Results from the HIV/STI Integrated Biologic & Behavioral Surveillance (IBBS) Survey

Democratic Republic of Timor Leste
2011

This document was prepared by the HIV/STI Research & Surveillance Specialist contracted to the RDTL Ministry of Health, HIV/STI Unit, Lahane. This is the draft version of the IBBS 2011 Report and should be cited as such. The final IBBS 2011 Report cannot be generated until MoH provides official approval.

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Abbreviations/Acronyms

AIDS	Acquired Immunodeficiency Syndrome
CDC	Communicable Disease Control
FTH	Fundasuan Timor Hari'i
CVTL	Cruz Vermelha de Timor-Leste
FSW	Female sex worker
HIV	Human Immunodeficiency Virus
IBBS	Integrated biologic and behavioral surveillance
RDS	Respondent-driven sampling
UN	United Nations
WHO	World Health Organization
UNAIDS	United Nations AIDS Agency
DU	Drug User
MSM	Men who have sex with males
VCT	Voluntary testing and counseling
MARP	Most-at-risk populations
MoH	Ministry of Health
STI	Sexually transmitted infection
GF	Global Fund to Fight AIDS, TB, and Malaria
UNMIT	UN Integrated Mission in Timor-Leste
NAC	National AIDS Commission
BCC	Behavior Change & Communication
NL	National Laboratory
TL	Timor-Leste
HPRP	High-priority risk population
HIV	Human immunodeficiency virus
PDA	Personal digital assistance (hand-held computer)
NGO	Non-governmental organization

NB – please keep in mind the following as you read through this draft report:

1. Many of the ratios do not total 100% due to rounding
2. Operational definitions of the target groups were based on universally accepted standards for clarifying inclusion criteria for sex workers, men who have sex with males, and uniformed staff
3. The initial goal of IBBS in Timor was to include intravenous drug users (IDUs). That risk group has been excluded from this report because IBBS team was unsuccessful in finding a community of IDUs to include in the study
4. The initial goal of IBBS 2011 in Timor-Leste was to test respondents in Baucau, Dili, and Bobonaro for gonorrhea. Unfortunately, the vendor delivered the wrong diluents, so screening for gonorrhea could not be completed for IBBS 2011
5. The initial goal was to have enough respondents agree to genital swabbing (and anal swabbing for MSM) to have a sample size large enough for inferential data. Unfortunately, the regional and national laboratory staff were reluctant to do the following: a) swab pregnant FSW; b) conduct anal swabs on MSM who were willing to allow anal swabbing; and c) take direction from hospital clinical staff regarding guidelines clarifying that all respondents were eligible for swabbing. Therefore, the numbers of respondents swabbed for Chlamydia are too small to draw relevant conclusions. The data are included for descriptive purposes only
6. All respondents who submitted blood samples were screened for Hepatitis C. All of the blood specimens were negative. Therefore, Hepatitis C results are not tabulated in the study narrative
7. In Covalima, the blood specimens collected were not stored and shipped properly and could not be screened for Hepatitis B or Hepatitis C. The IBBS team recommends that the HIV/STI unit conduct follow-up work with the regional hospital laboratory in Suai regarding their clinical laboratory procedures and protocols
8. Data presented in this report are ratios – not rates. IBBS team had no context for the time of infection for the participants, so rates as a measurement within the populations cannot be used
9. Please note that denominator data are given for each tabulated variable – not all respondents answered every question. It is important for the reader to understand what each percentage value represents

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Introduction

The MoH HIV/STI unit conducted active surveillance for select STIs (syphilis, Chlamydia, hepatitis B, and hepatitis C) and HIV rapid testing in 5 districts of Timor-Leste: Covalima, Oecusse, Bobonaro, Dili, and Baucau. The HIV/STI unit also assessed the behavioral characteristics of specific high-risk target groups in those districts: female sex workers (FSW), males who have sex with other males (MSM), and uniformed personnel (UP). These data will help the HIV/STI program quantify HIV/STI prevalence in Timor-Leste and improve its programs.

Context

The delivery of HIV/STI-related services to vulnerable populations is Timor-Leste's most obvious investment in the well being of its marginal populations. Based on trends from previous studies, HIV and STI infections amongst the target populations are increasing. A thorough understanding of the context of that increase is critical to developing appropriate policy, intervention, and communications proposals.

Components of IBBS

The first part of the surveillance is the behavioral component. **Volunteer** respondents in each district consented for interview about their risk behaviors and activities as they relate to exposure to HIV and various STIs. After completing this portion, respondents were asked to **voluntarily** provide blood and other biologic specimens for HIV and STI testing. Pre-testing and post-testing counseling was provided to those who voluntarily consented to any portion of the biological testing.

Volunteer respondents were reimbursed for transportation costs to participate in this study. No additional incentives were provided.

Rationale for IBBS

HPRP behaviors and health needs have never been assessed in some of the districts via medical or public health research. IBBS 2011 filled that gap by conducting individual, confidential surveys and key informant interviews to evaluate the HIV/STI-related health status of HPRG residents, identify the locations within the district where the risk activities occur or are negotiated, and characterize the morbidity and mortality associated with HIV and STIs. IBBS is an appropriate method for acquiring these data. IBBS is an appropriate method for acquiring these data.[1]

Goals

1. To use IBBS and sero-surveillance techniques to survey urban and rural communities of HPRPs within the 5 districts to obtain information regarding their health, health concerns, health seeking behaviors, and identify HIV/STI trends;
2. To assess the unmet HIV/STI intervention needs in HPRPs;

[1] Vlassoff, C, & Tanner, M (2010). The relevance of rapid assessment to health research and interventions. *Health Policy & Planning*, 7(1), 1-9.

3. To interview key informants[2] in the targeted communities for information on the HPRPs and to assist with the mapping exercise

Objectives

1. Survey communities to gather first-hand information from HPRP members regarding their health and health-related resources in their areas;

2. Characterize, map, and quantify

    i. The burden of specific STIs as reported by key informants and survey participants
    ii. Access points for HIV/STI-related diagnosis, treatment, and care
    iii. Location and activities of various HPRP actors

3. Measure community demand for HIV/STI-related services

4. Measure the extent the community uses the available medical services

5. Assess the overall health of these populations – community and key informant perceptions

6. Measure the extent distance from the any health care facility or health agent affects community utilization

7. Assess the quality of services available in the area – community and key informant perceptions

Methods

Five districts within Timor-Leste were selected for this study. Dili and Baucau were chosen because they are the large population centers of the country. Maliana and Covalima were chosen because of their active and extensive borders with Indonesia and the human traffic, commerce, exchange, and activity associated with those borders. Oecusse was chosen as representative of a rural and sparsely populated district. The IBBS team visited 2-3 sub-districts within each district to assure a diverse sample of target group members were eligible for participation in the study. Sub-districts visited for study participant recruitment are outlined in Table 1.

[2] The use of key informants in rapid health assessments has proved valuable in terms of providing relevant situational analysis and identifying community health issues. Brennan, J, & Rimba, K (2005). Rapid health assessment in Aceh Jaya District, Indonesia, following the December 26 tsunami. *Emerg Med Australas*, 17(4), 341-50.

Table 4. Sub-districts for IBBS 2011

District	Sub-districts visited
Covalima	Suai, Fatumean, Tilomar
Oecusse	Oecusse, Sakato, Oesilo
Bobonaro	Maliana, Balibo, Cailaco
Baucau	Baucau, Laga
Dili	Atauro, Dili

We visited areas that were known "hot spots" for one or more of the target groups to assure that we had a mix of lower- and higher-risk members of the overall risk group.

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Table 2. Target groups and inclusion criteria

Group	Inclusion Criteria
Men who have sex with males (MSM)	Any male >15 years old who has had sexual contact with another male over the past 12 months
Female sex worker (FSW)	Any woman >15 years old who has exchanged sex for money over the past 30 days
Client of sex worker (CSW)	Any male >15 years old who has paid for sex with a woman over the past 30 days
Uniformed personnel (UP)	Any person >15 years old who is part of a uniformed staff in the public or private sector

Sample sizes

The sample size for each target population was calculated to detect a syphilis infection rate of at least 8%. We chose 8% because the most reliable STI data available was from an FHI study conducted in Dili in 2003, where between 8% and 15% of targeted group members were positive for syphilis.[3] Because of the time constraints of conducting the IBBS, we selected the lower rate to assure that we would recruit an appropriate number of people in each risk category in the short time (up to 10 days) that we had to work in each district. This would assure 2 things: 1) that we recruited enough people and 2) that we had a sample size for each risk category large enough to be statistically relevant and significant. The sample sizes for each risk category are outlined below.[4]

[3] Pisani, E. (2004). HIV, STIs, and risk behaviours in East Timor: an historic opportunity for effective action. Family Health International.

[4] Salganick, M.J. (2006). Variance estimation, design effects, and sample size calculations for respondent-driven sampling. *J Urban Health*, 83(Suppl. 1), 98-112.

The following formula was used:

$n = Z^2P(1-P)/d^2$

n = sample size,
Z = Z statistic for a level of confidence
P = expected prevalence or proportion
(in proportion of one; if 20%, P = 0.2), and
d = precision

$1.96^2 *[.08(1-.08)]/.05^2 = 113$

This calculation meant that we needed a minimum of 113 respondents in each risk category for the total study to be statistically sound. Because we were constrained by time, we had to use the smallest statistically relevant sample size available. The final tally of the size of each group included in IBBS 2011 are outlined in Table 3. Please note that final tally means those respondents who had answered enough questions in the survey to be included in the analysis. Respondents with multiple "don't know" or "no response" answers were excluded from the data set because their answers provide no insight into risk behaviors that may predict infection with HIV or other sexually transmitted infection.

Table 3. Sample size of each target group for IBBS 2011.

Target Group	Included in IBBS 2011 Data Analysis
FSW	133
CSW	390
MSM	159
UP	206
Total	**888**

Table 4. Sample sizes for interview, HIV testing, and specimen collection

	Interviewed	HIV test	Blood	Swab	Reported STI symptoms at time of interview
Male	604	607	541	150	105
Female	281	255	206	27	45
Totals	885	862	747	177	150

These numbers differ from the final numbers included in analysis because 1) some respondents did not fit into the risk categories and were excluded from analysis; 2) blood specimens were destroyed, misplaced, or mishandled – which reduced the numbers that could be tested and included in analysis; 3) some respondents sat for interviews but did not receive HIV testing and did not submit blood specimens; 4) some respondents did not sit for interview but chose to undergo HIV and STI screening; and 5) respondents with incomplete interviews were excluded from the behavioral analyses.

Sampling Procedure

IBBS 2011 used a modified respondent-driven sampling technique. The modification was due to the added layer of screening for FSW. Our first attempt at using traditional RDS failed because first-wave FSW distributed coupons to their relatives instead of to their FSW social network. MSM, UP, and CSW used a traditional RDS successfully.

We used full-time outreach staff and volunteers from FTH and CVTL to distribute the first wave of coupons to the target populations. After the first wave came, we gave coupons to those who submitted for interview and STI screening so that they could distribute to their social network. We generated 5 waves of respondents in each district.[5] RDS is a chain referral sampling method, but unlike snowballing, RDS provides unbiased estimates of population parameters and mimics the process of randomized selection of members of target groups to participate in IBBS. FTH and CVTL staff helped identify the first wave of participants by distributing coupons to them. These first wave candidates had the strongest awareness and connections to networks of target populations. Once these first wave participants completed their interviews and testing, the second wave came through, and these participants were given coupons for distribution to generate waves 3, 4, and 5.

Key Indicators of Interest

- Prevalence of HIV, syphilis, HepB, and HepC
- Sexual risk behaviors, including numbers and types of sex partners (commercial, regular, male, female)
- Condom use with different types of sex partners
- Knowledge of STIs and STI care-seeking behaviors
- Knowledge and attitudes toward HIV/AIDS
- Drug and substance use (including injection drug use)
- Self-perceptions of HIV/STI risk
- Exposure to HIV/STI prevention messages and interventions

Data Collection

Survey Instrument

The survey used for IBBS 2011 was a modified version of the survey used for IBBS 2009. The survey was edited, questions were reformatted, and many questions were eliminated. The revised survey was pilot tested for 3 days in a district of Dili. The comments were taken into consideration and the survey was finalized by 30 September. The survey was translated from English to Tetun and loaded into the PDAs. The survey was loaded onto a PDA and the enumerators were trained for one week on location in Dili.

Each questionnaire had a unique identification number, each participant received a unique participant ID number, and each coupon had a district-specific code to avoid use of coupons in various districts. The

[5] Goel, S., & Salganick, M.J. (2009). Respondent-driven sampling as Markov chain Monte Carlo. *Statistic Med*, 28, 2202 – 2229.

participant ID numbers were used to code containers of biologic specimens and to label the oral HIV tests. No names were provided to the interviewers, the lab staff, or to the other supporting staff.

The questionnaire was piloted and pre-tested by interviewing a random selection of persons >15 years old. Adjustments were made to structure, sequence of questions, language use, and wording. The final survey was translated from English to Tetun and also loaded to the PDA.

Interviewer Selection & Training

Field survey enumerators were selected via a competitive process via public announcement of the availability of 3 positions for these jobs. A review of CVs, a face-to-face interview with the Research & Surveillance Specialist, and a final meeting with the GF administrative staff, led to the generation of a list of applicants to hire. Eleven men and 4 women applied for these 3 positions – 2 for males and 1 for women. Because 3 of the 4 target groups are male-specific, we needed two men to handle the load.

Criteria for selection:

- Proficiency in English speaking and writing
- Familiarity with the target populations
- Willingness to adhere to a strict and packed time schedule
- Willingness to travel away from home frequently and for up to 10 days at a time
- Committed to respecting participants' privacy

Laboratory staff at district hospitals were used for the collection of blood and swabs from the participants. VCT counselors were used to administer the HIV testing and counseling. HIV testing consisted of abbreviated pre-test counseling, submission of the participant ID card to consent for the testing, administration of the HIV oral test, and post-test counseling after the results were available within 20 minutes. Information about the HIV test used for this IBBS study is included in Appendix XXX.

Laboratory staff had received previous training and standard IBBS laboratory protocols from Bernard Owino, the Laboratory Specialist.

Use of FTH and CVTL facilities

IBBS team used the FTH and CVTL offices in each district to conduct the interviews and the HIV tests. We used those sites for practical reasons:

- Staff of these NGOs had connections to the target groups
- Offices located in central and accessible locations for scattered populations
- Offices located near hospital laboratory
- Sufficient rooms for privacy during interview and privacy during HIV counseling and testing
- Availability of water and toilet facilities

Process

Each IBBS site had 3 distinct sections – a screening area where participants waited for interview (and were screened to see if they were a target group member and had a valid coupon), a private interview room, and a private room for HIV testing and counseling. After presenting a valid coupon and being a target group member, participants were given an ID card that they were instructed to present to the interviewer, the HIV counselor, and to the laboratory staff as a sign of consent for participation. Additional screening and additional consent statements were given to each participant who sat for interview. The interview could not start until the participant gave the participant ID card to the interviewer. The HIV testing could not start until the participant submitted the ID card to the counselor. Blood and/or genital swabs could not be taken until the participant gave their ID card to the appropriate lab staff. This "giving of the ID card" was the power they had to stop their participation at any time.

All participants left the interview site to go to hospital for specimen collection. At each station, the participant received a "stamp" on the back of the ID card to indicate completion of that activity. After returning from the hospital laboratory with a stamp for blood and/or swab collection, the participant could present this ID card to the interviewer to receive his or her incentive. IBBS team was sure to remind participants to keep the ID for up to 3 months. Participants need the ID card to retrieve their laboratory results from the hospital or from the MoH. No results were to be given via telephone, text message, or e-mail. All laboratory testing results had to be given face-to-face to assure that counseling could be provided if necessary.

Survey

The survey consisted of 8 sections and approximately 60 questions. The median time to administer and complete the survey interview was 29 minutes. A copy of the survey instrument is included as Appendix XII.

All participants were compensated for their time and for any specimens contributed. For interview and HIV testing, participants were eligible to receive $5. If they submitted blood specimens, they received an additional $5.

Monitoring and quality assurance

IBBS team members met at 7:30AM each morning in the field to prepare for the day's activities and logistics. The team also held nightly after-action meetings to discuss activities, problems encountered, and to brainstorm solutions so that the study could move forward.

Biologic laboratory procedures

- HIV testing was performed with Oraquick, an orally administered rapid test. HIV testing was performed in conjunction with the interview. The rapid test did not require special handling and storage, as it could within wide temperature fluctuations. The portability of the rapid test allowed the IBBS team to test a much more diverse group of target group members because we were not bound to having rural- and border-dwelling target group members be close to a laboratory to have

their HIV status revealed. If participants submitted to testing, the counselor asked if they wanted to know the results. If they did not want to know, they were not given. For those testing positive, a confirmatory rapid test was done immediately (if consent given). If both tests were positive, the patient was given a referral form to go to be evaluated by a doctor at the hospital. Because blood was collected for STI screening, we had the blood specimen for additional ELISA testing to see if those results confirmed the rapid test results.

- Syphilis testing was done with rapid test. The test used a quantitative rapid plasma regain (RPR) screening test (Appendix XIII).

- Gonorrhea tests were ordered but could not be used because the company sent the wrong diluents.

- Chlamydia was used in only a few participants due to difficulties with laboratory staff to conduct appropriate swabbing (Appendix XI).

- Hepatitis B was diagnosed with a rapid test (Appendix IX).

- Hepatitis C was diagnosed using a rapid test (Appendix X).

Package inserts and other information about the rapid tests used for IBBS 2011 are included in Appendices. All specimens were recorded in an IBBS log (Appendix XIV) using the participant ID number. All respondents were to use their ID card to get their lab results (if they wanted them) within one month of submitting them. A copy of the log was left with the regional lab staff. To receive their results, the participant has to present their ID card to the counselor individually. No results were given without the original ID card. No results given via e-mail or via mobile phone. The trained VCT counselors were responsible for delivering the requested results in person (never verbally or written).

Data Management

Daily data were stored in an Excel file to track progress for identifying appropriate numbers of target group members in each district. The PDA surveys were developed using SQL, and each night the data were downloaded into an Access file for storage and back-up. The complete data from all 5 districts were concatenated and analyzed with SPSS. The data were cleaned using Excel. Descriptive statistics of socio-demographic data, lab results, and relevant indicators were performed with SPSS.

Ethical Considerations

The Human Research Ethics Committee of the Cabinet of Health Research within the MoH approved the IBBS 2011 study in August 2011.

To assure that district MoH staff understood the purposes of the IBBS and that the entire process was voluntary, we conducted 3 sensitization visits to each district. During each visit, we met with regional lab staff, the DG of the hospital, the HIV regional coordinator, and staff from FTH and CVTL.

Signed consent was not used because of low literacy rates in TL.[6] Oral consent and presentation of the participant ID card was an "action" that indicated the participant's consent.

Confidentiality

Volunteer participants were given an i.d. code via a participant ID card. Their names will be known only to the HIV/STI Research & Surveillance Specialist – this code was assigned to the volunteer participant and was used to identify them on the survey instrument and any biological specimens they submit to the study. Laboratory staff were blind to the identity of the person associated with the biologic specimens.

Data Collection

Qualitative data collection – interviewer notes, interviewer field and observation notes, and transcripts generated from the key informant interviews. Data were stored in NVIVO, a qualitative software package.

Quantitative data collection – Survey data were collected via portable computer. Data were stored in Excel and analyzed using SPSS.

Biologic data – collected by the regional and national laboratory and merged with the survey data, based on the volunteer participant's unique ID number

[6] Adult literacy rates in Timor-Leste were recorded at 38% in 2001 and at 51% in 2007. The World Bank. Available on the web at: http://data.worldbank.org/country/timor-leste

Executive Summary

From July to December 2011, an IBBS survey was conducted amongst selected population groups in 5 districts within Timor-Leste: Dili, Bacau, Oecusse, Bobonaro, and Covalima. The IBBS used a community-based sampling method to estimate the prevalence ratios of HIV and other sexually transmitted infections (STIs) and to provide indicators of risk behaviors and intervention exposures amongst these targeted populations. Respondent-driven sampling was used to recruit 206 Uniformed Personnel (UP), 159 men who have sex with males (MSM), 133 female sex workers (FSW), and 390 clients of sex workers (CSW). Behavioral and other data were collected through individual face-to-face interviews, while the prevalence of HIV and STIs were measured through oral swab, blood, and genital swab specimens.

Timor-Leste has been previously classified as a low prevalence country for HIV.[7] The data from this IBBS bear out those data. However, the prevalence ratios for various STIs and data on the predicate risk behaviors within adult target group members remained unknown. These data start the process of shining a light on what those ratios actually may be. Previous studies have been isolated to Dili (the capital city), and therefore could not be used to make inferences about the country as a whole. Because the 5 districts included in this study are representative of the whole country, there is statistical power to draw inferences about HIV, HepB, HepC, and syphilis prevalence ratios.

An early warning about HIV and AIDS trends for Timor-Leste can be gleaned from the STI data and the behavioral data among the high-risk populations of MSM, FSW, CSW, and UP. This community-based systematic surveillance focusing on MARPs provides estimates of HIV and STI and risk behaviors.
The interesting aspect of HIV infection in Timor-Leste is that the data show that infection rates are nested in sub-populations within the target groups, e.g., transgender MSM as opposed to all MSM sub-groups.

[7] Pisani, E., Purnomo, H., et al. (2006). Basing policy on evidence: low HIV, STIs, and risk behavior in Dili, East Timor argue for more focused interventions. *Sex Transm Infect*, 82, 88-93.

Key Findings

Female Sex Workers: inconsistent condom use with clients and partners increase risk of STI and HIV infections

Of the self-identified FSW in the IBBS, 1.5% of them were HIV-infected across the 5 districts. However, FSW HIV-infection ratios were higher in Maliana (2.6%) and in Dili (3.6%). Biologic specimens collected from FSW across the 5 districts showed that 8.3% are chronically infected with Hepatitis B, 9.8% were positive for syphilis, and 1.5% were positive for Chlamydia. The prevalence ratios for these STIs did not vary too much across the districts (Appendix II). Gonorrhea prevalence is low because the numbers of FSW who submitted genital swabs and the willingness of local lab staff to conduct swabbing was too inconsistent for these data to be used for inferences or program planning.

Thirty-eight percent of FSW reported having never used a condom with any sex partner. Only 36% reported using a condom the last time they had sex with a client. Drug use amongst FSW was reportedly low, with only 3% reporting any drug use during the past 12 months. This ratio varied by district, with 12% of FSW in Dili and 4% of FSW in Oecusse reporting drug use. Drugs of choice included marijuana, cocaine, and ecstasy mixed with locally-brewed alcohol.

MSM: Higher rates of HIV and high rates of STIs and multiple risk factors

HIV prevalence amongst MSM was 1.3% across the 5 districts, but was markedly higher than the average in Maliana: 3.6%. When adjusted for type of MSM across all 5 districts, transgender MSM had a higher-than-average HIV infection ratio: 2.6%. STIs were also high amongst MSM. Of MSM submitting blood specimens, 10.23% were diagnosed as chronic carriers of Hepatitis B surface antigen (HBsAg+) and 7.1% were positive for syphilis. Of those submitting urethral swabs, 1.3% were positive for Chlamydia. The overwhelming majority of MSM did not exclusively have sex with men, as 78% of the respondents indicated also having had sex with a female within the past 12 months. Unfortunately, 55% reported that they never use condoms when having sex with a female partner. Thirty percent of MSM respondents indicated that they had never used a condom with any sex partner; however, two-thirds of the MSM respondents reported using a condom the last time they had sex with another male. Drug use amongst MSM overall was low, with only 2% reporting any drug use within the past 12 months; however, when adjusted for type of MSM, transgender MSM had a higher drug use ratio: 4%. Of the 5 districts, 19% of Dili-based MSM reported drug use within the past year. Ecstasy mixed with alcohol was the drug of choice for most of them.

CSWs: Representative of general adult male population & their risk behaviors

None of the 390 CSWs participating in IBBS 2011 tested positive for HIV. However, their infection ratios for STIs were very high. Of the 390 men who had a primary classification of CSW, 14.4% of them were HBsAg+, 16% were positive for syphilis, and 3% of those submitting urethral swabs were Chlamydia positive. CSW had the highest STI rates of any other target group in the IBBS 2011 survey. Much of their risk of infection is predicated on inconsistent and very low condom use, having multiple and varied paid sexual encounters each month, and a slightly higher-than-average use of drugs (2.3%) over the past 12

months before the interview. Of the 390 CSW respondents, 54% reported that they never use a condom with any of their female sex partners.

