

# FAMILY HEALTH INTERNATIONAL



**REPORT AUTHORED BY:**

Phillimon Ndubani	INESOR
Jolly Kamwanga	INESOR
Augustus Kapungwe	INESOR
Mbiko Msoni	INESOR
Chanda Mulenga	TDRC
Lovemore Kaetano	TDRC
Mathias Tembo	TDRC
Joseph Kamanga	FHI
Walter Obiero	FHI
Susan Pobywajlo	(FHI)

**SURVEY EXECUTED BY:**

Institute of Economic and Social Research (INESOR), University of Zambia  
Tropical Diseases Research Center (TDRC), Ndola

**ADMINISTRATORS:**

Ministry of Health, Zambia  
National HIV/AIDS Council, Zambia  
Central Board of Health, Zambia

**TECHNICAL ASSISTANCE:**

Family Health International (FHI)  
MEASURE/Evaluation-Tulane University  
Institute of Tropical Medicine, Antwerp

**BEHAVIOURAL AND BIOLOGIC  
SURVEILLANCE SURVEY IN SELECTED  
TRANSPORTATION BORDER ROUTES,  
ZAMBIA**

**Assessment between 2000 and 2003 Surveillance  
Studies Among Female Sex Workers**

**FUNDED BY:**

United States Agency for International Development (USAID), through Family Health International (FHI) Implementing HIV/AIDS Prevention and Care (IMPACT) Project, and through *MEASURE / EVALUATION* (Co-operative agreement HRN-A-00-97-00018-00). STI drugs were provided with support of the Japanese International Cooperation Agency (JICA). The views expressed in this report do not necessarily reflect those of USAID, FHI or JICA.

## **EXECUTIVE SUMMARY**

### **Background**

It was estimated in the Zambia Demographic Health Survey (ZDHS 2002) that 16 percent of Zambian adults between the ages of 15-49 were living with the HIV. The predominant mode of transmission in Zambia is sexual. Women (18%) were more likely to be infected with HIV than men (13%) and tended to contract the virus at younger ages. Female sex workers (FSW) and their partners play an important role in the HIV/AIDS epidemic in Zambia and elsewhere. As part of an overall prevention strategy (or program) in Zambia, the United States Agency for International Development (USAID) and Japanese International Cooperation Agency (JICA), through Family Health International (FHI), began to fund the Corridors of Hope Project (COH) Zambia, in 1999.

The project goal is to reduce sexual transmission of HIV among female sex workers and their clients residing in or passing through border towns or other key communities. The project aims at behaviour change through outreach and peer education, social marketing of condoms and improved sexually transmitted infections (STI) care. The project is implemented in ten sites, of which seven are border towns.

To monitor and assess the progress of the prevention interventions provided to the target groups in the project sites, repeated rounds of cross sectional behavioural and STI prevalence surveys (Behavioural and Biologic Surveillance Survey (BBSS) have been conducted. The first BBSS was done in 2000 (Round One) and the second one was done in 2003 (Round Two).

### **Objectives**

- To monitor the outcomes of existing prevention interventions through a cross-sectional assessment of risk behaviour variables among women who are at high risk of STIs, including HIV
- To measure the prevalence of STIs among sex workers in 4 sites
- To add to and strengthen the monitoring system that will track behavioural trend data for high risk and vulnerable target groups, which influence the epidemic in Zambia.
- To provide information on behavioural trends of key target groups in some of the same catchment areas where voluntary counselling and testing (VCT) for HIV is being offered.
- To provide information to help guide HIV prevention programme planning
- To obtain data in a standardized format, which will enable comparison with other behavioural surveillance studies carried out in Zambia and other countries
- To measure the frequency and correlation between high-risk behaviours and exposure to STI and HIV among high risk women in selected sites.

## Methodology

The 2000 survey was conducted among female sex workers (FSW) in three of the first COH project sites - Chipata, Chirundu and Livingstone. For the 2003 survey, three COH project sites, Chirundu, Livingstone and Kapiri Mposhi, and one non-COH project site, Nchelenge, were chosen for data collection. Chipata did not participate in Round Two because it had been closed as a project site in 2003. Trained field workers administered a semi-structured behavioural questionnaire similar to the BBSS 2000 questionnaire to consenting FSW recruited at night from their place of work. Following completion of the behavioural questionnaire, FSW were referred to and consented again for the STI biologic component, which included blood specimens for syphilis, self administered swabs for gonorrhoea, Chlamydia (to be tested using PCR technique) and trichomoniasis using *In-Pouch* cultures. Qualitative syphilis test and *In-Pouch* cultures were examined at the sites. All specimens were taken to Tropical Diseases Research Centre (TDRC) for re-testing and confirmation. Quality control on 10 percent of RPR positive and negative and for all gonorrhoea and Chlamydia PCR was done at the Institute of Tropical Medicine (ITM) in Belgium.

## Results

### **Behavioural Results:**

#### ***Demographics and General Risk Behaviour***

In 2003, a total of 1,059 FSWs were interviewed and 580 of them were interviewed in Livingstone and in Chirundu. In the 2000 survey, 404 women participated from the same two sites. In 2003 the median age for women was 24 years. The majority of respondents were in the age range 20-24 years, nearly 56 percent were aged below 25 years. Most (94.7%) of the respondents reported having been to school and more than half (about 60%) had completed primary level of education, with the remainder having attained secondary or higher level of education.

Only three percent of the respondents reported being married at the time of the survey. Sex work was the sole source of income for 62.2 percent of the respondents. This proportion was highest in Livingstone (70.4%), while Kapiri Mposhi and Nchelenge both had slightly over 50 percent, while in Chirundu 35.2 percent of respondents reported sex work as their sole income.

Several general risk behaviours were assessed, including migration, period of sex work in the community, alcohol consumption and drug use. Respondents from all four sites reported different levels of recent migration. More than half of all respondents had lived in the same area for at least five years, although more FSW from Livingstone reported having moved to the area over five years ago than in Chirundu (70.4% vs. 43.3%). At least two thirds (66.9%) of the respondents reported never having moved to the area from another place and only 22.0% reported having moved once at the time of the survey. Results on period of sex work in current community showed that there was nearly a quarter (22%) of FSWs who said they had worked in the site of interview for 72 months or more.

Approximately 35 percent of the respondents admitted drinking alcohol at least once per week in the last four weeks, while 18.9 percent said they drank alcohol daily. About 17 percent admitted having taken dagga (marijuana) in 2003, with the highest proportion (24%) being from Livingstone, who admitted having taken the drug on an everyday basis during one

month preceding the survey. Other drugs taken included heroin (0.2%) and cocaine (0.9%) and none admitted taking mandrax tablets.

### ***Sexual Behaviour***

In 2003, the average age for FSW to have their first sexual intercourse was 15 years. The median age at which money was first received in exchange for sex was 17 years. The number of paying sexual partners in the seven days preceding the survey ranged from none (13.0%) to more than five (13.6%), while the median number of sexual partners on last day worked was one (1).

Perhaps the most important behaviour studied in BSS is condom use. Knowledge of a male condom was high in all of the survey sites, with 94.4 percent having ever used a condom. However, only slightly over half (55.6%) of all the respondents claimed to have used a condom at last sexual contact with a paying client. The frequency of condom use at last sex was not very different between sites, however the frequency of consistent condom use with a paying client differed slightly between sites. Overall, only 16 percent said they used a condom every time with a paying client over 30 days. In addition, only a third (33%) of FSW used a condom with a non-paying client at last sexual act and only 9 percent consistently used it over past 12 months.

Considering this, it should not be surprising that only 57.8% of the respondents had condoms on hand during the time of the interview. The largest proportion (69.8%) of those who did not have condoms on hand was in Nchelenge followed by those in Kapiri Mposhi-32 (62%), Chirundu (56%) and Livingstone (50%). About 85 percent had heard about a female condom but only 15 percent ever used it. Use of the female condom was highest in Livingstone (20%) and lowest in Chirundu (12%).

In comparing condom use among those within the COH project with those not registered in the project, 56.1 percent of the registered COH members claimed to have used a condom the last time they had sex with a paying partner, compared to 43.9 percent among non-registered members. Sixty five percent of respondents reported the main reason for not using male condoms was refusal by the male paying clients, and 45 percent reported the same reason with non-paying clients. In more than half of the times, it was a sex worker who suggested to use a condom.

Shops, the market and bars/hotels were the top three sources of male condoms mentioned, 82.0 percent, 64.3 percent and 58.7 percent respectively. While for female condoms it was the pharmacy (40.8%), peer educators (37.2%) and clinic (36.1%) respectively.

### ***STI knowledge, Symptoms and Treatment***

General knowledge of STIs was high in all of the sites, with the proportions of respondents who could name at least two symptoms in both men and women being 63.6 percent and 81.7 percent respectively in all sites. The most commonly known STI symptoms in women were genital ulcers (70.2%), abdominal pains (58.6%), while the most common STI symptoms in men mentioned were genital ulcers (69.7%) and burning pain during urination (51.3%).

The female respondents were asked if in the past year they had had unusual vaginal discharge or sore, symptoms of a sexually transmitted infection. About 35 percent of women reported history of a vaginal discharge (“leakage”) while 36 percent had a sore in the past 12 months preceding the survey. The proportion of respondents reporting vaginal discharge and or genital sores varied from site to site, with the highest proportions in Chirundu and the lowest

in Nchelenge. The reporting of symptoms in surveys is not a particularly useful estimate of prevalence, but it is useful for assessing the health seeking behavior of those who perceive themselves to have an STI. Therefore, the women were asked to report the place they first sought care for their symptom the last time they experienced a symptom. Overall, a quarter of the women sought treatment at the government hospital or clinic. The second preferred to receive treatment from COH/Blue house.

The women who reported having experienced symptoms of an STI were asked if they continued to have sex during the time they had STI symptoms. The majority of those infected still continued having sex in spite of the symptoms exhibited. Only 35 percent said they stopped having sex during the time they had an STI symptom, while 19 percent said they had sex with an STI symptom, but always used a condom. Two percent said they would have sex with a client with an STI, even if he refused to use a condom.

The women were asked if they were currently using any method to protect themselves from getting pregnant. Only 32 percent were currently using a family planning method and most of the women were on oral contraceptives (51%) and 41 percent used a male condom as a family planning method.

### ***HIV/AIDS Knowledge, Opinions and Attitudes***

Overall, almost all (99.4%) respondents had heard about HIV/AIDS and approximately 79 percent knew someone who was infected with or had died of AIDS. Nearly half (47%) of the participants had a close relative or friend infected or die of AIDS. Despite the widespread recognition of routes of HIV transmission, results of this study showed that misconceptions still exist. More than one third (33.3%) believed that mosquito bites could transmit the HIV virus and 20.3 percent believed that it was possible to contract HIV by sharing a meal with someone infected with the virus. Although an overall high percentage (86.9%) of respondents knew that an infected pregnant woman can pass HIV infection to her child during pregnancy, only 52 percent knew that taking ARV lowers the chances of passing the HIV from mother to the baby, and 33 percent knew that mothers can lower chances of passing on HIV to a baby by stopping breast feeding.

On questions related to stigma, about 68 percent thought an HIV positive student should continue with school, and 69 percent thought an HIV positive teacher should be allowed to continue teaching. Only 34 percent said they would buy food from a shopkeeper known to be HIV positive, while 69 percent said if a member of family had HIV infection, they would want it to remain a secret.

### ***VCT and Perception of Risk to HIV***

More than 90 percent of all respondents considered themselves to be at risk of getting HIV. The main reason for the self-assessed high risk was attributed to not using condoms during every sexual contact, and having multiple sexual partners (74.4%). Despite this perceived high risk, only fourteen percent reported ever having been tested for HIV. Of those tested, 73 percent found out their HIV test results. The majority (85%) of those not tested before were willing to be tested. Among those who were not interested in taking the HIV test, the main reason given was fear (72%).

### ***Exposure to the Corridors of Hope Project***

About 73 percent of the FSWs had heard about COH/Blue House drop-in centre and of these, 58.4 percent were registered members and had received STI and BCC services. For most of the registered members, it was the peer educator (74.3%) who introduced them to the COH

Blue House. For those who visited the COH drop-in centre, 84 percent said they were satisfied with services, 75.4 percent said the reception was good and 98.5 percent would go back to seek care. Among non-members, the majority (76.0 %) indicated willingness to register and join the project.

### **Biologic Results:**

The overall prevalence of FSW with at least one STI was 50.9 percent. The prevalence of gonorrhoea, Chlamydia, trichomoniasis and syphilis were 11.2 percent, 5.1 percent, 30.1 percent and 25.5 percent respectively in 2003. The prevalence of those with combined infection of gonorrhoea and or Chlamydia was 12.5 percent.

The prevalence rate of STIs was lower among FSWs registered with the COH project than those not registered. Among those registered the prevalence rate of gonorrhoea, Chlamydia, trichomoniasis and syphilis were 9.8 percent, 3.1 percent, 27.2 percent and 24.8 percent respectively, while the prevalence rates among those not registered were 13.9 percent, 8.2 percent, 40.1 percent and 26.8 percent for gonorrhoea, Chlamydia, trichomoniasis and syphilis respectively.

In order to determine if the rates of trichomoniasis and gonorrhoea/Chlamydia among those women registered with the COH project were lower because of the intervention, a multivariate analysis was conducted, adjusting for possible socio-demographic and behavioural confounders. Only trichomoniasis showed a statistical significance between the registered and non-registered groups. Clients registered in the COH project were 44 percent less likely to have trichomoniasis than those not registered.

