIV should live apart from everyone else	162	65.3
Knowingly passing HIV to someone else should be a criminal offence	175	70.6

Prevention programs

Figure 1 shows the sources of HIV prevention messages that the women surveyed were aware of. The majority of women (85.1%) reported seeing HIV prevention messages from billboards (85%), hearing them on the radio (77%) and from reading pamphlets (73%). A further 62% of women reported receiving HIV prevention messages from an outreach worker.

Figure 1: Percentage of Prenatal Women reached by Prevention Programs, Pohnpei, FSM, 2008



Access to testing

Table 11 shows the reported beliefs and practices related to HIV testing amongst the women surveyed.

Table 11: Reported Access to Testing, Prenatal Women, Pohnpei, FSM, 2008

	Number	Percentage
Believe it is possible for someone in the community to get a confidential test	221	89.1
Ever been tested for HIV	76	30.6
When did you have you last HIV test		
<i>In the last 3 months</i>	3	3.9
<i>In the last year</i>	49	64.5
<i>Over a year ago</i>	24	31.6
Why did you have your last HIV test?		
<i>I asked for it</i>	12	15.8
<i>It was required</i>	64	84.2
Received result of HIV test	67	88.2

Most of the women (89.1%) believed that it is possible for someone in the community to get a confidential HIV test. Less than one-third (30.6%) of women had even been tested for HIV. Of those women who had been tested, 64.5% were tested within the last 12 months, and 3.9% were tested within the last 3 months. Only 15.8% of women were voluntarily tested for HIV, while the remaining 84.2% were required to be tested as part of medical treatment or blood donation. Of the 76 women who had even been tested for HIV, 88.2% indicated that they received the result of their test.

History of STI symptoms

Table 12 summarizes reported experiences of STI and STI symptoms amongst the women surveyed. Twenty four women (9.7%) reported ever being diagnosed with a sexually transmitted infection (Table 15). Half of these women (50%) reported being diagnosed with syphilis, and a quarter (25%) reported being diagnosed with gonorrhea. A further three women (12.5%) said they were diagnosed with trichomonas.

Sixty-seven women (27%) reported symptoms of an STI in the last one month. Of these women, 33 (49.3%) reported experiencing lower abdominal pain in between periods or during sex, 28 (41.8%) reported unusual genital or anal discharge, and a further 6 (9%) reported a rash, ulcer or sore around the genitals.

Table 12: Prevalence of Symptoms of STIs, Prenatal Women, Pohnpei, FSM, 2008

	Number	Percentage
Ever been diagnosed with a sexually transmitted disease or infection by a doctor or health worker?	24	9.7
Infection(s) respondents were diagnosed with		
<i>Gonorrhoea</i>	6	25.0
<i>Syphilis</i>	12	50.0
<i>Trichomonas</i>	3	12.5
Reported symptoms of an STI in the last one month		
Lower abdominal pain in between periods or during sex	33	49.3
Unusual genital or anal discharge	28	41.8
Rash, ulcer or sore around genitals	6	9.0

Prevalence of STIs

Table 13 shows the results of STI testing conducted with the survey participants. No cases of HIV or Hepatitis B were detected among women tested in the survey. The prevalence of Chlamydia was 25.8% and gonorrhea was 1.6 %. Table 14 shows the prevalence of Chlamydia in respect to particular demographic characteristics and risk factors. No significant associations were found between Chlamydia infection and these other variables.

Table 13: Prevalence of STIs, Prenatal Women, Pohnpei, FSM, 2008

	Reactive/ positive	Number tested	Prevalence	Prevalence (95% Confidence Intervals)
Chlamydia	64	248	25.8	20.5-31.7
Gonorrhoea	4	248	1.6	0.4-4.1
HIV	0	248	0.0	-
Hepatitis B (Antigen)	0	248	0.0	-
Syphilis (Active cases)*	2	248	0.8	0.3-3.5

*Active cases defined as RPR titre greater than or equal to 1:8

Table 14: Prevalence of Chlamydia by selected demographic and risk factors, Prenatal Women, Pohnpei, FSM, 2008

		Number	Prevalence (%)
Age group	<25	32	26.2
	>25	32	25.4
Married	Yes	42	24.1
	No	22	30.6
Multiple lifetime partners	Yes	38	28.4
	No	26	23.2
Ever used condom	Yes	23	26.4
	No	41	25.5
Planned pregnancy	Yes	35	28.3
	No	27	22.9

UNGASS indicators

UNGASS indicators for prenatal women are shown below in Table 16.

Table 15: UNGASS indicators, Prenatal Women, Pohnpei, FSM, 2008

	15 to 24 years		25 years and older	
	Number	%	Number	%
<i>7. Percentage of women aged 15-49 who received an HIV test in the last 12 months and who know their results</i>	20	83.3	27	96.4
<i>13. Percentage of prenatal women aged 15-24 who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission</i>	28	23.0		
<i>15. Percentage of prenatal women aged 15-24 who have had sexual intercourse before the age of 15</i>	12	9.8		
<i>16. Percentage of prenatal women aged 15-49 who have had sexual intercourse with more than one sexual partner in the past 12 months</i>	16	13.1	22	17.5
<i>17. Percentage of prenatal women aged 15-49 who have had sexual intercourse with more than one sexual partner in the past 12 months reporting the use of a condom during their last sexual intercourse</i>	Data not collected			

Discussion

Nearly half of the pregnant women surveyed had unplanned or unintended pregnancies. Of these women, 78% were not using any form of contraceptive in the 3 months prior to becoming pregnant. Additionally, unmarried women were less likely to have planned their pregnancy and were also less likely to have used any form of contraception in the 3 months prior to becoming pregnant. Such findings have important implications for family planning services in Pohnpei and may indicate lack of knowledge of contraception, or limited access to contraceptive services. Unmarried women presenting for prenatal care in the current survey were more likely to have reported some higher-risk sexual behaviours, such as multiple partners in the past 12 months.

Thirty-five percent of women reported ever having used a condom, which is higher than in other parts of the Pacific such as Vanuatu (17.5%), Tonga (13.5%) and Solomon Islands (10.9%). Only one-third of women had heard of a female condom but none had ever used one. No data was collected from the pregnant women about the reasons for not using condoms. Understanding reasons for not using a condom may be important for developing effective condom promotion strategies, including how condom use and family planning as discussed above may be related.

Overall, knowledge on HIV prevention and transmission was low with 20% of women having correct knowledge in these areas. Less than half of the women surveyed were aware that HIV can be transmitted from a mother to her baby during breastfeeding. Appropriately targeted education may be important for helping women to protect themselves and their newborn children from infection.

Whilst most women believed that it was possible to get a confidential HIV test in their community, only 30.6% of the women had been tested for HIV, 16% of which were done voluntarily. Ten percent of the women reported having ever been diagnosed with an STI, and half of those were diagnosed with syphilis, which is a troubling proportion among antenatal women. Of the 21 who reported experiencing STI symptoms in the previous month, only 3 had sought treatment for their symptoms. These results suggest that HIV and STI prevention strategies should include information on recognising STI symptoms and where to go for confidential treatment. Routine screening for treatable STIs and for HIV is particularly important

for women who are, or are planning to become, pregnant given the risks posed to both mother and baby from STI and HIV infections.

No women in the survey tested positive for HIV, but 25.8% tested positive for Chlamydia. Chlamydia rates were higher than most Pacific Island countries. For example surveys in six Pacific Island countries in 2004 found an average prevalence of 18% across all six countries. Among antenatal women in Pohnpei, gonorrhea prevalence was 1.6% and infectious syphilis prevalence was 0.8%. Gonorrhea and syphilis rates were slightly lower than has been found in other Pacific countries.

Behavioural Survey of Youth, Pohnpei

Survey Methodology

Table 16 shows an overview of the survey methodology used for the youth survey.

Table 16: Overview of the Survey Methodology, Youth, Pohnpei, FSM, 2008

Methodology	Survey details
Population	<i>Youth</i>
Survey type	<i>Behavioural Survey</i>
Sampling method	<i>Convenience sample</i>
Inclusion criteria	<i>Youth aged 15 to 24 years</i>
Target Sample Size	300
Final Sample Size	280
Interview location(s)	<i>Youth 'hot spots' identified by peer educators. Sites included town centre, town water front, outside clubs and bars</i>
Administration of the survey	<i>Self administered</i>
Type of consent	<i>Verbal</i>
Time required for interview	<i>20 minutes</i>
Specimens collected	<i>Nil</i>
Laboratory tests	<i>Nil</i>
Data collection period	March to May 2007

A behavioural survey of sexual and other risk behaviours related to HIV and STI in 280 youth aged 15-24 years was conducted between March to May 2007. Peer educators from Pohnpei recruited participants using convenience sampling. Participants completed a confidential questionnaire which included information on demographic characteristics, behavioral, knowledge and attitudes to HIV. Participation in the survey was voluntary and informed consent was obtained prior to participation.

Eligibility criteria

Male and female youth aged between 15 to 24 years were eligible to participate in this survey.

Results

Demographic characteristics.

Table 17 summarises the demographic characteristics of the youth participating in the survey.

Table 17: Reported Demographic Characteristics, Youth, Pohnpei 2008

	Female (N)	%	Male (N)	%		Female (N)	%	Male (N)	%
Number	140		135		Education				
Mean age	18.6		19.0		Never attended School	0	0.0	6	4.4
Range	15-24		15-24		Some Elementary School	5	3.6	13	9.6
15-19	101	72.1	62	45.9	Elementary School	62	44.3	46	33.6
20-24	39	34.8	73	54.1	High School	50	35.7	44	32.6
					Higher	21	15.0	26	19.3
Country of Birth					Currently working				
Pohnpei	135	96.4	129	95.6	Yes	17	12.1	11	8.1
Other states of FSM	2	1.4	3	2.2	No	65	46.4	87	64.4
Outside FSM	3	2.1	3	2.2	Studying	50	35.7	37	27.4
Residence					Living Arrangements	Total N	%		
Kolonia	28	20.0	31	23.0	Living with family	266	96.7		
Outside Kolonia	110	78.6	104	77.0					

A total of 275 youth including 140 females and 135 males from Pohnpei were recruited. Only information from the youth who consented to participate was collected. Whilst there were more females than males in the 15-19 year age group, there was no difference between the average age of male (19 years) and female (18.6 years) participants. Nearly all youth surveyed (96%) were born in the Pohnpei State. One third (32.6%) of youth interviewed had completed high school. The majority of youth (55.3%) were not working or studying and 96.8% were living with family.

Sexual behaviours

Table 18 summarises the reported sexual history amongst the youth surveyed.

Table 18: Reported Sexual History, Youth, Pohnpei, FSM, 2008

	Female	Male	Total	Range		
Mean age at first sex (years)	16.5	14.4	15.3	8-20		
Mean number of sex partners in the last 12 months	1.6	3.2	2.5	1-17		
	Female (N)	(%)	Male (N)	(%)	Total (N)	(%)
Have ever had sex	76	54.3	117	86.7	193	70.2
Sex before the age of 15	5	6.5	47	40.1	52	26.9
Sex in the last 12 months	60	78.9	64	54.7	124	64.2
More than one partner in the last 12 months	17	28.3	49	76.5	66	53.2

One hundred and ninety three youth (70.2%) reported having had sex in their lifetime. More males (86.7%) than females (54.3%) reported ever having sex ($X^2 = 30.6$, $p < 0.0001$). The mean age of first sex was 15.3 years (range 8-20 years). The mean age of first sex for females was 16.5 years and for males was 14.4 years, with more males (40.1%) than females (6.5%) reporting sex before the age of 15 years ($X^2 = 28.2$, $p < 0.001$). Sixty-four percent of those who were sexually active reported having sex in the last 12 months with a mean of 2.5 partners (range 1-17). Males were more likely than females to have had multiple partners in the past 12 months ($X^2 = 27.0$, $p < 0.001$).

Table 19 shows the reported condom use amongst the youth surveyed. Regarding the first time they had sex, 11.8% of female youth and 12.8% of male youth said that they used a condom. Of the youth that had ever had sex, males were more likely than females to have used a condom the last time they had sex ($X^2 = 15.9$, $p < 0.001$), and males were also more likely than females to have ever used a condom ($X^2 = 4.0$, $p < 0.05$). Of those youth reporting sexual activity in the past 12 months, only one female youth (1.7%) and four male youth (6.3%) reported using a condom every time they had sex in the last 12 months. Almost two-thirds (65.0%) of female youth

reported never using a condom in the past 12 months compared to nearly half (48.4%) of the male youth.

Table 19: Reported Condom Use, Youth, Pohnpei, FSM, 2008

	Female (N)	%	Male (N)	%	Total (N)	%
Denominator (ever had sex)	76		117		193	
Used a condom first time had sex	9	11.8	15	12.8	24	12.4
Used a condom at last sex						
Yes	8	10.5	45	38.5	53	27.5
No	65	85.6	71	60.7	136	70.5
Ever used a condom	24	31.6	57	48.7	81	42.0
Denominator (sex in past 12 months)	60		64		124	
Condom use in past 12 months						
<i>Every time</i>	1	1.7	4	6.3	5	4.0
<i>Sometimes</i>	18	30.0	29	45.3	47	37.9
<i>Never</i>	39	65.0	31	48.4	70	56.5

Regarding the first time they had sex, 11.8% of female youth and 12.8% of male youth said that they used a condom. Of the youth that had ever had sex, males were more likely than females to have used a condom the last time they had sex ($X^2 = 15.9$, $p < 0.001$), and males were also more likely than females to have ever used a condom ($X^2 = 4.0$, $p < 0.05$). Of those youth reporting sexual activity in the past 12 months, only one female youth (1.7%) and four male youth (6.3%) reported using a condom every time they had sex in the last 12 months. Almost two-thirds (65.0%) of female youth reported never using a condom in the past 12 months compared to nearly half (48.4%) of the male youth.

Figure 2 summarizes the reasons given by youth for not using a condom at last sex. The main reason given by both male (23.9%) and female youth (18.4%) was because they did not want to. Twenty-one percent of male youth said they did not use a condom because sex does not feel as good and 12.7% said they did not use a condom because they were too drunk or too high. Eighteen percent of female youth said they did not use a condom at last sex because their partner did not want to and 15.3% said they did not use a condom because sex does not feel as good.

Figure 2: Percentage of respondents who Agreed with Each Reason for Not Using Condoms by Sex, Youth, Pohnpei, FSM, 2008 (amongst those reporting not using a condom at last sex).