Uniformed Personnel: more educated than other target groups and more access to care

HIV prevalence of those respondents in the 5 districts with a primary classification of UP was 0.5%. However, for Bobonaro, the HIV prevalence ratio amongst UP was 2.6%. Multiple sex partners amongst UP was very common, with 34% reporting that they had hired sex workers within the past 12 months. As with the other target groups, STI infection ratios were very high. Of the UP submitting blood specimens, 14.8% were HBsAg+ and 13.9% were positive for syphilis. None of the urethral swabs submitted by UP tested positive for Chlamydia. Across the districts, 13% of Dili-based UP reported drug use. Marijuana, ecstasy tablets, and smoking opium were the drugs of choice. The types of occupations included in IBBS 2011 are in Table 3. UP respondents reported that they were much more likely to go to the hospital when they have STI symptoms than the other target groups, who are more likely to "do nothing" or "talk to a friend" when they have symptoms. Such actions indicate that UP members have more access to care via their work place than the other target group members, who have large unemployment ratios.

Table 5. Types of UP included in IBBS 2011

Occupation	Previously Surveyed by past BSS or IBBS studies?
Police	Yes
Military	Yes
UN Security (employed by UN)	No
Government Security	No
Private sector security (e.g., NGOs, banks)	No
MoH & hospital staff	No
Bombeiros	No
Civil servants (e.g., teachers)	No
Alfandega	No
Quarantine/Border Security	No
Transportation/Border Security	No

HIV/STI Outreach & Education

The IBBS 2011 results showed that coverage of intervention and prevention messages across the districts is increasing but still needs to be improved. However, only one of the 5 respondents who tested HIV-positive had ever been previously tested. Of all respondents, 38% reported that they had never heard of STIs, and most reported that they learned of HIV/AIDS from friends or family instead of a health agency or health care practitioner. Only half of all respondents had ever taken an HIV test, despite data showing that 85% of all respondents reported that it was possible to get a free and confidential HIV test in their community. Other data also show that most respondents, irrespective of level of education or risk classification thinks that mosquitoes transmit HIV and that one can become infected by sharing a meal with an HIV-positive person or living with an HIV-positive relative.

Background

In the past, Timor-Leste has conducted HIV and STI surveillance via sentinel activities in antenatal clinics. However, this type of surveillance is not appropriate for a low-prevalence country like Timor-Leste – a country where the HIV epidemic is not generalized but nested in a minority of sub-populations.[8] Also, sentinel surveillance activities do not provide STI and risk behavior estimates and trends in representative and community-based samples of targeted high-priority risk populations. The 2011 IBBS helps fill some of the gaps in Timor-Leste's HIV and STI data. The information contains statistically sound representative HIV, STI, risk behavior, and situational data from FSWs, MSM, CSWs, and UP in 5 of the country's 13 districts. The data from IBBS 2011 provide, in many instances for the first time, representative population-based data on the biologic and socio-demographic characteristics and behavioral risk factors of the key target groups. For tracking the epidemiology of HIV and STI infections and risk behaviors helps the MoH and other stakeholders evaluate the achievements of its programs and interventions to explain changes in HIV/STI prevalence.

[8] In a country with a **low-level** or **concentrated epidemic** (where high levels of infection are found only in specific groups), the national estimate of HIV prevalence is mainly based on data collected from **populations most at risk** - usually sex workers, injecting drug users or men who have sex with men - and on estimates of the sizes of the populations at high risk and at low risk. Reports of HIV diagnoses and AIDS deaths may also be taken into account.

RESULTS

Characteristics of target populations

Major characteristics of the target populations are presented in Tables 6-8. These data have been disaggregated by geographic location to help the reader draw some conclusions of geography's impact on the study results. UP characteristics are included in the Appendices and in the figures included in this report.

Table 6. Characteristics of FSW

	Covalima	Oecusse	Bobonaro	Baucau	Dili
Age group (n)	20	53	33	26	28
<20 yr (%)	27.3	10.6	9.1	19.2	5.9
20-24 yr (%)	18.2	29.8	30.3	42.3	47.1
25-29 yr (%)	27.3	29.8	21.2	15.4	35.3
≥30 yr (%)	27.3	29.8	39.4	19.2	11.8
Median number of clients seen on last work day	3	4	4	5	6
Median number of clients on last work day who were new clients	2	2	1	2	2
Used condom with last client	36.4%	51.5%	58.3%	59%	66.7%

Data in this table show that FSW have approximately 15 clients per week, with half of those persons being new clients. Condom use is lowest in the district with the highest syphilis infection ratio – Covalima – and highest in Dili. The data show a lot of room for improvement in condom uptake and consistent use amongst FSW in all districts.

Table 7. Characteristics of CSW

	Covalima	Oecusse	Bobonaro	Baucau	Dili
Age group (n)	106	96	91	37	58
<20 yr (%)	12.3	11.5	7.7	5.4	0
20-24 yr (%)	18	27.1	16.5	35.1	34.5
25-29 yr (%)	25.5	29.2	28.6	35.1	43.1
≥30 yr (%)	44.3	32.3	47.3	24.3	22.4
# times per month hire sex worker (median)	3	3	3	2	3
Price paid to FSW (median)	US$3	US$2	US$5	US$10	US$15
Never use condom with any female sex partner	77.6%	68.9%	43%	75.7%	37.5%

Clients of sex workers find sex workers in everyday settings such as at the market, on the street, or at specific restaurants/cafes. The prices they pay depend on location and nationality of the sex worker. Foreign sex workers receive more money than national sexual workers. Many of the CSW also pay for sex with men, with 33% reporting that they've paid for sex with another male sometime in their lives. The data also show that condom uptake and use is extremely low in this group, which is reflected in the biologic data for CSWs.

Table 8. Characteristics of MSM

	Covalima	Oecusse	Bobonaro	Baucau	Dili
Age group (n)	26	45	37	24	40
<20 (%)	19.2	11.1	13.5	8.3	0
20-24 (%)	30.8	35.5	16.2	20.8	37.5
25-29 (%)	27	31.1	21.6	41.7	37.5
>30 (%)	23.1	22.2	48.6	29.2	25
Received money or gifts for sex with male	69.2%	57.8%	75.7%	70.8	62.5%
Used condom with last male sex partner	34.6%	26.7%	29.7%	25%	45%
Also has sex with female partners	73%	69%	46%	83.3%	57.5%
Used condom with female partners	31.6%	19.4%	58.8%	50%	69.6%

Condom use is low amongst MSM, irrespective of district of residence. Many, and sometimes most, report that they also have sex with women. The data show that they are less likely to use a condom with a male partner than with a female partner – this is in light of the fact that only 4% indicated that they did not "have intercourse" with their male partner (indicating that oral sex is not considered sexual intercourse). The gifts that MSM receive for sex include cigarettes, food, air-time for mobile phones, chickens, and lifts on a motorcycle.

When asked where they meet their male sex partners, MSM respondents indicated the following:

- Through friends – 66%
- In tourist areas – 6%
- In beach areas – 23%
- On the street – 86%
- In karaoke bars – 9%
- Through co-workers – 17%
- At night clubs – 21%
- In drinking bars – 9%

Laboratory Results

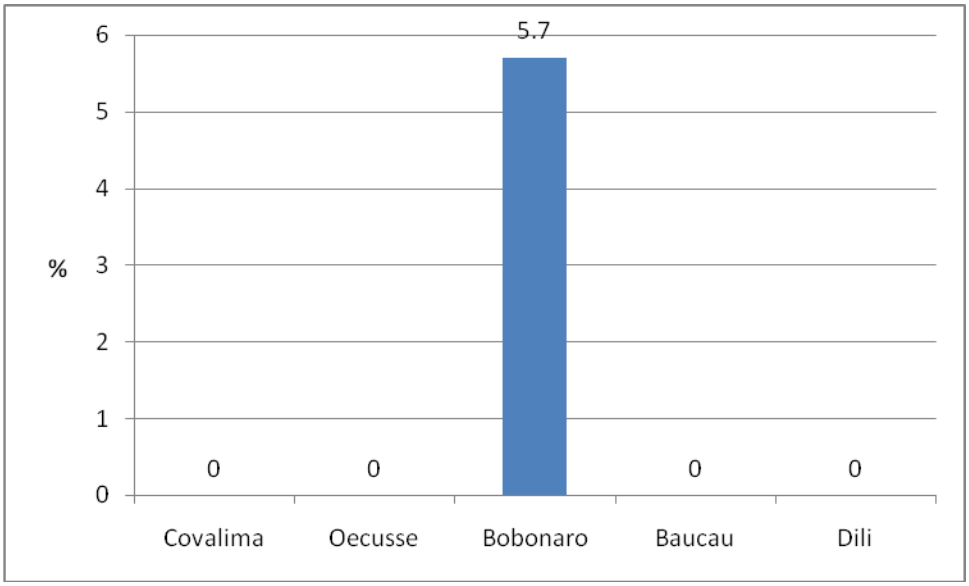
Biologic data help clarify the implications of the behavioral aspects of the target group members. IBBS 2011 implemented broad-based HIV testing, and used biologic testing in all districts to help TL have a clearer picture of its HIV/STI burden of disease in these target populations. The figures below outline the laboratory findings. They should be read with a review of the tabulated behavioral data. One dominant theme from the behavioral and biologic data is that the availability of HIV and STI testing and screening must be easy to access, which means that the MoH HIV/STI unit must be more proactive in terms of outreach and education and making testing more mobile (going to specific locations at specific times to capture a larger population for free testing, counseling, and follow-up).

HIV and STI Prevalence Ratios in Target Populations

Figure 1. HIV prevalence ratios among FSW: higher in Bobonaro and Dili

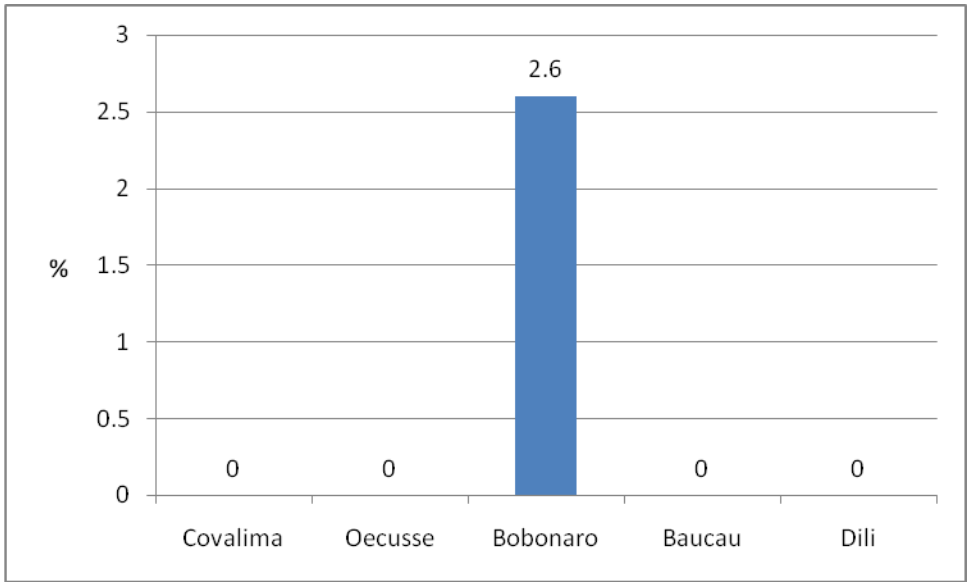
Timor Leste's FSW population is still experiencing a low-level epidemic. A confounder for Covalima district was the late arrival of the rapid tests to the field site, thereby compromising our ability to test 10% of the FSW who presented for interview and STI screening. The higher rates noted in Bobonaro and Dili likely reflect cross-border sex work and sex work with foreign clients (due to prolonged and significant UN presence in the country).

Figure 2. HIV prevalence ratios amongst MSM



The data show that there is a problem with HIV infection in transgender MSM in Bobonaro, specifically in Maliana. There were 3 distinct groups of MSM identified through the interviews: 1) transgender MSM who physically identify as female; 2) a social group of male-identifying MSM who have primary social connections to Atambua in Indonesia; and 3) an isolated group of rural-dwelling MSM – they are not integrated into the other 2 groups of MSM because they live in rural areas and do not have strong connections to Maliana or to Indonesia. Due to the late arrival of the rapid HIV tests, approximately 5% of MSM presenting for interview in Covalima were not tested. The zero percentages included in Figure 2 indicate that these districts likely have a very low level of HIV infection, low enough to require a much larger sample size of target group members to detect its presence.

Figure 3. HIV prevalence ratios in Uniformed Personnel



Please note that the zero percentages in the figure do not indicate the absence of HIV. It indicates that the infection levels are likely so low that the small sample sizes of the IBBS could not detect it. The presence of HIV infection in uniformed personnel in Bobonaro represents a challenge. Previous data did not detect HIV in this target group. These data may indicate the need for more enhanced outreach and education to UP as well as enhanced efforts to make confidential HIV testing and counseling available to the professions within the UP target group.

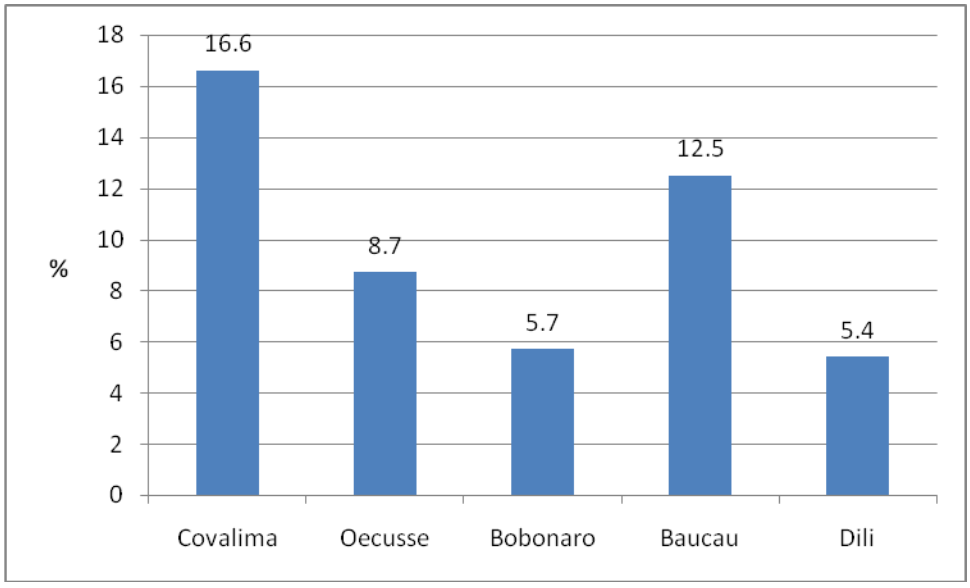
There were no HIV-positive respondents amongst CSW participants.

STI Prevalence Ratios

Syphilis

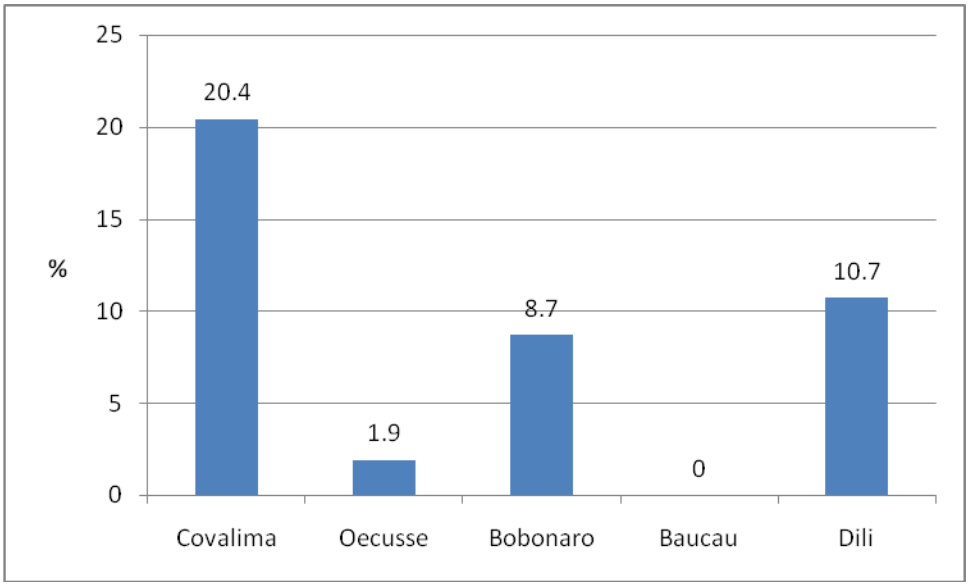
The data from the syphilis screening in all districts indicate that TL has an STI emergency unfolding and inappropriate programming and activities to address it. The data in the figures below show the very alarmingly high infection ratios detected through IBBS 2011 activities. The data highlight that of all 5 districts, Covalima has the most severe STI crisis, which requires coordination of an emergency response to control spread.

Figure 4. Syphilis prevalence ratios in MSM



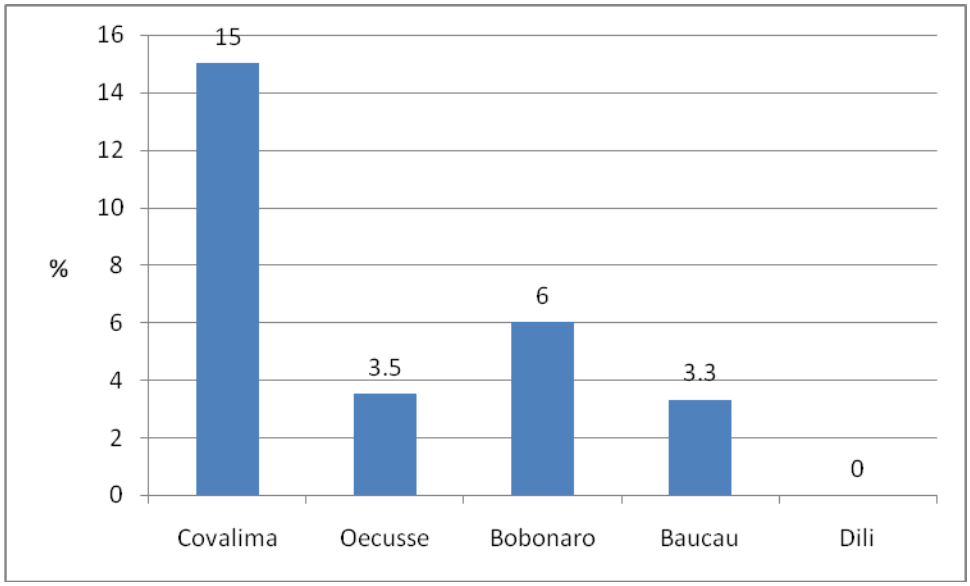
MSM respondents in all districts had high syphilis infection ratios. These data reflect inconsistent use of condoms, multiple sex partners, and emergence of a new risk category: teenage males who are the "clients" of older MSM. The "clients" of MSM receive gifts, rarely cash payments, in exchange for sex. In Baucau, 60% of the MSM syphilis cases came from one sub-district: Laga.

Figure 5. Syphilis ratios in FSW



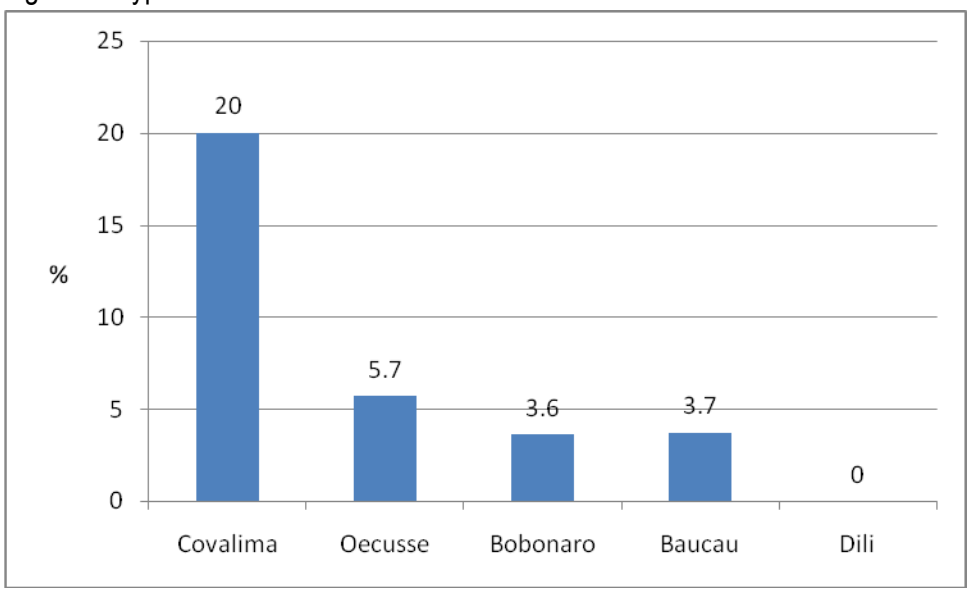
Covalima has the highest burden of disease amongst FSW. Of note about Covalima is that it was the most contaminated sample (many of the women interviewed were not true FSW and many claimed to have never had intercourse), but the female participants from Suai clocked the highest syphilis infection ratio amongst women in all the districts. The 2% infection ratio in Oecusse is likely an anomaly which requires follow-up testing of a random sampling of FSW in that district. The low infection ratio in Oecusse also reflects the difficulty of finding a diverse set of FSW to include in the study, due to the poor connections to FSW the FTH staff had with that community. The zero ratio in Baucau is not reflective of the absence of infection amongst FSW there, but a reflection of the very small and biased sample of FSW that IBBS team was able to identify and convince to participate in the study.

Figure 6. Syphilis ratios in CSW



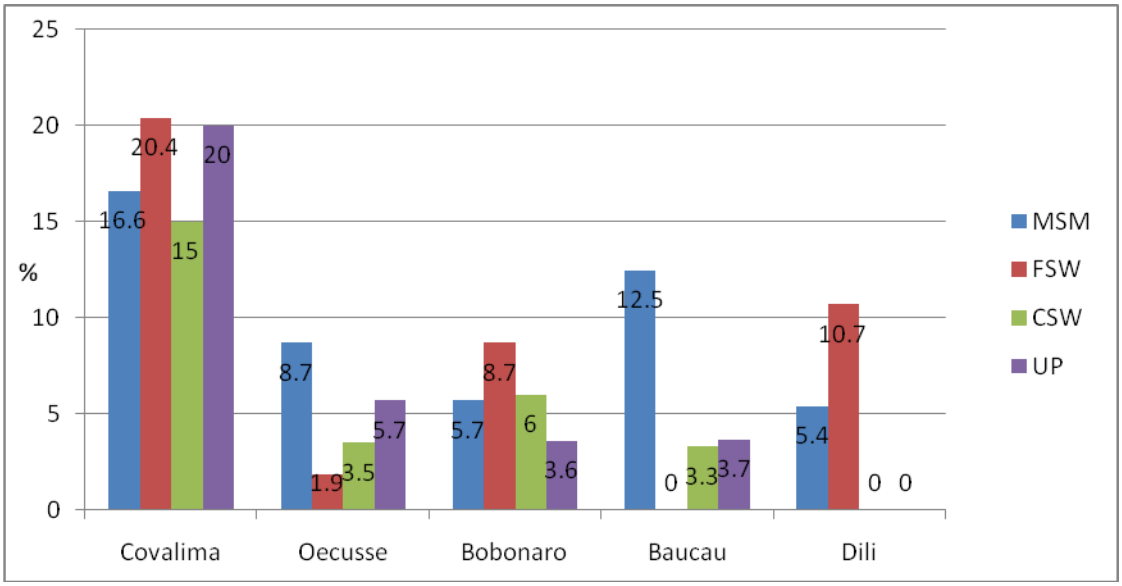
The zero ratio in Dili is reflective of the smaller sample size of CSW participating in the IBBS activities in that district as well as laboratory inconsistencies in blood collection and testing. The ratios for the other districts provide evidence that there is a big problem with STIs in Covalima and Bobonaro. The CSW syphilis cases identified in Baucau are of interest because 50% of them came from one sub-district: Laga.