## **Comparison of 2000 and 2003 Results among FSW in Livingstone and Chirundu**

### **Behavioural Survey:**

The median age of women in Livingstone was 21 years in both surveys, while the median age of the women interviewed in Chirundu increased slightly from 23 years in 2000 to 25 years in 2003. There was a statistically significant improvement in education level in both sites - in Livingstone, FSW with a secondary or higher education moved from 11.6 percent in 2000 to 50.1 percent in 2003. In Chirundu, secondary education level increased from 7.1 percent in 2000 to 27.5 percent in 2003.

The median number of paying clients during the last seven days worked increased from two to three in Livingstone and from one to two in Chirundu. While there was a reduction in the median number of non-paying partners in Livingstone from one to zero, there was no change in Chirundu between the two surveys. There was a statistically significant increase in alcohol consumption in both sites. In Livingstone, daily alcohol consumption in the past four weeks increased from 16 percent to 30 percent, while in Chirundu the increase was from 13 percent to 17 percent. About 47 percent of respondents in Livingstone and 40 percent in Chirundu had condoms on hand at time of interview. This was a significant increase by 26.5 percentage points in Livingstone and 11.9 percentage points in Chirundu from the 2000 survey.

There was an increase in condom use from the last time they had sex with paying clients in Livingstone (48.8% to 55.2%) but a slight decrease in Chirundu (51.0% to 46.3%), Consistent condom use with paying clients in the past 30 days reduced in both Livingstone and Chirundu by three and 5.6 percentage points respectively. Condom use with non-paying sexual partners at last sexual act increased from 33 percent to about 49 percent in Livingstone. However, there was a significant decrease in condom use the last time they had sex with non-paying

partners in Chirundu, from 43.6 percent in 2000 to 19 percent in 2003. Consistent condom use with non-paying clients reduced from 8.8 percent to 6.5 percent in Livingstone, while in Chirundu it reduced significantly from 16.4 percent in 2000 to only 1.7 percent in 2003. However, the number of those with non-paying partners also reduced significantly between the two surveys from 56.8 percent in 2000 to 21.4 percent in 2003 in Livingstone, and from 38.5 percent to 25.6 percent in Chirundu.

The percentage of those with a history of genital discharge in the past 12 months increased in both sites from 27.0 percent to 35.7 percent in Livingstone and from 26.1 percent to 41.0 percent in Chirundu. The percentage also increased for those who gave a history of having a genital ulcer STI though not statistically significant. In Livingstone the proportion of those with genital ulcers went from 34 percent to 37 percent in Livingstone while in Chirundu it increased from 29 percent to 37 percent. Those reporting either genital discharges or ulcers in the past 12 months also increased from 41.1 percent to about 45 percent in Livingstone while in Chirundu the increase was from a near 40 percent to 46 percent.

The proportion of respondents who reported ever being tested for HIV increased in Livingstone from 12 percent in 2000 to 16 percent in 2003. In Chirundu, there was a reduction in those being tested from 16 percent in 2000 to about 13 percent in 2003. However, of those that were tested, the number who said they voluntarily got an HIV test increased from 50 percent to 89 percent in Livingstone and from 56 percent to 71 percent in Chirundu.

The number of those using a family planning method reduced from 43 percent to 35 percent in Livingstone, and from about 34 percent in Chirundu to 19 percent.

The proportion of respondents with complete knowledge of HIV prevention - defined as correctly identifying all three methods of HIV prevention, including abstinence, being faithful and condom use (ABC) – decreased, though not significantly, in Livingstone from 63.3 percent in 2000, to 61.3 percent in 2003. The proportion also decreased in Chirundu from 60 percent to 55 percent. The proportion of respondents with comprehensive knowledge about HIV and AIDS – defined as a complete knowledge of HIV prevention in addition to reporting no incorrect beliefs about HIV transmission – decreased significantly from 46.9 percent to 35.8 percent in Livingstone, and from 39 to 31 percent in Chirundu between the two surveys. Non-stigmatizing attitudes and willingness to share a meal with a person infected with HIV/AIDS, increased significantly in Livingstone from 10.1 percent to 23.0 percent, while in Chirundu the increase was from 13 percent to about 30 percent between the two surveys.

#### Biologic Data Comparison:

Despite the reported inconsistent changes in behaviour from the two rounds of BBSS, results show the prevalence of STIs being reduced in the two sites. In Livingstone gonorrhoea reduced from 23 percent to 14 percent while in Chirundu the reduction was from about 20 percent to seven percent between the surveys. Reduction in Chlamydia was from 6 percent to 5 percent in Livingstone while it was from seven percent to five percent in Chirundu. Prevalence of gonorrhoea and or Chlamydia reduced significantly from 26 percent to 14 percent in Livingstone, while the prevalence reduced from 23 percent to nearly 10 percent in Chirundu. Reduction in syphilis was from 36 percent to about 30 percent in Livingstone and from about 29 percent to about 15 percent in Chirundu. Reduction in the prevalence of trichomoniasis was statistically significant from a near 51 percent to 30 percent in Livingstone, and from 49 percent to 28 percent in Chirundu.

## **Discussion and Conclusions**

Projects like the Corridors of Hope are making serious efforts to confront the challenge of the HIV epidemic in Zambia. Prevention through education and effective treatment of STIs continues to be the main strategy available for controlling the spread of the disease. The aim is to change peoples' attitudes not only towards the disease and infected persons, but also to encourage the adoption of safer sexual behaviours.

Use of condoms at last sexual encounter, is a strong indicator of safe sexual practices, yet the results show that the use of a condom with a paying partner at last sex was not universal. However, an encouraging finding is that the prevalence of STIs among the FSWs in Chirundu and Livingstone declined between the 2000 and the 2003 BBSS. Notwithstanding the observed declines, it is clear that the prevalence rates of STIs were still high in this stratum of the female populations despite the availability of targeted interventions involving the treatment of STIs and behavioural change messages including condom promotion.

There was a clear gap between awareness of the COH project and actual membership. In the three sites where COH is present (Livingstone, Chirundu and Kapiri Mposhi), only 58 percent of those who had heard about COH, were registered members. Therefore, there is an urgent need for expanding on of outreach programs and innovative methods to improve coverage and facilitate access to the COH project. It is important to note, that condom use was lower and the prevalence rate of STIs was significantly higher among those not registered with the project, warranting intensified recruitment drive into the project. Given that female sex workers exposed to project services and those not exposed share the same clientele, it is not possible to reduce the STI prevalence rates without the majority of sex workers accessing the STI and behaviour change services.

## **RECOMMENDATIONS**

1. A safer sexual practice through consistent condom use is one of the most effective ways of preventing the spread of HIV. However, there are important barriers that continue to impede the consistent use of condoms among the female sex workers that need to be overcome. Even though some of these factors are alluded to in the survey, a detailed understanding is lacking. Therefore, it is worthwhile to systematically investigate some of the factors promoting these barriers and the extent to which they impede consistent use of condoms. This should initially entail an exploratory phase to identify possible costs and obstacles to safer sexual practices. It should then be followed by an empirical examination of the same factors in order to determine the extent to which they hinder the adoption of safer sexual practices.
2. While it is important that sex workers have the knowledge and the skills to negotiate condom use, it is not enough. Short-term prevention efforts should target both sides of the commercial sex equation, as well as its context. That means working with sex workers, their clients. Long-term prevention efforts should work on changing the social landscape which accepts violence as a norm and which deprives women of choices. Furthermore, all prevention efforts need a multi-sectoral approach with the recognition only targeting the risk behaviours and not vulnerability, does not work.

3. A high proportion of the respondents knew where to obtain condoms, which were mostly traditional sources such as health facilities, commercial outlets and the COH peer educators. However, there would appear to be obstacles to accessing these condoms. It should be emphasised that the peer educators and outreach workers must continue to play a key role as the most convenient suppliers of condoms while at same time coordinating other partners involved in condom distributions and sales.
4. In view of continued existence of some misconceptions and stigma against people with HIV/AIDS, there is need to develop better ways and strategies for correcting the misconceptions and negative attitudes. One of the ways to correct these misconceptions is for the programme to broaden its coverage and reach to more women at high risk with accurate information. Providing accurate information through innovative message delivery will also assist to lessen stigma against people with HIV/AIDS.
5. Although the issues of drug and alcohol abuse may not have been a direct interest to COH, there is currently increasing recognition of the relationship between substance abuse and risky sexual behaviours that predispose people to HIV. In view of the findings from this survey, programme managers should begin to seriously analyse and understand substance use among the high-risk female populations at border posts with a view of integrating primary prevention with substance abuse messages.
6. STI control in the project needs to be further strengthened through intensified peer education and outreach work. An expansion of peer education and outreach work will sensitise the sex workers and other members of the community on the dangers of STIs and the benefits of early treatment seeking behaviour. To achieve this, the women who are at high risk need to be targeted, above and beyond the established sex workers, because it will not be possible to control the prevalence of STIs if the majority of the vulnerable female populations are not reached.
7. Since the results indicate that the STI prevalence is high among sex workers, a comprehensive STI care package for female sex workers should include reproductive health services and counselling for treatable STIs and HIV. Assurance for privacy, confidentiality and respect should be guaranteed and assurance of continual care for those identified with any of the STIs including HIV.
8. Based on the high prevalence of STI among sex workers, the management guidelines, including frequency of re-visit, need to be reviewed and revised in line with current STI infection prevalence and drug sensitivity patterns. Effective STI services that are of high quality with continued availability of drugs, condoms, partner treatment services, and provider referral are needed.
9. Although there was an encouraging proportion of respondents who said they would be willing to undergo an HIV test, very few of the sex workers interviewed had taken an HIV test. HIV testing and receiving the result is a critical entry point to the continuum of HIV prevention and care. It is therefore necessary for the project to address the importance of VCT and rigorously promote the services within the project.

## **Acknowledgements**

---

Collection of information from Female Sex Workers (FSW) is not an easy task, therefore, the authors of this report are extremely grateful to the team of research assistants from the Institute of Economic and Social Research (INESOR); Chishimba Mulambia, Alice Mwewa, Hildah Hachilala, Mbaita Siakavuba, Ireen Tembo, Wankumbu Silavwe and Nkole Mulenga who tirelessly put in all they could to ensure that data collection was successfully carried out. Agness Banda did a very commendable job by editing the questionnaires in the field, helping with data entry back at INESOR and provided secretarial support during report writing.

The authors are also grateful to the team from the Tropical Disease Research Centre (TDRC): Mr. Maxwell Chisha, Joy Beene, Allen Chipipa, Abel Simukonda, Joyce Mulenga, Millie Chisenga and Victoria Ruo. At TDRC, thanks to the Director, Dr. Emmanuel Kafwembe for enthusiastically supporting the survey.

All the sex workers who participated in the survey are sincerely thanked for agreeing to respond to questions, which sometimes not only took their precious time, but also involved sensitive personal matters. Further thanks are accorded to District Health Management Teams in the four survey sites for supporting the survey. The Corridors of Hope (COH) project and Society for Family Health (SFH) site staff provided valuable assistance to the survey, especially through the involvement of outreach workers who facilitated the contact between the sex workers and the interviewers.

Thanks for support from the MEASURE Evaluation Project through Tulane University. Specifically, thanks to Dr. Lisane Brown and Prof. Carl Kendall for their valuable comments on the draft questionnaire and the report and Mary Ann Seday for assisting with the development of the study protocol and the data collectors' training manual.

FHI staff, Karen Doll Manda, Country Director-Zambia; FHI Arlington; Gina Dallabetta, Alemu Mammo, Joshua Volle are greatly thanked for the support they rendered for the development of the protocol, PHSC approval, to the review of the draft report. Many thanks to Susan Pobywajlo for her support with the development of the final report.

We thank Prof. Seter Siziya, from School of Medicine of The University of Zambia for assistance provided in statistical analysis of the data.

The project has enjoyed good relationship with uniformed personnel command, we therefore thank the Inspector General of Police for allowing the study to be carried out in the night.

The tireless efforts of all the data entry staff at INESOR, under the leadership of the computer programmer, Mr M. Msoni, are duly appreciated. Laboratory staff at TDRC are also thanked for the contribution and these are; Webster Kasongo, Ireen Nyoni, Nsofwa Mutale, Bobby Malilwe, David Mwakazanga, Euginia Sakala and Paul Sakala.

To all who in one way or the other participated, facilitated or indeed had a keen interest in this survey, it is hoped that each will find some information in this report that could be used to inform their respective constituents or line of business.