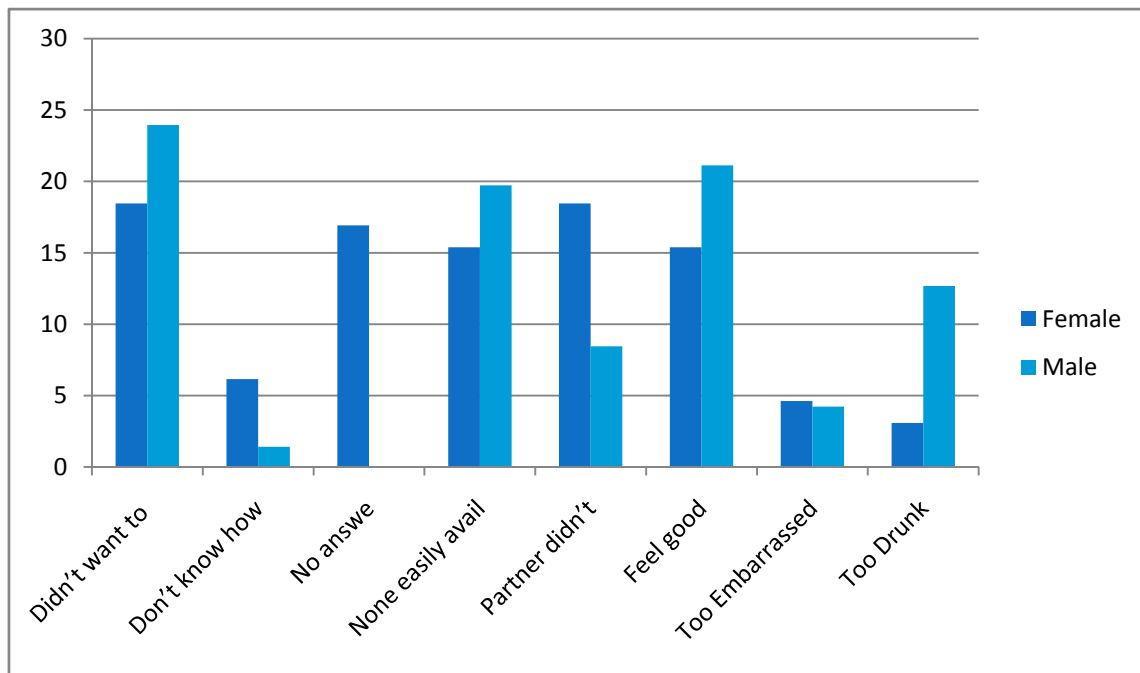


Table 20 summarises reported transactional sex amongst the youth surveyed. Only 6% of the youth reported having ever had transactional sex. Of these responses, only 1 was female. Two of the twelve youth (28.6%) reporting transactional sex said they used a condom the last time they were involved in transactional sex. Male youth were asked about their sexual experiences with other men. Seven (3.6%) of the male youth indicated that they had ever had sexual contact with another man.

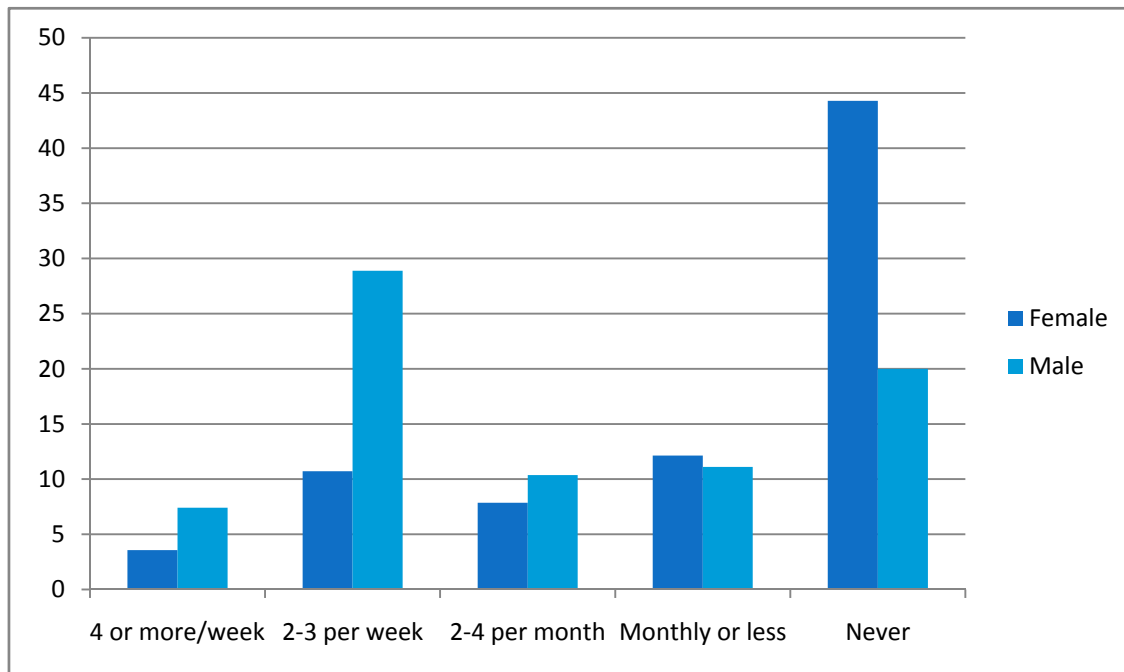
Table 20: Reported Transactional Sex, Youth, Pohnpei, FSM, 2008

	Number	Percentage
Transactional sex	12	6.2
<i>Used condom last transactional sex (n=12)</i>		
Yes	2	16.7
No	5	41.7
<i>Male to male sex (Male youth only)</i>		
Ever had sexual contact with another man	7	3.6
Condom use last sex with a male partner (n=7)	2	28.6

Alcohol and substance use

Figure 3 and table 21 summarize reported alcohol use amongst the youth surveyed. One third of all youths (32.3%) reported that they never drink alcohol. This was higher for females (44.8%) than for males (19.7%). While the largest proportion of female youth reported never drinking, most male youth (29.9%) reporting drinking 2 to 3 times per week. Seven percent of males and 3.5% of females reported drinking more than four times per week.

Figure 3: Reported Frequency of Alcohol Use by Sex, Youth, Pohnpei, FSM, 2008



Of the youth who reported drinking, 29.6% reported drinking 1 to 2 drinks on a normal drinking occasion and 28.0% reported drinking 5 to 9 drinks on a normal drinking occasion. One in five youths reported drinking 10 or more drinks during a normal drinking occasion. For females, normal drinking occasions mostly consisted of consuming 1 to 2 drinks (38.4%) or 5 to 9 drinks (24.4%). Seventeen percent of females reported drinking 10 more drinks during a normal drinking session. For males, normal drinking occasions mostly consisted of consuming 5 to 9 drinks (29.6%) or 3 to 4 drinks (27%). Twenty-two percent of male youth reported consuming 10 or more drinks on a normal drinking occasion.

Table 21: Reported Consumption of Alcohol, Youth, Pohnpei, FSM, 2008

	Female (N)	%	Male (N)	%	Total (N)	%
Number of standard drinks usually consumed						
<i>1 to 2</i>	30	38.4	25	23.1	55	29.6
<i>3 to 4</i>	12	15.4	27	25.0	39	21.0
<i>5 to 9</i>	19	24.4	32	29.6	52	28.0
<i>10 or more</i>	13	16.7	24	22.2	37	19.9
Frequency of binge drinking (5 or more standard drinks) in the last 12 months						
<i>Never</i>	9	11.5	9	8.3	18	9.7
<i>Daily or almost daily</i>	5	6.4	8	7.4	13	7.0
<i>Weekly</i>	14	17.9	27	25.0	41	22.0
<i>Less than monthly</i>	24	30.8	16	14.8	40	21.5
<i>Monthly</i>	11	14.1	21	19.4	32	17.2

Overall, binge drinking (i.e. 5 or more drinks on one occasion) on a weekly basis was reported by 22% of youth, with a further 21.5% reporting binge drinking less than monthly. The majority of female youth reported binge drinking less than monthly (30.8%) and 17.9% reported binge drinking weekly. For males, binge drinking occurred mostly weekly (25%) or monthly (19.4%). Those youth who reported binge drinking during a normal drinking occasion (i.e. consuming 5 or more drinks) were more likely than youth who drank less than 5 drinks during a normal drinking occasion to have multiple sex partners in the past 12 months ($X^2 = 4.57, p < 0.05$). Additionally, youth who engaged in binge drinking weekly or more frequently tended to be less likely to use a condom the last time they had sex compared to those who engaged in binge drinking monthly or less, although this difference was not significant.

Table 22 and Figure 4 summarise the reported recreational substance use among the youth surveyed. The most common substances that had ever been used by youth in the survey were betel nut (55.6%) and sakau (43.3%). Almost a third of youth had tried tobacco (29.1%) and chewing tobacco (27.6%). Of those that had ever tried one or more of the substances all or almost all had used Sakau (100%), betel nut (94.7%) or Tobacco (90%) in the last 30 days.

Nine females and 15 males indicated injecting drug use in the last 12 months. One youth reported knowingly using a needle that had been used by somebody else, while 3 others

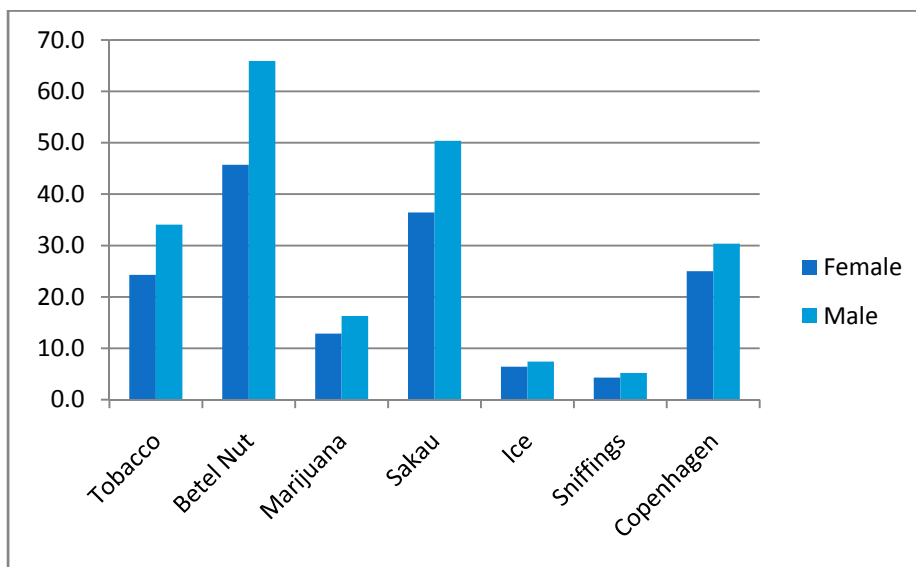
reported using not knowing if they had injected with a previously used needle. Six of the nine (66.7%) females who had injected drugs in the past 12 months reported no condom use in the past month, compared to 8 of 15 males (53.3%).

Table 22: Reported Recreational Substance Use, Youth, Pohnpei, FSM, 2008

Substance	Ever used		Used in last 30 days		
	Number	Percentage	Number	Percentage of ever users	Percentage of all respondents
Betel nut	153	55.6	145	94.7	51.8
Sakau	119	43.3	119	100.0	43.2
Tobacco	80	29.1	72	90.0	25.7
Chewing tobacco	76	27.6	51	67.1	18.2
Marijuana/cannabis	40	14.5	19	47.5	6.8
Amphetamines/Ecstasy	19	6.9	0	0.0	0.0
Inhalants	13	4.7	3	23.1	1.1

	Female (N)	%	Male (N)	%
<i>Injected drugs in the last 12 months</i>				
Yes	9	6.4	15	11.1
<i>Injected drugs and used a condom in the last month</i>				
No	6	66.7	8	53.3

Figure 4: Proportion of Youth Reporting Use of Recreational Substances in the last 30 days by Sex, Youth, Pohnpei, FSM, 2008



HIV knowledge and attitudes

Table 23 and figure 5 summarises the HIV knowledge and misconceptions amongst the youth surveyed. In relation to these two questions on HIV prevention, 28.6% of females answered both questions correctly compared to 51.9% of males. In relation to the three questions on HIV misconceptions, 50.4% of males and 50.7% of females correctly answered all three questions. For all five of the HIV knowledge questions, 32.6% of males and 20% of females answered all question correctly.

Table 23: Responses to Knowledge Questions, Youth, Pohnpei, FSM, 2008

Knowledge Questions	Correct response	
	Number	Percentage
<i>Correct knowledge of prevention strategies</i>		
Having sex with only one, uninfected, faithful partner can reduce the chance of getting HIV?	127	45.4
Using condoms correctly can reduce the chance of getting HIV?	179	65.4
<i>Rejects common misconceptions</i>		
A healthy looking person can be infected with HIV	190	68.9
A person can get HIV from mosquito bites	192	70.0
A person can get HIV by sharing a meal with someone who is infected with HIV	228	83.2
<i>Overall knowledge</i>		
Correct response to the two prevention strategies	110	40.0
Correct response to all three misconceptions	139	50.5
Correct response to all five questions	72	26.2

Figure 5: Percentage of Youth Who Correctly Answered the Knowledge Questions, by Sex Pohnpei, FSM, 2008