Figure 7. Syphilis ratios in UP



These UP data show, again, that STIs are a major challenge in Covalima, irrespective of risk category or target group identification. The zero ratio for UP in Dili reflect 2 developments: 1) a smaller sample size and 2) inconsistencies in laboratory procedures for blood collection and testing.

Figure 8. Syphilis Infection Ratios – by district & risk category



When target groups are clustered by district, we see more homogeneity of infection – higher rates or lower rates across the target groups. The role that geography plays in these infection rates should be examined in follow-up IBBS activities.

Hepatitis B

The very high Hepatitis B infection ratios reflect 3 things: 1) inadequate vaccination coverage of newborns and others in all TL districts; 2) inadequate delivery of the birth dose of vaccine + immune globulin; and 3) inadequate screening of pregnant women for their surface antigen status. Such high infection rates have severe health implications for those infected and those that they live with, have sex with, or will give birth to. The role of tattooing in spread of Hepatitis B infection within TL is an aspect worthy of follow-up study. Again, high infection ratios were across geography and risk category. Please note that data for Covalima are not available due to the quality of handling and shipping of the blood specimens by regional laboratory staff. The IBBS team thinks the hepatitis B infection ratios for Covalima are consistent with those observed in the other 4 IBBS districts.

Figure 9. Hepatitis B surface Antigen positive ratios in MSM

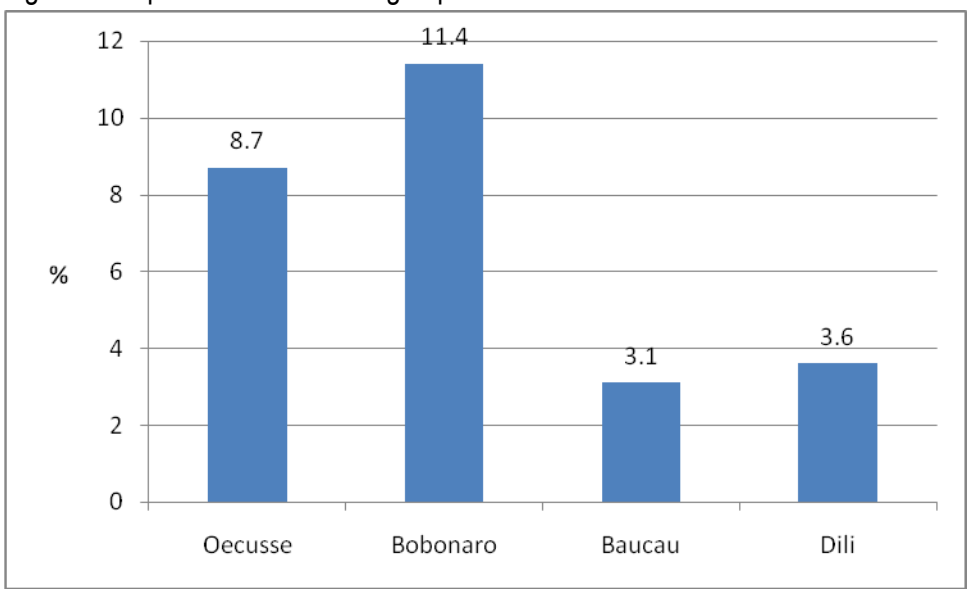
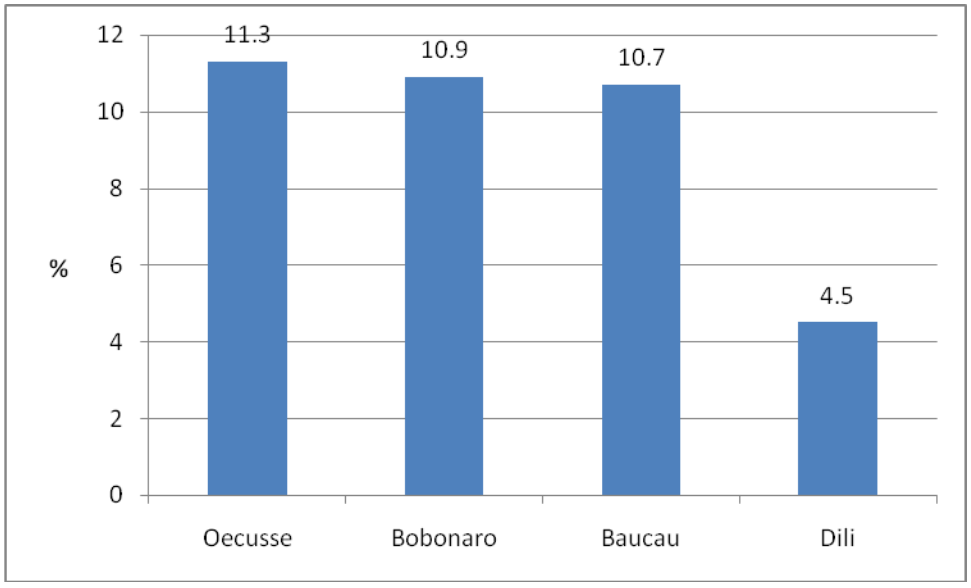
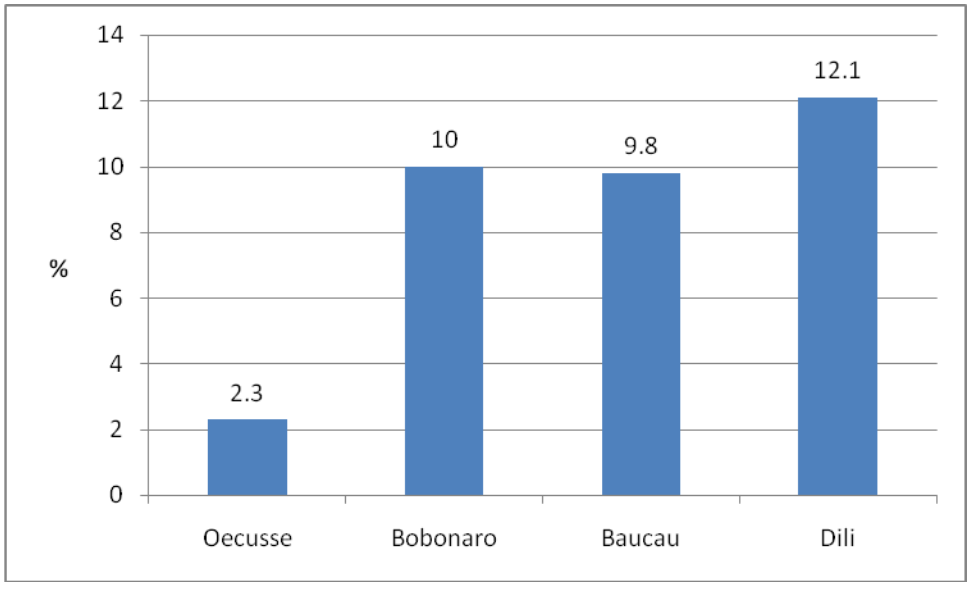


Figure 10. HepB ratios in FSW



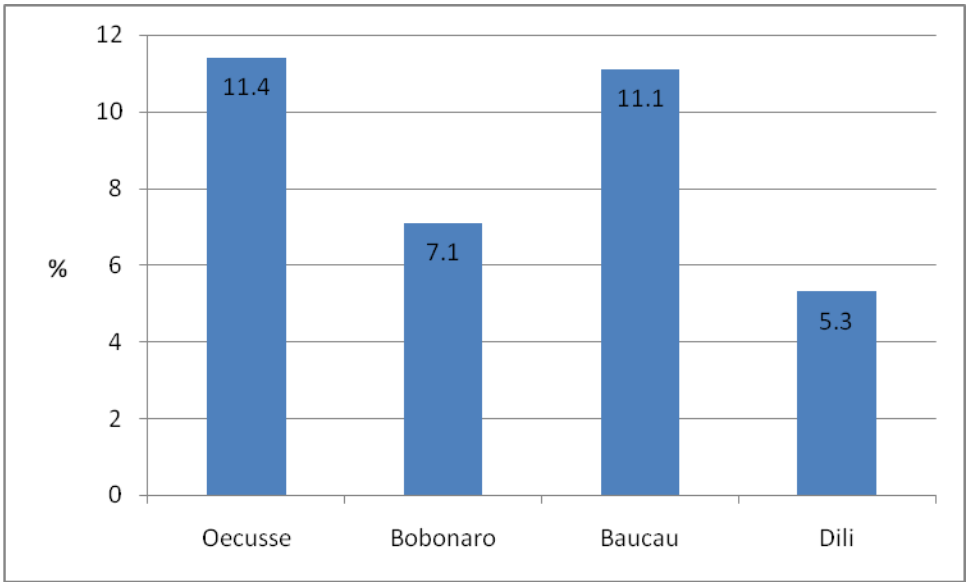
The scenario of high Hepatitis B infection rates amongst FSW is ominous: the IBBS respondents have a median age of 25 years, which indicates many years remaining to have children and pass the infection to a new generation.

Figure 11. HepB ratios in CSW



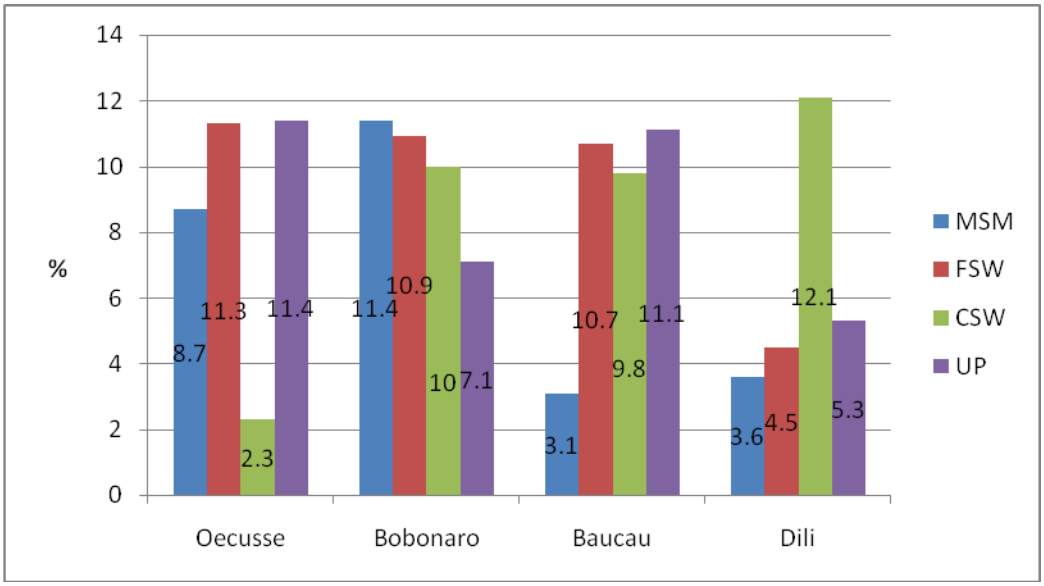
The concern with hepatitis B infection rates in CSW is that they have unprotected sex with a higher-than-average number of casual partners, have low rates of condom use, and most are married and 50% indicated that they do not use condoms with their regular female partners because they are “trying to have a baby.”

Figure 12. HepB ratios in UP



The UP infection rate is high across all districts. Given the propensity for UP staff to hire sex workers in Timor-Leste and in Indonesia (many of the border agents reported that they cross into Indonesia for free and purchase sex their because they can have more sex for "less money" – they are paid in US dollars, which has a favorable exchange rate with the Rupiah), there is a high chance of spread to various people who come into contact with these target group members.

Figure 13. HepB infection ratios – by district & risk category

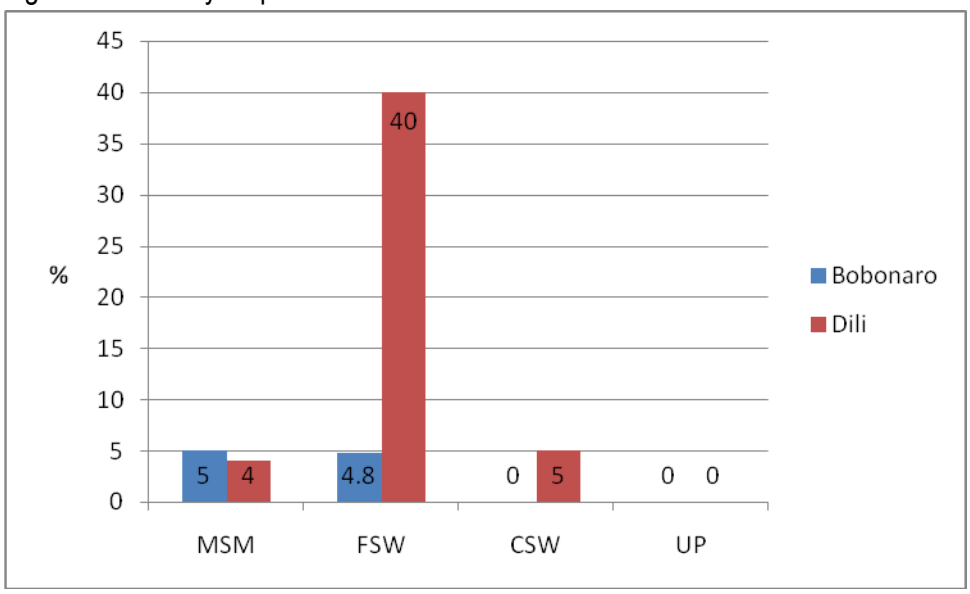


When grouped by district, the data are more homogeneous – high infection rates irrespective of risk category. The lower-than-expected infection ratio amongst CSW in Oecusse is worthy of additional study.

Chlamydia

IBBS 2011 managed to examine respondents in two districts – Bobonaro and Dili – for Chlamydia infections. Unfortunately, the numbers were not large enough to help clarify the burden of disease from this infection is for the target groups. However, the data presented in the figures below can be used as a guide for specific areas of follow-up and biologic/behavioral investigation related to these infections.

Figure 14. Chlamydia prevalence ratios



The numbers of those who received a genital swab for Chlamydia testing were small. However, that the proportion who tested positive indicates that Chlamydia, like syphilis, is a significant cause of sexually transmitted infections within TL's target groups. FSW are of particular interest because Chlamydia disproportionately affects women who are at the early stages of their reproductive years.

Socio-Demographic Details of Survey Participants

Female Sex Workers

The following tables and figures are data on the main indicators of FSWs. More data can be found in the Appendix.

Figure 15. Marital status of FSW

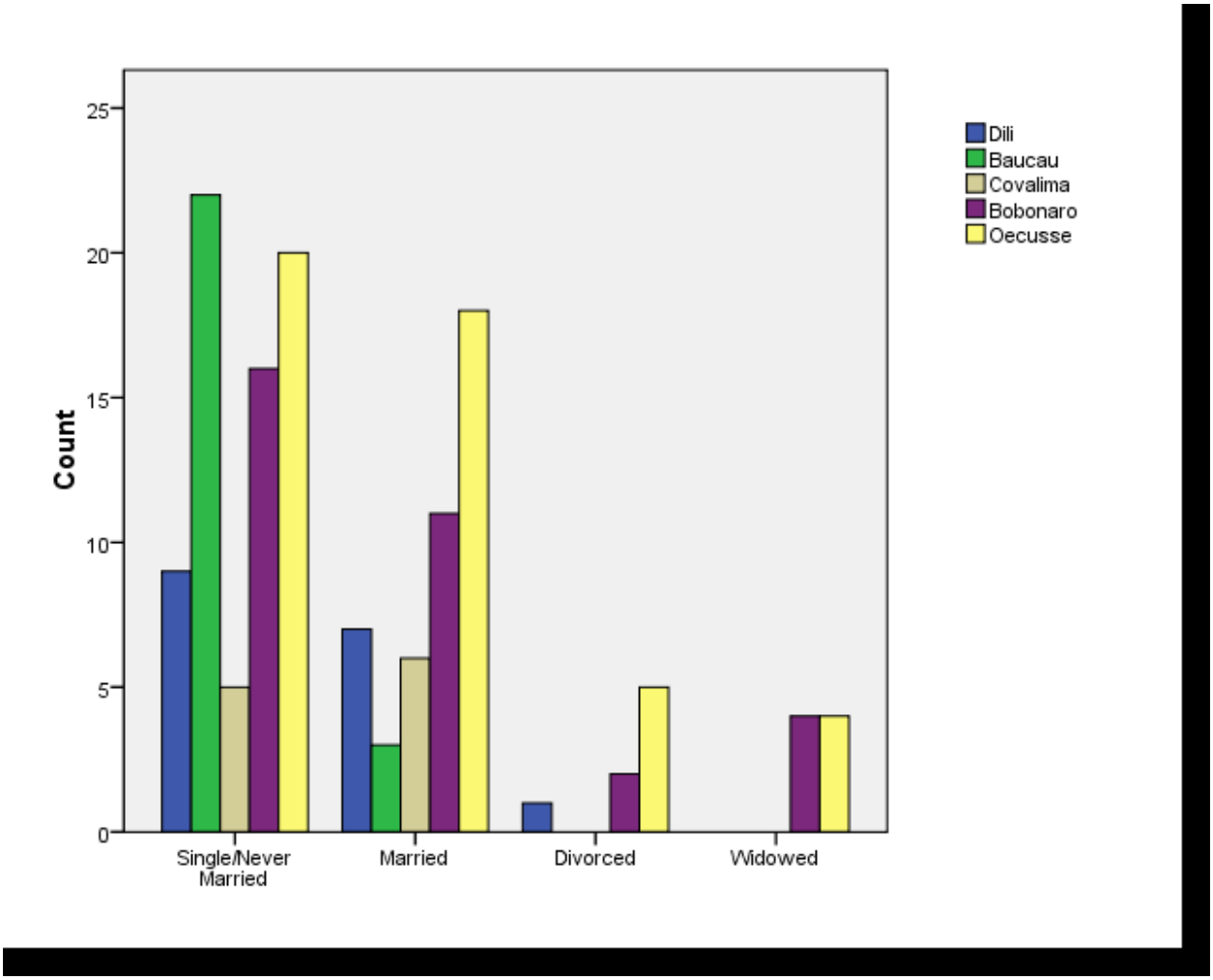
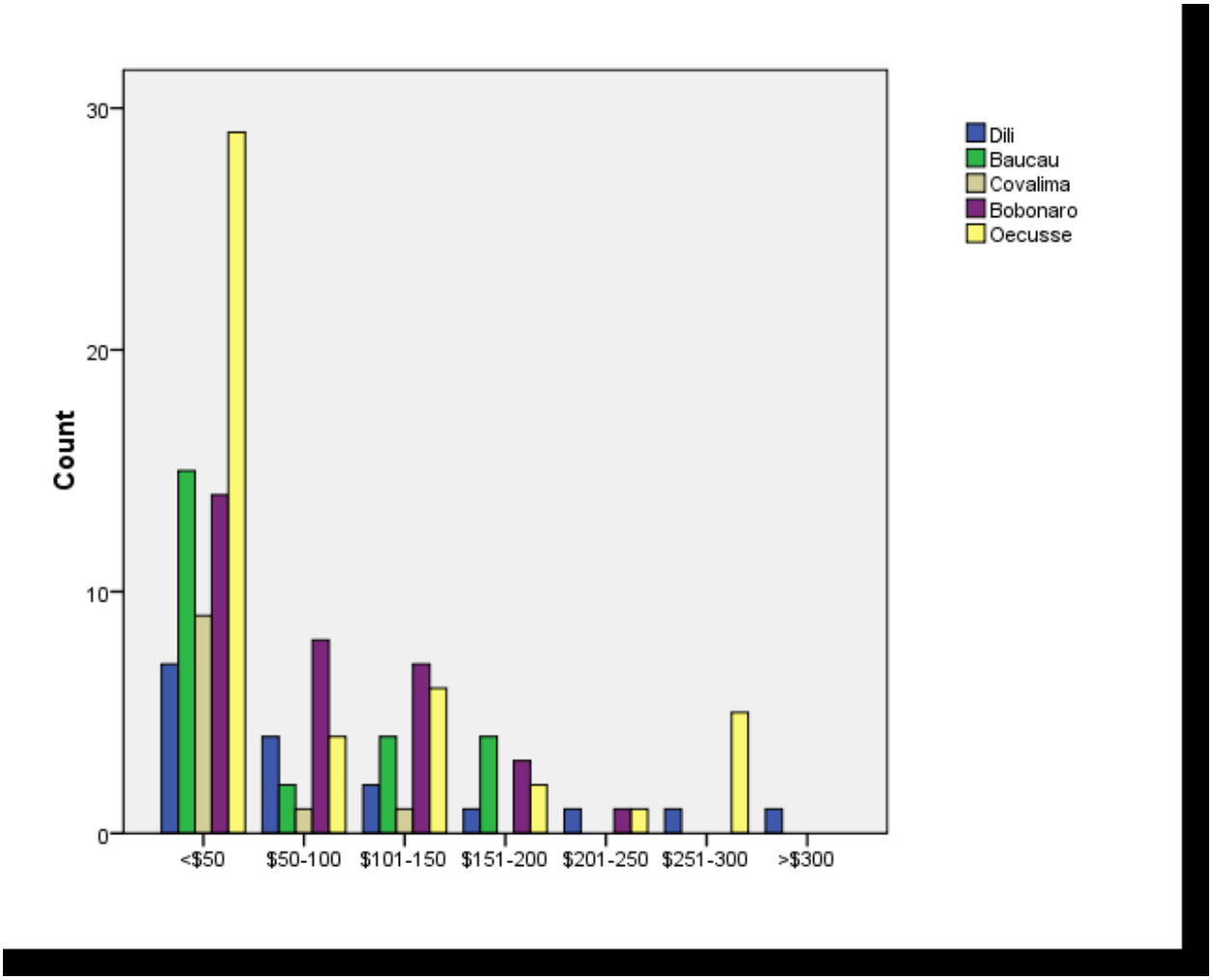
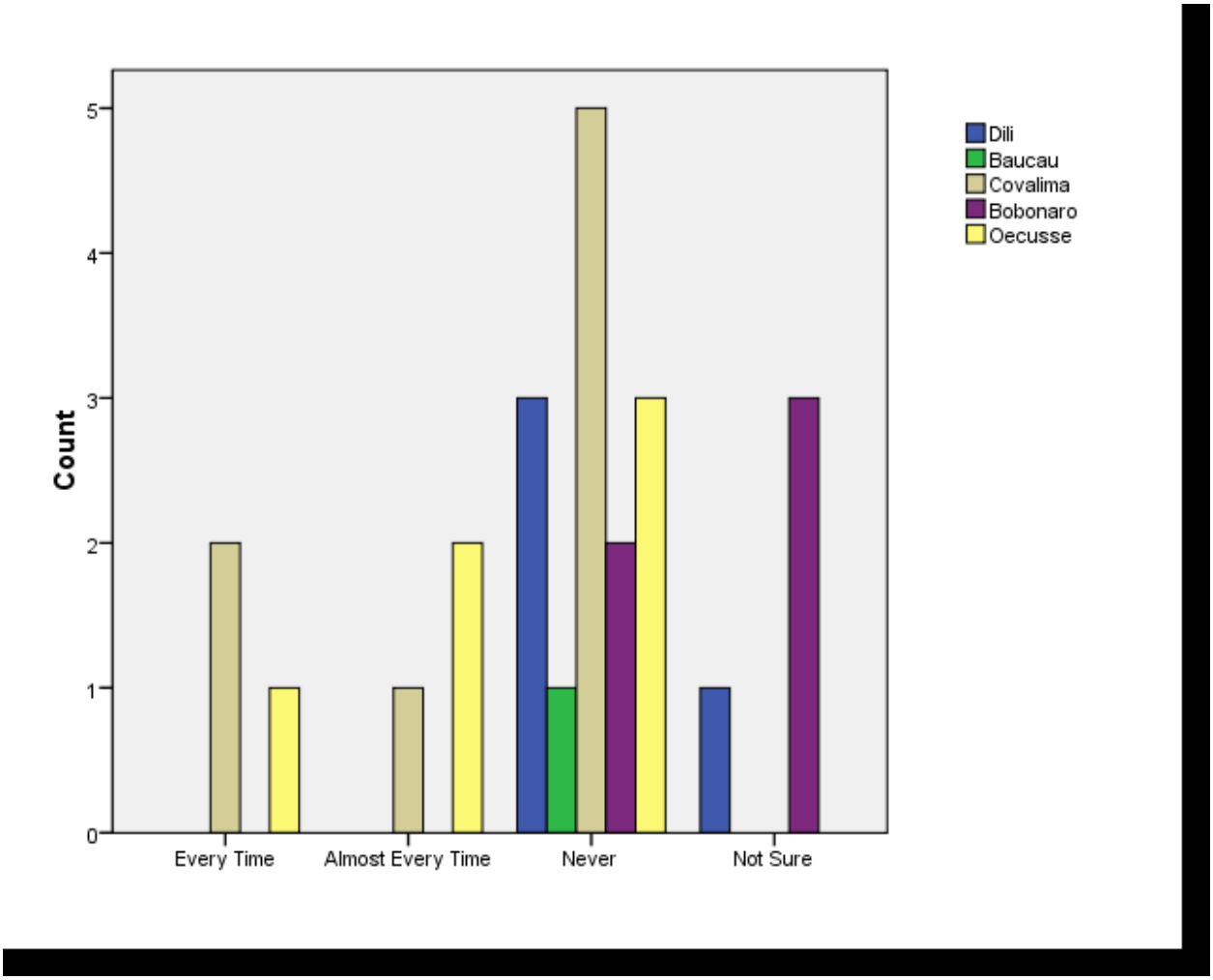