## List of abbreviations

AIDS	Acquired Immuno-Deficiency Syndrome
ARC	AIDS Related Complex
ARV	Anti Retroviral
BCC	Behavioural Change Communication
BSS	Behavioural Surveillance Survey
BBSS	Biologic and Behavioural Surveillance Survey
CBI	Cross Border Initiative
CBO	Community Based Organisation
CBoH	Central Board of Health
COH	Corridors of Hope
CSO	Central Statistical Office
CSW	Commercial Sex Worker
DHMT	District Health Management Team
FHI	Family Health International
FSW	Female Sex Worker
GRZ	Government of the Republic of Zambia
HBC	Home Based Care
HIV	Human Immuno-Deficiency Virus
IEC	Information, Education and Communication
IMPACT	Implementing AIDS Prevention and Care Project
INESOR	Institute of Economic and Social Research
ITM	Institute for Tropical Medicine
JICA	Japanese International Co-operation Agency
MOH	Ministry of Health
MTCT	Mother to Child Transmission
NAC	National HIV/AIDS/STD/TB Council
NGO	Non-Governmental Organisation
PCR	Polymerase Chain Reaction
RPR	Rapid Plasma Reagin Test
SDA	Strand Displacement Amplification
SFH	Society for Family Health
SPSS	Statistical Package for the Social Sciences
STD	Sexually Transmitted Disease
STI	Sexually Transmitted Infection
SW	Sex Worker
TDRC	Tropical Diseases Research Centre
TPPA	<i>Treponema Pallidum</i> Precipitation Assay
UNDP	United National Development Programme
UNICEF	United Nations International Children's Emergency Fund
UNZA	University of Zambia
USAID	United States Agency for International Development
VCT	Voluntary Counselling and Testing
WHO	World Health Organisation
WVI	World Vision International
ZDHS	Zambia Demographic and Health Survey
ZHIP	Zambia Health Integrated Project
ZSBS	Zambia Sexual Behaviour Survey

## List of tables

Table 1:	Break down of FSW recruited and interviewed by site
Table 2:	Basic Demographics
Table 3:	General risk behaviours by site
Table 4:	Sexual risk behaviours
Table 5:	Number of paying sex partners
Table 6:	Number and frequency of non-paying partners
Table 7:	Knowledge and availability of male condoms
Table 8:	Knowledge and availability of female condoms
Table 9:	Condom use with paying partners
Table 10:	Condom use with non-paying partners
Table 11:	Correlation between condom knowledge and use at the individual level
Table 12:	Knowledge of STIs
Table 13:	STI symptoms and related behaviour
Table 14:	Family planning practices and loss of pregnancy
Table 15:	Knowledge, opinions and attitudes related to HIV
Table 16:	Knowledge, opinions and attitudes related to mother-to-child transmission
Table 17:	Attitudes related to people with HIV
Table 18:	Attitudes related to VCT
Table 19:	COH project exposure indicators
Table 20:	Comparison of intervention vs. non-intervention variables
Table 21:	Prevalence of sexually transmitted infections 2003
Table 22:	Prevalence of STIs according to site
Table 23:	Prevalence of STIs among FSW registered and not registered with COH
Table 24:	Results of multivariate analysis
Table 25:	Comparison of demographics between Round 1 and Round 2 BBSS
Table 26:	Comparison of general and sexual risk behaviours between Round 1 and 2
Table 27:	Comparison of condom use and availability between Round 1 and 2
Table 28:	Comparison of STI knowledge and symptoms between Round 1 and 2
Table 29:	Comparison of VCT and family planning use between Round 1 and 2
Table 30:	Comparison of HIV prevention, transmission and stigma related issues
Table 31:	Prevalence of STIs in Livingstone and Chirundu 2000 and 2003 BBSS

# TABLE OF CONTENTS

<b>1. INTRODUCTION .....</b>	<b>1</b>
1.1. HIV/AIDS in Zambia .....	1
1.2 Sexually Transmitted Infections.....	2
1.3 Targeting Female Sex Workers and Their Clients .....	2
1.4 Program Description.....	3
<b>2. OBJECTIVES .....</b>	<b>5</b>
<b>3. SURVEY DESIGN AND METHODOLOGY .....</b>	<b>5</b>
3.1 Sites, Sample Sizes, Sampling and Survey Procedures.....	5
3.1.1 Study Sites	5
3.1.2 Sample Size Calculation	6
3.1.3 Data Collection Instruments - Behavioral	6
3.1.4 Sampling Procedure	6
3.1.5 The Interview Team	7
3.1.6 Behavioural Data Collection	7
3.2 BIOLOGIC COMPONENT .....	7
3.2.1 Physical Examination and Specimen Collection	8
3.2.2 Laboratory specimen collected and Test.	8
3.2.3 Treatment Protocols	9
3.3 Informed Consent, Confidentiality and Ethical Review.....	10
3.4 Data Processing and Analysis .....	10
<b>4. RESULTS .....</b>	<b>11</b>
4.1 Socio-demographics and General Risk Behaviours .....	11
4.1.1 Age Distribution	11
4.1.2 Education	11
4.1.3 Religion	11
4.1.4 Marital status	11
4.1.5 Occupation	11
4.1.6 Country of Origin	12
4.1.7 Time Period of Residence and Mobility	12
4.1.8 Alcohol and Drug Use	13
4.2 Sexual Behaviour.....	15
4.2.1 Age at First Sex, by Type	15
4.2.2 Number of Sex Partners by Type of Partner	15
4.3 Condom Knowledge, Availability and Use.....	17
4.3.1 Knowledge and Availability of Condoms	17
4.3.1.1 Male Condoms	17
4.3.1.2	18
Female Condoms	18

4.3.2	Condom Use by FSW	19
4.4.3	Correlating Condom Knowledge and Use at the Individual Level	21
4.4	STIs – Knowledge, Symptoms and Behaviors	22
4.4.1	STIs Knowledge	22
4.4.2	STI Symptoms, Treatment and Sexual Behaviours	23
4.5	Family Planning	24
4.5.1	Family Planning Practices	24
4.6	Knowledge and attitudes towards HIV/AIDS	25
4.6.1	Knowledge, Opinions and Attitudes related to HIV/AIDS	25
4.6.2	Knowledge, Opinions and Attitudes related to Mother-To-Child Transmission	26
4.6.3	Attitudes towards people with HIV/AIDS	27
4.6.4	VCT and Perception of Risk to HIV Infection	28
4.7	Corridors of Hope Intervention	29
<b>5</b>	<b>BIOLOGIC RESULTS</b>	<b>32</b>
5.1	Prevalence of sexually transmitted infections	32
<b>6</b>	<b>COMPARISON OF 2000 AND 2003 FINDINGS</b>	<b>34</b>
6.1	Demographics	34
6.2	General and Sexual Risk Behaviours	35
6.3	Condom Knowledge, Availability and Use	36
6.4	Knowledge and History of STIs	37
6.5	VCT and Family Planning	38
6.6	Knowledge of HIV prevention, transmission and stigma related Issues	39
6.7	Prevalence of STIs in the 2000 and 2003 BBSS	40
<b>7</b>	<b>DISCUSSION</b>	<b>40</b>
7.1	Socio-Demographic Characteristics of the study Population	41
7.2	Alcohol and Drug use	41
7.3	Sexual behaviour	42
7.4	Knowledge and Use of Condoms	42
7.5	Sexually transmitted Infections	43
7.6	Knowledge and attitudes towards HIV/AIDS	43
7.7	Voluntary Testing and Counseling (VCT)	44

7.8 Project Indicators.....	44
<b>8 RECOMMENDATIONS.....</b>	<b>46</b>
<b>9 APPENDICES.....</b>	<b>48</b>
FEMALE QUESTIONNAIRE.....	48
HIV/AIDS/STD BEHAVIOURAL AND BIOLOGIC TABLES .....	61

# 1. INTRODUCTION

## 1.1. HIV/AIDS in Zambia

The HIV/AIDS epidemic in Zambia has become one of the most serious medical and social problems in recent history. In Zambia, the Demographic and Health Survey 2000-2003 estimated that, 16 percent of the population aged between 15 and 49 years was infected with HIV, the AIDS virus<sup>1</sup>. Women were more likely to be HIV positive than men (18 percent and 13 percent respectively). The prevalence of HIV increases with age, with the 15-19 year age group having an estimated prevalence of about 5 percent while in the age group 30-34 years the prevalence rate is about 25 percent, and then falling to 17 percent among the 45-49 age group. The prevalence of HIV is more than twice as high in urban areas than in rural areas (23 percent vs. 11 percent respectively). The predominant mode of transmission of sexually transmitted infections including HIV in sub-Saharan Africa and Zambia in particular is through heterosexual intercourse.

Trends in HIV prevalence rates among women attending antenatal clinics in 22 urban sentinel sites show an overall prevalence of 25 percent<sup>2</sup>. The highest prevalence rates among ANC in both urban and rural attendees were among widows (39 percent in urban and 27 percent in strictly rural), followed by divorced/separated (32 percent in urban and 24 percent in strictly rural areas). Among the women attending ANC who have never been married, the HIV prevalence rates are twice as high in urban (26 percent) than in rural (10 percent) areas. The HIV prevalence rates among married women attending ANC are also higher in urban areas (25 percent) than in rural areas (10 percent). Mother-to-child transmission is the second dominant mode of transmission with 30 - 40 percent of children born to HIV- positive mothers acquiring the infection<sup>3</sup>.

The rising mortality rate in the adult population is leading to an increase in the number of orphans and street children. There are currently 570,000 children who have lost their mother or father or both parents to AIDS and who were under the age of 15 years at the end of 2001<sup>4</sup>.

The spread of HIV in Zambia continues to be exacerbated by a number of socio-economic factors, including the high levels of poverty especially among the women. Several researchers have concluded that there is a clear link between AIDS and poverty<sup>5 6</sup>. Estimates show that 80 percent of Zambians live in absolute poverty<sup>7</sup>, a situation that makes them highly vulnerable to HIV. The low social and economic status of women contributes to high-risk sexual behaviour and vulnerability to HIV. The 2003, Zambia Sexual Behaviour Survey (ZSBS) reported very low condom use among women with non-marital sexual partners (34%). Condom use was 19 percent among women who had sex with non-regular partners in exchange for money, and only 33 percent (both men and women) reported using condoms last

---

<sup>1</sup> Zambia Demographic Health Survey (ZDHS) 2000-2002. Central Statistical Office, Republic of Zambia and Measure Evaluation. February 2003.

<sup>2</sup> ANC Sentinel Surveillance of HIV/Syphilis Trends in Zambia 1994-2002. Central Board of Health, Republic of Zambia, Swedish International Development Cooperation Agency and Centers for Disease Control.

<sup>3</sup> HIV/AIDS in Zambia: Background, Projections, Impacts, Interventions. Central Board of Health, Republic of Zambia. Lusaka 1999.

<sup>4</sup> UNAIDS/WHO. Epidemiological facts sheets on HIV/AIDS and sexually transmitted infections (Zambia). 2002 Update. UNAIDS/WHO, 2002.

<sup>5</sup> Ankras EM. AIDS and the social side of Health. *Soc Sci Med* 1991;**32**:967-80.

<sup>6</sup> Schoepf BG. Ethical, methodological and political issues of AIDS research in central Africa. *Soc Sci Med* 1991;**33**:749-63.

<sup>7</sup> Central Statistical Office. Living Conditions Monitoring Survey (LCMS). Lusaka: CSO, 1997b.

time they were having sex at the time they had STI symptoms<sup>8</sup>. Eighteen percent of the women had sex while they or their partners were under influence of alcohol.

## 1.2 Sexually Transmitted Infections

Globally, STIs are responsible for a large proportion of preventable morbidity and mortality including pelvic inflammatory disease, infertility and congenital infections. STIs are also potent cofactors that increase the efficiency of both HIV transmission and acquisition. That being said, the control of STIs through appropriate treatment is one of the most effective ways of reducing HIV transmission<sup>9</sup>. Early and effective treatment regimens provided to persons infected with STIs serve to eliminate the reservoirs of sexual transmission and prevent complications. The STI management guidelines used in Zambia are based on a syndromic approach as recommended by the World Health Organisation (WHO). Counselling of patients to reduce high risk sexual behaviour and to refer sexual partners for treatment, also reduces transmission of HIV.

Within the Zambia health reforms, STIs are identified amongst six diseases that contribute 90 percent of disease burden in the country<sup>10</sup>. STIs are on the Central Board of Health's priority list for HIV control strategies. In the general population the prevalence of syphilis was seven percent in 2002<sup>11</sup> while prevalence rates of syphilis was 10.7 percent during the 2002, antenatal sentinel surveillance, using RPR positivity as an indicator of syphilis. There was no difference in prevalence rates of syphilis between urban and rural areas<sup>12</sup>.

There are several factors that have made implementation of effective STI control strategies difficult in Zambia. First, diagnostic and laboratory equipment are inadequate and supply of the recommended drugs is often erratic.<sup>13</sup> Second, at both community and health facility levels, individuals with STIs are highly stigmatised. Stigmatising infected individuals ultimately hinders effective STI treatment and control through delayed care or promoting denial of high-risk behaviours.

The first round of The Zambia Biologic and Behavioural Surveillance Survey (BBSS) was done in 2000 in three Corridors of Hope project sites. During this survey, the prevalence rates for STIs among FSWs were 29.3 percent for syphilis, 19.9 percent for gonorrhoea, 6.7 percent for Chlamydia, and 48.9 percent for trichomoniasis<sup>14</sup>.

## 1.3 Targeting Female Sex Workers and Their Clients

The interrelationship between HIV and other STIs, and the notion that improved STI management and condom promotion, substantially decreases HIV incidence is well known<sup>15</sup>. Female sex workers and their clients play an important epidemiologic role in the HIV/AIDS epidemic in most countries. Contact with FSW has long been identified as a risk factor for

---

<sup>8</sup> Zambia Sexual Behaviour Survey 2003. Central Statistical Office, Republic of Zambia, USAID and MEASURE evaluation.