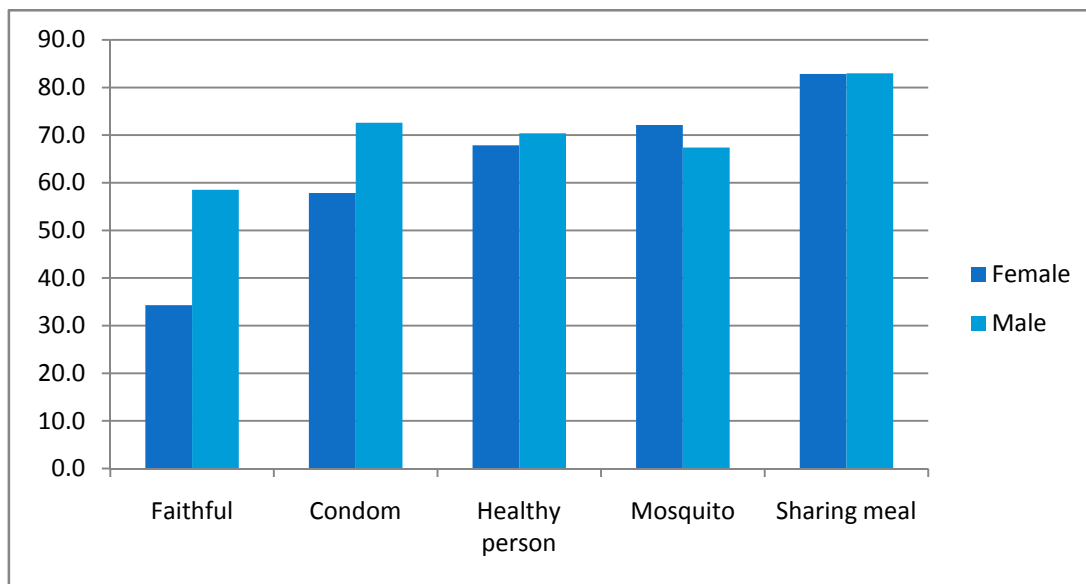


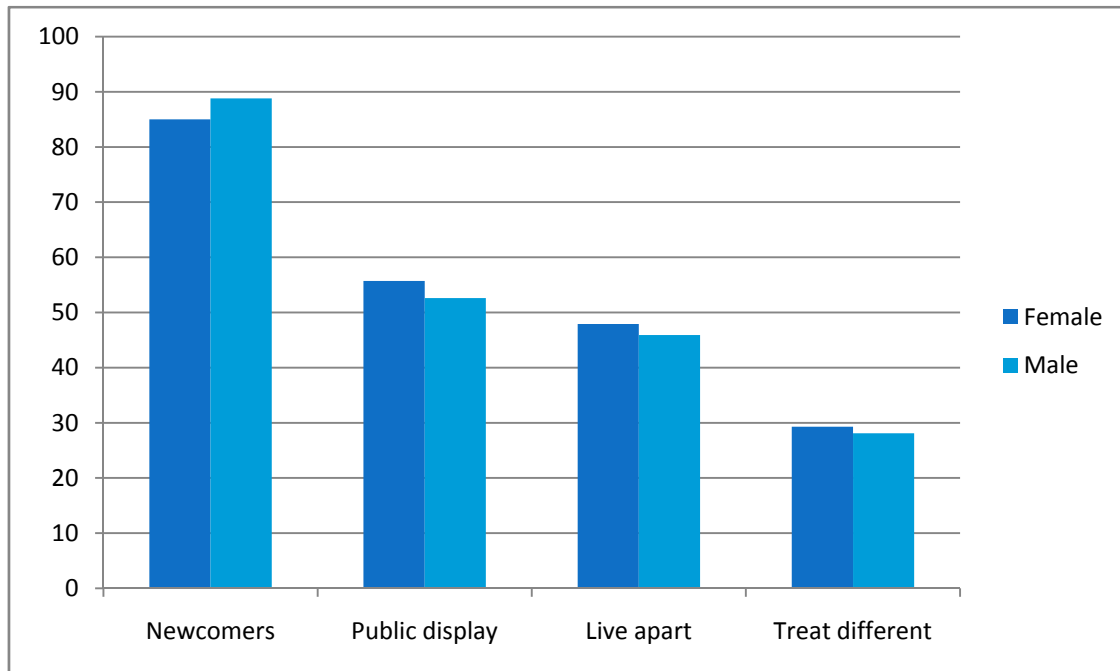
Table 24 and figure 6 show the attitudes towards people living with HIV among the youth surveyed.

Table 24: Attitudes towards Those Living with HIV, Youth, Pohnpei, FSM, 2008

Attitude questions	Agreed with Statement	
	Number	Percentage
All newcomers to Pohnpei should be tested for HIV	239	86.9
The names of all people with HIV should be displayed in public	149	54.2
All people infected with HIV should live apart from everyone else	129	46.9
I would treat someone differently if I found out that they had HIV	70	25.5

Overall, 86.9% of youth believed that all newcomers to Pohnpei should be tested for HIV and 54.2% thought that the names of all people with HIV should be displayed in public. Nearly half (46.9%) of all youth believed that people infected with HIV should live apart from everyone else and 25.5% said they would treat someone differently if they found out that person had HIV.

Figure 6: Percentage of Youth with Positive Attitudes towards Those Living with HIV by Sex, Pohnpei, FSM, 2008



Prevention programs

Figure 7 shows the awareness of various prevention activities in Pohnpei amongst male and female youth. The majority of both males (51.9%) and females (46.4%) received HIV prevention messages via radio. The next most common ways that both males (35.6%) and females (40.0%) received HIV prevention messages were posters.

Figure 7: Percentage of Youth reached by Prevention Programs, Pohnpei, FSM, 2008

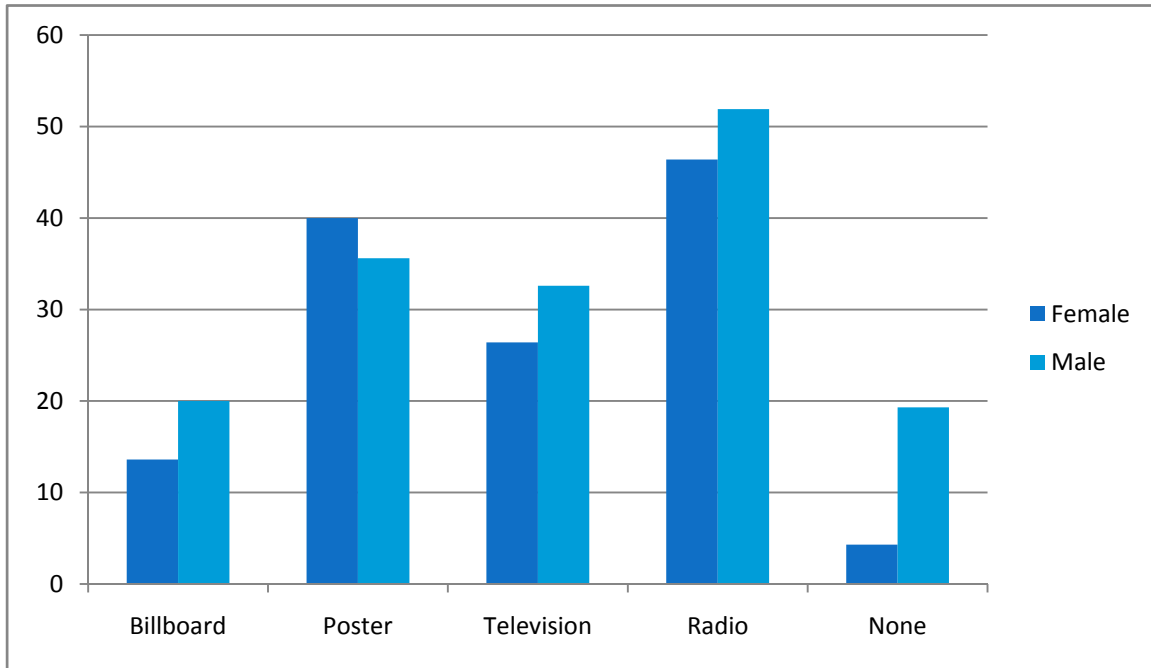
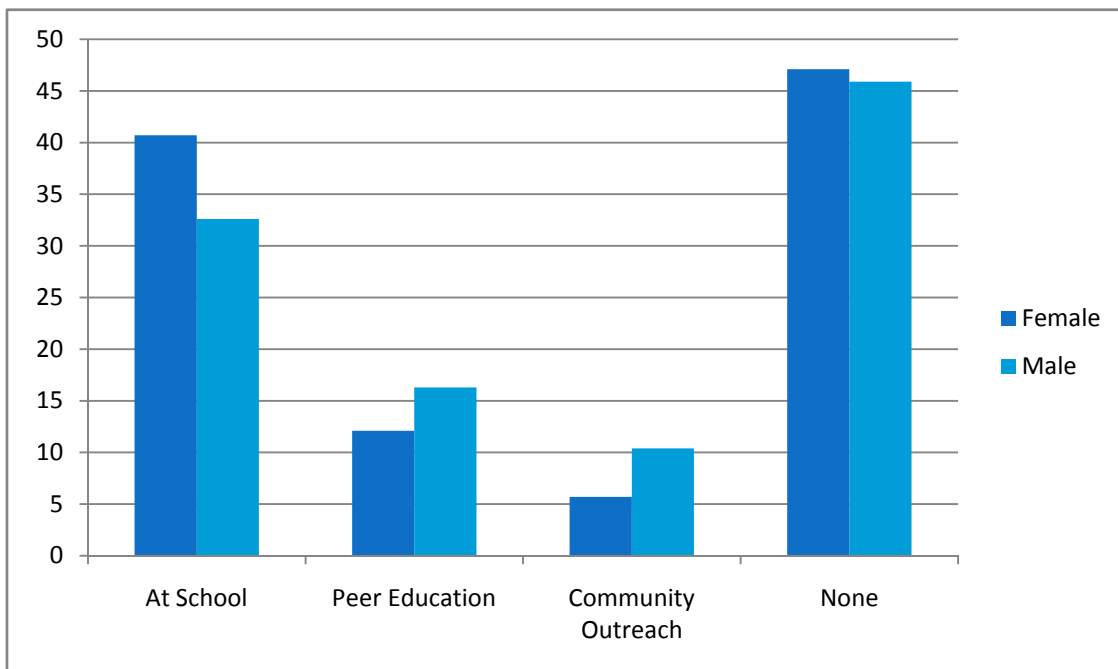


Figure 8 shows the proportion of male and female youth that had participated in some form of HIV prevention program. Nearly half of both male (46%) and female (47.6%) youth had not participated in any form of prevention program. School based HIV education programs were the most common activity participated in by both male (32.8%) and female (40.6%) youth.

Figure 8: Proportion of Youth who had participated in particular prevention programs, Pohnpei, FSM 2008



Access to testing

Table 25 shows the reported access to HIV testing amongst the youth surveyed. Less than half (49.5%) of youth believed that it was possible to get a confidential HIV test in Pohnpei. One out five (19.6%) youth had ever received a HIV test. Over half of male youth males (67.7%) and females (47.8%) who have ever been HIV tested had received the results of the test. Of all the youth tested within the last 12 months, 64.7% were aware of their test result.

Table 25: Reported Access to Testing, Youth, Pohnpei, FSM, 2008

	Number	Percentage	Female %	Male %
Believe it is possible for someone in the community to get a confidential test	136	49.5	45.0	54.1
Ever been tested for HIV	54	19.6	16.4	23.0
When did you have your last HIV test				
<i>In the last 3 months</i>	13	24.1	43.4	9.7
<i>In the last year</i>	21	38.9	26.1	48.4
<i>Over a year ago</i>	10	18.5	8.7	29.0
Why did you have your last HIV test?				
I asked for it	24	44.4	47.8	41.9
Medical check	21	38.8	34.8	41.9
Blood donor	6	11.1	8.7	12.9
Received result of HIV test	32	59.3	47.8	67.7
Tested in the last 12 months and know their results	22	64.7		

Symptoms of STIs

Table 26 shows the reported prevalence of STI symptoms in the last 12 months amongst the youth surveyed. The most common symptom experienced by female youth was lower abdominal pain in between periods (10%), followed by bleeding between menstrual periods (7.1%) and unusual vaginal discharge (5%). For males, the most common STI symptoms experienced were stinging, burning or pain when passing urine (5.9%) and an unusual discharge from the penis (3.7%). For the males experiencing STI symptoms, 7 (38%) sought treatment for their symptoms compared to 25% of females.

Table 26: Prevalence of Symptoms of STIs, Youth, Pohnpei, FSM, 2008

Youth	Female N	%	Male N	%	Total N	%
Lower abdominal pain in between your period?	14	10.0			14	10.0
Bleeding in between your menstrual period?	10	7.1			10	7.1
Stinging, burning or pain when you pass urine?			8	5.9	8	5.9
Unusual discharge from your penis/vagina?	7	5.0	5	3.7	12	4.4
Lower abdominal pain during sex?	4	2.9			4	2.9
Rash, sore or ulcer on the skin around your genitals?	2	1.4	4	2.9	6	2.2
Unusual discharge or blood from your anus?	1	0.7	4	2.9	5	1.8

UNGASS indicators

Table 27: UNGASS indicators, Youth, Pohnpei, FSM 2008

	Male		Female	
	Number	%	Number	%
<i>7. Percentage of men and women aged 15-24 who received an HIV test in the last 12 months and who know their results</i>	14	10.4	8	5.7
<i>13. Percentage of young women and men aged 15-24 who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission*</i>	44	32.6	28	20.0
<i>15. Percentage of young women and men aged 15-24 who have had sexual intercourse before the age of 15</i>	47	34.8	5	3.6
<i>16. Percentage of women and men aged 15-24 who have had sexual intercourse with more than one sexual partner in the past 12 months</i>	49	36.3	17	12.1
<i>17. Percentage of women and men aged 15-24 who have had sexual intercourse with more than one sexual partner in the past 12 months reporting the use of a condom during their last sexual intercourse*</i>	18	40.0	5	62.5
<i>19. Percentage of men reporting the use of a condom the last time they had anal sex with a male partner**</i>	2	28.6		

**Questions with an asterisk are also Millennium Development Goal indicators*

***Men reporting condom use the last time they had anal sex with a male partner in the last 12 months.*

Discussion

In general, male youth in Pohnpei were more likely than female youth to have ever had sex, to have had first sex at a younger age, and to have had multiple partners in the last 12 months. Such behaviours indicate risky sexual activity amongst male youth. Males were however, more likely than females to report ever using a condom. Females were less likely to have used a condom the last time they had sex, with the main reasons given that a condom was not readily available and that sex does not feel as good. Of the 62 female and 66 male youth that had had sex in the previous 12 months, the majority reported never using a condom in that period. Identifying the contexts in which sexual activity is occurring may be important for further understanding inconsistent condom use.

Whereas almost half of female youth reported never drinking, a third of male youth reported drinking at least 2 to 3 times per week. One-quarter of male youth also reported binge drinking on a weekly basis. Heavy drinking can impair judgement and decision making and may place male youth at a greater risk of participating in high risk sexual behaviour. For example, further analysis suggested that those youth who binge-drank weekly or more frequently were less likely to have used a condom the last time they had sex than those who binge -drank monthly or less frequently. Prevention strategies, particularly those targeting males, may benefit from discussing the link between heavy drinking and high risk sex, including encouraging youth to ensure they have condoms with them when they go drinking or to make condoms easily available at places with youth regularly drink.

15% of all youth had ever tried marijuana, and nearly one-half of those had used it in the last 30 days, which may suggest regular use of this substance amongst a small proportion of the youth population. Twenty-four youth (9 female, 15 male) reported having ever injected drugs, of which a small proportion may have knowingly or unknowingly injected with a previously-used needle.

Overall, youth were not well-informed about simple means to reduce the risk of HIV infection, and females (28%) were less likely than males (62%) to answer both prevention questions correctly. While youth performed better on the questions regarding HIV transmission, only 39%

of males and 26% of females answered all three questions correctly. Further understanding of how females receive information on sex and HIV as well as what their understanding of the key concepts related to HIV may be required to better target health information to female youth. The results also suggest that gender specific interventions may be required to better reach youth, particularly females.

About half of the youth believed that it was possible to receive confidential testing in Pohnpei. About 1 in 5 youth had ever been HIV tested, with almost half having done so voluntarily. Raising awareness about the confidentiality of the available testing in Pohnpei may be important in encouraging sexually active youth to be HIV tested. It may be important to explore with youth other barriers to testing and identify possible solutions to ensure youth feel safe to get tested.