Figure 16. Monthly household income



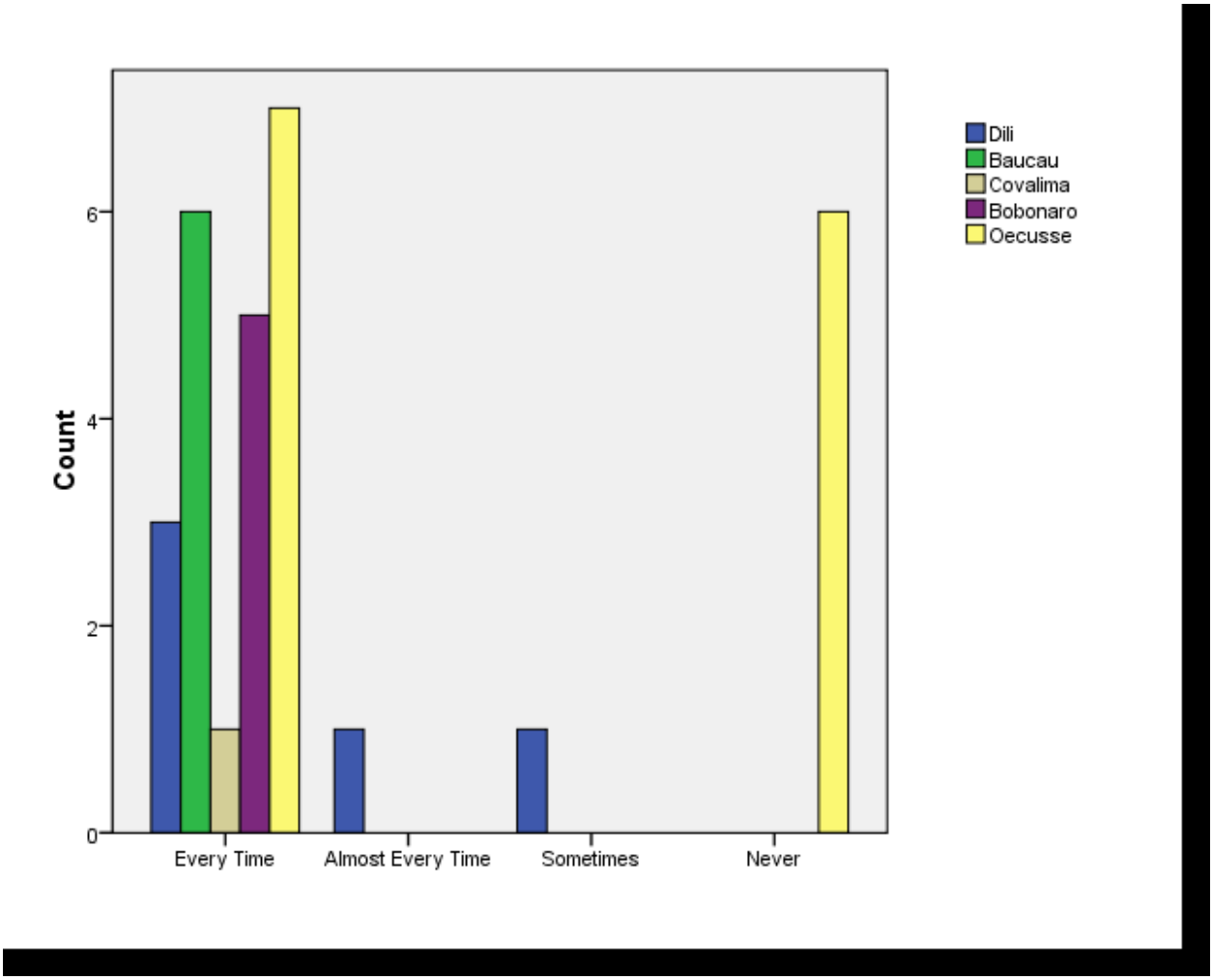
The data show that like the other target groups, most FSW respondents live in a household that earns <$100 per month, indicative that its residents live on less than $2 per day.

Figure 17. Frequency of condom use with clients in the past 30 days



The data show that irrespective of district, most respondents indicated that they never use condoms in their sexual liaisons of the past 30 days before the IBBS interview.

Figure 18. Frequency of condom use with regular partner



Most FSW respondents with a regular partner told the interviewers that they use condom with their regular partners every time – only Oecusse was the outlier with about half of FSW with a regular partner stating that they never use condoms when they have sex with their regular partners. These data are one of the noted potential biases in the IBBS – that respondents, out of embarrassment, may not be particularly honest in their answers about personal sexual practices.

Figure 19. Knowledge of STIs

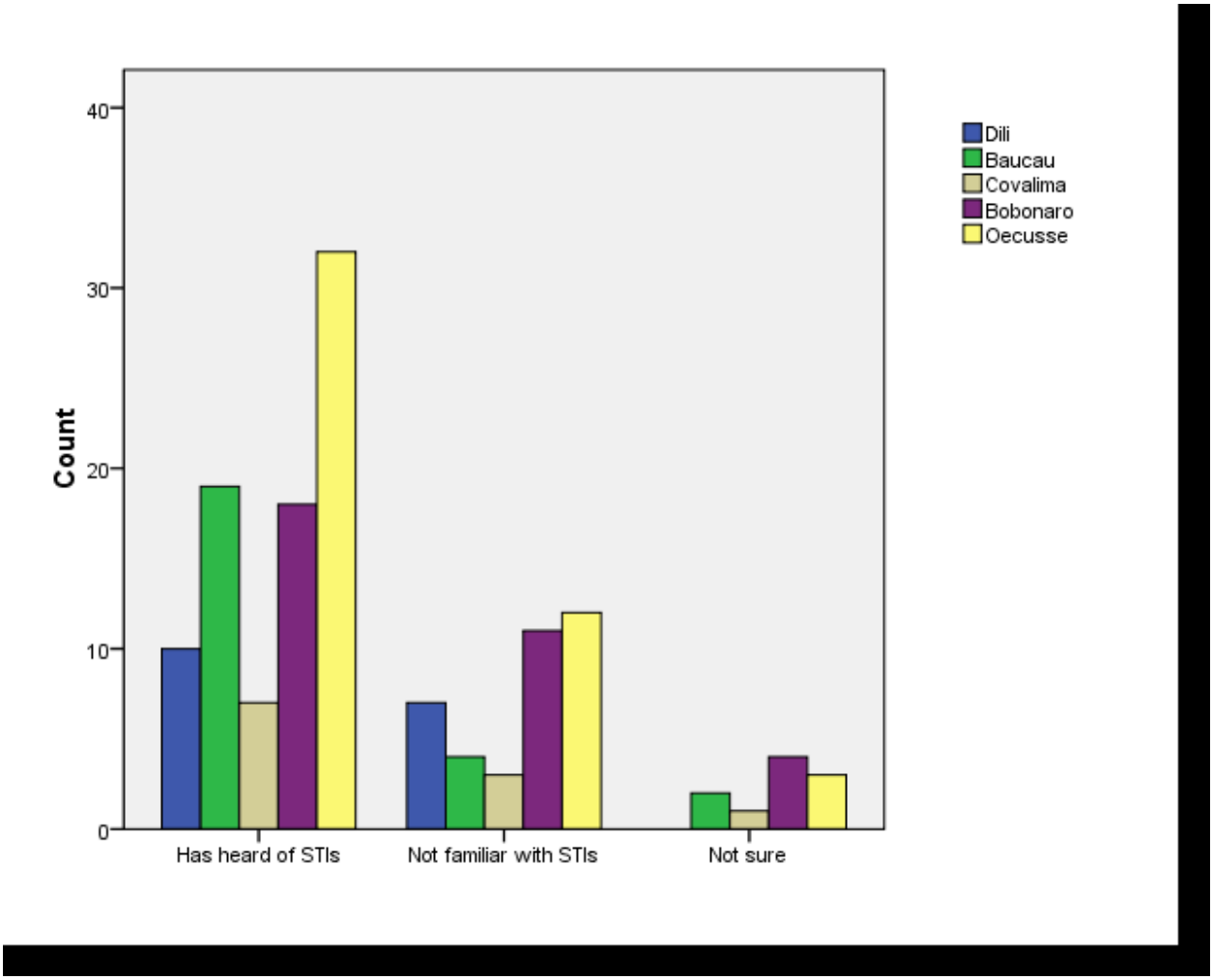
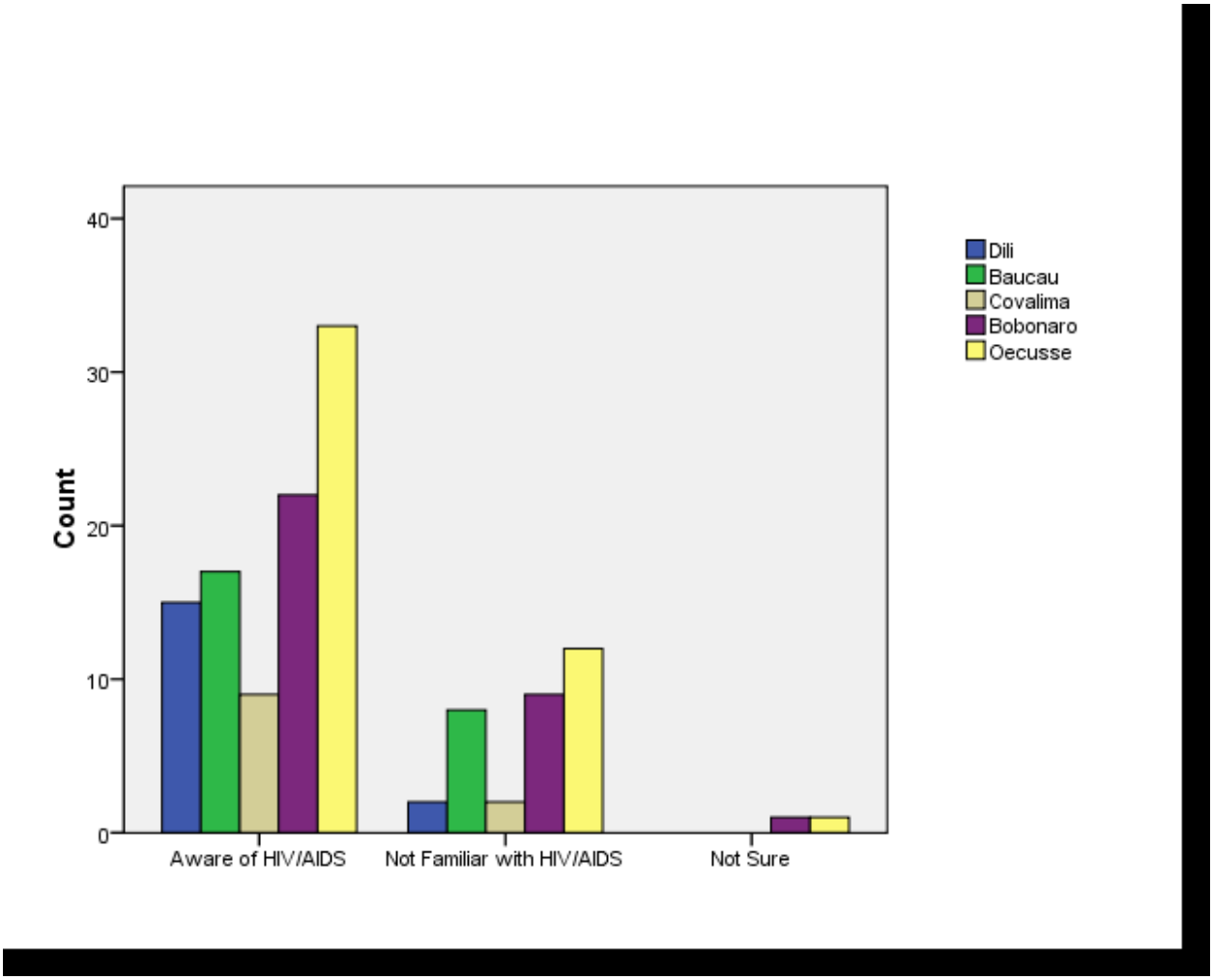
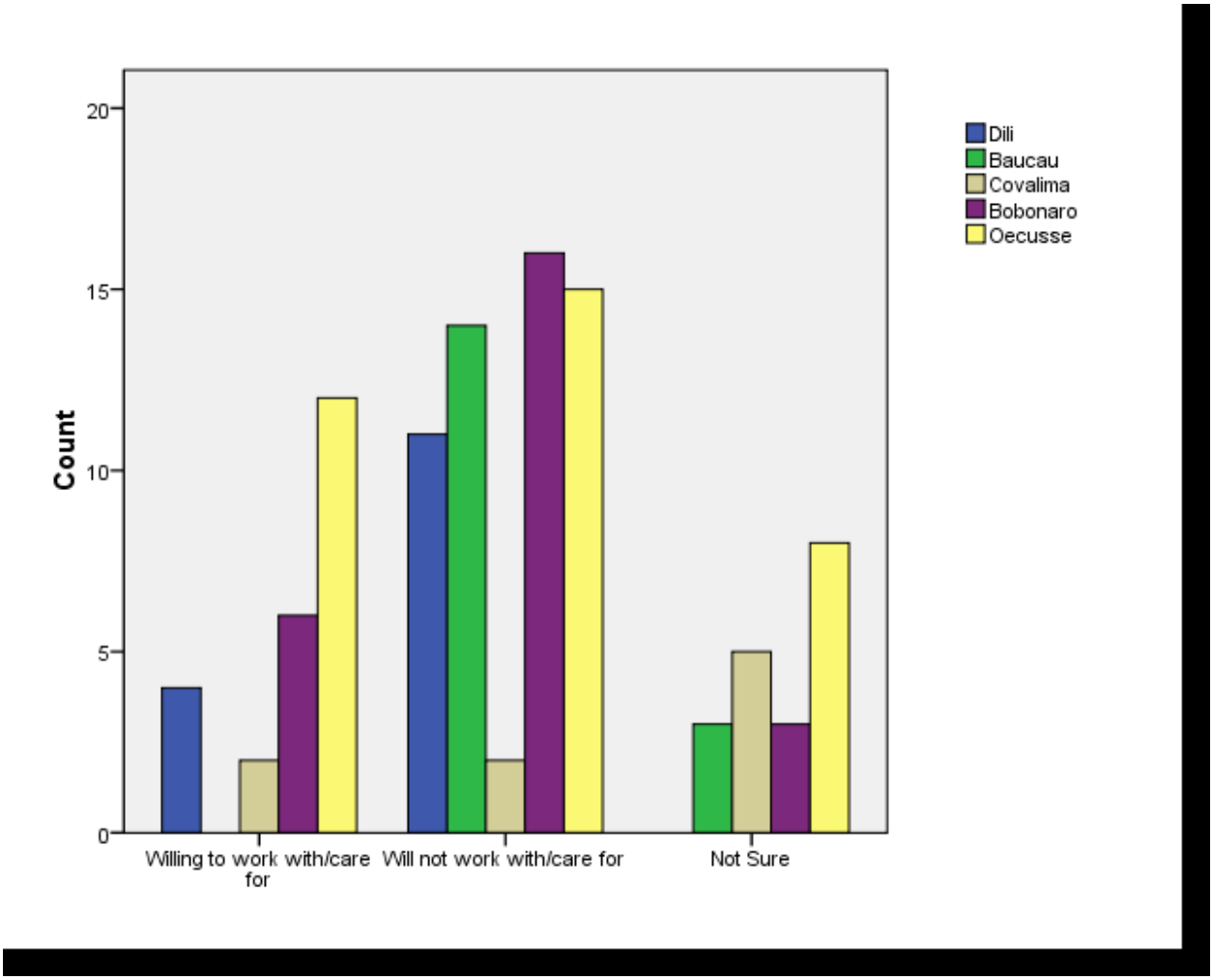


Figure 20. Knowledge of HIV/AIDS



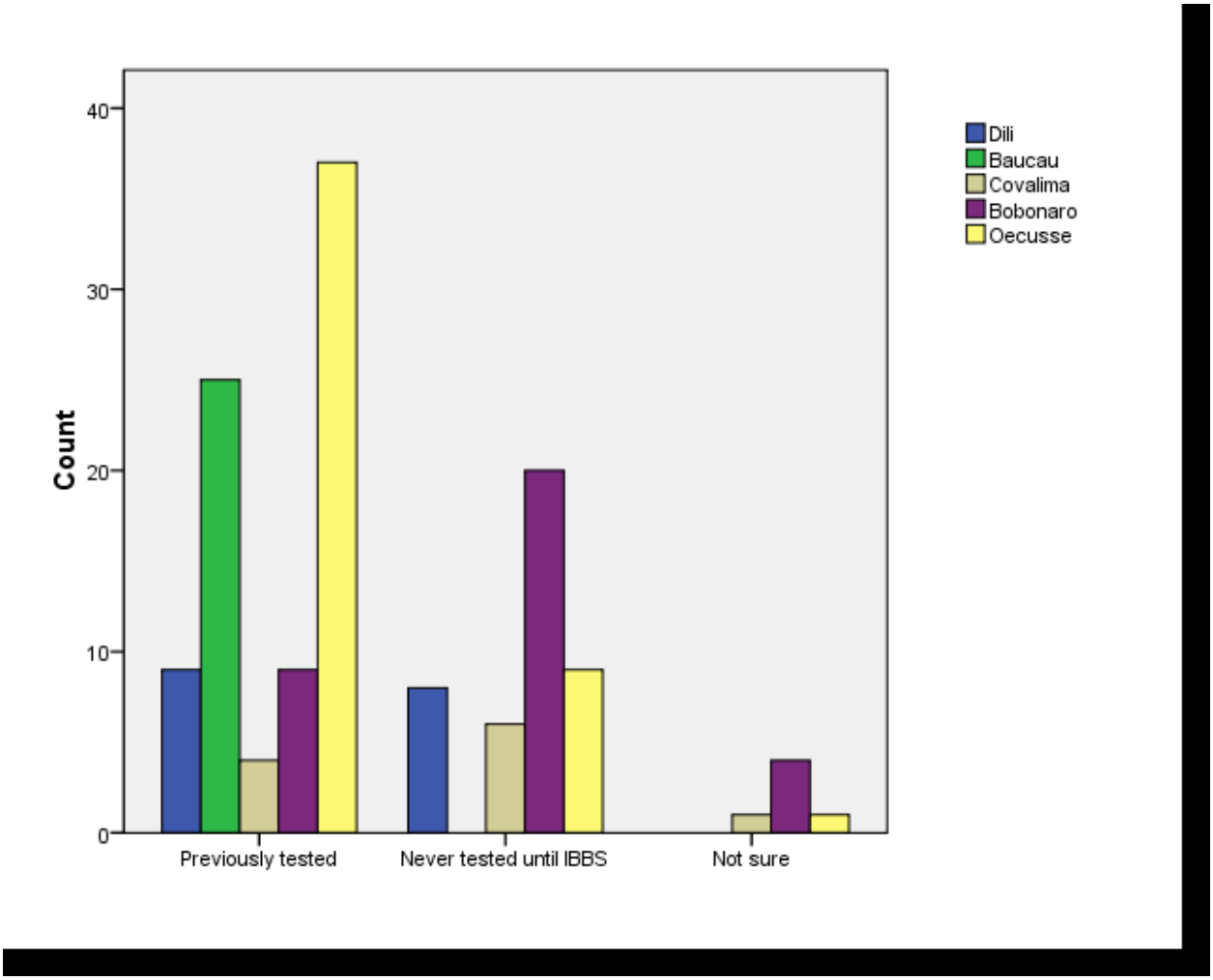
The data show that too many FSW stated that they were unfamiliar with HIV/AIDS. The data also show that additional HIV/AIDS outreach and education need to take place in Oecusse and Bobonaro.

Figure 21. Willingness to work with or care for someone with HIV/AIDS



These data show that the level of fear and misunderstanding of HIV-infected and HIV-affected individuals remains high in this target group – across all districts.

Figure 22. Numbers who have been tested for HIV

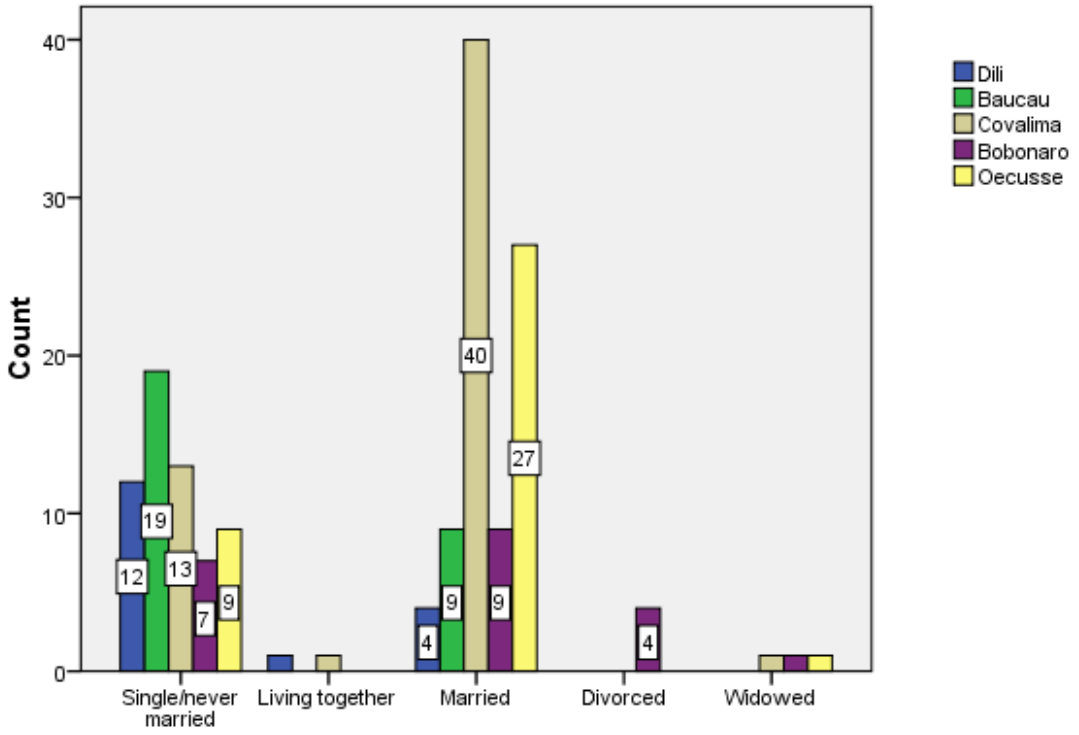


These data show that access or understanding to HIV testing is distributed unevenly across the districts. Most of the Oecusse FSW stated that they'd been tested, where most in Bobonaro and Covalima stated that the IBBS testing was their first HIV test.

Males who have sex with males

MSM were of 3 distinct groups in the 5 districts – transgender, occasional partners of men, and rural-dwelling MSM. All 3 groups reported sexual relations with multiple types of partners – paid and unpaid, male and female. In the qualitative situational assessments of MSM, IBBS team discovered a new category – clients of MSM. Many of these clients were in the catchment for the RDS and were included in the sample for interview and biologic testing. Payment or exchange of good (e.g., food or cigarettes) is not seen as commercial sex but just as a favor for the sexual encounter.