<sup>9</sup> UNAIDS/WHO 2001. Consultation on STD Intervention for preventing HIV: what is the evidence? UNAIDS Best Practice Collection 2000.

<sup>10</sup> Zambia Central Board of Health/Ministry of Health. Integrated Technical guidelines for front line health workers: on the road to delivery. Lusaka: CBoH, 1997.

<sup>11</sup> ZDHS 2000-2002.

<sup>12</sup> ANC SS of HIV/Syphilis trends Zambia 1994-2002.

<sup>13</sup> Ndubani P, Kamwanga J, Kamanga J, Msoni M, Kaseba C. (2001). An assessment of the management of sexually transmitted infections (STIs) in health care facilities in Zambia: Zambia Health Facility Survey Report. Central Board of Health, Republic of Zambia and Measure Evaluation. February 2001

<sup>14</sup> Behavioural and Biologic Surveillance Survey Zambia 2000 Round 1. National AIDS Council/Ministry of Health, Republic of Zambia and Family of Health International/IMPACT

<sup>15</sup> Grosskurth H, Mosha F, Todd J, et al. 'Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania; randomised control trial. Lancet 1995; **346**: 530-536.

HIV infection. Programs aimed at empowering sex workers and attempting to reduce the risk of STI, including HIV infections among FSWs, have been implemented in some countries in sub-Saharan Africa and globally<sup>16</sup>. The provision of STI treatment services in a core group of high-risk women has been shown to significantly reduce their burden of disease and reduce community prevalence of infection<sup>17</sup>. It can help reduce the community prevalence because high prevalence of HIV in sexually active adult males, are generally acquired from sex workers, since clients of sex workers and boyfriends do not always or consistently use condoms<sup>18</sup>. Effective STI control among sex workers and their clients and partners is beneficial for sex workers as well as the community through bridging populations<sup>19</sup>.

However, the challenge is not just to develop new interventions, but to identify barriers to the implementation of existing tools and to devise strategies for ensuring that effective STI control programmes are implemented in the future<sup>20</sup>. The control of STIs, especially in developing countries is not easy, because of limited human and material resources required to effectively diagnose STI cases. The diagnosis of some STIs is more challenging in women. In the absence of sensitive and affordable screening tests for STIs in women, periodic presumptive treatment coupled with prevention education, has been identified as a feasible approach to providing STI services in high risk population as an efficient and cost effective approach to reducing STI prevalence in the general population<sup>21 22</sup>. However, algorithms for treatment of STIs in FSW that are in most of the programs have low sensitivity and have low predictive value for cervical infections, therefore they need to be re-evaluated and adapted to changing populations periodically<sup>23</sup>.

#### 1.4 Program Description

The HIV/AIDS prevalence rates in Zambia are highest along the line of rail and the major highways<sup>24</sup>. Zambia's major highways run alongside the two major rail lines, from Livingstone (border with Zimbabwe) to Kasumbalesa (border with Congo DR), and from Kapiri Mposhi (inland) to Nakonde (border with Tanzania). The major trucking borders are Chirundu and Livingstone (borders with Zimbabwe), Kazungula (border with Botswana), Chipata (border with Malawi), Nakonde and Kasumbalesa and a major internal trucking town is Kapiri Mposhi, at the junction of the two railway routes.

In all of the above-mentioned sites, there is either a government hospital/health centre or a mission hospital with laboratory services. Because of the high prevalence of HIV/AIDS along major highways and a concentration of high-risk groups in border areas, the United States Agency for International Development (USAID) and Japanese International Cooperation Agency (JICA) through Family Health International (FHI), have funded the implementation of the Corridors of Hope project (initially called the Cross-border initiative project-CBI). World Vision Zambia (WVZ) and Society for Family Health (SFH) and the

---

<sup>16</sup> Laga M, Nzilambi N, Goerman J. 'The Interrelationship of STD and HIV infection: Implications for the control of both epidemics in Africa. *AIDS* 1992; (Suppl 1): 995-1063.

<sup>17</sup> Steen R, Vulsteke B, DeCoito T et al. 'Evidence of Declining STD Prevalence in a South African Mining Community Following a Core-Group Intervention'. *Sexually Transmitted Diseases Journal*; 1999. Vol 27, (1): 18.

<sup>18</sup> Cote A, Sobela F, Dzokoto A, et al. 'Transactional sex is the driving force in the dynamics of HIV in Accra, Ghana'. *AIDS* 2004, **18**:1-9

<sup>19</sup> Steen R, Dallabetta G. 'Sexually Transmitted Infection Control with Sex Workers: Regular Screening and Presumptive Treatment Argument Efforts to Reduce Risk and Vulnerability' *Reproductive Health Matters*. 11(22):74-90.

<sup>20</sup> Mayaud P, Mabey D. Approaches to control of sexually transmitted infections in developing countries: old problem and modern challenges'. *Tropical Medicines series. STI Journal*. Accepted for publication 15<sup>th</sup> December 2003:

<sup>21</sup> Steen R, Vulsteke B et al 2000.

<sup>22</sup> Steen R, Dallabetta G 2003.

<sup>23</sup> Vuylsteke BL, Traore V, Anoma CK. Assessment of the Validity of and Adherence to Sexually Transmitted Infection Algorithms at a Female Sex Worker Clinic in Abidjan, Cote D'Ivoire. Vol.30. no.4

<sup>24</sup> HIV/AIDS in Zambia, 1999.

Zambia Health Education and Communication Trust (ZHECT), began implementing activities in border sites and the major internal trucking towns in 1999. When the 2003 BBSS was being conducted, The Corridors of Hope (COH) project was working in six border towns' sites, namely Kazungula, Livingstone, Chirundu, Chipata, Nakonde and Kasumbalesa, and one inland town of Kapiri Mposhi. Since then, the project has expanded to Ndola, Lusaka and Chanida-Katete. The project is mainly targeting FSWs and their clients, specifically long distance truck drivers and uniformed personnel. The project aims to change behavior through peer education and promotion of condoms and voluntary counselling and testing (VCT) services, as well as providing and improving STI care.

To assess the outcomes of the COH project in Zambia, and to monitor behavioural and biological trends over time Behavioural and Biologic Surveillance Surveys (BBSS) are carried out. These surveys measure reported high-risk behaviours which can help explain biological trends over time, and prevalence rates of the curable STIs. Prevalence of HIV risk behaviours and curable STIs capture short term outcomes of the prevention interventions. This biomarker and behavioural data supplements the HIV surveillance data that is collected by the government of Zambia.

In addition, Behavioural Surveillance Surveys (BSS) is justified in its own right by the need to obtain data on behavioural trends among target populations. BSS, defined as repeat cross-sectional surveys of behavior in a representative population, has been identified as being an essential component of second generation HIV surveillance systems. The BSS is especially important, because it focuses on the most vulnerable and high-risk segments of the population, whose behaviours can have the most significant effect on the course of the epidemic.

The Institute for Economic and Social Research (INESOR) and the Tropical Diseases Research Centre (TDRC), implemented the 2003 survey with technical assistance from FHI's IMPACT project and MEASURE/Evaluation Project.

The first baseline BBSS was conducted in 2000 in Livingstone, Chirundu and Chipata by TDRC. The current report presents the results of the second round of the Behavioural and Biologic Surveillance Survey conducted among FSW in 2003. The survey was conducted in three of the COH project sites and one comparison site not covered by the COH intervention. In addition, this report describes the changes over time between the 2000 and 2003 surveys.

## **2. OBJECTIVES**

- To monitor the outcomes of existing prevention interventions through a cross-sectional assessment of risk behaviour variables among women who are at high risk of STI, including HIV.
- To measure the prevalence of STIs among FSW in four sites.
- To add to and strengthen the monitoring system that will track behavioural trend data for high risk and vulnerable target groups, which influence the epidemic in Zambia.
- To provide information on behavioural trends of key target groups in some of the same catchment areas where voluntary counselling and testing (VCT) for HIV is being offered.
- To provide information to help guide HIV prevention programme planning.
- To obtain data in a standardized format will enable the comparison with other behavioural surveillance studies carried out in Zambia and other countries.
- To measure the frequency and correlation between high-risk behaviours and exposure to STI and HIV among high risk women in selected sites.

## **3. SURVEY DESIGN and METHODOLOGY**

The behavioural component's methodology was a cross-sectional design that conformed to a standardised sampling process and collected information on standardised indicators. Because a representative sample was obtained from FSW in defined geographic locations, the process can be repeated to monitor trends over time and compare indicators among sites. The sample sizes in this study were calculated to detect a change of 10 percentage points or more in key risk or knowledge indicators among FSW, at each site in the second and subsequent rounds of BBSS.

In order to comply with ethical standards, the survey participants were consented twice, first for the behavioural questionnaire, then for biologic specimens for STI testing and treatment. Within the same survey, participants were referred to two different data collection teams, one for the behavioural component and one for the biomarker component. Each participant had the same study number throughout. Given this design, the methodologies of each study component will be presented separately below.

### **3.1 Sites, Sample Sizes, Sampling and Survey Procedures**

#### **3.1.1 Study Sites**

This cross-sectional survey of FSW was done in three of the COH project sites - Chirundu, Livingstone and Kapiri Mposhi - and one non-COH project site, Nchelenge. Chirundu and Livingstone participated in Round One of the survey, while Kapiri Mposhi, replaced Chipata, which closed after a year of implementation. Kapiri Mposhi was selected because it is at cross roads of main truck routes, and it also has one of the largest populations of both permanent

and transitory sex workers trading sex to truck drivers and other men who frequent the district. Nchelenge was selected because it is a fishing town sharing a lake border with Congo DR. The district is active with fish traders and female sex workers targeting fishermen, transporters and traders.

### 3.1.2 Sample Size Calculation

The sample size was calculated to detect an increase of 10 percentage points in reported consistent condom use with paying sex (commercial) partners based on the reported use found in the 2000 BBSS. The results of the BBSS (2000) showed that the prevalence of consistent condom use for more than 30 days with paying clients was about 20 percent. The desired change to be detected ( $P_2 - P_1$ ) was 10 percentage points, therefore  $P_2$  was set at 30 percent. The design effect (D) was estimated at 1.2 based on the 2000 data. The level of precision was set at 0.05 and the power at 0.80. These parameters yielded a desired sample size of 274 FSWs per site. Adjusting for a non-response rate of five percent and rounding up, 320 sex workers per site was calculated for a planned total of 1,280 FSWs. However, a total of 1,059 female sex workers were actually recruited and interviewed for this study. The sample size of 1,280 could not be achieved because in two sites, Chirundu and Nchelenge, the mapping and counts of sex workers revealed that there were between 220 and 260 in each of the places at any given time, therefore the desired sample size of 320 could not be reached in the sites. **Table 1** shows the breakdown of the FSW recruited and interviewed by site.

**Table 1: Breakdown of FSW Recruited and Interviewed by Site**

Sites	No. of sex workers
Kapiri Mposhi	350
Livingstone	351
Chirundu	229
Nchelenge	129
<b>Total</b>	<b>1059</b>

### 3.1.3 Data Collection Instruments - Behavioural

Family Health International’s standard surveillance questionnaires, which have been adopted by WHO and UNAIDS, were modified to suit the Zambian context and used to collect the behavioral information from participants. The questionnaire, consisting primarily of closed-ended questions, contained 9 sections and a total of 90 questions. The questionnaire addressed areas such as socio-demographic, marital status, work history; sexual history; knowledge and use of male and female condoms; knowledge of and history of STIs; knowledge surrounding HIV; and service utilisation and exposure to COH interventions. The questionnaire was the same as the one used during the BBSS 2000 with minor additions of a few new questions to address exposure and access to COH interventions, and stigma and discrimination against people living with HIV/AIDS. The questionnaire was translated into two local languages, *Chibemba* and *Chinyanja*, and pre-tested prior to the start of the survey.

### 3.1.4 Sampling Procedure

The survey used time-location approach<sup>25</sup> to recruit the majority of the FSWs who participated in the survey. Prior to the survey, mapping of the sites was conducted to identify locations where FSWs meet clients. FSWs were recruited during the times they were at work, usually at night. Using the time-location approach, interviewers attempted to recruit all the FSWs found in the popular night spots such as bars, restaurants and night clubs between 20:00 hrs and 23:00 hrs. This “take-all” recruitment approach was identical with the one used

<sup>25</sup> Behavioral Surveillance Surveys, Guidelines for Repeated Behavioral Surveys in Population at Risk of HIV, published by FHI 2000.

during the BBSS 2000. In addition, some FSWs were also recruited during the day at the COH drop in centre and in outreach centres. All of them were examined and treated for STIs by same health care provider who was able to identify if the sex worker had been seen before to avoid same sex worker being recruited twice.

During recruitment at night, COH outreach workers and peer educators identified the FSWs, approached them and informed them about the study. If the FSW was interested, the outreach worker/peer educator introduced them to the interviewers. The interviewers invited potential participants to a private setting, assessed their eligibility, obtained consent and administered the questionnaire. The eligibility criteria included, being a female sex worker, either self-identified or identified through an outreach worker, present in a facility (bar) on the night of interview. The team did not explicitly recruit FSW under the age of 18 years, but they were not excluded because of age. The teams spent fourteen days at each site in order to obtain the desired sample size.