The above results should be considered with caution due to the use of convenient sampling. However the results do provide some useful indicators for further investigation as well as for guiding the development of HIV prevention programs with youth in Pohnpei State.

Surveys

Behavioral Surveillance Survey of Youth, Yap State

Survey Methodology

Table 28 shows an overview of the survey methodology used for the transgender youth survey.

Table 28: Overview of the Survey Methodology, Transgender Youth

Methodology	Survey details
Population	<i>Youth</i>
Survey type	<i>Behavioural Surveillance Survey (BSS)</i>
Sampling method	<i>Convenient</i>
Inclusion criteria	<i>Youth aged between 15-24 years.</i>
Target Sample Size	<i>300</i>
Final Sample Size	<i>173</i>
Interview location(s)	<i>Youth 'hot spots' identified by peer educators. Sites included town community centre, Colonia water front, outside clubs and bars</i>
Administration of the survey	<i>Interviewer administered</i>
Type of consent	<i>Verbal</i>
Time required for interview	<i>20 minutes</i>
Specimens collected	<i>Nil</i>
Laboratory testing	<i>Nil</i>
Data collection period	<i>November 2007</i>

A total of 173 youth were conveniently sampled from youth “hot spots” as identified by peer educators, including the town community centre, Colonia water front and outside clubs and bars. Male and female youth aged between 15 and 24 years were eligible for participation in the survey.

Results

Demographic characteristics.

Table 29: Reported Demographic Characteristics, Yapese Youth

	Female	Range	Male	Range		Female	%	Male	%
<i>Mean age</i>	18.9	15-24	18.7	15-24	Education				
	Female		Male		<i>Elementary School</i>	33	40.2	25	27.5
<i>Age Groups</i>	Number	%	Number	%	<i>High School</i>	37	45.1	40	44.0
<i>15 to 19</i>	64	78.0	56	61.5	<i>Higher</i>	10	12.2	20	22.0
<i>20 to 24</i>	18	22.0	35	38.5					
<i>State Born</i>					<i>Currently working</i>				
<i>Yap</i>	70	85.4	83	91.2	<i>Yes</i>	29	35.4	26	28.6
<i>Other states of FSM</i>	7	8.5	5	5.5	<i>No</i>	31	37.8	47	51.6
<i>Other</i>	3	3.7	3	3.3	<i>Studying</i>	21	25.6	16	17.6
<i>Residence</i>					<i>Living Arrangements</i>				
<i>Colonia</i>	21	25.6	29	31.9	<i>Living with family</i>	80	97.6	77	84.6
<i>Outside Colonia</i>	58	70.7	60	65.9	<i>Other</i>	1	1.2	10	11.0

A total of 173 youth were surveyed, comprised of 91 males (52.6%) and 82 females. The majority (69.3%) of both male and female youth were aged between 15 to 19 years and 91.2% were born in Yap State. Most of the youth had completed high school (44%), with a further 22% having completed higher education. Just over half of the youth were not working or studying (51.6%) and 85% of were living with their family.

Sexual behaviours

Table 30 summarizes the reported sexual history of the youth surveyed. More males (69.2%) than females (43.9%) reported ever having had sex ($X^2=10.4$, $p<0.01$). More males than female reported having had their first sex below the age of fifteen ($X^2=8.5$, $p<0.01$), and males were more likely to have multiple partners in the past 12 months ($X^2= 9.9$, $p<0.01$). Of those youth who reported multiple sex partners in the past 12 months, one third reported using a condom the last time they had sex. Reported transactional sex was very low amongst both male and female youth, and reported male to male sex was very low amongst male youth.

Table 30: Reported Sexual History, Yapese Youth

	Female		Male		Total	
	Number	%	Number	%	Number	%
Have had sex	36	43.9	63	69.2	99	57.2
Age at first sex	Mean 16.8	Range 14 to 19	Mean 15.0	Range 6 to 19	Mean	Range
Number of sex partners in the last 12 months (with female partners for Transgender)	1.8	1 to 21	3.6	1 to 25		
	Number	Percentage	Number	Percentage	Number	Percentage
Sex before the age of 15	1	2.8	17	27.0	18	18.2
More than one partner in the last 12 months	6	16.7	33	52.4	39	39.4
More than 1 partner and used a condom at last sex	2	33.3	11	33.3	13	33.3
Ever had sex whilst off island	3	8.3	18	28.6	21	21.2

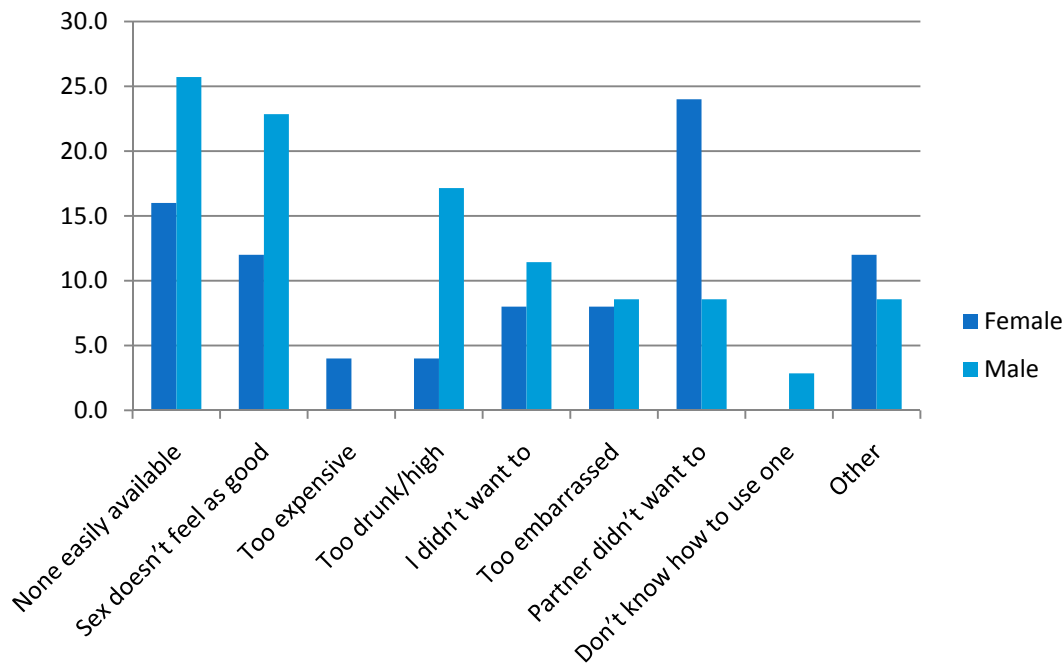
Table 31 below shows the reported condom use amongst the youth surveyed. About a third of both males and females reported using a condom the first time they had sex. Seventy percent of males compared to 55.6% of females reported having ever used a condom. More males (46%) than females (27.8%) of females reported using a condom the last time they had sex. Further analysis of the data indicated that those youth that had ever tried marijuana were less likely to use a condom the last time they had sex ($X^2=17.14$, $p<0.01$).

Figure 9 below summarizes the reasons given by male and female youth for not using a condom during last sex. The main reasons given by females for not using a condom during last sex were because their partner did not want to (24%) and because none were easily available (16%). For males, the main reasons were because none were easily available (25.7%) and because sex does not feel as good (22.9%).

Table 31: Reported Condom Use, Yapese Youth

Condom use Youth	Female		Male		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Used a condom first time had sex	12	33.3	22	34.9	34	34.3
Ever used a condom	20	55.6	44	69.8	64	64.6
Used a condom at last sex						
Yes	10	27.8	29	46.0	39	39.4
No	25	69.4	35	55.6	60	60.6
Condom use in past 12 months						
Every time	5	13.9	17	27.0	22	22.2
Sometimes	14	38.9	27	42.9	41	41.4
Never	16	44.4	19	30.2	35	35.4

Figure 9: Reasons given for not using a condom during last sex, Yapese Youth



Alcohol and Drug Use

Table 32 Reported Frequency and Consumption of Alcohol in the Past 12 months, Yapese Youth

	Female		Male		Total	
	Number	Percentage	Number	Percentage	Number	Percentage
Frequency of alcohol use						
<i>Never</i>	31	37.8	25	27.5	56	32.4
<i>4 or more times a week</i>	1	1.2	1	1.1	2	1.2
<i>2 to 3 times a week</i>	7	8.5	8	8.8	15	8.7
<i>2 to 4 times a month</i>	7	8.5	13	14.3	20	11.6
<i>Monthly or less</i>	11	13.4	20	22.0	31	17.9
<i>No Answer/Response</i>	15	18.3	3	3.3	18	10.4
Number of standard drinks usually consumed						
					For those reporting drinking = 99	
<i>1 to 2</i>	14	38.9	24	38.1	38	38.4
<i>3 to 4</i>	4	11.1	7	11.1	11	11.1
<i>5 to 9</i>	6	16.7	10	15.9	16	16.2
<i>10 or more</i>	10	27.8	21	33.3	31	31.3
Frequency of drinking 5 or more standard drinks in the 12 months						
<i>Never</i>	4	11.1	11	17.5	15	15.2
<i>Daily or almost daily</i>	3	8.3	0	0.0	3	3.0
<i>Weekly</i>	3	8.3	18	28.6	21	21.2
<i>Less than monthly</i>	7	19.4	5	7.9	12	12.1
<i>Monthly</i>	8	22.2	8	12.7	16	16.2
<i>Don't know</i>	9	25.0	19	30.2	28	28.3

Table 32 summarizes reported drinking behaviors in the past 12 months amongst the youth surveyed. Over one-third of female youth (37.8%) and 27.5% of male youth reported never drinking in the past 12 months. About 10% of both male and female youth reported drinking weekly or more in the past 12 months. Whilst 38.4% of all youth reported drinking 1 to 2 standard drinks during a usual drinking occasion, a further 31.3% reported drinking 10 more drinks during a usual drinking occasion. Amongst males 28.6% reported binge drinking (i.e. 5 or more standard drinks on a single occasion) on a weekly or more frequent basis compared to 16.6% of females.

Table 33: Reported Recreational Drug Use, Yapese Youth

Drug	Ever used				Used last 30 days			
	Female		Male		Female		Male	
	Number	%	Number	%	Number	%	Number	%
Tobacco	52	63.4	60	65.9	48	92.3	54	90.0
Marijuana/cannabis	15	18.3	31	34.1	5	33.3	14	45.2
Sakau	5	6.1	10	11.0	1	20.0	0	0.0
Betel-nut	59	72.0	64	70.3	56	94.9	58	90.6
Copenhagen	8	9.8	21	23.1	0	0.0	4	19.0
Ice	0	0.0	7	7.7	0	0.0	0	0.0
Sniffings	2	2.4	9	9.9	1	50.0	1	11.1
None	6	7.3	5	5.5	4	5.3	12	15.0

Table 33 summarizes recreational drug use amongst the youth surveyed. Over one-third of males (34.1%) and 18.3% of females reported having ever used marijuana. Of those that had ever used marijuana, 45.2% of males and a third of females had used it within the past 30 days. Almost one-quarter of males (23.1%) and 10% of females reported having ever used Copenhagen. No female youth and 19% of these male youth reported using Copenhagen in the past 30 days.

Six percent of all youth reported injecting drugs within the past 12 months. Thirty percent of these youth reported having ever shared a needle and 50% reported not using a condom the last time they had sex.

HIV knowledge and attitudes

Table 34 below summarizes the HIV knowledge of the youth surveyed. Less than half of the male youth (45.1%) and 32.9% of female youth correctly answered both HIV prevention knowledge questions. About one-quarter of males (23.1%) and 12.2% of females correctly answered all three questions related to HIV misconceptions.

Table 34: Correct responses to Knowledge Questions, Yapese Youth

Knowledge questions	Female		Male		Total	
	Number	%	Number	%	Number	%
<i>Correct knowledge of prevention strategies</i>						
Having sex with only one, uninfected, faithful partner can reduce the chance of getting HIV?	36	43.9	50	54.9	86	49.7
Using condoms correctly can reduce the chance of getting HIV?	43	52.4	63	69.2	106	61.3
<i>Rejects common misconceptions</i>						
A healthy looking person can be infected with HIV?	50	61.0	57	62.6	107	61.8
A person can get HIV from mosquito bites?	25	30.5	39	42.9	64	37.0
A person can get HIV by sharing a meal with someone who is infected with HIV?	25	30.5	30	33.0	55	31.8
<i>Overall knowledge</i>						
Correct response to the two prevention strategies	27	32.9	41	45.1	68	39.3
Correct response to all three misconceptions	10	12.2	21	23.1	31	17.9
Correct response to all five questions	7	8.5	14	15.4	21	12.1

Table 35: Attitudes towards Those Living with HIV, Yapese Youth

Attitude questions	Female		Male		Total	
	Number	%	Number	%	Number	%
All newcomers to Pohnpei should be tested for HIV	73	89.0	77	84.6	150	86.7
The names of all people with HIV should be displayed in public	19	23.2	33	36.3	52	30.1
All people infected with HIV should live apart from everyone else	53	64.6	49	53.8	102	59.0
Knowingly passing HIV to someone else should be illegal	35	42.7	46	50.5	81	46.8
I would treat someone differently if I found out that they had HIV	27	32.9	24	26.4	51	29.5

Table 35 summarizes the reported attitudes towards people living with HIV amongst the youth surveyed. For all youth, 86.7% believed that all newcomers to Pohnpei should be tested for HIV. Nearly one-third (30.1%) of all participants believed that the names of people infected with HIV should be displayed in public and over half (59%) believed that people with HIV should live apart from everyone else. Forty-seven percent of all youth thought that knowingly passing HIV onto someone should be illegal, and 29.5% believed that they would treat someone differently if they found out that person had HIV. No

youth disagreed or strongly disagreed with all five of the attitude statements, and only 5.2% disagreed or strongly disagreed with 4 of the 5 attitude statements. The majority of youth (81.5%) disagreed or strongly disagreed with 2 or less statements.

HIV Prevention Activities

Table 36: Awareness of HIV Prevention Activities in FSM, Yapese Youth

	Female		Male		Total	
	Number	%	Number	%	Number	%
Seen messages on TV	20	24.4	15	16.5	35	20.2
Heard messages on Radio	46	56.1	40	44.0	86	49.7
Seen messages on billboard	13	15.9	12	13.2	25	14.5
Seen messages on posters	31	37.8	43	47.3	74	42.8
None	14	17.1	15	16.5	29	16.8
Participated in an HIV education program at school	26	31.7	34	37.4	60	34.7
Participated in peer education	7	8.5	5	5.5	12	6.9
Participated in drama classes/community outreach	0	0.0	10	11.0	10	5.8
None	49	59.8	39	42.9	88	50.9

Table 36 summarizes the awareness of and participation in various HIV prevention campaigns in FSM amongst the youth surveyed. Nearly half of all youth (49.7%) reported hearing HIV prevention messages on the radio and 42.8% reported seeing HIV prevention messages on posters. Seventeen percent of all youth reported not seeing or hearing any HIV prevention messages.