Figure 23. Marital status of MSM



Most of the MSM respondents were married, indicating a high level of bisexual behavior within this target group. Coupled with low condom use, bisexual behavior indicates a high number of casual sex partners and higher risks of HIV/STI spread outside of the target groups.

Figure 24. Know of a place to get free condoms in the community?

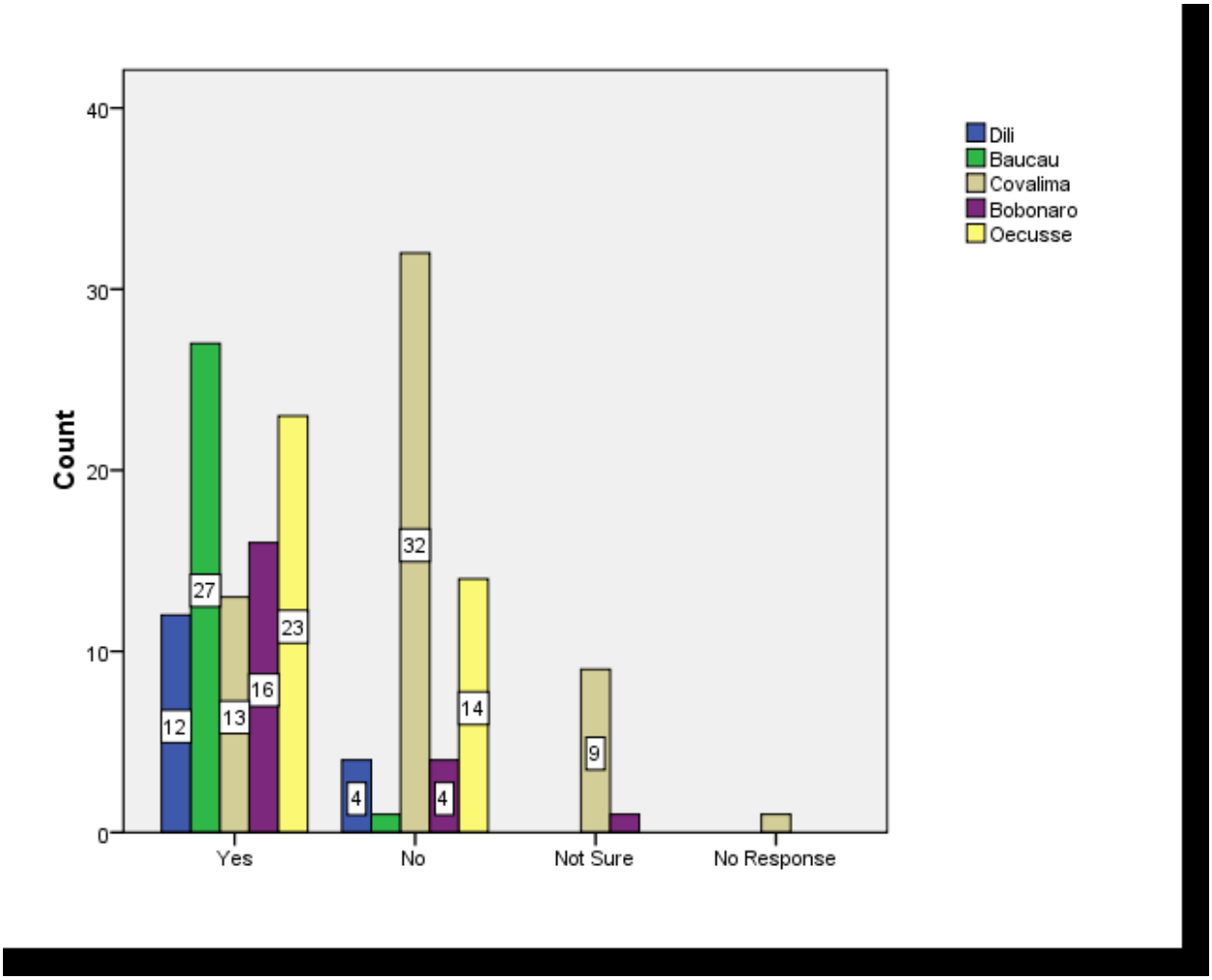


Figure 25. Has heard of STIs?

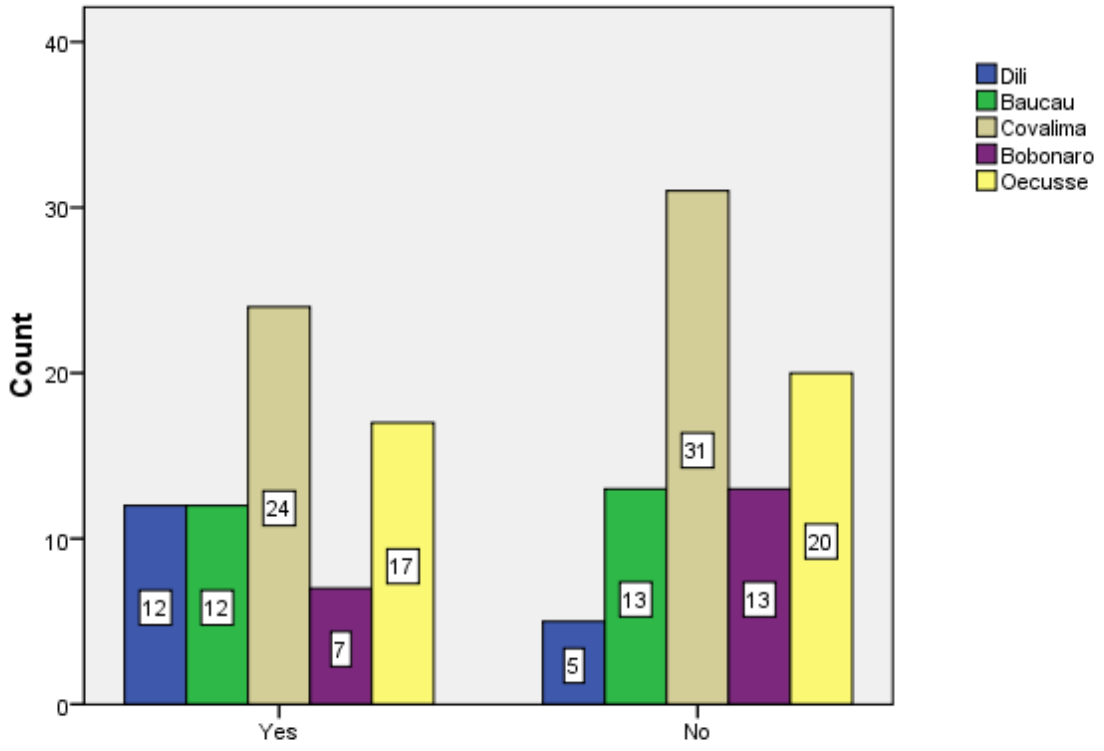


Figure 26. Willing to work with or care for someone with HIV/AIDS?

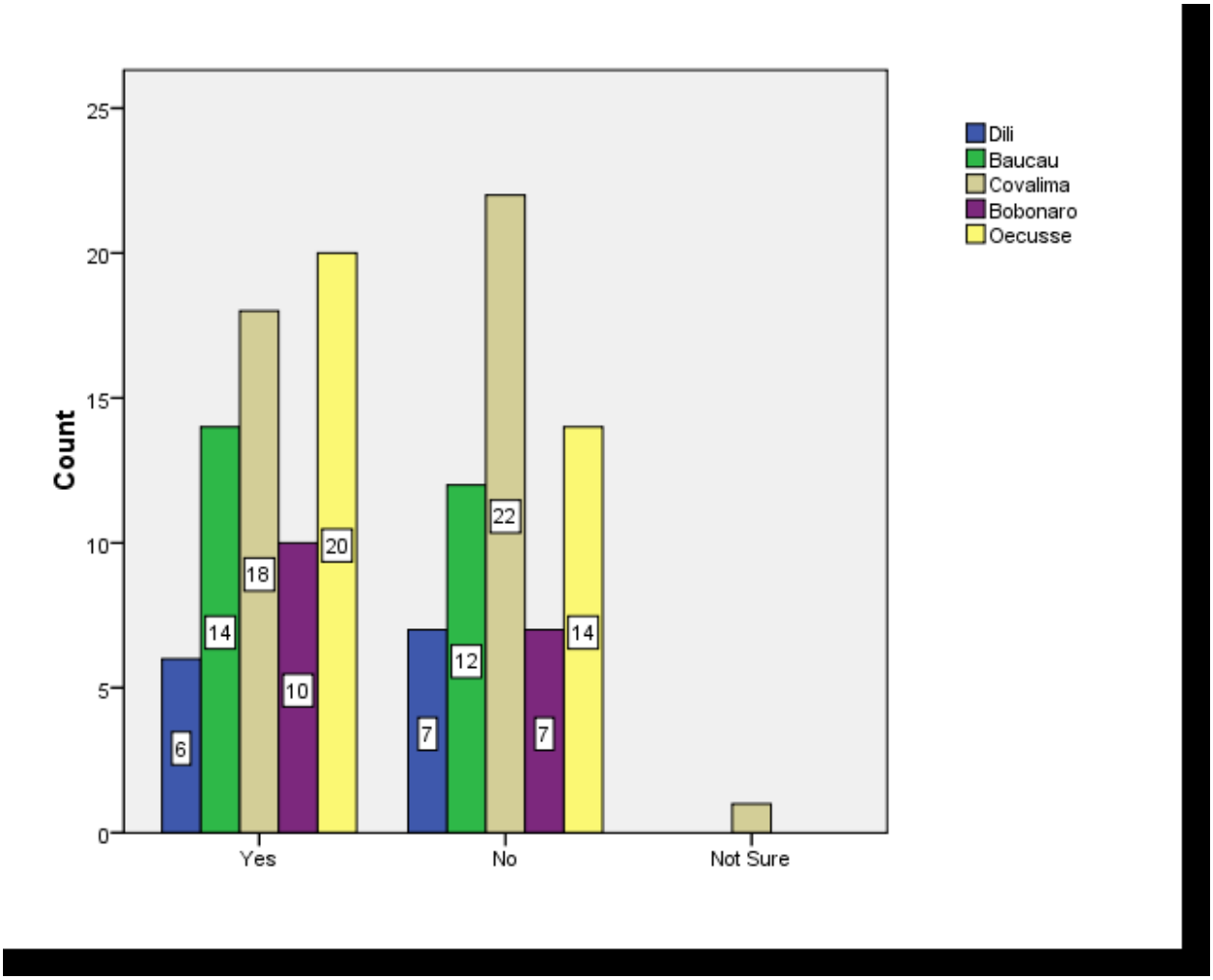
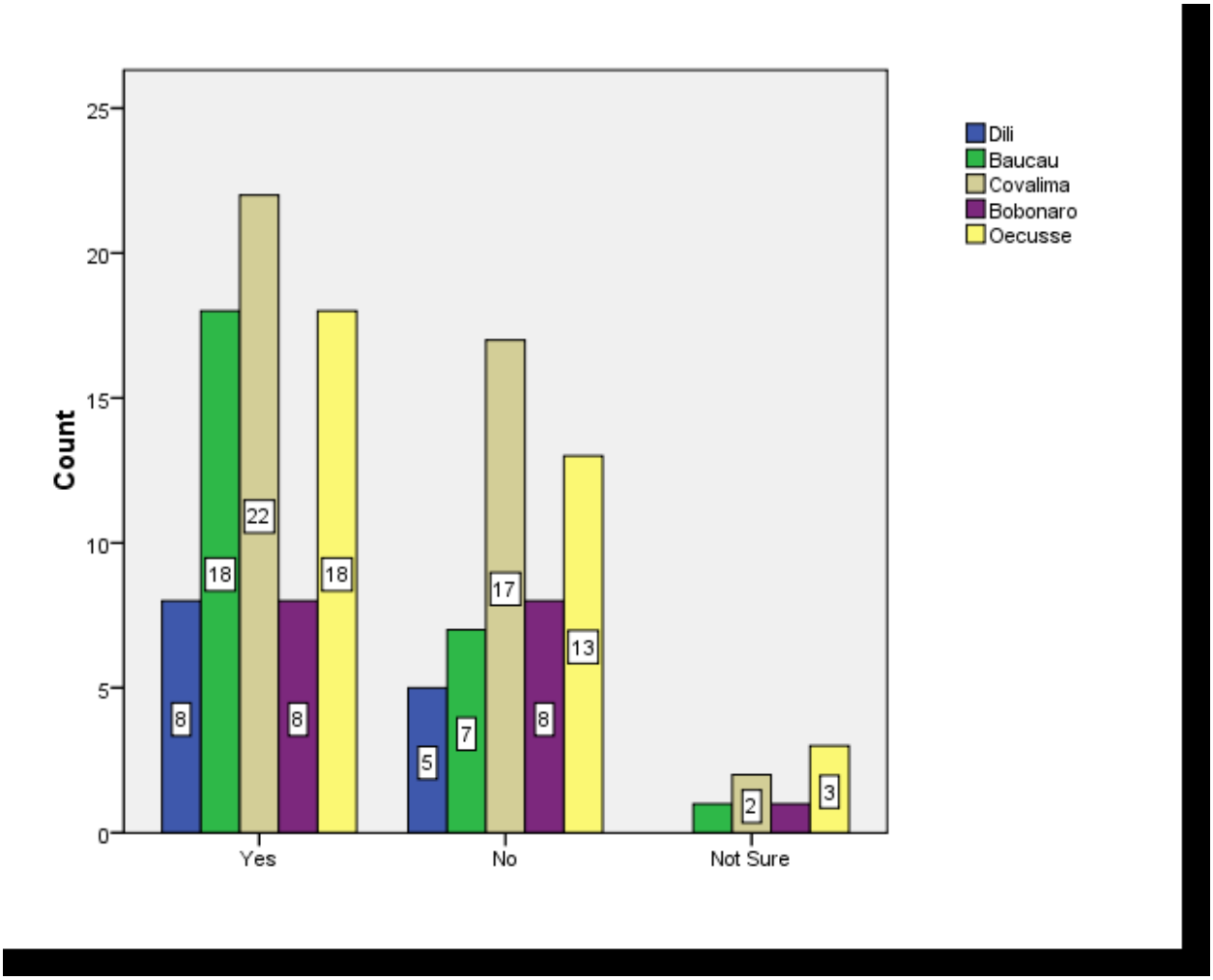
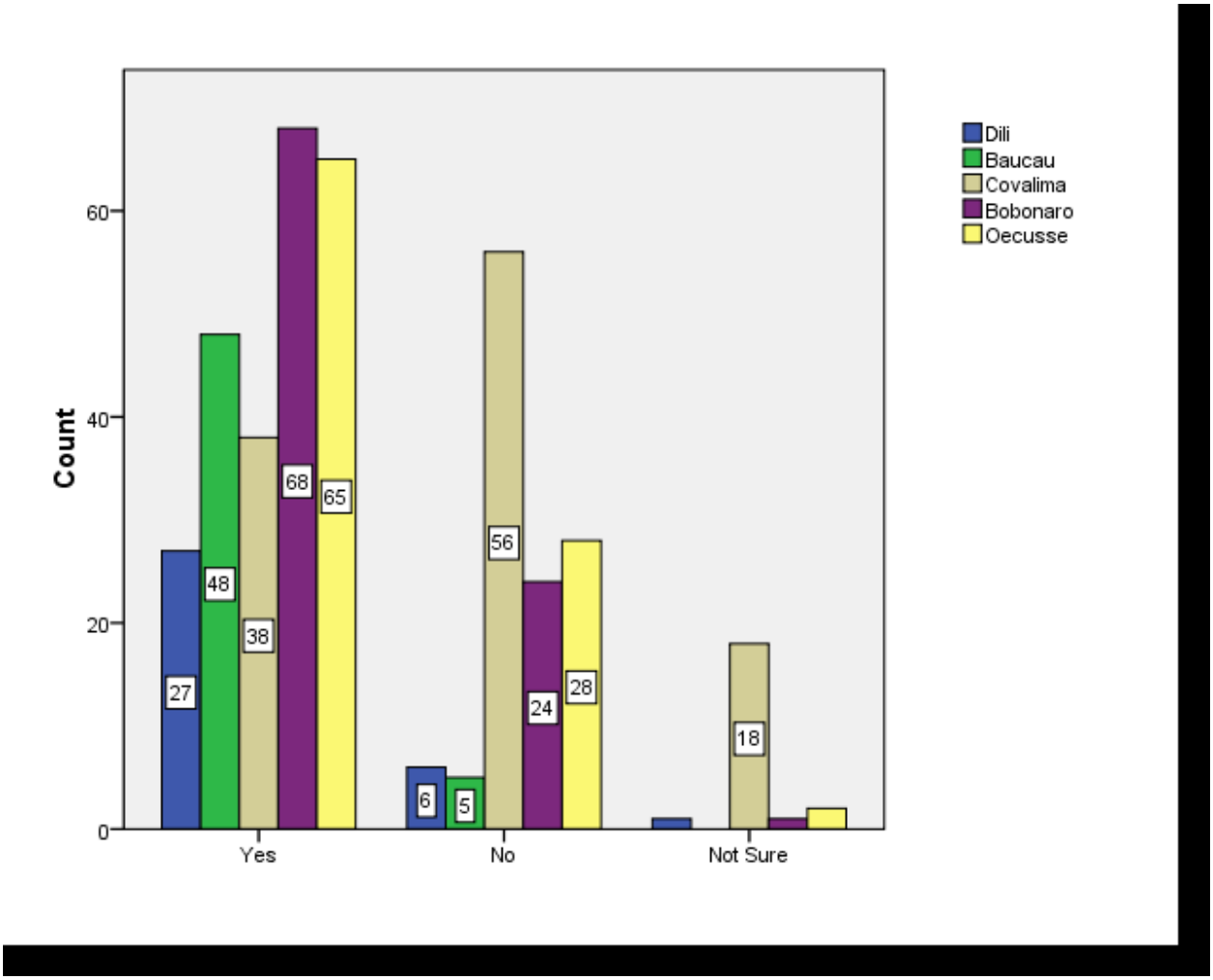


Figure 27. Have you been tested for HIV before participating in IBBS 2011?



Clients of Sex Workers

Figure 28. Do you know where to get free condoms in your community?



The key question posed by these data: why do the respondents not know that they can get condoms at the hospital, the NGO offices, a CHC, or via the VCT centre?

Figure 29. Familiar with STIs?

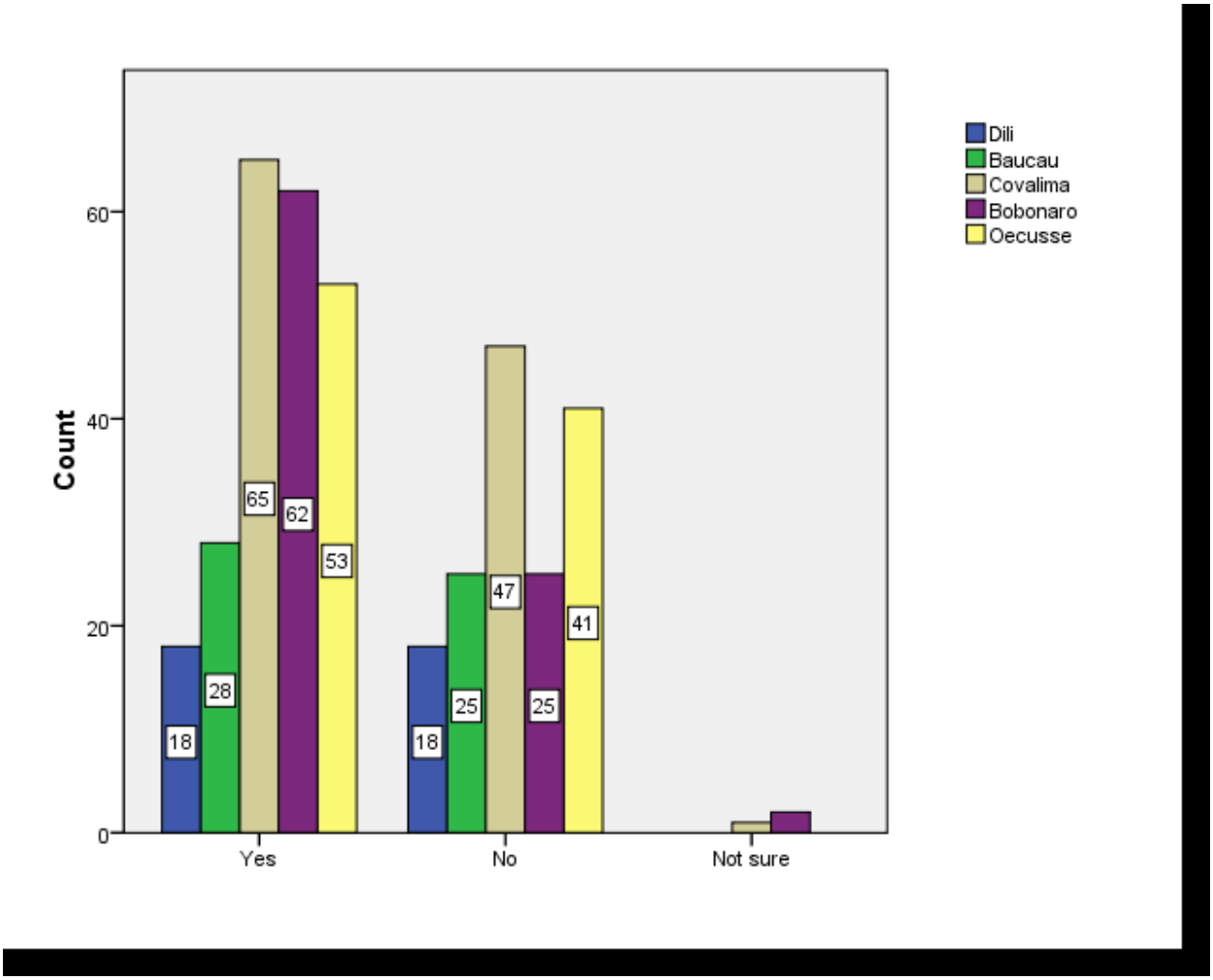


Figure 30. Familiar with HIV/AIDS?