### **3.1.5 The Interview Team**

Six female research assistants, recruited and trained in Lusaka, conducted the interviews with FSWs. The interviewer training consisted of a five-day training workshop, which included presentations, discussions and role-playing. The topics covered during the training included survey purpose, interviewing skills, ethical principles, informed consent procedures, confidentiality principles and procedures, roles and responsibilities of the interviewers and other survey members. The trainees were taken through the questionnaire, stressing the importance of reading the questions the way they are phrased and in probing techniques. Practice sessions identified questions and challenges they were likely to encounter during the actual fieldwork. A training manual specifically designed for the survey was used during the training. The pre-testing of the questionnaire was conducted among FSWs during the last two days of the training in two townships of Lusaka.

The interview team in the field was comprised of three principal investigators (behavioural, biologic and overall coordination), three researchers as editors, six female research assistants, three research nurses, four laboratory technologists, one clinician and six outreach workers.

### **3.1.6 Behavioural Data Collection**

The research team was divided into three groups each with two research assistants (behaviour), one research nurse (biologic), one lab technologist and two outreach workers. The outreach workers identified female sex workers at night and introduced them to research assistants. Research assistants obtained oral informed consent, carried out the face-to-face interviews in private rooms, assigned a study number and introduced the research nurse to the client after completing administration of the behavioural questionnaire. Following every interview, field editors reviewed all the completed questionnaires to ensure accuracy in recorded responses. The editors were also responsible for coordinating the interviewers' daily activities, ensuring that the survey procedures and requirements were strictly followed, and supporting the interviewers whenever there were concerns or questions. The Principal Investigators (PIs) and other researchers accompanied the research team to all the four survey sites, and they also participated in editing the completed questionnaires in the field.

## **3.2 BIOLOGIC COMPONENT**

### 3.2.1 Physical Examination and Specimen Collection

After the referral from the behavioural survey, a trained female study nurse obtained a witnessed oral consent for a physical examination, including specimen collection. All consenting participants had their blood collected from the arm through venipuncture by a trained laboratory technologist using a new disposable vacutainer needle. These blood specimens were placed in a transport box and kept at room temperature (15 to 28 °C) before being transported to the laboratory. After receiving verbal instructions from the study nurse, non-menstruating participants collected three self - administered vaginal swab specimens. One vaginal swab was cotton-tipped swab was immediately inoculated into *In-Pouch* TV culture medium and left at room temperature. The other two swabs were Dacron and were placed directly in separate plain cryovials and kept cold in a cool box with ice packs. All specimen containers were labelled with only the participant's study identification number and date of collection.

The women who were recruited at night in the bars were referred to study clinics the following day for a physical examination, syphilis test results and treatment. Women recruited at the clinic during the day were given a physical examination, test results and treatment. The physical examination included external examination/inspection of the genital area and local lymph nodes. The examination was to look for local changes and/or growth, erythema, warts, abrasions, ulcers, swelling, and discharge. Examination of the abdomen and careful evaluation of the location and severity of any reported abdominal pain was also done. A bimanual examination was done to elicit cervical motion tenderness/ excitation, colour and amount of vaginal discharge. No speculum examination was done since specula were not routinely available and used in the COH project clinics. Laboratory tests used are shown below.

### 3.2.2 Laboratory specimen collected and Test.

Organism	Test	Biological sample
<i>Trichomonas vaginalis</i>	<i>In-Pouch</i> culture	Vaginal swab
<i>Neisseria gonorrhoeae</i>	PCR	Vaginal swab
<i>Chlamydia trachomatis</i>	PCR	Vaginal swab
Syphilis	Serology (RPR and TPPA) – treatment in the clinic setting was only based on qualitative RPR result.	Blood/sera

All specimens were transported from the field to the site clinic laboratory within six hours of collection. Once brought to the laboratory, the *In-Pouch* TV cultures were placed in an incubator at  $36.9 \pm 1^{\circ}\text{C}$  and were examined daily for up to five days for the presence of motile trichomonads. At the end of the five days incubation period, the *In-Pouch* TV culture sachets were stored frozen at  $-20^{\circ}\text{C}$  for subsequent quality control testing. The cryovials with specimens on Dacron swabs were placed at  $-20^{\circ}\text{C}$  immediately on return from the field. The blood tubes were centrifuged at 3000 rpm for five minutes to separate the serum, and then the serum was equally aliquoted into three new cryovials. Two of these cryovials were immediately stored at  $-20^{\circ}\text{C}$ , while the last vial was used for qualitative Rapid Plasma Reagin (RPR) testing for syphilis.

At the end of the 14 days of recruitment at one site, the frozen sera vials, the vaginal specimen cryovials, and the *In-Pouch* culture sachets were transported in electric cool boxes operated by vehicle engine to the TDRC laboratory in Ndola. At TDRC, all blood sera samples and

vials with Dacron swab specimens were placed in a -70°C freezer until its time to analyse them. According to the manufacturer's instructions, all RPR reactive and non-reactive sera were re-tested at TDRC using one of the two vials of frozen sera. In addition, quantitative RPR and confirmatory syphilis testing using *Treponemal pallidum* Particle Agglutination (TPPA) tests were performed on all RPR reactive samples. Detection of *N. gonorrhoeae*(GC) and *C. trachomatis* (CT) was performed using the manual Roche Amplicor CT/GC PCR kit according to the manufacturer's instructions.

For external quality control, a total of 1,031 frozen *In-Pouch* TV culture sachets, 1,037 serum aliquots and 913 vaginal specimen cryovials were shipped on dry ice to the Institute of Tropical Medicine (ITM) in Antwerp, Belgium.

At ITM, testing for *Neisseria gonorrhoea* and *Chlamydia trachomatis* was repeated on all samples using the manual Roche Amplicor CT/GC PCR kit. All the 913 vaginal specimens sent by TDRC to ITM were re-tested using the manual Roche Amplicor CT/GC PCR kit for *C. trachomatis*. Out of the 876 specimens tested for CT by both TDRC and ITM, there was a concordance of 96.7% (847/876). All the 913 vaginal specimens sent to ITM by TDRC were tested with the manual Roche Amplicor CT/GC PCR kit for *N. gonorrhoeae*. Comparing the ITM results on the 874 vaginal specimens, also tested by TDRC, there was a level of agreement of 94.3% (824/874).

According to the manufacturer's instructions a randomly selected 10% sample of RPR reactive and non-reactive sera was retested using RPR and TPPA kits. TDRC screened all serum samples using RPR and those found reactive were further tested using TPPA. At ITM all samples reported reactive by TDRC and 10% of the non-reactive sera were retested using RPR and TPPA kits. Active syphilis was defined by a positive RPR and a positive TPPA result. Non-reactive RPR result with a positive TPPA result was defined as past or previously treated syphilis. In cases where RPR is reactive but TPPA is negative, such is considered to indicate either very early syphilis or a false positive. ITM retested a total of 401 serum samples. Comparing the RPR results obtained at TDRC and the QC results from ITM, there was an overall agreement of 89.5% (359/401). With respect to TPPA results, a higher level of agreement was noted between TDRC and ITM with a concordant level of 95.8%.

Similarly, a total of 85 randomly selected *In-Pouch* TV culture sachets, (10% of positive cultures for *T.vaginalis* and 10% of the negatives) were also retested by using two independent PCR based assays. A culture was considered positive for *Trichomonas vaginalis* if both PCR assays were positive. If both PCRs were negative or showed discordant results, the culture was considered negative. Although amplification methods are more sensitive than culture methods, the results obtained at ITM were comparable to those obtained at TDRC to a level of 98% agreement.

### **3.2.3 Treatment Protocols**

The treatment protocol was based on the current treatment guidelines for FSWs in the COH Project. The STI treatment protocols used by the COH Project are consistent with the recommended Zambian treatment guidelines and conform to WHO STI management guidelines. All participating sex workers, regardless of symptoms or physical signs, received presumptive treatment for gonococcal and chlamydial infections. They received ciprofloxacin 500mg single dose and doxycycline 100mg twice daily for seven days.

In addition, those with abnormal vaginal discharge received two grams single dose of metronidazole to cover *trichomoniasis* and or a bacterial *vaginosis*. If they reported not

tolerating this single dose, they were given metronidazole 200 mg orally three times daily for seven days. Those with curd or cheese vaginal discharge were treated for Candidiasis with clotrimazole vaginal pessaries, once a daily for six days. Participants with confirmed abdominal tenderness and/or cervical motion tenderness on physical examination were treated for pelvic inflammatory disease with ciprofloxacin 500 mg orally once only, doxycycline 100mg orally twice daily for 14 days and metronidazole 400mg orally twice daily for 14 days. Women were treated for syphilis with a single dose of Benzathine penicillin 2.4 MU intramuscularly if they had a reactive RPR. All medication was given for free.

Those FSWs found with genital ulcers during examination were treated using genital ulcer syndromic management guidelines. The treatment covered syphilis and chancroid. They were given benzathine penicillin injection 2.4 mega units single dose and erythromycin tabs 500mg four times daily for seven days. If the participant had clear blisters or shallow ulcers suggestive of genital herpes simplex virus (HSV-2) and the signs plus history clinically suggested primary infection were given a prescription for acyclovir tablets, 200 mg orally, five times daily for seven days as the project was unable to provide free acyclovir to the participants. If the ulcers were felt to represent recurrent HSV infection, participants were prescribed 1% gentian violet paint topically with analgesics.

### **3.3 Informed Consent, Confidentiality and Ethical Review**

This survey addressed issues of sex and sexuality, issues of STIs, attitudes and actions towards people who have HIV or AIDS among socially marginalized women. Great care was taken to minimize any potential physical, psychological, or social harm that would occur to the participants as a result of participating in this survey. To this end, FSWs were initially approached by peer educators and out reach workers, most of whom they knew and were known to the community. Study staff who were trained in ethical issues and the procedures of confidentiality that was used in this survey, medical personnel who were trained in the routine procedures of blood and specimen collection, all data forms and specimens were marked only with a study number and no names were recorded anywhere. Informed consent was obtained from all participants. The Research and Ethics Committee of the Tropical Diseases Research Centre (TDRC) in Zambia, the Protection of Human Subjects Committee (PHSC) of Family Health International (FHI) approved the survey methodology.

### **3.4 Data Processing and Analysis**

The completed physical examination and biological results were transported to TDRC following data entry. The biological data were later merged with the behavioural data at INESOR. The completed behavioural questionnaires was edited in the field and transported to INESOR for data processing at the end of each survey site. The questionnaires were coded and entered into the database using Epi Info Version 6. Ten percent of the questionnaires were randomly picked and re-entered for validation. The files were converted into the Statistical Package for the Social Sciences (SPSS) for analysis. First level analysis consisted of descriptive statistics that computed frequencies, means and median to determine the proportion of relevant variables by site and for the total sample. Chi-square tests for 2 x 2 tables and the Pearson Chi-square were used. Chi-square tests were used to compare proportions between two survey periods. In addition, considering sexual behaviour and socio-demographic factors as possible confounders, multivariate and logistic regression analysis were used to determine the magnitude of associations (OR 95% CI) between survey

periods and outcome result. A result yielding a p-value less than five percent was considered statistically significant.

Data from two sites that participated in both round one (2000) and round two (2003) were compared for trends in behavioural and biologic variables and relative success of prevention interventions going on in project sites among female sex workers.

## **4. RESULTS**

The results of the BBSS are presented in three sections. Section A presents results of the behavioural component, Section B presents results of biologic component and Section C compares results between the 2000 and 2003 surveys.

### **4.1 Socio-demographics and General Risk Behaviours**

A total of 1059 female sex workers participated in the behavioural interview.

**Table 2** presents socio-demographic characteristics of respondents.

#### **4.1.1 Age Distribution**

Age distribution varied between sites, although most of the FSWs interviewed were in the age group 15-29 years, with the 20-24 year-old age group accounting for nearly a third of the women. Approximately 27 percent of the respondents were under 20. In Livingstone a third of respondents were below 20 years, while Chirundu, Kapiri Mposhi and Nchelenge had a larger proportion of FSW in the older age groups (Table 2).

#### **4.1.2 Education**

Most (94.7%) of the respondents reported having been to school and the majority (about 60%) had completed a primary level of education. About 38 percent claimed to have attained secondary or higher level of education, with the greatest proportion of women from Livingstone (Table 2).

#### **4.1.3 Religion**

Christianity was the predominant religion among the respondents. Only less than one percent was either Muslim or professed no religion. The major denominations within the Christian religion were catholic (26%), United Church of Zambia (15.6%), Pentecostal (15%), Seventh Day Adventist (11.2%) and New Apostolic (10%). The rest belonged to other Christian denominations.

#### **4.1.4 Marital status**

The majority (96.2%) of the FSW were not currently married, while 3.8 percent said they were currently married. Nchelenge followed by Kapiri Mposhi had more than five percent of respondents who claimed to be married (Table 2).

#### **4.1.5 Occupation**

Most (62.4%) of the respondents reported that sex work was their sole source of income. The proportion of those who depended entirely on sex work was highest in Kapiri Mposhi (53.8%). Among those who reported work other than sex work (n=392), more than two thirds claimed to be businesswomen while more than half claimed to be market vendors. The rest of the respondents claimed to be either office workers, shop assistants, housemaids or

hairdressers. More than half of the sex workers reported supporting other people with whom they lived from their income.