Regarding participation, half of the youth (50.9%) had not participated in any HIV prevention programs. The HIV prevention program most commonly participated in by youth was HIV education programs at school (34.7%).

Access to testing

Table 37 below summarises reported HIV testing knowledge and experiences. Half of the female youth and 39.6% of the male youth believed that it was possible for somebody in their community to get a confidential HIV test. Less than half of both male (40.7%) and female (35.4%) youth had ever been tested for HIV. Of those youth that are sexually active, 41.7% of females and 52.4% of males had been tested for HIV. Of all the youth that had been test for HIV, the majority had been tested within the past year (68.2%). About one in five youth (21.2%) were tested voluntarily, with the majority (66.7%) being tested as part of a medical check. Fifty-nine percent of youth reported that they received counselling

before they were tested and 53% said they received counselling after they were tested. The majority of youth 83.3% said they received the result of their HIV test.

Table 37: Reported Access to Testing, Yapese Youth

	Female		Male		Number	Total %
	Number	%	Number	%		
Believe it is possible for someone in the community to get a confidential test	41	50.0	36	39.6	77	44.5
Ever been tested for HIV	29	35.4	37	40.7	66	38.2
When did you have your last HIV test	D=29		D=37			
<i>In the last 3 months</i>	11	37.9	16	43.2	27	40.9
<i>In the last year</i>	12	41.4	6	16.2	18	27.3
<i>Over a year ago</i>	2	6.9	6	16.2	8	12.1
Why did you have your last HIV test?						
<i>I asked for it</i>	6	20.7	8	21.6	14	21.2
<i>Medical check</i>	20	69.0	24	64.9	44	66.7
<i>Blood donor</i>	0	0.0	9	24.3	9	13.6
<i>Antenatal</i>	5	17.2	0	0.0	5	7.6
Received Counselling before test	23	79.3	16	43.2	39	59.1
Received Counselling after test	16	55.2	19	51.4	35	53.0
Received result of HIV test	19	76.0	32	86.5	55	83.3

Symptoms of STIs

Table 38 summarises the reported prevalence of STI symptoms and treatment seeking behaviours amongst transgender youth. Fourteen percent of all youth reported that they had ever experienced symptoms of STI. The experience of STI symptoms was higher amongst females (41.7%) than males (15.9%). The most commonly experience symptom amongst female youth was lower abdominal pain in between menstrual periods or during sex (36.1%).

Of those youth experiencing symptoms of STI, 50% of male youth sought treatment from a health worker compared to 6.7% of female youth.

Table 38: Prevalence of Symptoms of STIs, Yapese Youth

	Female		Male		Total	
	Number	%	Number	%	Number	%
<i>Bleeding in between periods</i>	5	13.9			5	13.9
<i>Lower abdominal pain between period or during sex</i>	13	36.1			13	36.1
<i>Rash or sore</i>	1	2.8	3	4.8	4	4.0
<i>Stinging or burning pain when passing urine</i>	0	0.0	5	7.9	5	5.1
<i>Unusual discharge from penis/vagina/anus</i>	1	2.8	5	7.9	6	6.1
<i>Seen a health worker</i>	1	6.7	5	50.0	6	24.0

UNGASS indicators

Table 39: UNGASS indicators, Yapese Youth

	Men 15 to 24 years		Women 15 to 24 years	
	Number	%	Number	%
<i>7. Percentage of women and men aged 15-24 who received an HIV test in the last 12 months and who know their results.</i>	19	20.9	18	22.0
<i>13. Percentage of young women and men aged 15-24 who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission*</i>	14	15.4	7	8.5
<i>15. Percentage of young women and men aged 15-24 who have had sexual intercourse before the age of 15</i>	17	18.7	1	1.2
<i>16. Percentage of women and men aged 15-24 who have had sexual intercourse with more than one sexual partner in the past 12 months</i>	33	36.3	6	7.3
<i>17. Percentage of women and men aged 15-24 who have had sexual intercourse with more than one sexual partner in the past 12 months reporting the use of a condom during their last sexual intercourse*</i>	11	33.3	2	33.3
<i>19. Percentage of men reporting the use of a condom the last time they had anal sex with a male partner</i>	NA	NA		
<i>20. Percentage of injecting drug users reporting the use of a condom the last time they had sexual intercourse</i>				
<i>21. Percentage of injecting drug users reporting the use of sterile injecting equipment the last time they injected</i>				

Discussion

The results suggest the male youth in Yap are participating in risky sexual behaviour as indicated by multiple sex partners, first sex before the age of 15 years, and infrequent condom use. Whilst the traditional “ABC” approach to HIV prevention is compatible with these findings it will be important to build on the results of the surveys to further understand the contexts in which male youth are participating in risky sexual activity. For example, drug and alcohol consumption may be related to high risk sexual activity. The data indicated that youth who had ever tried marijuana were less likely to have used a condom the last time they had sex. Additionally, 17% of male youth indicated that the reason they did not use a condom the last time they had sex was because they were too drunk or high.

Despite showing lower levels of risky behaviour than males, female youth are still at risk due to male behaviour and the finding that females had low condom use. The main reason given by female youth for not using a condom the last time they had sex was because their partner did not want to. Gaining further insight into the circumstances in which sex is occurring for female youth, including issues related to the capacity of females to negotiate condom use, may be important for developing appropriate prevention activities for female youth.

Radio and posters were the most reported as the most successful mediums for delivering HIV prevention messages to youth in Yap state. However, knowledge on HIV prevention and misconceptions varied, with only 15% of male youth and 8% of female youth correctly answered the five key HIV knowledge questions. It is important that HIV prevention awareness raising activities are appropriately targeted to youth to not only increase knowledge but also increase the practice of safe sex behaviours. Thus existing messages delivered through radio and posters should be reviewed to ensure they are effectively targeting young people; the results of the current survey can serve as a baseline to measure effectiveness. Additionally, it may be appropriate to work with youth to identify new mediums that may be more effective in delivering HIV prevention messages.

The results of the survey suggested varying attitudes of youth towards people living with HIV. It may be important for future HIV programs to consider actions aimed at reducing stigma related to people living with HIV, as it is important for minimising barriers to participation in HIV prevention activities.

The above results should be considered with caution due to the small sample size and the use of convenient sampling. However the results do provide some useful indicators for further investigation as well as for guiding the development of HIV prevention programs with youth in Yap State.

Behavioural Survey of Police, Pohnpei

Survey Methodology

Table 40 shows an overview of the survey methodology used for the police survey.

Table 40: Overview of the Survey Methodology, Police

Methodology	Survey details
Population	<i>Police (male)</i>
Survey type	<i>Behavioral Survey</i>
Sampling method	<i>Convenience sample</i>
Inclusion criteria	<i>Police</i>
Target Sample Size	100
Final Sample Size	114
Interview location(s)	<i>Police station</i>
Administration of the survey	<i>Self administered</i>
Type of consent	<i>Verbal</i>
Time required for interview	<i>20 minutes</i>
Specimens collected	<i>Nil</i>
Laboratory tests	<i>Nil</i>
Data collection period	March to May 2007

A survey of sexual and other risk behaviors related to HIV and other STIs in 114 male police aged 21-59 years was conducted between March to May 2007. Police completed self-administered questionnaires. All male police officers were invited to participate. Female police were not included as their numbers were too low. Demographic, behavioral and information on knowledge and attitudes were collected. Participation in the survey was voluntary and informed consent was obtained prior to participation.

Eligibility criteria

Male police officers in Pohnpei were eligible to participate in this survey.

Results

Demographic characteristics.

Table 41: Reported Demographic Characteristics, Police, Pohnpei, FSM, 2007

	Number	Percentage		Number	Percentage
Age group (years)			Education		
<i>21 to 24</i>	7	6.1	<i>Never Attended School</i>	0	0.0
<i>25 to 59</i>	107	93.9	<i>Primary</i>	1	0.9
<i>Mean age</i>	38.4		<i>Some high school</i>	3	2.6
Country of Birth			<i>High School</i>	44	38.6
<i>Pohnpei</i>	72	63.2	<i>Higher</i>	65	57.0
<i>Other States of FSM</i>	40	35.1			
<i>Outside of FSM</i>	1	0.9			
Residence					
<i>Kolonia</i>	31	27.2			
<i>Outside Kolonia</i>	81	71.1			

A total of 115 male police were recruited; however, only 114 were included in the analysis as one person was missing information on age. Only information from those who consented to participate was collected. Police officers were from Pohnpei State Department of Public Safety and the National FSM Police Department. The mean age of participants was 38.4 years, with 6.1% under 25 years of age (Table 1). Over half (63.2%) of the police surveyed were born in Pohnpei and over 90% had completed high school. The majority of police were married (86%): 68.4% of all respondents were living with their spouse and a further 3.5% were living with their non-married sex partner (table 42).

Table 42: Reported Living Arrangements, Police, Pohnpei, FSM, 2008

	Number	Percentage
Marital Status		
<i>Ever married</i>	101	88.6
<i>Currently married</i>	98	86.0
Living Arrangements		
<i>Living with your spouse</i>	78	68.4
<i>Living with a sex partner (non-married)</i>	4	3.5
<i>Living with family</i>	25	21.9

Sexual behaviours

Table 43 summarises the reported sexual history of the police who were surveyed.

Table 43: Reported Sexual History, Police, Pohnpei, FSM, 2008

	Mean	Range
Age at first sex	16.6	12-24
Number of sex partners in the last 12 months		
<i>Live in sex partners</i>	1.3	1-7
<i>Other female sex partners</i>	2.4	1-24
	Number	Percentage
Sex before the age of 15	12	10.5
Partners in the last 12 months		
<i>More than one live in sex partner (n = 81)</i>	10	12.3
<i>More than one other female sex partners (n = 30)</i>	9	30.0
<i>More than one partner – any type (n = 87)</i>	40	45.9

The average age of first sex amongst those surveyed was 16.6 years, ranging from 12 to 24 years. Ten percent of police surveyed had their first sex before the age of 15. The majority of policemen (71%) had sex with a live in sex partner in the past 12 months, with 12.3% of these policemen reporting having sex with more than one live in partner in the past 12 months. Thirty (26.3%) of the policemen surveyed reported having non-commercial sex with women other than their live in partners (herein called “casual sex”) in the past 12 months. However 71.1% of policemen did not answer this question. Of those policemen who did answer this question (n=33), 90% said that they had casual sex in the past 12 months.

Nearly half (45.9%) of the policemen reported having multiple sex partners in the past 12 months. The majority of policemen (89.7%) who reported any casual sex in the past 12 months were currently married. Nearly one-third (32.1%) of policemen who had sex with a live in partner in the past 12 months also reported having casual sex (with a non live-in partner) in the past 12 months.

Table 44 shows the reported condom use amongst the police surveyed. Just under half (47.4%) of the policemen surveyed reported ever using a condom and 3.5% reported using a condom the first time they had sex. Nine percent of policemen reporting using a condom the last time they had sex with a live in partner. Of those policemen reporting casual sex in the past 12 months, none indicated using a condom the last time they had sex. Of the 26 policemen reporting sex with both a live in and a casual partner in the past 12 months, 65.4% reported never using a condom with their live in partner in the past 12 months, and 76.9% reported never using a condom with their casual sex partners in the past 12 months.

Table 44: Reported Condom Use, Police, Pohnpei, FSM, 2008

	Number	Percentage
Used a condom first time had sex (n= 114)	4	3.5
Ever used a condom (n=114)	54	47.4
Condom use last sex with...		
<i>Live in partner</i> (n = 81)	7	8.6
<i>Other, non-commercial partner</i> (n=30)	0	0.0

Table 45 summarises reported transactional sex experiences amongst the policemen surveyed. A total of 9 (7.9%) reported that they had ever had some form of transactional sex. Of these 9 policemen, all of them (100%) indicated that they used a condom the last time they had transactional sex. Thirty-six percent of policemen indicated that they had ever had sex whilst being off island. Reported male to male sex was very low amongst the policemen surveyed.

Table 45: Reported Transactional Sex, Police, Pohnpei, FSM, 2008

	Number	Percentage
Ever had transactional sex	9	7.9
Condom use last transactional sex	9	100.0
Sex while off-island	41	36.0

Alcohol and substance use

Among the 114 police surveyed, 17.5% reported that they never drink alcohol (Table 46). About one-fifth (21.1%) of policemen reported drinking alcohol 2 to 3 times a week, and another 21.1% reported drinking alcohol 2 to 4 times per month.

Amongst those policemen who reported drinking alcohol, 70% said that they consume 5 or more drinks on a typical occasion. More than one-third (38.6%) of policemen surveyed said that in the last 12 months, they consumed more than 5 drinks on a single drinking occasion on a weekly or more frequent basis.

Table 46: Alcohol use, Police, Pohnpei, FSM, 2008

	Number	Percentage
Frequency of alcohol use		
<i>4 or more times a week</i>	10	8.8
<i>2 to 3 times a week</i>	24	21.1
<i>2 to 4 times a month</i>	24	21.1
<i>Monthly or less</i>	12	10.5
<i>Never</i>	20	17.5
Number of standard drinks usually consumed (n=70)		
<i>1 to 2</i>	18	25.7
<i>3 to 4</i>	10	14.3
<i>5 to 9</i>	17	24.3
<i>10 or more</i>	32	45.7
Frequency of drinking 5 or more standard drinks in the 12 months (n = 70)		
<i>Never</i>	13	18.6
<i>Daily or almost daily</i>	7	10.0
<i>Weekly</i>	20	28.5
<i>Less than monthly</i>	17	24.3
<i>Monthly</i>	23	32.6

Table 47 shows the reported recreational substance use amongst the policemen surveyed. Betelnut was the most commonly used substance with over half 51.8% reporting use within the last 30 days. Just under half (48.2%) reported usingsakau in the past 30 days, and 41.2% had recently used tobacco.

Table 47: Reported Recreational Substance Use, Police, Pohnpei, FSM, 2008

Substance	Ever used		Used in last 30 days		
	Number	Percentage	Number	Percentage of ever users	Percentage of all respondents
Betelnut	60	52.6	59	98.3	51.8
Sakau	58	50.9	55	94.8	48.2
Tobacco	54	47.4	47	87.0	41.2

HIV knowledge and attitudes

Table 48 summarises HIV knowledge and misconceptions amongst the policemen surveyed. The majority of policemen (82.5%) were aware that having sex with only one uninfected and faithful partner can reduce the chance of getting HIV, and 80.7% were aware that using condoms correctly can reduce the chance of getting HIV. 68.4% got both questions correct.