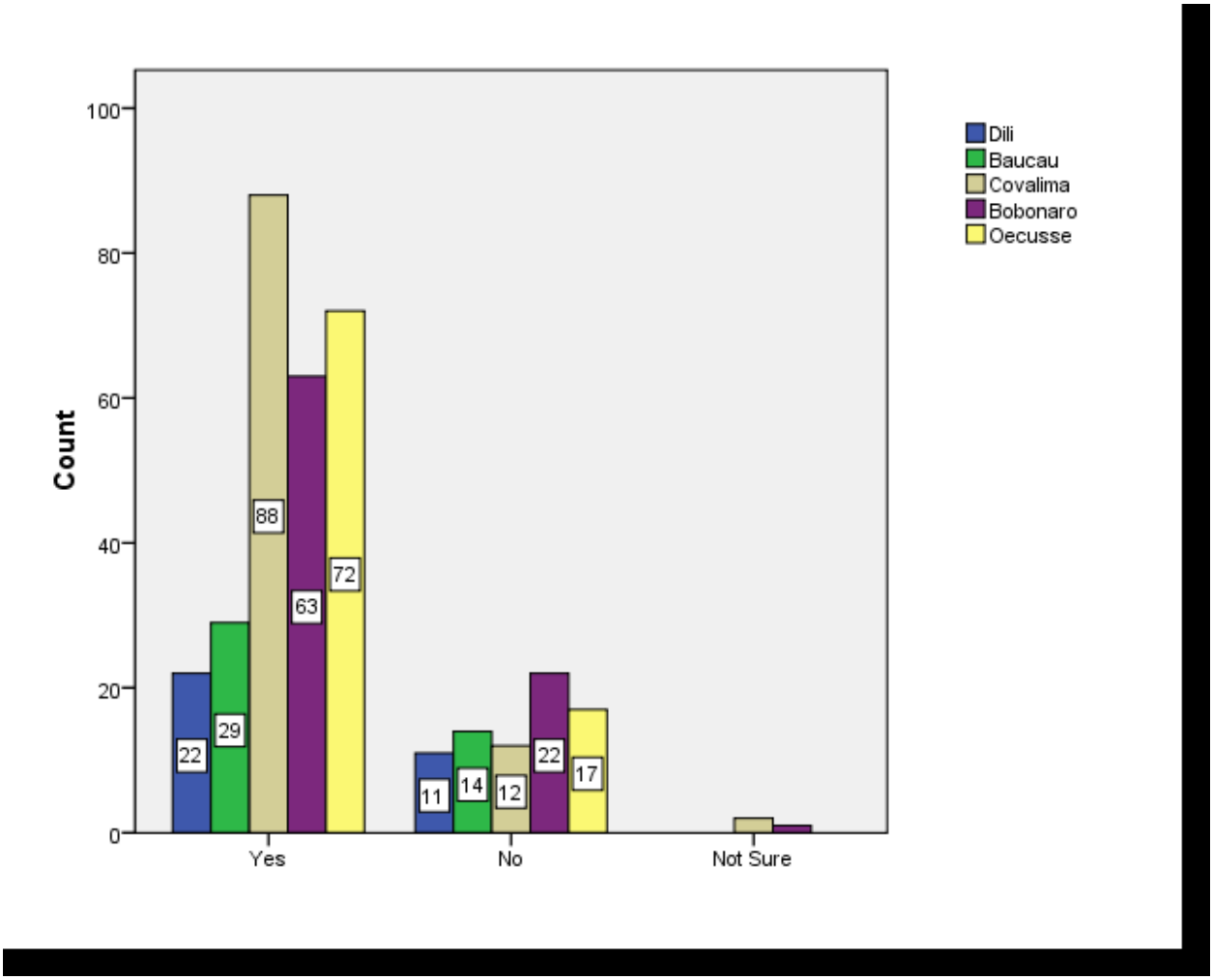
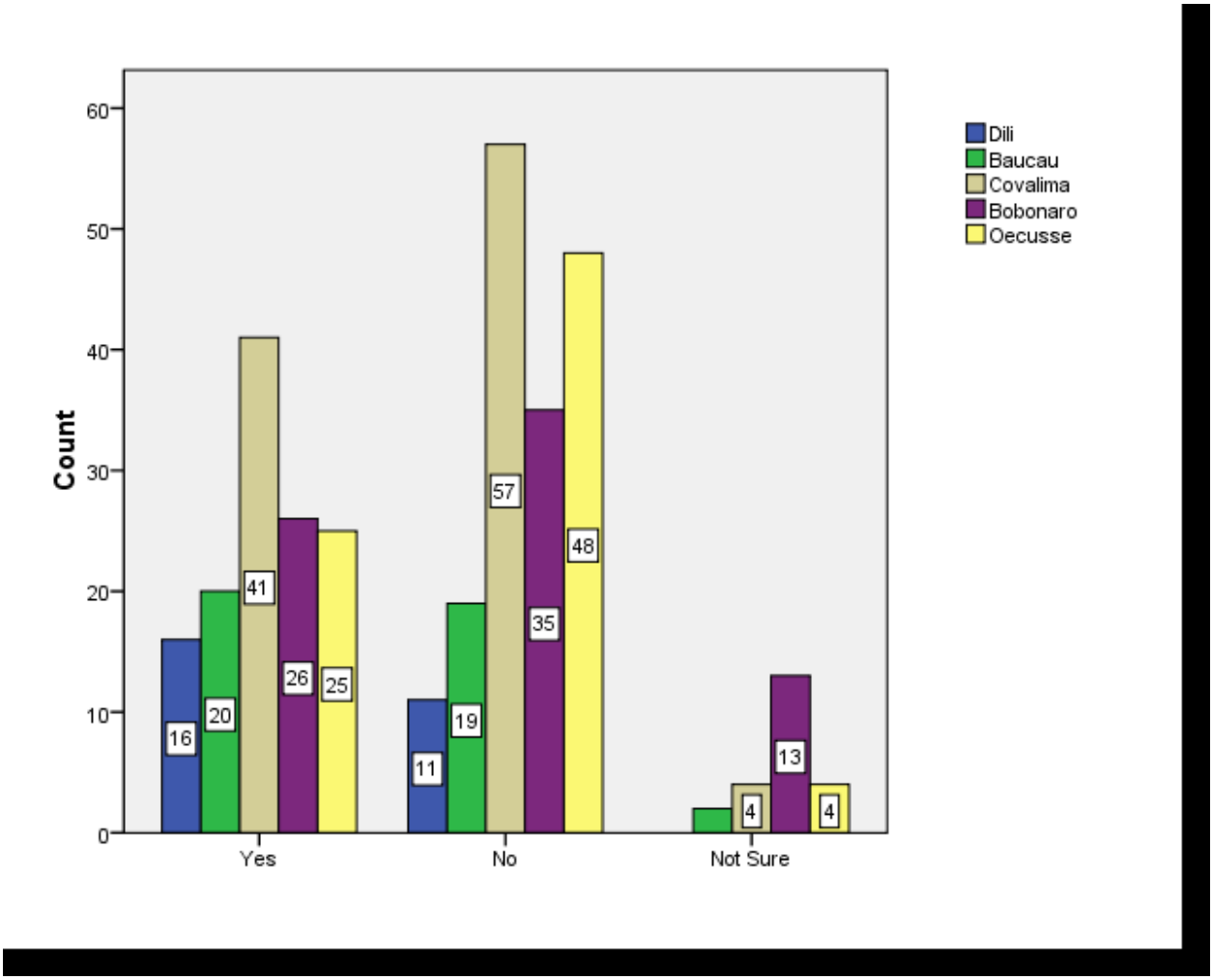
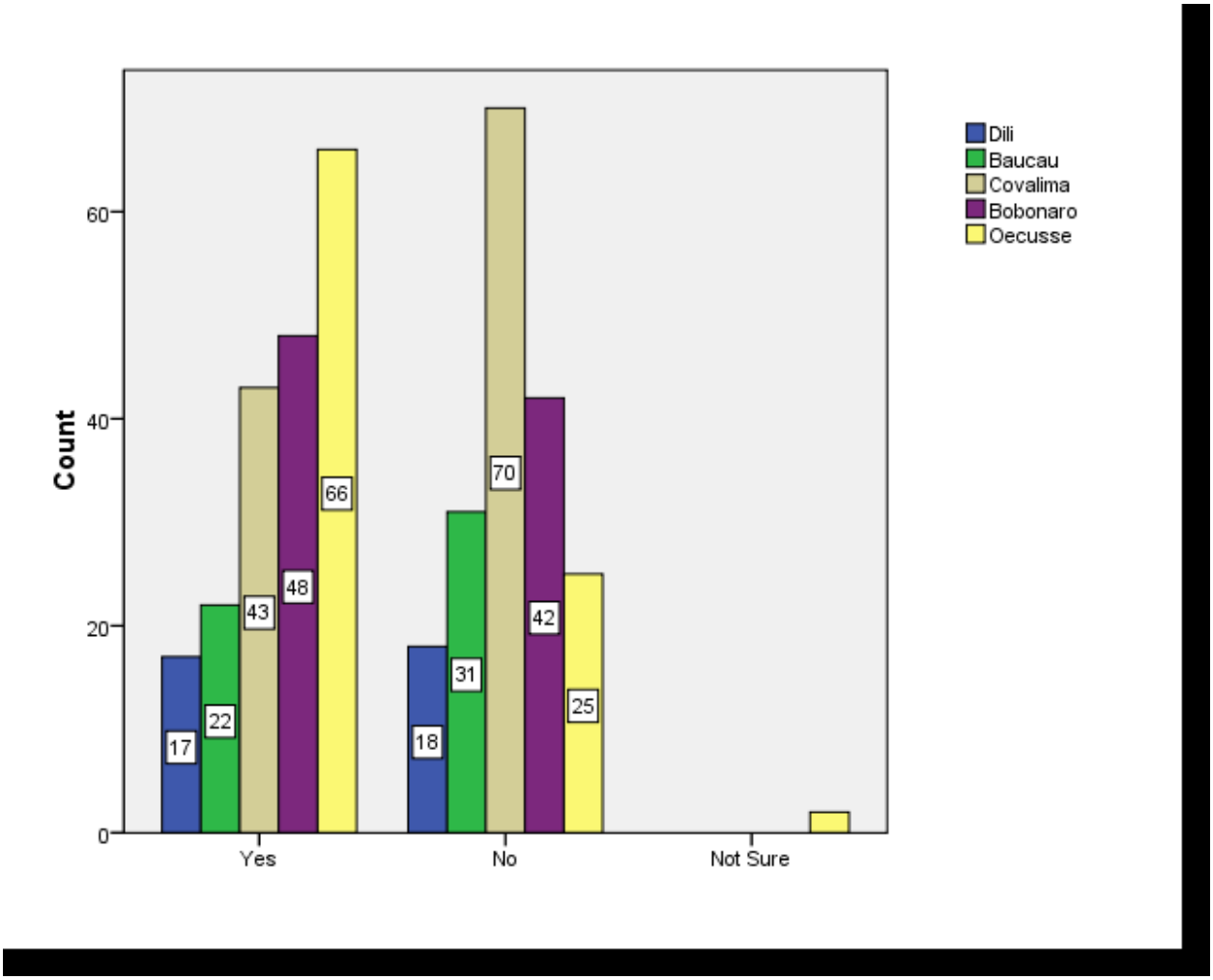


Figure 31. Willing to work with or care for someone with HIV/AIDS?



These data show consistency with the other target groups' responses: stigma, misunderstanding, and discrimination dominate the response categories to HIV-infected and HIV-affected persons.

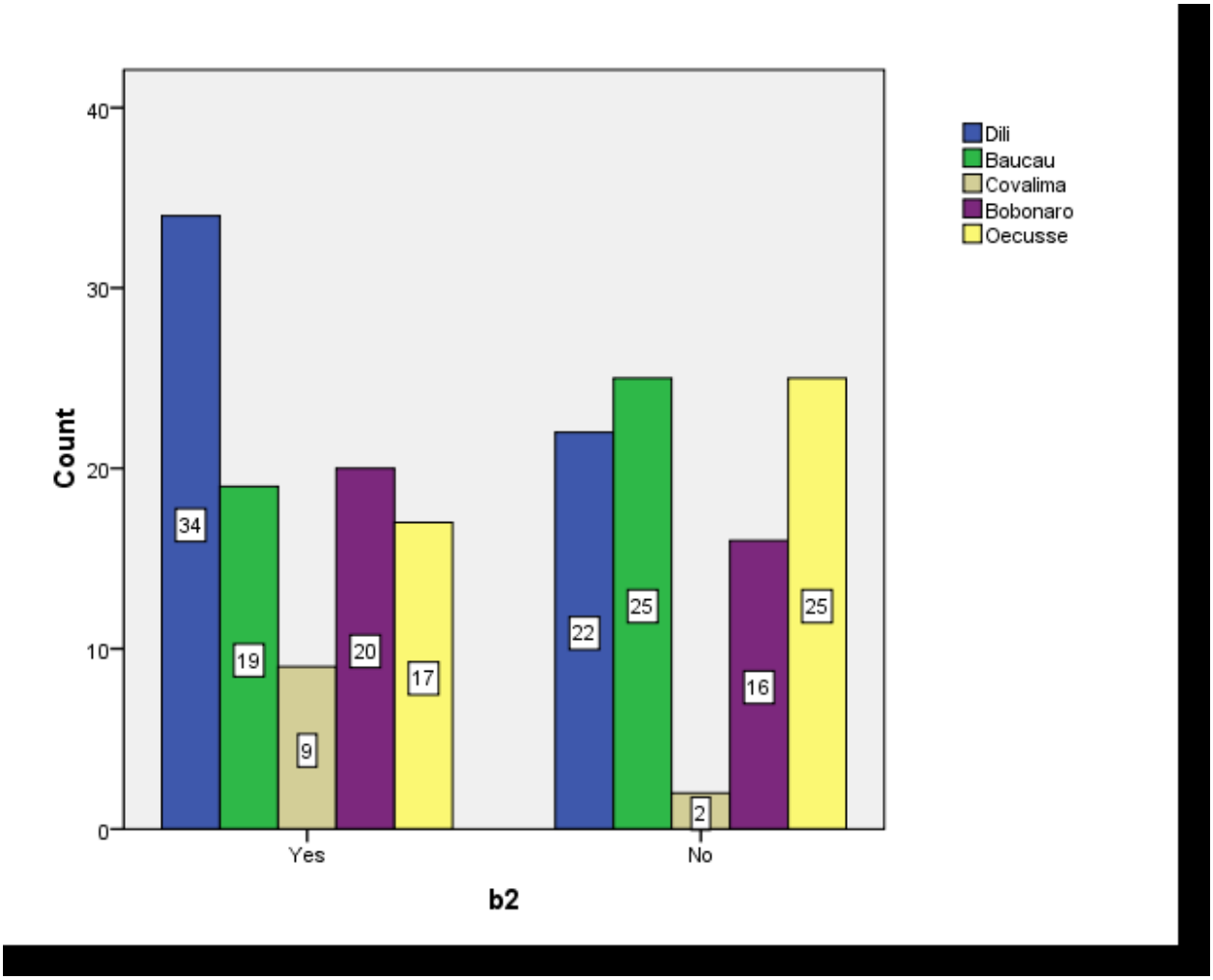
Figure 32. Ever had an HIV test before IBBS 2011?



The data show that HIV testing rates amongst respondents is higher in Oecusse, very low in Covalima, and about half-and-half in Bobonaro. Given that the respondents are from a target group that has an NGO dedicated to providing outreach and education its clients, the MoH should review its HIV/STI activities that target CSWs.

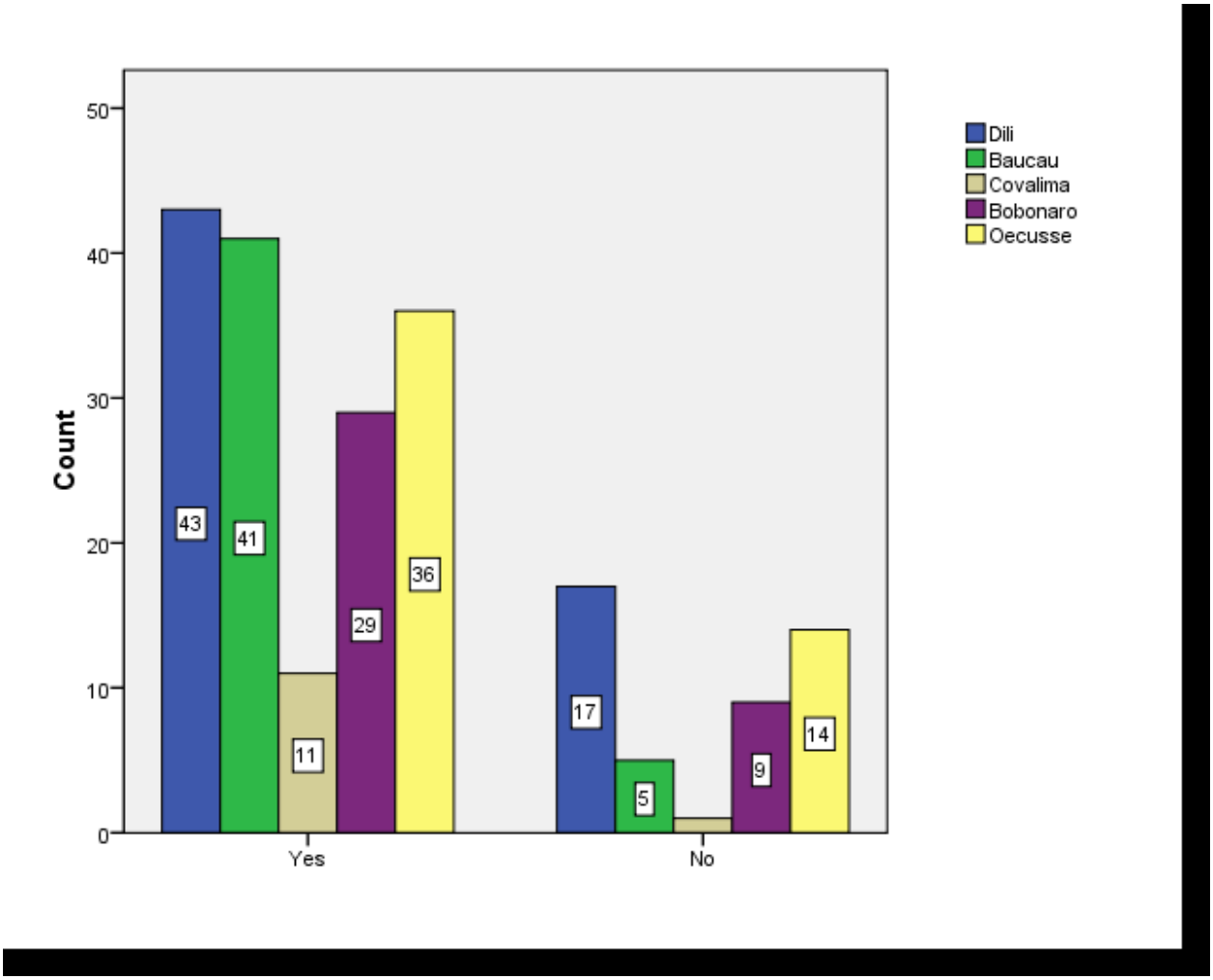
Uniformed Personnel

Figure 33. Have you ever used a condom with any sex partner?



Most UP in Baucau and Oecusse have never used a condom. The UP respondents in Dili and Bobonaro also have large numbers indicating that they have never used a condom with any sex partner.

Figure 34. Do you know where to access free condoms in your community?



The smaller number of respondents reporting that they do not know where to get free condoms likely reflects that UP respondents get condoms via dispensers in their workplaces, thus giving them more access than other respondents. Whether this increased access translates to better usage rates is worthy of additional study.

Figure 35. Do you know about STIs?

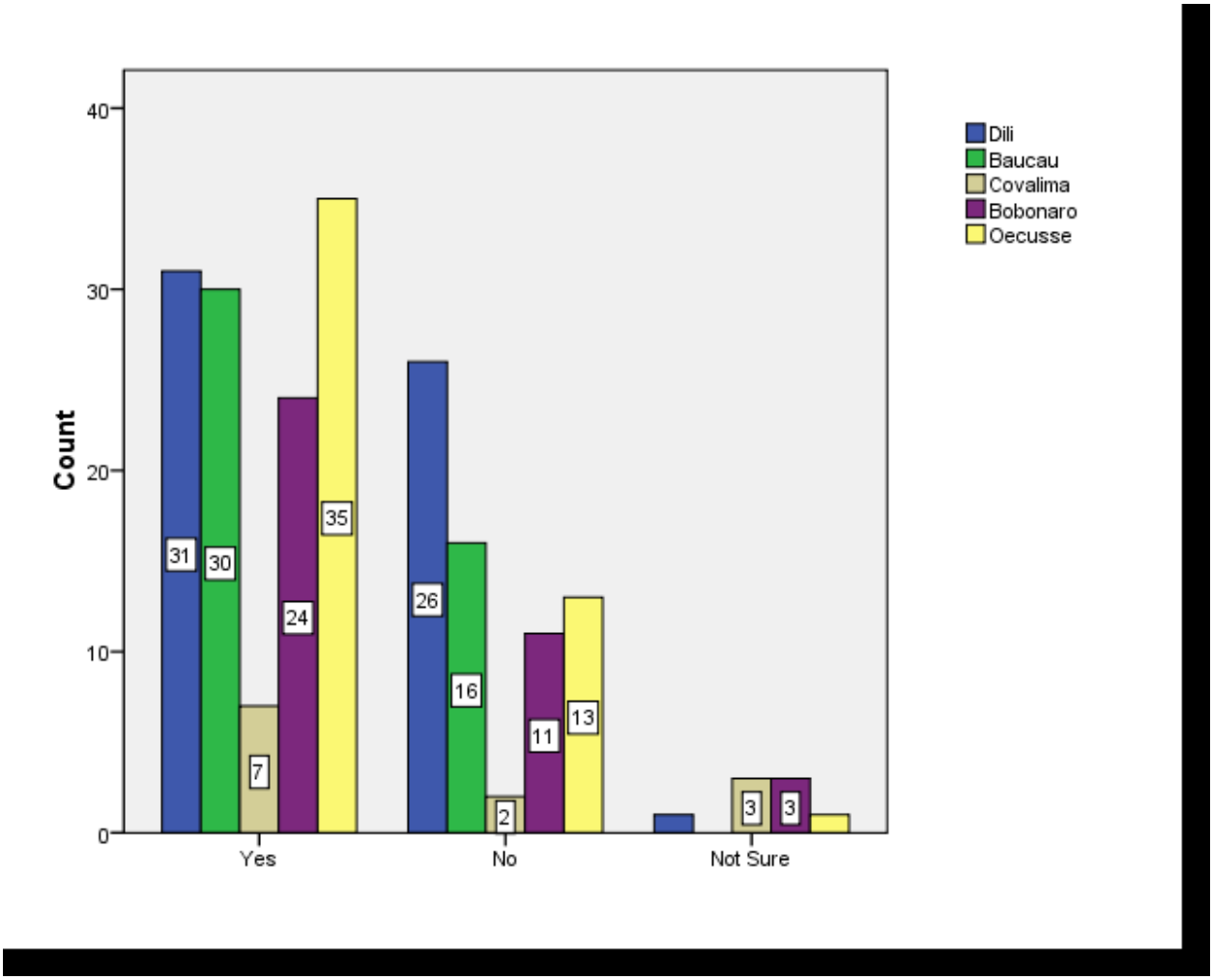


Figure 36. Do you know about HIV/AIDS?