**Table 2: BBSS II Basic Demographics**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
<b>Age Group</b>										
▪ <20	120	34.3	48	21.1	82	23.4	35	27.3	285	27.0
▪ 20-24	132	37.7	57	25.1	112	32.0	44	34.4	345	32.7
▪ 25-29	60	17.1	60	26.4	86	24.6	28	21.9	234	22.2
▪ 30+	38	10.9	62	27.3	70	20.0	21	16.4	191	18.1
Total	350	100	227	100	350	100	128	100	1055	100
Median age	21		25		24		23		23	
<b>Education Level</b>										
None	8	2.3	27	11.8	15	4.3	6	4.7	56	5.3
Primary school	167	47.6	139	60.7	214	61.1	79	61.2	599	56.6
Secondary or higher	180	51.1	63	27.5	121	34.0	44	34.1	398	37.6
Total	351	100	229	100	350		129	100	1059	100
<b>Current Marriage Status</b>										
Married	4	1.2	4	1.8	20	5.7	12	9.3	40	3.8
Not married	339	98.8	222	98.2	329	94.3	117	90.7	1008	96.2
Total	343	100	226	100	349	100	129	100	1048	
<b>Holds Occupation other than Sex Work</b>										
	103	29.6	77	34.8	159	46.2	53	41.1	392	37.6
Total	348		221		344		129		1042	

#### 4.1.6 Country of Origin

The survey collected information on the FSWs country of origin. Except for 28 respondents (14 from Congo, 10 from Zimbabwe, and one each from Malawi, South Africa, Tanzania and Namibia), most of the women indicated Zambia as their country of origin. The main provinces of origin within Zambia were Southern province (33.2%), Copperbelt province (21.2%), and Central province (14.0%) all of which are along the rail line and happen to be the most urbanized parts of the country. The other provinces reported were Lusaka (9.6%), Luapula (9.3%), Eastern (1.7%), Northern (5.6%), North-Western (0.7% and Western (2.0%).

#### 4.1.7 Time Period of Residence and Mobility

Over half of those interviewed in Livingstone (63.4%) and Chirundu (52.8%) were born in the Southern province. Amongst clients interviewed in Nchelenge, 60 percent of the respondents said were born in Luapula province whereas amongst those interviewed in Kapiri Mposhi about 70 percent (n=245) originated either from the Copperbelt (35.8%) or Central province (34.4%). More than half of the respondents had lived in the same area for more than five years and the proportion was highest in Livingstone (70.4%) followed by Kapiri Mposhi (57.3%) and Nchelenge (55.8%). The only exception to this pattern was recorded in Chirundu where less than half (43.3%) of the respondents reported having lived in the same area for less than 5 years (Table 3).

Most sex workers operated within or near their place of birth. Two thirds (66.9%) had not moved from one place to another or had moved only once (22.0%) by the time of the survey. In Livingstone and Chirundu, half of the sex workers had never moved from these towns and only about 14 percent had moved twice. About 7.5 percent of the total survey population indicated having moved from place to place four or more times. Results on period of sex work in current community showed that there were a number of FSWs (22.0%) who said they had worked in the site of interview for 48 months or more.

#### 4.1.8 Alcohol and Drug Use

The survey collected information on the extent of drug and alcohol use among FSWs. A third (35%) of the respondents interviewed admitted drinking alcohol at least once per week while 21.4 percent drank it every day. Alcohol use was more prevalent in Livingstone where about a third of the FSWs took it on a daily basis. The figures for Chirundu, Kapiri Mposhi and Nchelenge are lower (Table 3).

About 19 percent of FSWs admitted having taken dagga (marijuana) with the highest proportion (24%) being from Livingstone who admitted having taken dagga on an everyday basis during one month preceding the survey. Other drugs taken included heroin (0.2%) and cocaine (0.9%) but none of women interviewed mentioned mandrax tablets. The proportions of respondents taking different drugs by site are presented in **Table 3**.

*Table 3: BBSS II General Risk Behaviours by Site*

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%

<b>Time Period of Current Residence (years)</b>										
<1	41	11.7	38	16.6	43	12.3	18	14.0	118	11.1
1-1.9	15	4.3	23	10.0	33	9.4	18	14.0	111	10.5
2-4.9	48	13.7	68	29.7	76	21.7	22	17.0	213	20.1
5-9.9	53	15.1	29	12.7	86	24.6	29	22.4	198	18.7
10-14.9	37	10.5	12	5.2	49	14.0	12	9.3	110	10.4
15-19.9	54	15.4	14	6.1	31	8.9	14	10.9	109	10.3
20+	103	29.3	45	19.7	32	9.1	16	12.4	200	18.9
Total	351	100	229	100	350	100	129	100	1059	100
Median # years	11		4		5		5		6	
<b>Alcohol Consumption in past 4 Weeks</b>										
Everyday	106	30.2	39	17.0	66	18.9	16	12.4	227	21.4
At least once a week	133	37.9	90	39.3	106	30.3	42	32.6	371	35.0
Less than once a wee	28	8.0	25	10.9	42	12.0	20	15.5	115	10.9
Never	83	23.6	73	31.9	134	38.3	50	38.8	340	32.1
Total	351	100	227	100	348	100	128	100	1053	100
<b>Drug Ever Used:</b>										
Dagga	80	23.6	40	21.9	41	13.6	13	11.5	174	18.6
Total	339	100	183	100	301	100	113	100	936	100
Heroin	1	0.3	0	-	0	-	1	0.8	2	0.2
Total	334	100	222		342		128	0.0	1026	0.9
Cocaine	5	1.5	2	0.9	2	0.6	0	-	9	0.9
Total	335	100	222	100	342	100	129		1028	100

## 4.2 Sexual Behaviour

### 4.2.1 Age at First Sex, by Type

The median age at first sexual intercourse for the female sex workers was 15 years. The median age at which money was first received in exchange for sex was 17 years. However, as shown in **Table 4**, most respondents started receiving money in exchange for sex between the ages of 15 and 19 years. This was particularly the case in Nchelenge where more than two thirds (69%) of the sex workers reported having exchanged sex for money when they were between 15 and 19 years of age. The corresponding proportions for Livingstone, Chirundu and Kapiri Mposhi were approximately 67 percent, 54 percent and 54 percent respectively.

**Table 4: BBSS II - Sexual Risk Behaviours**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
<b>Age at First Sex</b>										
<15	105	31.8	57	26.6	121	35.5	42	35.3	325	32.4
15-19	215	65.1	145	67.7	207	60.7	74	62.2	641	63.8
20-24	9	2.7	11	5.1	12	3.5	3	2.5	35	3.5
25-29	1	0.3	1	0.5	1	0.3	0		3	0.3
Total	330	100	214	100	341	100	119	100	1004	100
Median Age	15		15		15		15		15	
<b>Age at First Sex for money</b>										
<15	35	10.4	18	8.1	60	17.8	14	11.5	127	12.5
15-19	223	66.6	119	53.6	184	54.4	84	68.8	610	59.9
20-24	56	16.7	44	19.8	60	17.8	14	11.5	174	17.2
25-29	13	3.7	22	9.9	19	5.6	10	8.2	64	2.6
30-34	6	1.7	11	4.9	10	2.9	0	-	27	1.5
35+	2	0.6	8	3.6	5	1.5	0	-	15	1.0
Total	335	100	222	100	338	100	122	100	1017	100
Median Age	17		18							

### 4.2.2 Number of Sex Partners by Type of Partner

**Table 5** below presents figures of paying clients for sex work. The number of paying clients in the seven days preceding the survey ranged from none (13.0%) to more than five (12.8%). Livingstone had the highest number of paying sexual clients followed by Chirundu while Kapiri Mposhi had the least. In the last day worked the reported median number was one. A significant proportion of the respondents (41.1%), mostly from Kapiri Mposhi (46.4%) and Chirundu (44.1%), reported at least one episode of forced sexual intercourse in the past 12 months preceding the survey.

**Table 5: BBSS II – Number of Paying Sex Partners**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
<b>Number of paying clients in last 7 days</b>										
0	18	5.2	11	4.8	86	25.7	21	16.3	136	13.0
1	49	14.1	37	16.2	76	22.7	30	23.3	192	18.3
2	82	23.6	75	32.8	81	24.2	46	35.7	284	27.0
3	86	24.8	51	22.3	45	13.4	24	18.6	206	19.6
4	40	11.5	25	10.9	20	6.0	4	3.1	89	8.5
5+	72	20.7	30	13.2	27	8.0	4	3.1	133	12.8
Total	347	100	229	100	335	100	129	100	1040	100
Median	3		2		2		2		2	
<b>Clients on the last day worked</b>										
1	245	71.6	202	88.2	245	76.6	111	89.5	803	79.2
2	54	15.8	18	7.9	44	13.8	8	6.4	124	12.2
3	28	8.2	5	2.2	11	3.4	4	3.2	48	4.7
4+	15	4.3	4	1.7	20	6.2	1	0.8	40	3.9
Total	342	100	229	100	320	100	124	100	1042	100
Median # clients	1		1		1		1		1	

**Table 6** below shows the number of non-paying partners and frequency of intercourse the FSW had in the past seven days. The reported number of non-paying sexual partners in the last seven days preceding the survey varied from site to site. Over 70 percent of the respondents said they did not have any non-paying partners in the last seven days, and about one quarter (24.1%) reported having only one non-paying partner in the last seven days. The frequency of sexual intercourse with non paying sexual partners in past 30 days also varied. Approximately 38 percent said they had sexual intercourse with a non paying partner three to five times over the last 30 days, Chirundu had highest (60.3%) reporting this number. Nchelenge had the highest proportion of respondents reporting sex with non-paying partners to be more than nine times in the last 30 days.

**Table 6 BBSS II - Number and Frequency of Non-paying Partners**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
<b>Number of non-paying partners in the last 7 days</b>										
0	271	78.1	171	74.8	204	59.1	93	72.1	739	70.4
1	56	16.1	53	23.1	114	33.0	30	23.3	253	24.1
2	16	4.6	4	1.7	18	5.2	5	3.9	43	4.1
3	3	0.9	0	-	4	1.2	1	0.8	8	0.8
4	1	0.3	1	0.4	1	0.3	0	-	3	0.3
5+	0	-	0	-	4	1.2	0	-	4	0.4
Total	347	100	229	100	345	100	129	100	1050	100
<b>Frequency of sexual intercourse over the last 30 days</b>										
< 3	29	38.7	10	17.2	54	38.6	13	34.2	106	34.1
3-5	25	33.3	35	60.3	47	33.6	10	26.3	117	37.6
6-8	10	13.3	3	5.2	17	12.1	4	10.5	34	10.9
9+	11	14.7	10	17.2	22	15.7	11	28.9	54	17.4
Total	75	100	58	100	140	100	38	100	311	100

### 4.3 Condom Knowledge, Availability and Use

#### 4.3.1 Knowledge and Availability of Condoms

##### 4.3.1.1 Male Condoms

**Table 7** presents the knowledge and availability of the male condom. Knowledge of a male condom was high in all the survey sites (99.8%). Similarly, the total proportion of the FSWs who reported ever using a male condom was high (94.8%). However, less than 40 percent of the respondents had a condom on hand at time of interview. Nchelenge, the non-intervention site, had the lowest proportion of respondents with condoms on hand (30.2 %), while 50 percent of the respondents from Livingstone reported having a condom. Approximately 70 percent said they had ever bought a male condom. The most common source of condoms was the shop (82.0%), followed by market (64.3%) and bar/hotel (58.7%). About a third (39.8%) mentioned peer educators as source for condoms. On the whole about 81.7 percent said it took them less than 15 minutes to obtain a condom and this was highest among female sex workers in Nchelenge where 83.6 percent said it took them less than 15 minutes.

**Table 7: Knowledge and Availability of Male Condoms**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Ever heard of a male condom	347	100	227	99.1	344	100	129	100	1047	99.8
Knows condom can prevent HIV	282	81.5	167	74.6	250	72.3	95	74.8	794	76.1
Ever Used a male condom	332	95.7	216	95.6	322	93.3	118	91.5	988	94.4
Had a condom on hand at time of interview	155	47.0	85	40.1	132	37.7	39	30.2	411	38.8
Ever bought a male condom	248	73.8	160	73.4	217	67.0	74	62.2	699	70.1
Sources used to obtain male condoms										
Shop	281	83.1	184	84.4	230	73.2	116	97.5	811	82.0
Pharmacy	211	63.6	45	20.9	134	46.7	18	15.9	408	43.1
Market	233	70.6	139	64.7	162	55.9	77	67.0	611	64.3
Clinic	192	57.1	57	27.7	165	57.3	31	27.0	447	47.0
Hospital	115	35.0	54	25.4	164	56.2	33	28.7	366	36.6
FP centre	67	20.8	45	21.1	93	33.5	14	12.4	219	23.7
Bar/Hotel	211	63.0	109	50.2	179	60.7	66	56.9	565	58.7
Peer Educator	105	32.1	92	42.8	160	57.3	15	13.3	372	39.8
Friend	61	18.9	34	16.0	48	17.5	5	4.4	148	16.1
Other	58		52		40	22.5	10		160	
Time taken to obtain a male condom										
<15mins	280	83.0	170	79.8	254	80	97	83.6	801	81.7
15-30mins	42	12.4	28	13.0	29	9.2	15	12.8	114	11.6
31-60mins	15	4.4	14	6.5	24	7.6	3	2.6	56	5.7
>60mins	0	0.0	1	0.5	7	2.2	1	0.9	9	0.9
Total	337		213		314		116		980	

#### 4.3.1.2 Female Condoms

Knowledge and use of the female condom was not as widespread as that of the male condom. This is evident from the data presented in **Table 8**. The number of females who had heard about the female condom was relatively high (85.5%), but very few reported ever having used it (15.3%). The number of those who had ever heard about a female condom was highest in Livingstone (88.9%) and least in Nchelenge (76.6%). The number ever using it again was highest in Livingstone (19.7%) and lowest in Nchelenge (13.1%). A total of 27.8 percent said had ever bought a female condom, the highest proportion being in Livingstone (37.7%) and lowest in Nchelenge (15.4%)

The most commonly cited source of the female condom varied from site to site. In Livingstone, the pharmacy (55.7%) was the most commonly cited source of the female condom. In Kapiri Mposhi (33%) and Chirundu (41.8%), peer educators were the most cited sources of the female condom after the pharmacy. In Nchelenge, the main source for the female condom was the shop (58.3%), followed by the hospital.