Seventy-nine percent of policemen surveyed correctly stated that a healthy looking person can be infected with HIV, and 70.2% corrected believed that HIV cannot be transmitted by mosquitoes. The majority of policemen (82.5%) correctly believed that a person cannot get HIV by sharing a meal with someone who is infected with HIV. 55.3% answered all three questions correctly. 40.4% of policemen got all five knowledge and misconception questions correct.

Table 48: Responses to Knowledge Questions, Police, Pohnpei, FSM, 2008

Knowledge Questions	Correct response		Don't know
	Number	Percentage	Number/percentage
<i>Correct knowledge of prevention strategies</i>			
Having sex with only one, uninfected, faithful partner can reduce the chance of getting HIV?	94	82.5	0
Using condoms correctly can reduce the chance of getting HIV?	92	80.7	14
<i>Rejects common misconceptions</i>			
A healthy looking person can be infected with HIV?	90	78.9	12
A person can get HIV from mosquito bites?	80	70.2	17
A person can get HIV by sharing a meal with someone who is infected with HIV?	94	82.5	13
<i>Overall knowledge</i>			
Correct response to the two prevention strategies	78	68.4	
Correct response to all three misconceptions	63	55.3	
Correct response to all five questions	46	40.4	

Table 49 represents the attitudes towards people living with HIV among the policemen surveyed. Eighty-five percent of policemen believed that all newcomers to Pohnpei should be test for HIV. Over half (58.8%) believed that the names of all people with HIV should be displayed in public and 48.2% believed that all people infected with HIV should live apart from everyone else. Two-thirds (67.5%) of policemen believed that knowingly passing HIV to someone else should be a criminal offence.

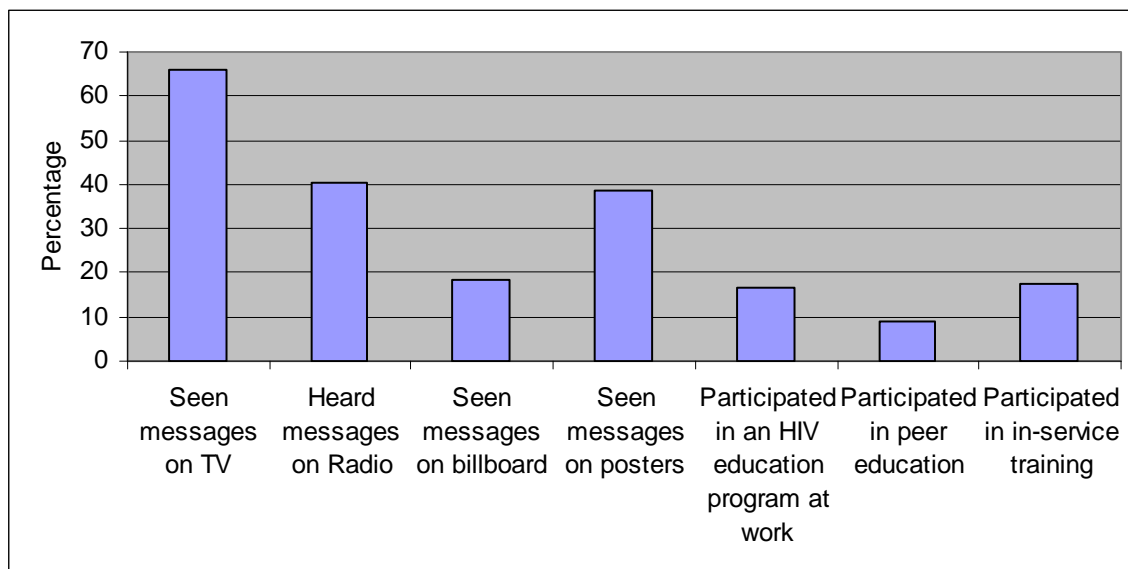
Table 49: Attitudes towards Those Living with HIV, Police, Pohnpei,

Attitude questions	Agreed with Statement	
	Number	Percentage
All newcomers to Pohnpei should be tested for HIV	97	85.1
The names of all people with HIV should be displayed in public	67	58.8
All people infected with HIV should live apart from everyone else	55	48.2
Knowingly passing HIV to someone else should be a criminal offence	77	67.5

Prevention programs

Figure 10 shows the proportion of who were aware of, or participated in, various prevention activities. The majority (65.8%) of policemen received HIV prevention messages from the television, and 40.6% reported getting messages from the radio. Another 38.6% reported seeing HIV prevention messages on posters. Over half (57%) of the policemen said they had not participated in any HIV education or training program. Less than 1 in 5 policemen surveyed had participated in either a workplace education (16.7%) or in-service (17.5%) training program, and 8.8% reported participating in a peer education program.

Figure 10: Percentage of Police reached by Prevention Programs, Pohnpei, FSM, 2008



Access to testing

Table 50 summarizes HIV testing experiences amongst the policemen surveyed. Fifty-seven percent of police believed that it was possible to get a confidential HIV test in Pohnpei, and less than half (41.2%) of the policemen surveyed had ever been tested for HIV. Thirteen of the 47 policemen (27.7%) who had received a HIV test had done so within the past 12 months, and 38.3% had done so within the last 3 months. The majority of policemen (55.3%) were HIV tested as part of a medical check, and a further 27.7% were tested as a result of donating blood. Voluntary testing occurred amongst 10.6% of the policemen surveyed. Three-quarters (74.5%) of the policemen who had been HIV tested received the results of their test.

Table 50: Reported Access to Testing, Police, Pohnpei, FSM, 2008

	Number	Percentage
Believe it is possible for someone in the community to get a confidential test	65	57.0
Ever been tested for HIV	47	41.2
When did you have your last HIV test		
<i>In the last 3 months</i>	18	38.3
<i>In the last year</i>	13	27.7
<i>Over a year ago</i>	11	23.4
Why did you have your last HIV test?		
I asked for it	5	10.6
Medical check	26	55.3
Blood donor	13	27.7
Received result of HIV test	35	74.5
Tested in the last 12 months and know their results	26	83.9

Symptoms of STIs

Table 51 summarises the prevalence of STI symptoms amongst the policemen surveyed. Four policemen (3.5%) said they had experienced stinging, burning or pain when they pass urine in the past 12 months, and 1.8% reported a rash, ulcer or sore around the genitals in the past 12 months. Five of the six (83.3%) of the policemen experiencing STI symptoms sought help from a health professional.

Table 51: Prevalence of Symptoms of STIs, Police, Pohnpei, FSM, 2008

	Number	Percentage
<i>Reported symptoms of an STI in the last 12 months</i>		
Stinging, burning or pain when you pass urine	4	3.5
Rash, ulcer or sore around your genitals	2	1.8
Unusual genital or anal discharge	0	0.0
Unusual discharge or blood from anus	0	0.0

Discussion

The results of the survey suggest that policemen in Pohnpei may be participating in high risk sexual activity, as indicated by large proportions reporting multiple sex partners and low condom use. Almost half of the respondents, of whom 77.5% were currently married, reported having multiple sex partners in the past 12 months. A large proportion of police declined to respond to the question about casual partners; among those who did, three quarters reported never using a condom in the past 12 months with casual partners. Importantly, of those policemen who reported sex with both a casual partner and live in partner in the past 12 months, 65% never used a condom in that time. Exploring the context within which casual sex is occurring may be important for developing appropriate prevention activities and programs.

A third of policemen who drank alcohol consumed 10 or more drinks on a regular drinking occasion, 29% of whom did so on a weekly or more frequent basis. The data did not indicate that level of alcohol consumption was related to sexual behaviour, but it may be hypothesized that some unsafe sex is associated with heavy or frequent drinking.

The policemen's knowledge of HIV prevention and misconceptions was good with each question being answered correctly by at least 70% of respondents. Slightly less than half of the policemen surveyed got all five knowledge questions correct. However, the results of the survey suggest that the good level of knowledge that the policemen have is not transferring into safe sexual behaviours.

The findings on attitudes towards those living with HIV/AIDS were poor with large proportions of police agreeing that people with HIV should live apart from the community. These results are generally suggestive of high levels of stigma and discrimination towards people living with HIV. Strategies to increase knowledge of how HIV is acquired would be of benefit to reduce the prevalence of stigma and discrimination in the community.

The results of the study should be interpreted with caution as there are several limitations. In small island settings it is common that people are known and therefore truthful reporting might

be compromised especially around sensitive questions on sexual behaviour. Self completed questionnaires were used with the police for this reason.

Behavioral Surveillance Survey of Policemen, Yap State

Survey Methodology

Table 52 shows an overview of the survey methodology used for the transgender youth survey.

Table 52: Overview of the Survey Methodology, Yap Police

Methodology	Survey details
Population	<i>Police (male)</i>
Survey type	<i>Behavioral Survey</i>
Sampling method	<i>Convenience sample</i>
Inclusion criteria	<i>Police</i>
Target Sample Size	<i>37*</i>
Final Sample Size	<i>30</i>
Interview location(s)	<i>Police station</i>
Administration of the survey	<i>Self administered</i>
Type of consent	<i>Verbal</i>
Time required for interview	<i>20 minutes</i>
Specimens collected	<i>Nil</i>
Laboratory tests	<i>Nil</i>
Data collection period	<i>March to May 2007</i>

* Note: the total number of police in Yap State in 2007 was 52.

A total of 30 policemen were recruited from the Yap Police Department. Six policemen refused to participate and one was excluded due to missing data. Surveys were conducted at the State Court Conference Room in Yap State.

Results

Demographic characteristics.

Table 53: Reported Demographic Characteristics, Yap Police

	Number	%		Number	%
Age group (years)			Education		
<i>21 to 24</i>	3	10.0	<i>High School</i>	22	73.3
<i>25 to 59</i>	27	90.0	<i>Higher</i>	7	23.3
<i>Mean age</i>	37.5		Rank		
<i>Range</i>	20 to 59		<i>Officer</i>	22	73.3
			<i>Other</i>	6	20.0
Country of State of Birth					
<i>Yap</i>	27	90.0			
<i>Other</i>	3	10.0			
Residence					
<i>Colonia</i>	9	30.0			
<i>Outside Colonia</i>	20	66.7			

A total of 30 policemen were recruited with an average age of 37.5 years. Ninety percent of the participants were aged over 25 years and 90% were born in Yap. Three quarters (73.3%) of policemen surveyed had finished high school, and 73.3% were ranked as Officer.

Table 54: Reported marital status and living arrangements, Yap Police

	Number	%
Marital Status		
<i>Ever married</i>	25	83.3
<i>Currently married</i>	25	83.3
Living Arrangements		
<i>Living with your spouse</i>	13	43.3
<i>Living with family</i>	12	40.0
<i>Other</i>	5	16.7

Table 54 summarizes the marital status and living arrangements of the policemen surveyed. The majority of policemen were currently married (83.3%), and 43.3% were living with their spouses. A further 40% were reported that they were living with family.

Sexual behaviors

Table 55: Reported Sexual History, Yap Police

	Mean	Range
Age at first sex	18.4	15 to 25
Number of sex partners in the last 12 months	1.4	0 to 10
	Number	Percentage
Sex before the age of 15	0	0.0
More than one partner in the last 12 months	10	33.3
Currently married x multiple sex partner past 12 months	8	32.0

Table 55 shows the reported sexual history of the policemen surveyed. The average age of first sex was 18.4 years, with no policeman having had their first sex before the age of 15 years. One-third of policemen reported having more than one partner in the past 12 months. Of those policemen who reported that they were currently married, 32% said they had more than one partner in the past 12 months. Transactional sex amongst the policemen surveyed was very low (3.3%).

Table 56 below summarizes the reported condom use amongst the policemen surveyed. Seventeen percent of policemen said they used a condom the first time they had sex, and two-thirds (66.7%) reported having ever used a condom. Twenty percent of policemen said they used a condom the last time they had sex. Of the ten policemen reporting multiple sex partners in the past 12 months, only two (20%) reported using a condom the last time they had sex.

Table 56: Reported Condom Use, Yap Police

Condom use Police		
	Number	Percentage
Used a condom first time had sex	5	16.7
Ever used a condom	20	66.7
Used a condom at last sex	6	20.0
Multiple partners x condom last sex	2	20.0

Alcohol and Drug Use

Table 57 Reported Frequency and Consumption of Alcohol in the Past 12 months, Yap Police

	Number	Percentage
Frequency of alcohol use		
<i>Never</i>	5	16.7
<i>2 or more times a week</i>	4	13.3
<i>2 to 4 times a month</i>	6	20.0
<i>Monthly or less</i>	8	26.7
<i>No Answer/Response</i>	3	10.0
Number of standard drinks usually consumed		
<i>1 to 4</i>	3	12.0
<i>5 to 9</i>	3	12.0
<i>10 to 19</i>	4	16.0
<i>20 or more</i>	12	48.0
Frequency of drinking 5 or more standard drinks in the past 12 months		
<i>Never</i>	2	8.0
<i>Weekly or more</i>	8	32.0
<i>Less than monthly</i>	3	12.0
<i>Monthly</i>	9	36.0
<i>Don't know</i>	3	12.0

Table 57 summarizes the alcohol use amongst the policemen surveyed. Overall, 46.7% of policemen reported drinking 2 to 4 times per month or less, with 13.3% indicating that they drink alcohol 2 or more times per week in the past 12 months. Nearly half (48%) of the policemen who said they drink alcohol reported that they consume 20 or more standard drinks during a usual drinking occasion. In the past 12 months, 36% of policemen said they consumed 5

or more standard drinks during a single occasion on a monthly basis, and 32% said they did so on a weekly or more frequent basis.

Table 58: Reported recreation substance use, Yap Police

	Ever used		Used last 30 days	
	Female		Male	
	#	%	#	%
Tobacco	19	63.3	19	100.0
Sakau	2	6.7	0	0.0
Betel-nut	19	63.3	19	100.0

Table 7 summarizes the reported recreational drug use amongst the policemen surveyed. Nearly two-thirds of policemen had used tobacco (63.3%) and betel-nut (63.3%) in the past 30 days.

HIV knowledge and attitudes

Table 59 below summarizes the HIV knowledge of the policemen surveyed.

Table 59: Correct responses to Knowledge Questions, Yap Police

Knowledge questions	Number	Percentage
<i>Correct knowledge of prevention strategies</i>		
Having sex with only one, uninfected, faithful partner can reduce the chance of getting HIV?	27	90.0
Using condoms correctly can reduce the chance of getting HIV?	28	93.3
<i>Rejects common misconceptions</i>		
A healthy looking person can be infected with HIV?	25	83.3
A person can get HIV from mosquito bites?	15	50.0
A person can get HIV by sharing a meal with someone who is infected with HIV?	19	63.3
<i>Overall knowledge</i>		
Correct response to the two prevention strategies	25	83.3
Correct response to all three misconceptions	12	40.0
Correct response to all five questions	11	36.7

The majority of policemen (83.3%) correctly answered the two questions on HIV prevention methods. Less than half (40%) of the policemen correctly answered the three HIV

misconceptions questions. Twenty-three percent of policemen believed HIV can be transmitted via mosquito bites, with a further 20% saying they did not know whether or not HIV could be transmitted in this way. Ten percent of policemen believed that HIV can be transmitted through sharing a meal with someone who is infected with HIV, and a further 23.3% did not know whether or not HIV can be transmitted this way.