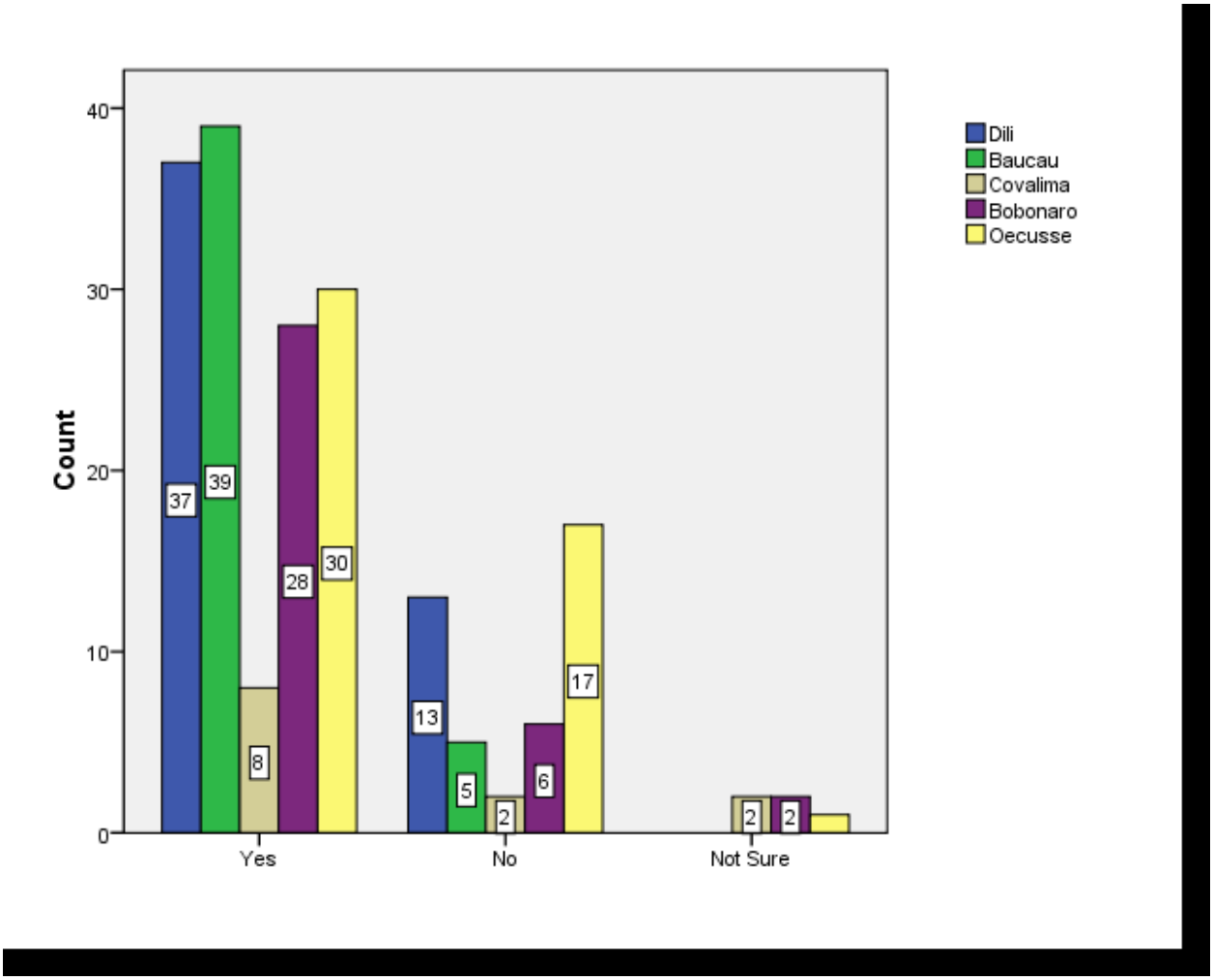
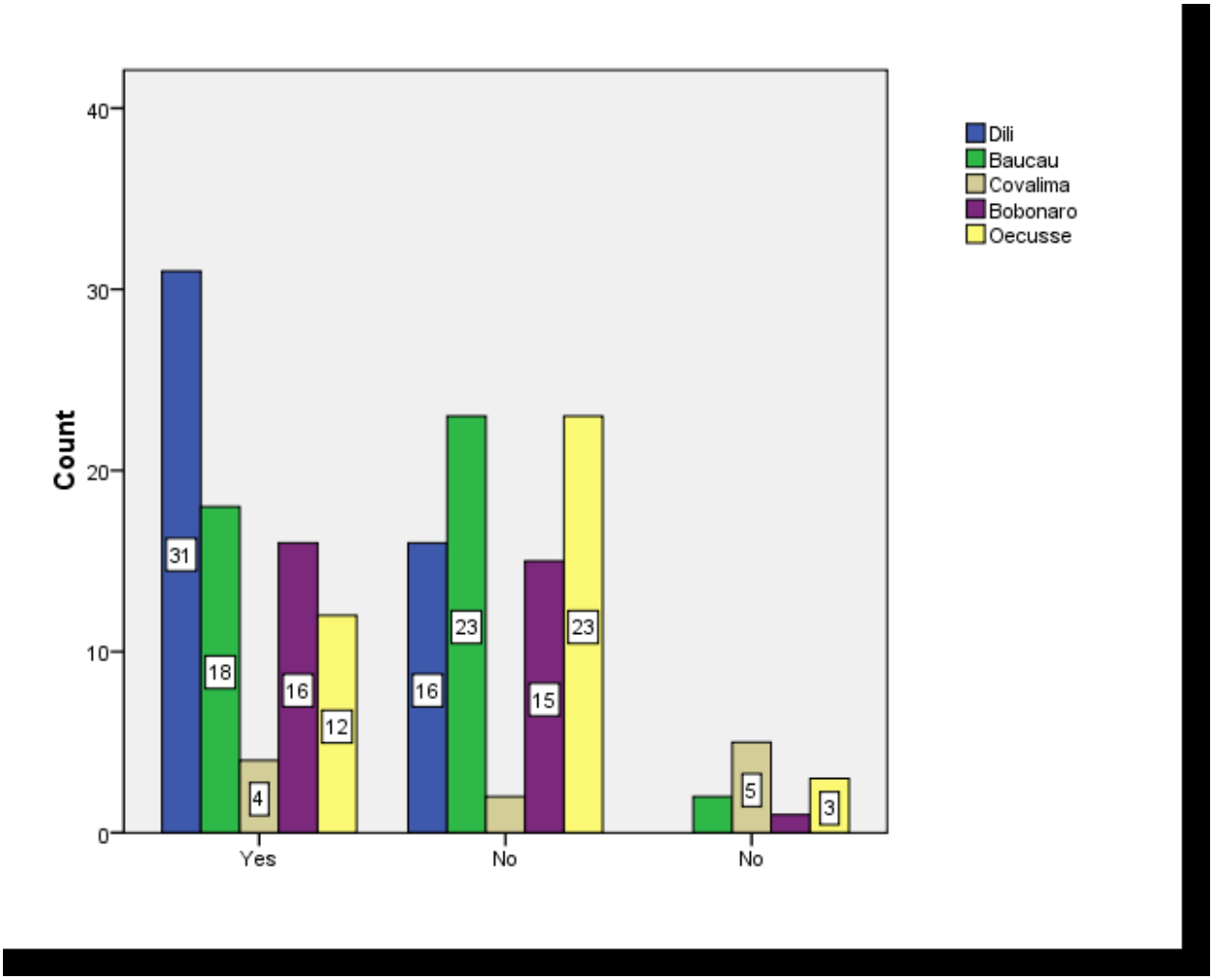
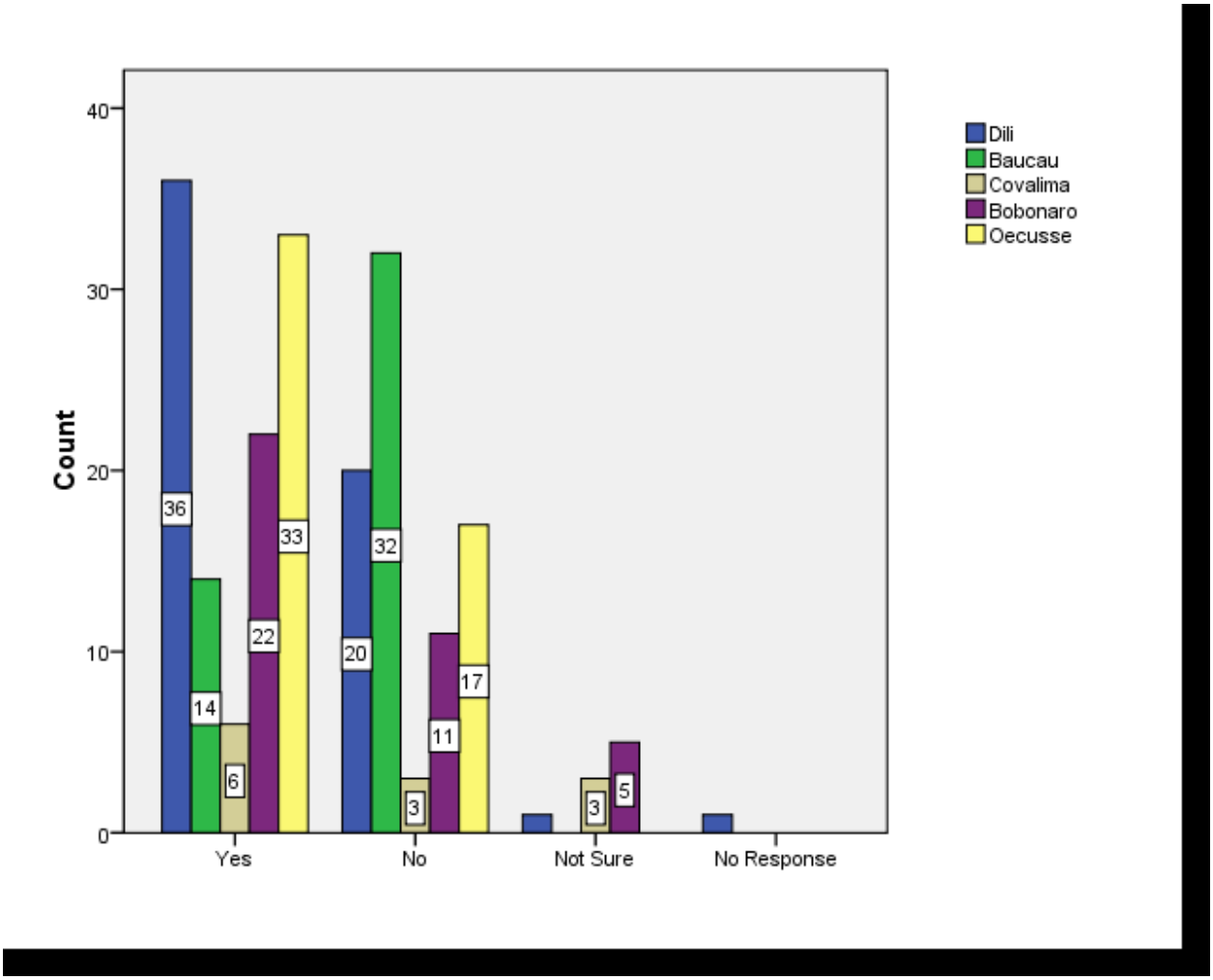


Figure 37. Are you willing to work with someone who was HIV positive?



These results are consistent with those of the other target group respondents. The data may indicate that MoH and its regional entities and partners should be more effective in their outreach and education efforts related to HIV/STI and what HIV means and does not mean.

Figure 38. Have you had an HIV test before IBBS 2011?



These data indicate that MoH and its partners should do a better job of providing point-of-contact HIV testing for this particular target group. The efforts toward HIV testing and workplace policy could have severe career implications for those who have positive or indeterminate results. Confidentiality would have to be paramount. However, due to this target group's propensity for 1) sex with domestic and foreign sex workers, 2) smoking opium, and 3) not using condoms with sex partners, the MoH should move forcefully to find a solution for increasing HIV testing rates for this group.

Study Limitations

As with most population-based research, the issue of under-reporting risk behaviors among participants in this study must be considered. Due to social stigma, social isolation, and discrimination, some behaviors such injection drug use, sex with men, or sex for money may be under reported by respondents. IBBS team does not think the respondents hid information on condom use, knowledge of STIs and HIV, and their opinions and feelings about those within their communities affected by AIDS.

IBBS team took many steps to limit these biases by assuring that 1) all interviews took place in private areas; 2) interviewers were trained to engage participants but to not be judgmental in the interview process; 3) all HIV testing was done in a private area and testing results were shared only with the Research & Surveillance Specialist; and 4) names were not recorded or mentioned at any point in the process.

A second area of limitation had to do with the sampling frames. Because IBBS team depended on partner NGOs to help identify key clusters of target group members to begin the waves of respondents, we were limited by their communication connections. For example, the FTH staff in Baucau had a very limited connection to the female sex worker community, but a very robust connection to the transgender MSM community. We, therefore, had a diverse sample of MSM in the study population but a very limited number of FSW to participate in both components – biologic and behavioral – of the study. Overall, however, IBBS team thinks that the total cohort of each target group is very representative of the nation's target group members and that the process of RDS helped us mimic the process of randomization that can be done in other types of studies, such as household or cluster surveys.

A third area of limitation was time. The IBBS team had to be assembled, a survey instrument had to be developed, sensitization visits had to be conducted, training had to be coordinated and implemented, and execution of IBBS 2011 had to take place within a 3-month period of time. This put tremendous limitations on the extent that IBBS team could assure utmost quality of products and processes involved in IBBS 2011.

A fourth limitation of IBBS 2011 was that the Research & Surveillance Specialist did not speak Tetun, the lingua franca of Timor-Leste. This limited team communication, team cohesion, and trouble-shooting and problem-solving while implementing IBBS activities in the districts.

A fifth limitation was contamination of the study population. Because IBBS team depended on partner NGOs to help identify target group members, invariably several friends and family members of those NGO members appeared for interview and testing to take advantage of the incentives offered by the MoH. Despite IBBS team's screening efforts, several of these non-target-group people participated in the study.

A sixth limitation was the validation of RDS as the appropriate sampling frame for IBBS surveys. Despite the use of RDS for more than a decade, several key assumptions and operational issues are still under evaluation by field researchers. These issues include the influence of non-response bias, biases in the

selection of seeds to populate the first wave of respondents, and assumptions made about the size of a particular seed's social network.

Conclusions and Recommendations

STI prevalence ratios in all target group populations constitute a state of emergency for TL

Despite their knowledge of STI symptoms, willingness to see health care professionals, and knowledge of the role that proper and consistent use plays in preventing HIV/STI infections, participants' biologic results showed that they are not putting that information into practice.

HIV/AIDS may spread and enter into other target groups

Due to the very high STI infection ratios, HIV has a clear entryway into other portions of the target groups. Right now, HIV infection seems to be nested in sub-populations of the target groups: 1) transgender MSM, 2) FSW whose see larger numbers of new clients per month and FSW who do not receive more than $5 for their sexual services; and 3) Uniformed personnel who work along the border regions of Bobonaro and Covalima. The additional predicates for infection rates in these groups seem to be: 1) use of ecstasy with alcohol, 2) smoking opium, and 3) frequent use of paid sexual services. Another factor of concern is the lower-than-expected uptake of free HIV testing and counseling across the target groups. Overwhelming majorities are aware of free HIV testing and counseling within their communities, but less than half of them had ever taken advantage of the service at the time of interview with the IBBS team. Of the five positive HIV cases found during the IBBS, only one had previously been tested for HIV. Other data from TL show that access to VCT is increasing, the IBBS data likely confirm that it is being used predominately by individuals who are not HIV- or STI-infected: 80% of those who tested HIV positive and 100% of those who tested positive for an STI were unaware of their status.[9]

Unprotected commercial sex interacts with other risk factors to drive STI spread

Although knowledge of condoms effectiveness seems relatively high, consistent condom use is still low, with only 36% of FSWs reporting use of a condom with their last client and only 54% of CSWs reporting that they ever use a condom with any of their female sexual partners – paid and unpaid. When asked why they did not use a condom, overwhelmingly large percentages (>70%) of all participants reported that they did not use a condom because one was not available. This is consistent with their reports that they do not know how to acquire free condoms in their communities. The exception to this finding is UP – who often have condom dispensers in their workplaces.

The continuing barriers to improving uptake and consistent use of condoms need to be more fully explored with CSWs and FSWs, especially, and then addressed in more targeted and consistent condom social marketing and outreach by NGOs to their clients.

[9] These percentages are derived from follow-up interviews and focus groups conducted with IBBS participants after interview, HIV testing, and specimen donations at the hospital. These members reported that they would access VCT only if they were sick. They did not see it as a tool to know their status because it had not been marketed to them that way.

High STI prevalence ratios suggest need for new prevention, control, and treatment strategies

All target groups in all districts registered high STI prevalence ratios to the extent that the MoH should treat them as public health emergencies that can likely turn into public health disasters. However, the most alarming findings were in Covalima with syphilis infection ratios of nearly 20%. Although IBBS was unable to test for gonorrhea and conduct only limited screening for Chlamydia, MoH should note that those 3 infections usually travel together. Because the syphilis infection ratios are high, MoH should assume that the other 2 STIs circulate amongst the target groups at a very similar rate.[10] The second largest concern is the number of participants who are chronically infected with Hepatitis B. High hepatitis B infections are the gifts that keep on giving: the population of TL is very young and the fertility rates are very high. This is a recipe for continued perinatal and intimate contact spread of the virus. The MoH has to develop a strategy on multiple fronts – via screening at antenatal clinics, via newborn vaccinations and immune globulin treatments, and massive hepatitis B vaccination campaigns across the country.

The alarmingly high syphilis infection ratios suggest that treatment strategies must be more aggressive. For example, the prevalence ratio amongst FSW is extremely high, indicating that outreach strategies will need to be augmented to include referrals to VCT or a hospital-specific STI clinic or program.

VCT at all levels needs to be drastically improved.

Given the low uptake of VCT amongst the target groups in all the districts, under-assessment of the true HIV prevalence ratio in TL will always be unclear. Based on the data from the survey, about half of the respondents do not think there are drugs and therapies available to help people who are HIV positive. This belief likely depresses the desire to know their status because they believe that effective treatments are not available to them. Therefore, a key action to increase VCT usage is to improve the anti-retroviral treatment (ARV) program in TL. The logic is that if the community sees more people getting treatment and living healthy and productive lives, the stigma will reduce and the fear of knowing will diminish.[11]

Also, VCT in TL must become more mobile – going to where the HPRGs live and work. For example, the IBBS show that there is a problem with FSW and UP along the borders with Indonesia, but there is no VCT consistently available to them.

The effectiveness of focusing on sub-groups within the target groups

Given the risk behavioral characteristics of the target groups as summarized in this report, the HIV epidemic in TL has the potential to spread – first to other sub-groups within the target groups and then to the larger community via sexual partners, members of the risk groups giving birth to infected children, and infecting children through breastfeeding.

[10] Golden, R.N., Weiland, C., Peterson, F., & Weiland, K. (2009). The truth about illness and disease.

[11] Skinner, D., & Mfecane, S. (2004). Stigma, discrimination and the implications for people living with HIV/AIDS in South Africa. *J des Aspects Sociaux du VIH/SIDA*, 3(1).

There is ample evidence in these IBBS data that FSWs, CSWs, UP, and MSM all have high rates of unprotected sex with their regular and paid or unpaid casual sex partners. In turn, these partners have unprotected sex with others, thus leading to an ongoing chain of infection and increased opportunities for HIV to ride along and spread.

In a low-prevalence and nested epidemic such as that observed in TL, where most infections are in sub-populations within a target group, it is imperative that the focus stay on these target groups. If interventions can saturate these groups and lead to substantial behavioral, care-seeking, and treatment changes, evidence from other nations shows that infection rates will decline for the population as a whole.[12]

Investment in subsequent IBBS activities

This IBBS was the first comprehensive community-based HIV, STI, and behavioral surveillance activity undertaken in multiple districts. Some of the observed HIV and STI infection rates differ from those of the past studies and sentinel surveillance exercises, emphasizing the value of community-based sampling within target groups. Conducted repeatedly, the IBBS will provide indicators of HIV, STI, and behavioral risk trends that can guide intervention development, evaluation data on the effectiveness of specific programs and interventions, and provide policymakers with reliable information on intervention successes and areas of continued need and focus. As indicated in IBBS 2011 with the finding of the very high syphilis and Hepatitis B infection ratios among the target group members, the IBBS can serve as an early warning system for current and emerging public health epidemics and emergencies.

[12] Crepaz, N., Lyles, C.M., et al. (2006). Do prevention interventions reduce HIV risk behaviors among people living with HIV? A meta-analytic review of controlled trials. *AIDS*, 20, 143-57.

Appendix I

Table 9. Background Characteristics of IBBS Participants

Item		FSW	MSM	CSW	UP
Median age (yr)		25	28	27	31
Overall sample size (*n*)		133	159	390	206
Marital Status					
	Single	54%	38%	45%	34%
	Unmarried/living together	0	1%	1%	0
	Married	34%	56%	46%	62%
	Divorced	6%	3%	5%	3%
	Widowed	6%	2%	3%	1%
Occupation	Unemployed	31%	28%	29%	0
	Police	0	0	0	19%
	Military	0	0	0	1%
	Taxi driver	0	2%	6%	0
	Office Worker	0	1%	3%	0
	Civil Servant	6%	0	0	25%
	Bombeiros	0	0	0	15%
	Security	0	0	0	40%
	Student	23%	11%	12%	0
	Outreach Worker	2%	6%	5%	0
	Other	38%	52%	45%	1%
Monthly Household Income					
	<$50	55%	58%	53%	2%
	$51 - $100	14%	10%	15%	7%
	$101 - $150	15%	17%	17%	54%
	$151 - $200	7%	9%	9%	17%
	$201 - $250	2%	4%	4%	9%
	$251 - $300	5%	1%	1%	9%
	>$300	1%	2%	1%	3%
Highest Level of Education					
	No Formal Education	12%	11%	12%	2%
	Primary School	16%	18%	20%	6%
	Junior School	15%	15%	14%	12%
	Senior School	33%	25%	25%	33%
	Diploma	16%	19%	22%	41%
	University	5%	3%	5%	6%

Appendix II

Table 10. Drug Use, Sexual Debut, and Reasons Why Condoms Are Not Used

Item		FSW	MSM	CSW	UP
Have you taken any drugs in the past 12 months?					
	Yes	3%	2%	2%	4%
At what age did you first have sex?					
	Mean	18.7	17.56	17.9	17.64
	Median	18	17	18	17
	Range	14 – 32	10 – 25	10 – 31	12 - 30
For those times that you and any sex partner did not use a condom during sex, why didn't you use a condom?					
• Never heard of condoms		5%	9%	23%	14%
• Don't know how to get them		2%	17%	31%	26%
• Did not think it was necessary		0	14%	25%	22%
• Not available		2%	67%	70%	77%
• Partner objected		17%	28%	10%	6%
• Partner (client for FSW) was faithful		14%	59%	86%	90%
• Takes away pleasure		15%	32%	29%	32%
• Don't like them		16%	16%	18%	19%
• Free dispenser had run out		2%	5%	6%	12%
• Did not have intercourse		0	0	4%	1%
• Tried to have a baby		0	0	50%	40%

Appendix III

Table 11. STI Knowledge

Item		FSW	MSM	CSW	UP
Please describe some STI symptoms (*n*)		86	159	230	136
	Abdominal pain	47%	29%	36%	49%
	Genital discharge	14%	4%	14%	9%
	Foul-smelling discharge	17%	3%	13%	15%
	Burning pain	42%	45%	50%	57%
	Genital ulcers/sores	13%	28%	21%	22%
	Swelling in groin	11%	35%	29%	27%
	Itching	37%	68%	62%	71%
Can you have an STI without symptoms? (n)		86	53	185	110
	Yes	23%	21%	25%	25%
How can people prevent infection with an STI? (n)		86	71	216	131
	Abstain from sex	17%	78%	60%	60%
	Use condoms correctly each time you have sex	61%	93%	96%	84%
	Have a faithful partner	53%	93%	72%	77%
	Be a faithful partner	54%	96%	73%	81%

Table 12. STI Risk Perceptions

Have you ever had STI symptoms? (n)		86	159	390	206
	Yes	28%	54%	36%	28%
Did you tell any of your sex partners about your STI symptoms? (n)		59	159	66	44
	Yes	22%	6%	26%	13%
What did you do the last time you had STI symptoms? (n)		59	84	66	44
	Did nothing	7%	8%	59%	64%
	Talked to a friend	20%	8%	34%	63%
	Went to GP	17%	10%	32%	58%
	Went to traditional practitioner	17%	30%	45%	56%
	Saw a health care worker	16%	40%	37%	47%
	Went to VCT center	12%	55%	57%	58%
	Went to hospital	21%	65%	60%	74%
	Went to pharmacy to self-medicate	18%	60%	23%	19%
What do you think is your risk of acquiring an STI? (n)		86	62	213	122
	Little-to-no risk	10%	71%	58%	52%

Appendix IV

Table 13. HIV Knowledge & Perceptions

Item		FSW	MSM	CSW	UP
Where did you find out about HIV/AIDS? (n)		61	122	308	161
	School	23%	58%	55%	55%
	Health services	54%	37%	48%	55%
	Workplace	19%	41%	41%	41%
	Friends/family	65%	92%	88%	81%
	Television	52%	73%	74%	73%
	Newspaper/magazine	44%	63%	62%	66%
	Posters/billboard	36%	50%	52%	50%
	Pamphlet/leaflet	41%	53%	52%	54%
	Radio	37%	61%	60%	57%
	NGO outreach workers	20%	40%	33%	37%

Appendix V

Table 14. HIV Knowledge, Access, and Risk Perceptions

Items		FSW	MSM	CSW	UP
How can HIV be transmitted to people? (n)		98	124	310	167
	Unprotected sex	68%	98%	96%	95%
	Lots of casual sex	71%	94%	94%	87%
	Sharing needles	72%	95%	93%	93%
	Eating food with an HIV+ person	62%	59%	57%	58%
	Mosquito bites	13%	83%	49%	36%
	Breastfeeding	71%	89%	86%	83%
	Vertical transmission	72%	57%	90%	87%
	Living with an HIV+ relative	60%	89%	60%	61%
	Blood transfusion	72%	92%	89%	88%
Do you know anyone who is HIV+ or who has died of AIDS? (n)		61	131	318	168
	Yes	22%	16%	14%	15%
What do you think is your risk of being infected with HIV? (n)		61	131	320	170
	Little-to-no risk	12%	65%	56%	57%

Can an HIV-infected person look healthy? (n)		78	131	321	171
		57%	79%	73%	71%
Are there medicines that can help people who have HIV? (n)		78	131	321	171
	Yes	43%	57%	46%	57%
Is there a place in your community where you can get a confidential HIV test? (n)		133	156	383	203
		87%	94%	94%	86%

Appendix VI. Laboratory Rapid Tests

The following tests were used in IBBS 2011. All have been approved by the U.S. Food & Drug Administration and were on the WHO/UNAIDS order list, clearing it for use in any setting where WHO operates. Click on the product name to go the package insert link on the Web, if the reader wants or needs additional information.