**Table 8: Knowledge and Availability of Female Condoms**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Ever heard of a female condom	303	88.9	194	87.0	288	84.5	95	76.6	880	85.5
Ever Used a female condom	61	19.7	25	12.5	39	13.3	13	13.1	138	15.3
Ever bought a female condom	55	37.7	16	22.5	22	20.8	4	15.4	97	27.8
Sources used to obtain female condoms										
Shop	55	39.6	17	26.6	15	18.5	14	58.3	101	32.8
Pharmacy	78	55.7	16	25.8	33	38.4	0	0.0	127	40.8
Market	28	20.6	13	20.3	5	6.2	3	13.0	49	16.1
Clinic	59	42.4	15	23.4	33	38.4	6	25.0	113	36.1
Hospital	38	27.9	13	20.3	40	47.1	7	30.4	98	31.8
FP centre	23	17.0	9	14.1	17	20.7	1	4.3	50	16.4
Bar/Hotel	34	25.0	14	21.9	19	22.9	3	12.5	70	22.8
Peer Educator	37	27.4	27	41.8	28	33.0	2	8.7	115	37.2
Friend	15	11.1	7	10.9	5	6.2	0	0.0	27	8.9
Other	14	11.0	22	35.0	10	12.0	6	25.0	52	17.1

### 4.3.2 Condom Use by FSW

#### 4.3.2.1 Condom Use with Paying Partners (Clients)

**Table 9** below presents the condom use with paying partners (clients) among FSW. Only 55.6 percent of the respondents reported using a condom at the last sexual act with a paying client. The proportions did not differ much between sites, but was highest in Nchelenge, where 58.4 percent of sex workers reported using a condom during last sex with a client. Of the women who did use a condom at last sex, 67.2 percent said it was the FSW themselves who suggested using the condom. The main reason reported across sites for not using a condom at last sex was because the partner objected. A third of the respondents reported that condoms were not available. The overall proportion of respondents reporting *consistent condom use* (using a condom every time in the past 30 days) with paying partners was only 16.1 percent and 10.3 percent said they never used a condom over the past 30 days with a paying partner.

**Table 9: BBSSII – Condom use with paying partners**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Condom use at last sexual act										
Yes	190	55.4	121	53.5	191	56.2	73	58.4	575	55.6
Total	343		226		340		125		1034	
Who suggested condom use										
Myself	133	69.6	79	65.8	128	67.7	45	61.6	385	67.2
Partner	24	12.6	27	22.5	28	14.8	15	20.6	94	16.4
Joint	34	17.8	14	11.7	33	17.5	13	17.8	94	16.4
Total	191	100	120	100	189	100	73	100	573	100
Reason for no condom use										
Not available	27	22.1	28	31.1	35	36.1	14	31.8	104	29.5
Too expensive	2	1.8	2	2.3	1	1.2	0	-	5	1.5
Partner objected	86	66.2	71	71.7	70	60.3	26	57.8	253	64.9
Didn't like it	7	6.1	1	1.1	10	11.5	1	2.6	19	5.8
Used other contraceptives	0	-	0	-	1	-	0	-	1	0.3
Didn't think was necessary	11	9.3	7	7.9	16	17.4	11	28.2	45	13.3
Didn't think of it	10	8.5	3	3.4	5	6.0	2	5.3	20	6.1
Regularity of condom use over 30 days (consistent condom use)										
Every time	52	15.1	27	11.9	63	18.9	24	19.2	166	16.1
Almost every time	38	11.0	16	7.1	33	9.9	20	16.0	107	10.4
Sometimes	233	67.7	163	72.1	188	56.5	65	52.0	649	63.1
Never	21	6.1	20	8.8	49	14.7	16	12.8	106	10.3
Total	344	100	226	100	333	100	125	100	1028	100

#### 4.3.2.2 Condom Use with Non-paying Partners

Condom use with a non-paying sexual partner was even lower than condom use with a paying partner, with only 33.2 percent of the overall respondents reporting that they used a condom at last sexual contact. Livingstone had the highest proportion (49.9%) of respondents reporting condom use at last sex, with Chirundu reporting the lowest proportion (19.0%). Of those who used a condom, 54.7 percent of the respondents reported that it was they who suggested the condom use. As was in the case with paying partners, the main reason for not using a condom at last sex was because the partner objected. The overall proportion of respondents reporting *consistent condom use* (using a condom every time in the past 30 days) with non-paying partners was only 9.4 percent and 26.1 percent said they never used a condom over the past 30 days with a non-paying partner. **Table 10** details the results of condom use with non-paying partners.

**Table 10: BBSSII – Condom use with non-paying partners**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	n	%
Condom use at last sexual act										
Yes	38	49.4	11	19.0	45	30.4	13	34.2	107	33.2
Total	77		59		148		38		322	
Who suggested condom use										
Myself	15	40.5	4	36.3	31	68.9	8	61.5	58	54.7
Partner	4	10.8	0	-	7	15.5	1	7.7	12	11.3
Joint	18	48.6	7	63.7	7	15.5	4	30.8	36	33.9
Total	37	100	11	100	45	100	13	100	106	100
Reason for no condom use										
Not available	1	3.1	0	-	10	14.1	3	13.0	14	9.0
Partner objected	10	31.2	8	27.6	51	71.8	3	13.0	72	46.5
Didn't like it	3	9.4	0	-	8	11.3	0	-	11	7.1
Used other contraceptives	0	-	0	-	3	4.2	0	-	3	1.9
Didn't think was necessary	0	-	3	10.4	4	5.6	3	13.0	10	6.5
Didn't think of it	2	6.3	1	3.5	4	5.6	2	8.7	9	5.8
Other	16	50.0	17	58.6	0	-	12	52.2	36	23.2
Regularity of condom use over 30 days (consistent condom use)										
Every time	5	6.5	1	1.7	16	11.0	8	21.6	30	9.4
Almost every time	10	13.0	1	1.7	7	4.8	2	5.4	20	6.3
Sometimes	54	70.1	40	69.0	78	53.4	13	35.1	185	58.2
Never	8	10.4	16	27.6	45	30.8	14	37.8	83	26.1
Total	77	100	58	100	150	100	37	100	318	100

#### 4.4.3 Correlating Condom Knowledge and Use at the Individual Level

In order to determine the correlation between condom knowledge and use, further analysis at the individual level was conducted. The following question was answered with the additional analysis: Of those who know that condoms can prevent HIV, what percent actually use condoms, verses those that do not know that condoms prevent HIV. The results of the analysis show that condom use with paying partners (both at last sex and consistent condom use) is slightly higher among those that do know that condoms prevent HIV. However, the results also show that roughly only half of the female sex workers who know condoms prevent HIV are actually using the condoms. The difference in both condom use at last sex and consistent condom use between the two groups was not found to be statistically significant ( $p = 0.261$  and  $0.312$  respectively). **Table 11** below shows the results of the analysis.

*Table 11: Correlation between condom knowledge and use at the individual level*

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n/total	%	n/total	%	n/total	%	n/total	%	N/total	%
<b>Condom use at last Sex with paying partner</b>										
Among FSW who KNOW condoms prevent HIV	146/272	53.7	94/163	57.7	139/241	57.7	52/93	55.9	431/769	56.1
Among FSW who DON'T know condoms prevent HIV	34/57	59.6	22/50	44.0	39/79	49.4	14/26	53.8	109/212	51.4
<b>Consistent Condom with paying partners during last 30 days</b>										
Among FSW who KNOW condoms prevent HIV	43/273	15.8	20/162	12.3	48/242	19.8	16/93	17.2	127/770	16.5
Among FSW who DON'T know condoms prevent HIV	7/58	12.1	5/52	9.6	12/81	14.8	5/26	19.2	29/217	13.4

#### 4.4 STIs – Knowledge, Symptoms and Behaviors

##### 4.4.1 STIs Knowledge

Most women (98.5 %) had heard of sexually transmitted infections. Of them, 63.6 percent could name two or more symptoms in men, and 81.7 percent could name two or more symptoms in women. The most commonly known STI symptoms in women were genital ulcers (70.2%) and abdominal pains (58.6%), while the most commonly known STI symptoms in men were genital ulcers (69.7%) and burning pain during urination (51.3%). Knowledge of STI symptoms both in men and women was similar in all sites. **Table 12** details the results.

**Table 12: BBSS II – Knowledge of STIs**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Ever heard for STIs										
Yes	336	99.4	226	99.1	338	97.7	123	96.8	1023	98.5
No	2	0.6	2	0.9	8	2.3	4	3.2	16	1.5
Total	338	100	228	100	346	100	127	100	1039	100
Can name 2 or more symptoms in men										
Yes	228	65.0	155	67.7	209	59.7	81	62.8	673	63.6
Total	351		229		350		129		1059	
Can name 2 or more symptoms in women										
Yes	286	81.5	193	84.3	278	79.4	108	83.7	865	81.7
Total	351		229		350		129		1059	

#### 4.4.2. STI Symptoms, Treatment and Sexual Behaviours

About 35 percent of women reported a history of a discharge (or “leakage”) while 36 percent had genital ulcers in the past 12 months preceding the survey. The proportion reporting a discharge was highest in Chirundu (41.0%) and lowest in Nchelenge (27.9%). The proportions of respondents reporting genital ulcers varied little between the sites. Over three-quarters (86%) of the women reporting a history of an STI sought advice from a health facility, with the majority going to a government hospital or clinic (45.5%) or the COH/Blue House clinic (31.0%). One-third (33%) of respondents reported seeking advice from a traditional medical healer. The median duration between beginning of symptoms and seeking treatment among those who had symptoms of an STI was seven days.

The majority of those infected still continued having sex in spite of the symptoms exhibited. Only 35.0 percent said they stopped having sex during the time they had STI symptoms. Among those who reported having had an STI in the past 12 months, only 19.5 percent of the respondents said they always used a condom during sex when they had symptoms of STIs, though the percentage was slightly lower in Chirundu where only about 13 percent were using condoms when they were infected with an STI.

About a quarter (28.4%) notified their sexual partners of their symptoms, although in Kapiri Mposhi the proportion was slightly higher. **Table 13** presents history of reported STI symptoms in the past 12 months and health seeking and sexual behaviour during last STI symptoms among sex workers.

**Table 13: BBSSII – STI symptoms and related behaviour**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
STI symptoms in past 12 months										
Genital Discharge	123	35.7	94	41.0	112	32.5	36	28.0	365	34.8
Total	345		229		345		129		1047	
Genital Ulcers	129	37.3	85	37.1	120	34.7	44	34.2	378	36.0
Total	346		229		346		128		1049	
Last STI, first sought advice from:										
Gov Hosp/Clinic	74	52.9	30	31.3	72	51.1	19	36.5	195	45.5
Workplace clinic	2	1.4	0	-	2	1.5	0	-	4	1.0
Church- run facility	2	1.4	3	3.1	0	-	0	-	5	1.2
Private Hlth facility	8	5.8	0	-	13	9.7	4	8.0	25	6.0
CBI/Blue House	47	33.1	46	47.4	39	27.9	1	2.0	133	31.0
Pharmacy/Chemist	17	12.3	6	6.3	16	11.8	6	12.0	45	10.7
Traditional healer	33	23.6	21	21.9	65	44.2	24	48.0	143	33.0
Buy meds on street	16	11.5	9	9.4	25	18.2	12	24.0	62	14.7
Took meds at home	13	9.4	18	18.9	22	16.5	9	18.0	62	14.9
Time taken from symptom to first action										
Median days	7		7		7		7		7	
Sexual behaviour with STI symptoms										
Stopped having sex	41	29.5	23	24.2	59	41.3	27	51.9	150	35.0
Always use condom	31	22.1	12	12.6	27	21.4	10	20.0	80	19.5
Told partner about STI	32	23.0	11	11.5	61	44.5	16	3.0	120	28.4

## 4.5 Family Planning

### 4.5.1 Family Planning Practices

About one third (31.9%) of sex workers were using a family planning method at the time of the survey. The proportion using a family planning method was highest in Kapiri Mposhi (40.3%) and lowest in Chirundu (19.3%). The most commonly reported family planning method was oral contraceptives (50.9%) followed by male condoms (40.8%). Kapiri Mposhi had the highest proportion (34.2%) of women reporting having ever lost a pregnancy with lowest in Livingstone (8.8%). Data in **Table 14** show family planning practices among the surveyed population of female sex workers.