Table 60: Attitudes towards Those Living with HIV, Yap Police

Attitude questions	Number	Percentage
All newcomers to Yap should be tested for HIV	28	93.3
The names of all people with HIV should be displayed in public	15	50.0
All people infected with HIV should live apart from everyone else	21	70.0
Knowingly passing HIV to someone else should be a criminal offence	19	63.3

Table 60 shows the reported attitudes towards people living with HIV amongst the policemen surveyed. Nearly all (93.3%) of the policemen believed that all newcomers to Yap should be tested for HIV and 50% believed that the names of all people with HIV should be displayed in public. Seventy percent of policemen believed that all people with HIV should live apart from everyone else, and nearly two-thirds (63.3%) believed that knowingly passing on HIV to someone else should be a criminal offense.

HIV Prevention Activities

Table 61: Awareness of HIV Prevention Activities in FSM, Yap Police

Police	#	%
Seen messages on TV	11	36.7
Heard messages on Radio	14	46.7
Seen messages on billboard	5	16.7
Seen messages on posters	10	33.3
None	6	20.0
Participated in an HIV education program at work	2	6.7
Participated in peer education	2	6.7
Participated in in-service training	2	6.7
None	23	76.7

Table 61 summarizes the awareness of, and participation in HIV prevention campaigns and activities amongst the policemen surveyed. Nearly half of the policemen reported hearing HIV prevention messages on the radio and a further 36.7% said they had seen HIV prevention messages on the television. The majority of policemen (76.7%) reported that they had not participated in any form of HIV prevention education and training activities.

Access to testing

Table 62 summarizes the HIV testing beliefs and experiences of the policemen surveyed. Nearly two-thirds (63.3%) of policemen believed that it is possible for someone in their community to get a confidential HIV test. Less than half (40%) of the policemen reported that they had ever been tested for HIV, most of them having done so in the past 12 months (58.3%). A third of policemen said they were tested for HIV as part of a medical check, and 58.3% said they were tested as part of blood donation. Nearly all (91.7%) of those that have ever been tested said that they knew the result of their HIV test. Sixty percent of those who reported having multiple sex partners in the past 12 months had not ever been test for HIV.

Table 62: Reported Access to Testing, Yap Police

	Number	Percentage
Believe it is possible for someone in the community to get a confidential test	19	63.3
Ever been tested for HIV	12	40.0
When did you have you last HIV test*		
<i>In the last 3 months</i>	4	33.3
<i>In the last year</i>	3	25.0
<i>Over a year ago</i>	3	25.0
Why did you have your last HIV test?		
I asked for it	1	8.3
Medical check	4	33.3
Blood donor	7	58.3
Received Counseling before test	3	25.0
Received Counseling after test	2	16.7
Received result of HIV test	11	91.7

Symptoms of STIs

Overall, 13.3% policemen reported experiencing any STI symptoms in the last 12 months, with all of them indicating that they sought a health worker for their symptoms. There was no difference in reported STI symptoms between those reporting multiple sex partners in the past 12 months and those who reported only 1 partner.

Discussion

The results of the survey indicate some risky sexual activity amongst the policemen. Whilst most of the policemen only had one sex partner in the last 12 months, one third of those policemen who were currently married reported having multiple partners in the past 12 months. Of those reporting sex with multiple partners, 20% reporting using a condom the last time they had sex. Importantly, amongst these policemen condoms were not used with sex partners that were not their spouse or live in sex partner thus placing themselves and their partners at risk of STI.

The policemen surveyed had a high level of knowledge regarding HIV prevention strategies with 83.3% correctly answering both HIV prevention knowledge questions. Knowledge regarding HIV misconceptions was lower with only 40% answering all three questions correctly. However the data suggests that such knowledge does not necessarily lead to safe behaviors. For example, 36% of policemen who correctly answered both prevention questions also reported multiple sex partners in the past 12 months, most of whom were currently married. Developing HIV prevention programs that move beyond the provision of information and education towards targeted behavior change are important for developing sustainable healthy and safe sexual practices.

The results of the survey indicated a low level of accepting attitudes towards people living with HIV and AIDS with at least half of all policemen agreeing or strongly agreeing with the attitude statements. In particular, 70% of policemen believed that people living with HIV should live apart from the rest of the population. This may be a reflection of the level of knowledge related to how HIV is transmitted. For example, 52% of policemen who agreed or strongly agreed that people with HIV should live apart from everyone else thought that HIV could be transmitted

through mosquito bites or they did not know if HIV could be transmitted this way, compared to 14% of policemen who disagreed.

Forty percent of policemen said they had ever been tested for HIV, however only 30% of those who reported sex with multiple partners in the past 12 months had been tested for HIV. This is less than reported amongst Police in Pohnpei (43%) who reported multiple sex partners in the past 12 months. Encouraging HIV testing as part of an overall healthy and safe sex campaign may be help to increase testing and knowledge of HIV status.

Three-quarters of policemen said that they did not participate in any HIV education or training through the workplace, including peer education. Workplace HIV prevention programs can be an important element of an overall national HIV prevention strategy and provide a effective setting for targeting healthy and safe sex programs to policemen.

Behavioral Surveillance Survey Pattiw Islands, Chuuk State

Table 63: Summary of Survey Methodology

Methodology	Survey details
Population	<i>Pattiw Islands Adults</i>
Survey type	<i>HSS Survey</i>
Sampling method	<i>Convenience Sampling</i>
Inclusion criteria	<i>Male and female adults aged 18 to 49 years</i>
Target Sample Size	<i>325</i>
Final Sample Size	<i>297</i>
Interview location(s)	<i>Mobile sites located near health clinics</i>
Administration of the survey	<i>Interviewer administered</i>
Type of consent	<i>Verbal. Interviewers signed a declaration not to release any information without the participants approval.</i>
Time required for interview	<i>20-25 minutes</i>
Specimens collected	<i>Urine and blood</i>
Laboratory tests	<i>Chlamydia and Gonorrhoea PCR, Syphilis, HBV and HIV</i>
Data collection period	<i>July 2006</i>

A total of 297 people participated in the survey. The initial target sample was for adults aged between 18 and 49 years that are residents of the Pattiw Islands in Chuuk State. However a total of 24 participants aged 15 to 17 years were included in the survey and the results have been disaggregated where appropriate into 15 to 24 years (“youth”) and 25 to 49 years (“adults”) age groups.

The survey in the Pattiw Islands was originally an HIV Surveillance Survey (HSS) however the samples collected were not tested.

Results

Demographic Characteristics

Table 64: Summary of Participant Demographic Characteristics, Pattiw Islands, Chuuk State

	Number	%		15 to 24		25 to 49	
				Number	%	Number	%
Age group (years)			Occupation				
15 to 24	132	44.4	Housewife/home duties	34	26.0	69	41.8
25 to 49	165	55.6	Clerical/Office work				
			Not employed	65	49.6	41	24.8
Sex			Farmer	6	4.6	12	7.3
Male	125	42.1	State of Birth				
Female	172	57.9	Chuuk	288	97.0		
Mean age	Mean	Range					
Female	27.9	15 to 47					
Male	28.2	15 to 46					
Total	28.0	15 to 47					

Table 64 summarizes the demographic characteristics of the participants. The majority of participants were female (57.9%) and 55.6% were aged between 25 to 49 years. Almost half of the participants aged 15 to 24 years were not employed whereas 41.8% of those aged 25 to 49 stated that they were performing home duties. Almost all of the participants indicated that they were born in Chuuk.

Table 65 summarizes the reported marital status and living arrangements of the participants surveyed. Seventy-four percent of participants aged 25 to 49 were currently married compared to 14.4% of participants aged 15 to 24 years. Additionally, 70.7% of participants aged 25 to 49 years were living with their spouse whereas 55.1% of participants aged 15 to 24 years were not living with any sex partner.

Table 65: Reported Marital Status and Living Arrangements, Pattiw Islands, Chuuk State

	15 to 24		25 to 49	
	Number	%	Number	%
Ever married				
<i>Male</i>	7	15.2	57	77.0
<i>Female</i>	12	16.2	67	73.6
Currently Married				
Male	7	15.2	57	77.0
Female	12	16.2	65	71.4
Living Arrangements				
<i>Living with your spouse</i>	18	15.3	116	70.7
<i>Living with a sex partner (non-married)</i>	6	5.1	6	3.7
<i>Not living with any sex partner</i>	65	55.1	31	18.9

Sexual Behaviour

Table 66 below shows the reported sexual behaviours amongst the survey participants. Overall, 62% of participants indicated that they had ever had sex. In the 15 to 24 year age group, male youth were more likely to have had sex than female youth ($X^2=5.1$, $p<0.05$). Males were more likely to have had their first sex under the age of 15 years ($X^2=11.2$, $p<0.001$), and participants in the 15 to 24 year age group were more likely to have had first sex under the age of 15 years than participants in the 25 to 49 year age group ($X^2=5.53$, $p<0.05$). Males were more likely to have had multiple sex partners in the past 12 months than females ($X^2 = 12.7$, $p<0.001$).

Table 66: Reported Sexual Behaviors, Pattiw Islands, Chuuk State

	15 to 24		25 to 49		Total	
	Number	%	Number	%	Number	%
Have had sex						
<i>Female</i>	42	51.9	59	64.8	101	58.7
<i>Male</i>	38	74.5	45	60.8	83	66.4
<i>Total</i>	80	60.6	104	63.0	184	62.0
Age at first sex	Mean	Range	Mean	Range	Mean	Range
<i>Female</i>	17.7	13 to 23	21.0	12 to 33	19.6	12 to 33
<i>Male</i>	15.7	12 to 20	19.4	10 to 28	17.6	10 to 28
<i>Total</i>	16.8	12 to 23	20.3	10 to 33	18.7	10 to 33
Multiple sex partners in the last 12 months	Number	%	Number	%	Number	%
<i>Female</i>	10	23.8	17	28.8	27	26.7
<i>Male</i>	21	55.3	23	52.4	44	53.7
<i>Total</i>	31	38.8	40	38.8	71	38.8
Sex before the age of 15						
<i>Female</i>	3	7.1	3	5.1	6	5.9
<i>Male</i>	15	39.5	5	11.1	20	24.1
<i>Total</i>	18	22.5	8	7.7	26	14.1
Ever had sex whilst off island	3	8.3	18	28.6	21	21.2

Table 67 below summarizes reported types of sexual behavior amongst the survey participants. Overall, 39.7% of participants reported having casual sex in the past 12 months. Males were more likely to have had casual sex in the past 12 months than females ($X^2=6.7$, $p<0.01$). Although more participants in the 15 to 24 year age group reported casual sex in the past 12 months (47.5%) compared to those aged 25 to 49 years (33.7%), this difference was not significant.

Across all participants, 22.3% reported having ever been forced to have sex against their will. There were no differences between males or age groups in relation to forced sex. Four percent t of all participants reported having transactional sex in the past 12 months.

Table 67: Reported Types of Sexual Activity, Pattiw Islands, Chuuk State

	15 to 24		25 to 49		Total	
	Number	%	Number	%	Number	%
Casual sex						
Female	16	38.1	15	25.4	31	30.7
Male	22	57.9	20	44.4	42	50.6
Total	38	47.5	35	33.7	73	39.7
Forced Sex						
Female	11	23.9	14	20.4	25	21.6
Male	10	27.0	10	20.0	20	23.3
Total	21	25.3	24	20.2	45	22.3
Relationship with person who forced sex	Total N	%				
Partner	12	26.7				
Other relative	11	24.4				
Neighbor	9	20.0				
Other	10	22.2				
Had transactional sex						
Female	4	4.0				
Male	3	3.6				
Total	7	3.8				

Condom Use

Table 68 shows the reported condom use amongst the participants surveyed. Just over half of all participants (51.1%) said that they had ever used a condom. Overall males were more likely to have ever used a condom than females ($X^2=4.1$, $p<0.05$). Of those people who reported casual sex and multiple sex partners in the past 12 months, 30.3% reported using a condom the last time they had sex.

Table 68: Reported Condom Use, Pattiw Islands, Chuuk State

	15 to 24		25 to 49		Total	
	Number	%	Number	%	Number	%
Ever used a condom						
Female	16	38.1	25	42.4	41	40.6
Male	25	65.8	28	62.2	53	63.9
Total	41	51.3	53	51.0	94	51.1
	Total N	%				
More than 1 partner and used a condom at last sex *	13	30.3				

*Data reported here only relates to those people who reported casual sex in the past 12 months

Alcohol and Drug Use

Table 69 summarizes reported alcohol consumption amongst the participants surveyed. The majority of female participants reported never drinking alcohol in the past 12 months. In contrast, 52.8% of males reported drinking 4 or more times a week, with another 11.2% reporting drinking 2 to 3 times per week. As well as drinking more frequently, males also drank more heavily than females. Nearly all of the males who reported drinking alcohol indicated that they consume 10 or more standard drinks during a normal drinking session (89.9%). Additionally, more than half (56.6%) of the males reported drinking 5 or more standard drinks daily or almost daily, and another 20.2% reported consuming this much alcohol on a weekly basis. For females who reported drinking, 22.9% indicated drinking 1 to 2 standard drinks during a normal drinking session, and another 18.8% reported drinking 3 to 4 standard drinks during a normal drinking session. Of the females who reported drinking, 22.9% said they drank 5 or more drinks daily or almost daily. Taken together, 45.6% of all drinkers participated in binge drinking daily or almost daily.