1. OraQuick HIV test for detecting HIV-1 and HIV-2
2. HCV Tridot 4th Generation
3. SD Bioline Syphilis 3.0, Multi-device test kit
4. Standard Diagnostics Chlamydia Rapid Test Kit
5. Determine HBsAg whole Blood

Appendix XII. Survey Instrument (Tetun)

Timor Leste HIV/STI Behavioural Surveillance Survey 2011

District: (Dili, Baucau, Suai, Bobonaro, Oecusse) Date ___________

Interviewer: Code ___ ___ ___

Introduction

"My name is... I'm working with the Ministry of Health. We are conducting HIV and sexually transmitted infection (STI) surveillance in the country, so we need to interview people here in **[name of district]** to collect information about HIV and STIs. The survey will take about 30 minutes and, if you agree to testing, specimen collection and counselling will take about 45 minutes. We will reimburse your transportation costs."

Are you at least 16 years old? Yes No
If no, end the interview and thank the person for his/her time.

Have you been interviewed in the past few weeks for this kind of study? Yes No
If yes, end the interview and thank the person for his/her time.

Consent

I will ask you some questions about your sexual practices, whether and how you use condoms, whether you use illicit drugs, and whether you have lived outside of the country. You do not have to answer any question that makes you feel uncomfortable. You can end the interview at any time. We will also ask you to complete an HIV test. Everything you tell me during the interview and any test results will be kept completely private. May I continue with the interview?

Agreed to interview: Yes No

Agreed to HIV rapid test: Yes No

Agreed to submit specimens for STI screening: Yes No

Results card with I.D. code given: Yes No

Transportation Reimbursement Given Yes No

Referral Coupon Book Given Yes No

Respondent I.D. code: Interviewer code:

(Entry of these 2 codes certifies that informed consent has been given verbally by respondent)

SECTION A: General Background
SECTION B: Condom Knowledge/Use
SECTION C: Drug Use
SECTION D: Male Sexual Behaviors
SECTION E: Female Sexual Behaviors
SECTION F: KAP STIs
SECTION G: KAP HIV/AIDS
SECTION H: Access to HIV/STI Services & Care

SECTION A: BACKGROUND CHARACTERISTICS

	I want to start by asking some questions about your background		
A1	What is your date of birth?	Date: __/__/__	
A2	Where were you born?	AINARO 1 AILEU 2 BAUCAU 3 BOBONARO/MALIANA 4 COVALIMA/SUAI 5 DILI 6 ERMERA 7 LAUTEM/LOS PALOS 8 LIQUICA 9 MANATUTO 10 MANUFAI/SAME 11 OECUSSI 12 VIQUEQUE 13 OTHER _____ DON'T KNOW 88 NO RESPONSE 99	
A3	What is your current marital status? **(One Answer)**	SINGLE (NEVER MARRIED) 1 LIVING TOGETHER BUT NOT MARRIED 2 MARRIED 3 DIVORCED / SEPARATED 4 WIDOWED 5 DON'T KNOW 88 NO RESPONSE 99	
A4	Who do you live with? **(Multiple Answers)**	YES NO DK NR SPOUSE 1 2 88 99 PARTNER (Girlfriend/Boyfriend) 1 2 88 99 PARENTS 1 2 88 99 BROTHER/SISTER 1 2 88 99 CHILDREN 1 2 88 99 OTHER RELATIVES 1 2 88 99 FRIENDS 1 2 88 99 LIVE ALONE 1 2 88 99 CO-WORKERS 1 2 88 99 OTHER_____	

A5	What is your occupation? **(Multiple Answers)**	Taxi Driver Police Military Fisherman Outreach Worker Teacher Trader/businessman Dependent Office Worker Public/Civil Servant Carpenter Unemployed Student Other (specify):_____ DON'T KNOW 88 NO RESPONSE 99	
A6	What is your household's monthly income?	< $50 $50-$100 $101-$150 $151-$200 $201-$250 $251-$300 >$300	
A7	Have you ever lived outside of Timor Leste?	Yes No No Response	
A8	Have you ever been in jail or prison?	Yes No No Response	If no, go to B1
A9	For how long?	A few weeks A few months 1 year 1-2 years >2 years	
A10	What is the highest level of education you completed? **(READ OUT – select only ONE)**	NO FORMAL EDUCATION 1 COMPLETED PRIMARY SCHOOL 2 COMPLETED JUNIOR SCHOOL 3 COMPLETED SENIOR SCHOOL 4 COMPLETED DIPLOMAL 5 COMPLETED UNIVERSITY 6 OTHER _____ NO RESPONSE 99	
A11	What is the highest level of education you completed? **(READ OUT – select only ONE)**	NO FORMAL EDUCATION 1 COMPLETED PRIMARY SCHOOL 2 COMPLETED JUNIOR SCHOOL 3 COMPLETED SENIOR SCHOOL 4 COMPLETED DIPLOMAL 5 COMPLETED UNIVERSITY 6	

		OTHER _____ NO RESPONSE 99	
A12	Can you read and write?	Yes No No Response	

Section B: Condom Use & Knowledge

	Now I want to ask you a few questions about your knowledge, attitudes, and use of condoms		
B1	Prior to now, have you ever seen a condom outside of its package?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	>>B3
B2	Have you <u>ever</u> used a condom during sex with any partner?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
B3	Do you know of any place or person from which you can obtain condoms for free (no charge)?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	If no, go to C1
B4	Do you carry condoms with you?	ALWAYS 1 SOMETIMES 2 NEVER 3 DON'T KNOW 88 NO RESPONSE 99	

SECTION C: DRUG USE

	Now I want to ask you some questions about drugs – whether you use them and whether you know others who do. I am not interested in drugs taken for medical purposes (e.g., diabetes, hypertension). I want to know about drugs used to help you get high or drunk or to "have fun."	

C1	In the past twelve months, have you taken any drugs?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	>>C11
C2	In the past twelve months, what drugs have you taken (other than for the purpose of medical treatments)? **READ LIST** Marijuana/Ganga Cocaine/Coke Ecstasy Amphetamines Opium Hashish Codeine Heroin Other (specify):	YES NO DK NR 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 _____ _____	
C3	Some people have tried injecting drugs using a syringe. Have you ever injected drugs?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	>>C11
C4	In the past twelve months have you injected drugs?	YES 1 NO 2 HAVE NEVER INJECTED DRUGS 0 DON'T KNOW 88 NO RESPONSE 99	>>C11
C5	How long have you been injecting drugs?	<1 year 1-2 years >2 years Don't know/Can't remember No Response	
C6	In the past twelve months, what drugs have you injected? **READ LIST** Cocaine Ecstasy Amphetamines Opium Hashish Codeine Heroin	YES NO DK NR 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99 1 2 88 99	

	Other	_____ _____	
C7	Think about the last time you injected drugs – where did you get the syringe?	A friend A family member Found it A drug-using partner A sex partner Co-worker Medical supply Person I bought drugs from Don't Know/Can't Remember No Response	
C8	Did you inject your drugs alone or with other people?	Alone With Others Don't know/Can't Remember No Response	
C9	How many other people do you know who also inject drugs?	0 1 2 3 >3 people	
C10	Where do you get the drugs that you inject?	Local drug dealer From a friend From a family member From a co-worker From someone in another district Other (specify): Don't Know No Response	
C11	**What is your gender?**	Male Female	Male>>> D1 Female>> E1

SECTION D: SEXUAL HISTORY – MEN (ALL ORIENTATIONS)

	Now I am going to ask you some personal questions about your sexual practices. Please remember that we need honest answers to all the questions.		
D1	Have you ever had sex? (For the purposes of this survey, 'sex' is defined as **any** sexual contact – voluntary or involuntary, paid or unpaid – with another person.)	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	>>F1

D2	At what age did you first have sex?	AGE IN YEARS [__|__] DON'T KNOW 88 NO RESPONSE 99	
D3	Have you ever in your life paid money for sex?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
D4	Has anyone ever paid money to you for sex?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
D5	Have you ever in your life had sex with another male?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	If no, go to D12
D6	Have you had sex with a male in the past twelve months?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	

D7	The last time you had sex with a male partner, was a condom used?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
D8	Think of other times you have had sex with male partners. How often would you say a condom was used during sex..... Would you say… **READ LIST**	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 88 NO RESPONSE 99 NO REGULAR FEMALE PARTNER -9 NO VAGINAL INTERCOURSE 0	

D9	For those times that you and your male sex partner did not use a condom during sex, why didn't you use a condom? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR NEVER HEARD OF CONDOMS 1 2 88 99 I DON'T KNOW HOW TO OBTAIN A CONDOM 1 2 88 99 I DIDN'T THINK IT WAS NECESSARY 1 2 88 99 I DIDN'T THINK OF IT 1 2 88 99 NOT AVAILABLE 1 2 88 99 TOO EXPENSIVE 1 2 88 99 PARTNER OBJECTED 1 2 88 99 DON'T LIKE THEM 1 2 88 99 FREE DISPENSER HAD RUN OUT OF CONDOMS 1 2 88 99 USED OTHER PREVENTION METHODS 1 2 88 99 PARTNER WAS 'FAITHFUL' 1 2 88 99 CONDOMS TAKE AWAY PLEASURE 1 2 88 99 CONDOM WAS SPOILED WHEN OPENED 1 2 88 99 OTHER_____	

D10	Where do you meet your MALE sexual partners? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR ON THE INTERNET 1 2 88 99 THROUGH FRIENDS 1 2 88 99 IN TOURIST AREAS 1 2 88 99 BEACH AREAS 1 2 88 99 ON THE STREET 1 2 88 99 IN KARAOKE BARS 1 2 88 99 THROUGH CO-WORKERS 1 2 88 99 AT NIGHT CLUBS 1 2 88 99 DRINKING BARS 1 2 88 99 HOTELS 1 2 88 99 OTHER_____	

D11	In the last twelve months did any of your sexual partner(s) force you to have sex with them even though you did not want to have sex?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	

D12	Have you ever had sex with a female?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	If no, go to F1

D13	How often do you and your female sex partners use a condom? Would you say… **READ LIST**	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 88 NO RESPONSE 99	

D14	For those times that you and your female sex partner do not use a condom during sex, why don't you use a condom? **MULTIPLE ANSWERS POSSIBLE**		Y	N	DK	NR	
		NEVER HEARD OF CONDOMS	1	2	88	99	
		I DON'T KNOW HOW TO OBTAIN A CONDOM	1	2	88	99	
		I DIDN'T THINK IT WAS NECESSARY	1	2	88	99	
		I DIDN'T THINK OF IT	1	2	88	99	
		NOT AVAILABLE	1	2	88	99	
		TOO EXPENSIVE	1	2	88	99	
		PARTNER OBJECTED	1	2	88	99	
		DON'T LIKE THEM	1	2	88	99	
		USED OTHER CONTRACEPTIVE	1	2	88	99	
		USED OTHER PREVENTION METHODS	1	2	88	99	
		PARTNER WAS 'FAITHFUL'	1	2	88	99	
		CONDOMS TAKE AWAY PLEASURE	1	2	88	99	
		DID NOT HAVE INTERCOURSE	1	2	88	99	
		OTHER_____					

E. Sexual History – Female Respondents

E1	Have you ever had sex?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	>>F1

E2	At what age did you first have sex?	AGE IN YEARS [__|__] DON'T KNOW 88 NO RESPONSE 99	
E3	Have you ever in your life accepted money for sex?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	If no, go to E5
E4	Have you accepted money for sex in the past 30 days?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	If yes, go to E8

E5	When you have sex, how often would you say a condom is used? Would you say… **READ LIST**	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 88 NO RESPONSE 99 NO REGULAR FEMALE PARTNER -9 NO VAGINAL INTERCOURSE 0	
E6	<u>For</u> those times that you and your sex partner do not use a condom during sex, why don't you use a condom? **MULTIPLE ANSWERS**	Y N DK NR NEVER HEARD OF CONDOMS 1 2 88 99 I DON'T KNOW HOW TO OBTAIN A CONDOM 1 2 88 99 I DIDN'T THINK IT WAS NECESSARY 1 2 88 99 I DIDN'T THINK OF IT 1 2 88 99 NOT AVAILABLE 1 2 88 99 TOO EXPENSIVE 1 2 88 99 PARTNER OBJECTED 1 2 88 99 DON'T LIKE THEM 1 2 88 99 FREE DISPENSER HAD RUN OUT OF CONDOMS 1 2 88 99 USED OTHER PREVENTION METHODS 1 2 88 99 PARTNER WAS 'FAITHFUL' 1 2 88 99 CONDOMS TAKE AWAY PLEASURE 1 2 88 99 DID NOT HAVE INTERCOURSE 1 2 88 99 CONDOM WAS SPOILED WHEN OPENED 1 2 88 99 OTHER_____	

E7	In the last 30 days, how often did you and any of your partners use a condom during sex? Would you say… **READ LIST**	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 88 NO RESPONSE 99	**>>e16** **>>e16** **>>e16** **>>e16** **>>e16** **>>e16** **>>e16**

E8	On the last day you worked, how many clients did you have?	NUMBER OF CLIENTS|__|__| DON'T KNOW 88 NO RESPONSE 99	
E9	How many of them were new clients (it was the first time they had paid to have sex with you)?	NUMBER OF NEW CLIENTS|__|__| DON'T KNOW 88 NO RESPONSE 99	
E10	The last time you had sex with a client did you and your client use a condom?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	 **>>e12**
E11	Who suggested condom use that time? **CIRCLE ONE**	MYSELF 1 THE CLIENT 2 JOINT DECISION 3 OWNER OF THE PLACE 4 OTHER _____ DON'T KNOW 88 NO RESPONSE 99	**>>e13** **>>e13** **>>e13** **>>e13** **>>e13** **>>e13** **>>e13**
E12	Why didn't you and your client use a condom that time? **CIRCLE ALL ANSWERS MENTIONED**	Y N DK NR NEVER HEARD OF CONDOMS 1 2 88 99 DID NOT HAVE INTERCOURSE (VAGINAL/ANAL) 1 2 88 99 I DON'T KNOW HOW TO OBTAIN A CONDOM 1 2 88 99 I DIDN'T THINK IT WAS NECESSARY 1 2 88 99 NOT AVAILABLE 1 2 88 99 TOO EXPENSIVE 1 2 88 99 PARTNER OBJECTED 1 2 88 99 DON'T LIKE THEM 1 2 88 99 USED OTHER CONTRACEPTIVE 1 2 88 99 USED OTHER PREVENTION METHODS 1 2 88 99 PARTNER WAS A 'FAITHFUL' CLIENT 1 2 88 99 PARTNER WAS A REGULAR CLIENT 1 2 88 99 CONDOMS TAKE AWAY PLEASURE 1 2 88 99 CLIENT PAID EXTRA 1 2 88 99 CONDOM DID NOT FIT 1 2 88 99	

		CONDOM BROKE 1 2 88 99 OTHER_____	
E13	Have you ever had sex with a client without a condom because the client paid extra money?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	

E14	Do you have a regular sex partner (husband, boyfriend, live-in)?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	If no, go to E16
E15	When you have sex with your regular partner, how often do you use condoms?	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 88 NO RESPONSE 99	

INVOLUNTARY SEXUAL RELATIONS

E16	In the last twelve months did any of your sexual partner(s) [paid or unpaid, regular or casual] force you to have sex with them even though you did not want to have sex?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	

SECTION F: STIs

	Now I am going to ask you some questions about sexually transmitted diseases (STIs)		
F1	Have you ever heard of diseases that can be transmitted sexually?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	>>G1
F2	Please describe some symptoms of STIs **DO NOT READ OUT THE SYMPTOMS** **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR ABDOMINAL PAIN 1 2 88 99 GENITAL DISCHARGE 1 2 88 99 FOUL-SMELLING DISCHARGE 1 2 88 99 BURNING PAIN ON URINATION 1 2 88 99 GENITAL ULCERS / SORES 1 2 88 99 SWELLING IN GROIN AREA 1 2 88 99 ITCHING 1 2 88 99 OTHER_____ Could Not Name Any	

F3	Have you ever had STI symptoms?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	>>F7
F4	Were any of your sex partners also symptomatic?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
F5	Did you tell any of your sex partners about your STI symptoms so that they could seek testing and treatment?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
F6	The last time you had STI symptoms what did you do? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR DID NOTHING 1 2 88 99 TALKED TO FRIEND 1 2 88 99 VISITED GENERAL PRACTITIONER 1 2 88 99 VISITED TRADITIONAL PRACTITIONER 1 2 88 99 VISITED HEALTH CARE WORKER 1 2 88 99 VISITED VCT CENTRE 1 2 88 99 VISITED HOSPITAL 1 2 88 99 GOT MEDICINE FROM PHARMACY 1 2 88 99 OTHER _____	
F7	Is it possible to have an STI without there being any symptoms?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
F8	What would you say is YOUR risk of getting an STI?	NO RISK 1 SMALL RISK 2 MODERATE 3 HIGH RISK 4 DON'T KNOW 88 NO RESPONSE 99	>>F10 >>F10
F9	Why do you think you are at some risk of contracting an STI? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR Have had many partners 1 2 88 99 Do not always use condoms 1 2 88 99 Have used intravenous drugs 1 2 88 99 Partner has other partners 1 2 88 99 Blood transfusions/unsafe injection 1 2 88 99 Had sex with persons who I think has HIV 1 2 88 99 have been in contact with persons with HIV 1 2 88 99	>>F11 >>F11 >>F11 >>F11 >>F11 >>F11 >>F11

F10	Why do you think you have no risk of contracting an STI? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR Not sexually active 1 2 88 99 Have only one partner 1 2 88 99 Trust my partner 1 2 88 99 Always use condoms 1 2 88 99 Always use condoms with people I don't know well 1 2 88 99 Do not use intravenous drugs 1 2 88 99 Partner is faithful 1 2 88 99 No blood transfusions / unsafe injections 1 2 88 99 Only those with many partners are at risk 1 2 88 99 Have not been in contact with persons with HIV 1 2 88 99	
F11	How do you think people can prevent STI transmission?	Abstain from sex Use a condom correctly during sex Have a faithful sex partner Be a faithful sex partner Other (specify):_____	

SECTION G: KNOWLEDGE AND ATTITUDES ABOUT HIV / AIDS

	I am now going to ask you some questions about HIV/AIDS		
G1	Have you ever heard of HIV or the disease called AIDS?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	→H1
G2	How did you find out about HIV/AIDS? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR SCHOOL 1 2 88 99 HEALTH SERVICES 1 2 88 99 WORKPLACE 1 2 88 99 FRIENDS/FAMILY 1 2 88 99 TELEVISION 1 2 88 99 NEWSPAPER/ MAGAZINE 1 2 88 99 POSTERS/ BILLBOARD 1 2 88 99 PAMPHLET/ LEAFLETS 1 2 88 99 RADIO 1 2 88 99 NGOs 1 2 88 99 OTHER_____ _____	
G3	Have you ever discussed HIV or AIDS with any of your sex partners?	YES, ALL 1 YES, SOME 2 NO, NONE 3 DON'T KNOW 88 NO RESPONSE 99	

G4	Have any of these sex partners ever told you their HIV status?	YES, ALL 1 YES, SOME 2 NO, NONE 3 DON'T KNOW 88 NO RESPONSE 99	
G5	Do you know anyone who is infected with HIV or who has died of AIDS?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
G6	What would you say is YOUR risk of being infected with HIV?	NO RISK 1 SMALL RISK 2 MODERATE 3 HIGH RISK 4 DON'T KNOW 88 NO RESPONSE 99	→G8 →G8
G7	Why do you think you are at some risk of contracting HIV? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR Have had many partners 1 2 88 99 Do not always use condoms 1 2 88 99 Have used intravenous drugs 1 2 88 99 Partner has other partners 1 2 88 99 Blood transfusions/unsafe injection 1 2 88 99 Have had sex with persons who I think has HIV 1 2 88 99 have been in contact with persons with HIV 1 2 88 99	→G9 →G9 →G9 →G9 →G9 →G9 →G9
G8	Why do you think you have no risk of contracting HIV? **MULTIPLE ANSWERS POSSIBLE**	Y N DK NR Not sexually active 1 2 88 99 Have only one partner 1 2 88 99 Trust my partner 1 2 88 99 Always use condoms 1 2 88 99 Always use condoms with people I don't know well 1 2 88 99 Do not use intravenous drugs 1 2 88 99 Partner is faithful 1 2 88 99 No blood transfusions / unsafe injections 1 2 88 99 Only those with many partners are at risk 1 2 88 99 Have not been in contact with persons with HIV 1 2 88 99	
G9	How can HIV be transmitted to people? (Multiple Answers....Check All that the respondent gives)	Unprotected sex Having lots of casual sex partners Sharing needles Eating food with an HIV-infected person Mosquito bites Mothers can give it to their children by breastfeeding Pregnant women can give it to their newborns Living with an HIV-positive relative Blood Transfusion	

G10	Can people protect themselves from getting HIV sexually by using a condom correctly every time they have sex?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
G11	Do you think that a person infected with HIV can be healthy-looking?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
G12	Would you be willing to work with someone you knew had HIV?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
G13	Are there medicines available that can help people who have HIV?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	

SECTION H: ACCESS TO SERVICES

H1	Is it possible for you or someone in your community to get a confidential HIV test? (By confidential, I mean that no one will know the result if you don't want them to know it)	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	
H2	I don't want to know the result, but have you ever had an HIV test?	YES 1 NO 2 DON'T KNOW 88 NO RESPONSE 99	→End
H3	Where did you get the HIV test?	VCT CENTRE 1 HOSPITAL 2 PRIVATE CLINIC 3 CHC 4 OTHER _____ DON'T KNOW 88 NO RESPONSE 99	

END: That is the end of the survey. Thank you for your participation.

Appendix XIV. Laboratory Log Form

IBBS 2011 Laboratory Form Log

District (circle one): Dili Baucau Bobonaro/Maliana Oecusse Covalima/Suai

Participant ID	Sex	Specimen(s) Collected	Date collected	Lab Test Results				
				HepB	HepC	Gonorrhea	Syphilis	Chlamydia
	M ☐ F ☐ U ☐	Blood ☐ Rectal swab ☐ Vaginal swab ☐ Urethral swab ☐		Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ TPHA(-) ☐ TPHA(+) ☐ Negative ☐	Positive ☐ Negative ☐ Not Done ☐
	M ☐ F ☐ U ☐	Blood ☐ Rectal swab ☐ Vaginal swab ☐ Urethral swab ☐		Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ TPHA(-) ☐ TPHA(+) ☐ Negative ☐	Positive ☐ Negative ☐ Not Done ☐
	M ☐ F ☐ U ☐	Blood ☐ Rectal swab ☐ Vaginal swab ☐ Urethral swab ☐		Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ TPHA(-) ☐ TPHA(+) ☐ Negative ☐	Positive ☐ Negative ☐ Not Done ☐
	M ☐ F ☐ U ☐	Blood ☐ Rectal swab ☐ Vaginal swab ☐ Urethral swab ☐		Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ TPHA(-) ☐ TPHA(+) ☐ Negative ☐	Positive ☐ Negative ☐ Not Done ☐
	M ☐ F ☐ U ☐	Blood ☐ Rectal swab ☐ Vaginal swab ☐ Urethral swab ☐		Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ Negative ☐ Not Done ☐	Positive ☐ TPHA(-) ☐ TPHA(+) ☐ Negative ☐	Positive ☐ Negative ☐ Not Done ☐

Appendix XV. HIV/STI Referral Form

IBBS/BSS 2011 **Timor-Leste Ministry of Health**

Referral Form for IBBS 2011

To:_____

This person must have follow-up medical testing and care. Please record only the patient's ID number and confirm it by requesting the ID card from the MoH. The patient's ID card must match the number on this form.

Client ID number: _____ _ Gender: _____ Age: _____

REASON FOR REFERRAL (Please tick)
Medical Services _____
Social Services _____
HIV Services_____
Family Planning Services _____
STI Services _____
Other services (specify) _____
REFERRED TO (Name of service)
REFERRED BY (Counselor name)

District:

Signature: _____ Telephone: _____

Date Signed:_____