Table 69 Reported Frequency and Consumption of Alcohol in the Past 12 months, Pattiw Islands, Chuuk State

Frequency of use	Female		Male		Total	
	Number	%	Number	%	Number	%
Frequency of alcohol use						
<i>4 or more times a week</i>	12	7.0	66	52.8	78	26.3
<i>2 to 3 times a week</i>	6	3.5	14	11.2	20	6.7
<i>2 to 4 times a month</i>	8	4.7	8	6.4	16	5.4
<i>Monthly or less</i>	9	5.2	8	6.4	17	5.7
<i>Never</i>	124	72.1	26	20.8	150	50.5
Number of standard drinks usually consumed						
<i>1 to 2</i>	11	22.9	0	0.0	11	7.5
<i>3 to 4</i>	9	18.8	2	2.0	11	7.5
<i>5 to 9</i>	8	16.7	7	7.1	15	10.2
<i>10 or more</i>	5	10.4	89	89.9	94	63.9
Frequency of drinking 5 or more standard drinks in the 12 months prior to becoming pregnant						
<i>Never</i>	0	0.0	0	0.0	0	0.0
<i>Daily or almost daily</i>	11	22.9	56	56.6	67	45.6
<i>Weekly</i>	7	14.6	20	20.2	27	18.4
<i>Less than monthly</i>	11	22.9	10	10.1	21	14.3
<i>Monthly</i>	0	0.0	4	4.0	4	2.7

Table 70: Reported Recreational Drug Use, Pattiw Islands, Chuuk State

Drug	Female Ever used		Male Ever used	
	%	%	%	%
Tobacco	44.8	77.6	56.6	64.8
Betelnut	51.7	72	70.6	57.8
Marijuana	7.6	39.2	24.8	18.4
Sakau	22.1	58.4	38.3	39.3
Speed/Ice	2.3	8	3.9	5.5
Inhalents	5.8	12.8	8.7	9.1

Table 70 summarizes the recreational substance use amongst the participants surveyed. Overall, males were more likely to have ever tried any of the recreational substances than females ($X^2=34.9$, $p<0.001$), and to have used any recreational substance in the past 12 months ($X^2=5.9$, $p<0.05$). Male participants were more likely than female participants to have ever tried marijuana ($X^2=40.7$, $p<0.001$).

HIV knowledge and attitudes

Tables 71 and 72 below summarize HIV knowledge amongst participants by sex and age group respectively. Almost half of both males (48.8%) and females (43%) correctly answered both HIV prevention questions correctly. Knowledge of HIV transmission was lower, with 16.3% of females and 21.6% of males answering all three HIV transmission questions correctly. In particular, more than half of the participants believed, or were not sure if HIV could be transmitted through mosquito bites.

Almost half (47%) of the participants aged 15 to 24 years answered both prevention questions correctly, compared with 44.2% of those aged 25 to 49 years. Fifteen percent of 15 to 24 years olds correctly answered the three questions regarding HIV transmission compared to 21.2% of the 25 to 49 year age group.

Table 71: Correct responses to Knowledge Questions by Gender, Pattiw Islands, Chuuk State

	Female		Male	
	Number	%	Number	%
Heard of HIV	134	79.8	100	80.6
<i>Correct knowledge of mother to child transmission</i>				
A mother can pass HIV to their baby during pregnancy?	114	81.4	83	82.2
A mother can pass HIV to their baby during breastfeeding?	91	65.0	69	68.3
<i>Correct knowledge of prevention strategies</i>				
Having sex with only one, uninfected, faithful partner can reduce the chance of getting HIV?	97	69.3	76	75.2
Using condoms correctly can reduce the chance of getting HIV?	86	61.4	68	67.3
<i>Rejects common misconceptions</i>				
A healthy looking person can be infected with HIV?	87	62.1	76	75.2
A person can get HIV from mosquito bites?	64	45.7	47	46.5
A person can get HIV by sharing a meal with someone who is infected with HIV?	75	53.6	55	54.5
<i>Overall knowledge</i>				
Correct response to the two prevention strategies	74	43.0	61	48.8
Correct response to all three misconceptions	28	16.3	27	21.6
Correct response to all five questions	18	10.5	14	11.2

Tables 73 and 74 summarize the attitudes of the participants by sex and age group respectively.

Displaying accepting attitudes towards people with HIV was measured by the number of people who agreed or disagreed with the first 3 statements in table 11 below. Nineteen percent of males and 15.1% of females showed accepting attitudes towards people living with HIV. Only about one-third of participants indicated that they would be willing to share a meal with a person with HIV or buy food from a shop keeper with HIV. About half of all participants believed that people with HIV should live apart from the rest of the community. By age group 19.7% of 15 to 24 year olds and 14.5% of 25 to 49 years olds showed accepting attitudes towards people living with HIV. Overall, 16.8% of participants showed accepting attitudes towards people living with HIV.

Table 72: Correct Responses to HIV Knowledge Questions by Age Group, Pattiw Islands, Chuuk State

	15 to 24		25 to 49	
	Number	%	Number	%
Heard of HIV	102	79.1	132	81
<i>Correct knowledge of mother to child transmission</i>				
A mother can pass HIV to their baby during pregnancy?	82	84.5	115	79.9
A mother can pass HIV to their baby during breastfeeding?	74	76.3	86	59.7
<i>Correct knowledge of prevention strategies</i>				
Having sex with only one, uninfected, faithful partner can reduce the chance of getting HIV?	65	67.0	108	75.0
Using condoms correctly can reduce the chance of getting HIV?	64	66.0	90	62.5
<i>Rejects common misconceptions</i>				
A healthy looking person can be infected with HIV?	61	62.9	102	70.8
A person can get HIV from mosquito bites?	47	48.5	64	44.4
A person can get HIV by sharing a meal with someone who is infected with HIV?	54	55.7	76	52.8
<i>Overall knowledge</i>				
Correct response to the two prevention strategies	62	47.0	73	44.2
Correct response to all three misconceptions	20	15.2	35	21.2
Correct response to all five questions	10	7.6	22	13.3

Table 73: Attitudes towards Those People Living with HIV, by Sex, Pattiw Islands, Chuuk State

	Agreed with Statement			
	Female		Male	
	Number	%	Number	%
Willing to share a meal with a person with HIV	59	34.3	44	35.2
Buy food from a shop keeper with HIV	55	32.0	37	29.6
Willing to care for a relative with HIV	95	55.2	84	67.2
If a family member HIV positive, would want to keep it secret	101	58.7	75	60.0
Names of people with HIV should be displayed in public	43	25.0	46	36.8
People with HIV should live apart from the rest of the community	74	43.0	63	50.4

Table 74: Attitudes Towards People Living with HIV, by Age Group, Pattiw Islands, Chuuk State

	Agreed with Statement			
	15 to 24		25 to 49	
	Number	%	Number	%
Willing to share a meal with a person with HIV	45	34.1	58	35.2
Buy food from a shop keeper with HIV	46	34.8	36	21.8
Willing to care for a relative with HIV	79	59.8	100	60.6
If a family member HIV positive, would want to keep it secret	71	53.8	105	63.6
Names of people with HIV should be displayed in public	40	30.3	49	29.7
People with HIV should live apart from the rest of the community	57	43.2	80	48.5

HIV Prevention Activities

Table 75 summarizes the awareness of and participation in various HIV prevention campaigns in Chuuk by sex and age group. Most of the participants (68%) had heard HIV prevention messages on the radio, and 36.4% had read HIV messages in the newspaper. Only 20% of participants reported seeing HIV messages on TV.

Table 75: Awareness of HIV Prevention Activities, Pattiw Islands, Chuuk State

	15 to 24		25 to 49		Total	
	Number	%	Number	%	Number	%
Heard messages about HIV or AIDS on radio						
<i>Female</i>	50	61.7	58	63.7	108	62.8
<i>Male</i>	36	70.6	58	78.4	94	75.2
<i>Total</i>	86	65.2	116	70.3	202	68.0
Seen messages about HIV or AIDS on TV						
<i>Female</i>	13	16.0	16	17.6	29	16.9
<i>Male</i>	14	27.5	16	21.6	30	24.0
<i>Total</i>	27	20.5	32	19.4	59	19.9
Read messages about HIV or AIDS in newspapers						
<i>Female</i>	23.0	28.4	26	28.6	49	28.5
<i>Male</i>	17.0	33.3	32	43.2	49	39.2
<i>Total</i>	40.0	30.3	68	41.2	108	36.4

Access to testing

Table 76 below summarizes reported HIV testing experiences. Overall 9.4% of participants had ever been tested for HIV. Females were more likely to have ever been tested than males ($X^2= 4.6$, $p<0.05$). The majority of participants that had ever been tested were tested over 12 months ago. Less than half

(42%) of those who had been tested knew the result of their test. More than half (52.4%) of the females ever tested knew their result compared to 14.3% of males.

Table 76: Reported Access to Testing, Pattiw Islands, Chuuk State

	15 to 24		25 to 49		Total	
	Number	%	Number	%	Number	%
Ever been tested for HIV						
<i>Male</i>	1	2.0	6	8.1	7	5.6
<i>Female</i>	8	9.9	13	14.3	21	12.2
When did you have you last HIV test						
In the last year						
<i>Male</i>	1	100.0	0	0.0	1	14.3
<i>Female</i>	2	25.0	1	15.4	3	14.3
Over a year ago						
<i>Male</i>	0	0.0	4	66.7	4	57.1
<i>Female</i>	8	100.0	9	69.2	17	81.0
Received result of HIV test						
<i>Male</i>	0	0.0	1	16.7	1	14.3
<i>Female</i>	4	50.0	7	53.8	11	52.4

Symptoms of STIs

Table 77 summarizes the experiences of STI symptoms amongst the participants surveyed. Seven percent of all participants indicated that they had ever been diagnosed with a STI. Fifteen percent of all participants reported experiencing symptoms of STI within the past 12 months. The major symptoms experienced by females were burning, sharp pain or blood on urination (12.9%) and an anal ulcer or sore (8.9%). For males, burning, sharp pain or blood on urination (9.6%) and genital ulcer or sore (7.2%) were the most commonly experienced STI symptoms. Of those who experienced STI symptoms in the past 12 months, 21.4% sought treatment from a health professional for their symptoms.

Table 77: Prevalence of Symptoms of STIs, Pattiw Islands, Chuuk State

	15 to 24		25 to 49		Total	
	#	%	#	%	#	%
Ever been diagnosed with a sexually transmitted disease or infection by a doctor or health worker?						
<i>Female</i>	3	7.1	6	10.2	9	8.9
<i>Male</i>	2	5.3	2	4.4	4	4.8
<i>Total</i>	5	6.3	8	7.7	13	7.1
Experienced Symptoms of STI	Female Total	%	Male Total	%	Total	%
<i>Smelling or discolored genital discharge</i>	7	6.9	4	4.8	11	6.0
<i>Smelling or discolored anal discharge</i>	1	1.0	2	2.4	9	4.9
<i>Genital ulcer or sore</i>	7	6.9	6	7.2	13	7.1
<i>Anal ulcer or sore</i>	9	8.9	1	1.2	10	5.4
<i>Burning, sharp pain or blood on urination</i>	13	12.9	8	9.6	21	11.4
	Total N	%				
<i>Sought treatment for their symptoms</i>	6	21.4				
Proportion of respondents who reported that their sexual partner(s) were also treated	4	66.7				

UNGASS indicators

Table 78: UNGASS indicators Youth, Pattiw Island, Chuuk State

	Men 15 to 24 years		Women 15 to 24 years	
	Number	%	Number	%
<i>7. Percentage of women and men aged 15-24 who received an HIV test in the last 12 months and who know their results.</i>	0	0.0	2	2.5
<i>13. Percentage of young women and men aged 15-24 who both correctly identify ways of preventing the sexual transmission of HIV and who reject major misconceptions about HIV transmission*</i>	2	3.9	8	9.9
<i>15. Percentage of young women and men aged 15-24 who have had sexual intercourse before the age of 15</i>	15	39.5	3	7.1
<i>16. Percentage of women and men aged 15-24 who have had sexual intercourse with more than one sexual partner in the past 12 months</i>	21	55.3	10	23.8
<i>17. Percentage of women and men aged 15-24 who have had sexual intercourse with more than one sexual partner in the past 12 months reporting the use of a condom during their last sexual intercourse*</i>	9	50.0	0	0.0
<i>19. Percentage of men reporting the use of a condom the last time they had anal sex with a male partner</i>	0	0.0		
<i>20. Percentage of injecting drug users reporting the use of a condom the last time they had sexual intercourse</i>	No data			
<i>21. Percentage of injecting drug users reporting the use of sterile injecting equipment the last time they injected</i>	No data			

Discussion

Males in the survey were participating in higher risk sexual behavior than females. Males were more likely to have had sex than females, to have had their first sex at a younger age, and to have had multiple sex partners in the past 12 months. Despite 77% of males aged 25 to 49 being currently married, 53% of 25 to 49 year old males reported multiple sex partners in the past 12 months. Therefore it is important that HIV and STI programs targeting at the high risk behavior of males are developed. Importantly, such activities need to consider youth under the age of 15 years as well as married men. In particular, the results of the survey indicate that youth today are more likely to have their first sex under the age of 15 years.

More than one in five participants reported having ever been forced to have had sex against their will. Apart from the serious emotional and physical harm that such behavior may have on a person, forced sex is unlikely to involve condom use and thus includes risk of transmitting HIV and STI. Identifying strategies for addressing forced may be an important adjunct to an effective HIV and STI prevention program.

Half of the sexually active participants reported ever using a condom; however females were less likely to have used a condom than males. Whilst females were less likely to have multiple partners than males, it is the high risk behavior of males that may be placing females at risk of infection, particularly those that are married where condom use is not common with spouses. It may be important to further explore the reasons for females not using a condom and whether or not they feel empowered to negotiate condom use with their male partners. Additionally, it may be important to assess the availability of female condoms in the Pattiw Islands.

Before developing appropriate prevention programs it will be important to further explore the circumstances in which high risk male sex is occurring. One suggestion might be found in male alcohol use. For example, in another survey in the Halls Island group in the North West outer islands of Chuuk, 38% of males reported having sex whilst drunk (Russell et al 2005). Males in the current survey were more likely to have drunk alcohol, and to have drunk heavily in the past 12 months than compared to females.

Another important element of HIV and STI prevention programs is access to testing and treatment. Only nine percent of the participants surveyed reported having ever had a HIV test, most of which were done more than twelve months ago. This may be a reflection of the isolation and poor availability of services in the Pattiw Islands. Additionally, only 21% of the participants that experienced STI symptoms in the past 12 months sought treatment from a health professional. As well as service availability, awareness of STI and their symptoms, and HIV stigma may be important issues to be addressed in encouraging testing and treatment. In the current survey, only 17% of participants showed accepting attitudes towards people living with HIV.

Strong leadership from the community, church and government are needed to help address the above issues, including the development of multi-sectoral partnerships (e.g. transport to the outer islands) and the development of supportive state policy and legislation (e.g. protecting the rights of people living with HIV and AIDS; decentralized service provision).

The survey sample was proportionate to the population of the Pattiw Island group. Some caution should be exercised in interpreting the data as participants on each island were conveniently sampled and therefore may not be an accurate reflection of entire population of the Pattiw Islands. However a survey conducted by CDC in 2001 in the Halls Island group (also in North West Chuuk) reported very similar findings to the current survey thus strengthening the evidence of sexual behaviors, and HIV knowledge and attitudes in the north-west outer islands of Chuuk (Russell et al 2007). The results provide a strong starting point from which to hold further discussions with communities in Chuuk and plan for prevention activities.

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