**Table 14: Family planning practices and loss of pregnancy -2003**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Currently using a FP method										
Yes	123	35.0	44	19.3	141	40.3	30	23.3	338	31.9
FP method used										
Traditional methods	5	4.3	2	4.4	6	4.3	2	6.3	15	4.5
Oral Contraceptives	60	50.8	22	48.9	69	48.9	20	62.5	171	50.9
Injection	21	17.8	7	15.6	14	9.9	1	3.1	43	12.8
Neo Plant	3	2.6	0	-	2	1.4	0	-	5	1.5
IUD	0	-	0	-	1	0.7	0	-	1	0.3
Male Condom	39	33.1	15	33.3	67	47.5	16	50.0	137	40.8
Female Condom	2	1.7	0	-	3	2.1	0	-	5	1.5
Spermicides	0	-	0	-	0	-	0	-	0	-
Diaphragm	1	0.9	0	-	0	-	0	-	1	0.3
Natural	1	0.9	0	-	2	1.4	2	6.3	5	1.5
Use of any of the FP method – oral, injection, Norplant, IUD	36	30.3	16	35.6	56	39.7	12	37.5	120	35.6
Ever lost a pregnancy										
Yes	65	18.8	60	26.2	115	34.2	33	26.0	273	26.3

## 4.6 Knowledge and attitudes towards HIV/AIDS

### 4.6.1 Knowledge, Opinions and Attitudes related to HIV/AIDS

As shown in **Table 15**, almost all sex workers had heard about HIV/AIDS. Approximately 79 percent knew someone who was infected with or who had died of AIDS, For 47.3 percent of these women, this person was a close relative or friend. About 93.9 percent knew that a healthy looking person could be infected with HIV.

In general, a high proportion (95.0%) of FSWs knew that HIV/AIDS could be transmitted through infected needles. However, misconceptions about routes of HIV transmission still exist. For example, of all the women interviewed, more than one third (33%) believed that mosquito bites could transmit the HIV virus, with the highest proportion reporting from Nchelenge (39.4%). Additionally, about 20 percent of the respondents thought that it was possible to contract HIV by sharing a meal with someone infected with the virus. Only 76.1 percent, 77.1 percent and 73.6 percent respectively knew correctly that condom use, being faithful and abstinence could prevent HIV. Overall levels of knowledge did not differ significantly between sites.

**Table 15: BSSII - Knowledge, Opinions and Attitudes related to HIV**

Characteristic	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Ever heard of HIV	346	99.7	224	97.8	346	100	127	100	1043	99.4
Knows someone living with HIV/AIDS	266	77.1	168	75.3	286	82.7	104	81.9	824	79.2
Has a close relative or close friend infected with HIV or who died of AIDS	116	43.0	92	54.1	138	47.3	50	47.6	396	47.3
Healthy looking person can be infected with HIV	328	94.8	199	88.8	333	96.2	119	93.7	979	93.9
Thinks that a person can get HIV from:										
Mosquito bites	106	30.5	69	30.8	123	35.5	50	39.4	348	33.3
Sharing a meal	79	23.0	67	29.9	49	14.2	16	12.6	211	20.3
Infected needles	328	94.8	216	96.4	322	93.6	123	96.9	989	95.0
Knows that people can prevent HIV by										
Correct condom use	282	81.5	167	74.6	250	72.3	95	74.8	794	76.1
Faithfulness	284	82.3	175	78.5	242	70.3	99	76.6	800	77.1
Abstinence	253	73.5	174	77.7	250	72.5	88	69.3	765	73.6

#### 4.6.2 Knowledge, Opinions and Attitudes related to Mother-To-Child Transmission

**Table 16** below shows that a high percentage of respondents knew that an infected woman can pass on infection to her child during pregnancy (86.9%), at time of delivery (79.9%), or through breast-feeding (85.9%). Of these women, only 51.6 percent knew that an infected woman can lower the chances of passing HIV to her unborn child by taking ARVs and 32.9 percent knew it could be prevented by stopping breast feeding. Additionally, only 32.3 percent knew of a hospital that offers PMTCT services.

**Table 16. BBSSII – Knowledge, Opinions and Attitudes Related to Mother-to-Child Transmission**

	Livingstone	Chirundu	Kapiri	Nchelenge	Total
--	-------------	----------	--------	-----------	-------

Characteristic					Mposhi					
	n	%	n	%	n	%	n	%	N	%
<b>Knows that a pregnant women can pass on infection to her child</b>										
• during pregnancy	290	83.3	181	80.8	317	91.6	119	93.0	907	86.9
• at time of delivery	278	80.8	176	78.9	269	78.0	108	84.4	831	79.9
• breast feeding	282	83.9	198	89.2	300	87.7	103	80.5	883	85.9
<b>Knows an infected woman can lower her chances of passing HIV to her unborn child by:</b>										
• taking ARV	75	58.1	71	71.7	45	37.5	15	30.6	206	51.6
• stop breast feeding	61	42.1	35	38.9	36	25.5	8	16.0	140	32.9
<b>Knows of a hospital program that is offering PMTCT of HIV services</b>	107	31.4	88	39.5	105	32.1	29	22.8	329	32.3

#### 4.6.3. Attitudes towards people with HIV/AIDS

Table 17 presents findings related to attitudes towards people living with HIV/AIDS. Over two-thirds (68.1%) of the total respondents felt that an HIV positive student should be able to continue school. This was less of the case in Nchelenge and in Kapiri Mposhi where 60.2 percent and 61.6 percent respectively thought HIV positive students should continue with school. Similarly, 68.9 percent of respondents thought an HIV positive teacher should be able to continue teaching, and again, Nchelenge had lowest proportion (60.2%). About 94 percent of the women thought they could take care of HIV positive female relative, but nearly two-thirds reported they would not buy food from shopkeeper known to be HIV positive. About 69 percent said they would like it to remain a secret if a family member was HIV positive. Livingstone had highest proportion of respondents (74.8%) who said would like it to remain a secret.

**Table 17: BBSSII - Attitudes related to be people with HIV+**

	Livingstone	Chirundu	Kapiri	Nchelenge	Total
--	-------------	----------	--------	-----------	-------

Characteristic					Mposhi					
	n	%	n	%	n	%	n	%	N	%
Feels HIV+ students should be able to continue school	273	78.9	148	66.1	212	61.6	77	60.2	710	68.1
Feels HIV+ teachers should be able to continue teaching	267	77.6	146	65.5	227	65.8	77	60.2	717	68.9
Would take care of HIV+ female relative	329	95.4	208	92.9	322	93.3	120	93.8	979	94.0
Would buy food from shop keeper known to be HIV+	127	36.9	88	39.8	138	40.6	38	29.7	391	37.9
If a member of family has HIV, would want it to remain secret	258	74.8	159	71.0	226	65.7	79	61.7	722	69.4

#### 4.6.4 VCT and Perception of Risk to HIV Infection

**Table 18** presents the results of questions pertaining to VCT. Two-thirds of the respondents reported that it was possible in their communities to get a confidential HIV test, with the largest proportion responding from Livingstone (74.1%), and lowest in Kapiri Mposhi (64.1%). However, only 13.6 percent of these respondents reported ever having an HIV test. The highest proportion tested was recorded in Livingstone (16.2%) and lowest in Nchelenge (11.8%). Of those tested, approximately 71 percent took the test voluntarily, and 63.6 percent went back for their results.

Among those who never had an HIV test, 84.7 percent said they were interested in having one. Of the main reasons given for those who would not want an HIV test, 72 percent was due to fear. More than 90 percent of female sex workers considered themselves at risk of contracting the HIV virus although the degree of perceived risk varied from site to site. In both Livingstone and Chirundu, more than half of female sex workers considered their risk of getting the HIV virus to be great while in the rest of the sites the proportions were just slightly below 50 percent.

**Table 18: BBSS II - Attitudes related to VCT**

Characteristics	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Access to VCT										
Yes	255	74.1	144	64.3	221	64.1	85	66.4	705	67.7
Ever been tested										
Yes	56	16.2	30	13.5	42	12.2	15	11.8	143	13.6
Voluntarily tested										
Yes	39	69.6	20	66.7	32	76.2	11	73.3	102	71.3
Found out test result										
Yes	30	53.6	19	63.3	33	78.6	9	60.0	91	63.6
Never been tested, but would be interested to have an HIV test	281	82.2	198	88.8	285	83.6	112	87.5	876	84.7
Reasons for no interest:										
• scared	41	67.2	19	73.1	47	79.7	9	60.0	116	72.0
• don't want to know	14	23.0	1	3.8	3	5.1	4	26.7	22	13.7
• fear to be isolated	2	3.3	2	7.7	3	5.1	0	-	7	4.3
• because there is no cure for HIV	4	6.6	3	11.5	3	5.1	2	2.2	12	7.5
• does not have money	0	-	0	-	1	1.7	0	-	1	0.6
• looks healthy and fit	0	-	0	-	1	1.7	0	-	1	0.6
• is sure she's HIV free	0	-	1	3.8	0	-	0	-	1	0.6
What do you think of your chances of getting AIDS virus:										
• no chance	25	7.3	12	5.4	36	10.5	11	8.6	84	8.1
• small	28	8.2	7	3.1	43	12.5	5	3.9	83	8.0
• moderate	91	26.5	70	31.3	93	27.1	41	32.0	295	28.4
• great	172	50.1	120	53.6	153	44.6	60	46.9	505	48.7

The main reason for self-assessed high risk given by almost all the sex workers was that they did not use condoms every time they had sex and that most (74.4%) of them had multiple sexual partners. However, the opposite was the case among those who considered themselves at no risk of contracting the HIV virus. In all the survey sites, consistent use of condoms was the reason given by those who considered themselves at no risk of contracting the HIV virus.

#### 4.7 Corridors of Hope Intervention

This survey is one of the monitoring tools for the COH project; therefore questions related to exposure to the intervention were incorporated into the questionnaire. **Table 19** presents results of the exposure to the intervention.

Slightly more than 73 percent of those interviewed had ever heard about COH/Blue House<sup>26</sup>. The proportion of respondents who had heard about COH/Blue House was highest in

<sup>26</sup> Blue House is the marketing name of the COH drop-in centre. All of the centres are painted blue to help clients identify the centre for services.

Chirundu followed by Livingstone while, quite expectedly, only about a quarter in Nchelenge had heard about the project. Of the respondents who knew of the project, the majority were introduced to it by peer educators/outreach workers.

There was a clear gap between awareness of the COH program, and actual membership to the program. In the three sites where the COH operates (Livingstone, Chirundu and Kapiri Mposhi), only 58 percent of the respondents who knew of the program were actually registered members. The highest membership in Livingstone (63.8%), and not surprisingly, there was no membership was in Nchelenge (0.0%). Among those who were not already members, 76 percent expressed a willingness to join the project.

Over a third (39.5%) of registered members had been to the COH drop-in centre several times for services. Among the registered COH members, 84 percent reported having received IEC material during their last visit. This proportion did not vary much between the sites. In addition, 83.2 percent of the respondents were satisfied with the services at their last visit, and almost all of them (98.5%) said they would go back to the COH/Blue House for care.

**Table 19: BBSSII - COH Project Exposure Indicators**

Characteristic	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
Ever heard of COH/Blue House	274	80.6	204	89.5	251	73.8	29	22.8	758	73.2

<b>Who introduced respondent to COH</b>											
• peer educator	132	74.6	103	79.2	104	71.2	0	-	339	74.3	
• friend (not a PE)	32	18.1	16	12.3	30	20.5	0	-	78	17.1	
• health care provider	11	6.2	6	4.6	9	6.2	0	-	26	5.7	
• others	1	0.6	5	3.8	2	1.4	0	-	8	1.8	
<b>Registered member of COH</b>	180	63.8	131	63.0	146	56.5	0	0	457	58.4	
<b>Not registered with COH would be willing to register</b>	242	70.1	172	75.4	254	76.5	111	92.5	779	76.0	
<b>Number of time services were received</b>											
• once	59	32.6	34	26.2	45	30.6	0	-	138	29.9	
• a few	48	26.5	26	20.0	63	42.9	0	-	137	29.7	
• several	73	40.3	70	53.8	39	26.5	0	-	182	39.5	
<b>Was given IEC material during last COH visit</b>	156	86.2	107	82.3	121	84.6	0	-	384	84.0	
<b>Was satisfied with services at last visit</b>	147	82.2	118	90.1	120	81.1	0	-	385	83.2	
<b>Would go back to seek care at COH again</b>	179	98.9	129	99.2	146	99.3	0	-	454	98.5	

During analysis, key variables were compared based on sex workers that were registered members with COH verses those that were not registered with COH. The results revealed that there was an overall higher level of HIV knowledge among sex workers that were registered with the COH project, though this was not found to be statistically significant. The data also shows that members of the project were more likely to use condoms with paying clients than non-members. Overall, about 58.6 percent of members of COH had used a condom the last time they had sex with a paying partner, while the proportion among non-members was 51.3 percent. This difference was not found to be statistically significant ( $p = 0.062$ ). The proportion of respondents who reported consistent condom use with paying partners for the last 30 days was the same for both COH members and non-COH members. **Table 20** presents the results of the intervention verses non-intervention analysis.

**Table 20. Comparison of Intervention vs. Non-Intervention variables**

Characteristic	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n/total	%	n/total	%	n/total	%	n/total	%	N/total	%

<b>Overall knowledge of HIV</b>	• COH member	109/169	64.5	92/126	73.0	99/138	71.7	-	-	300/433	69.3
	• Non-COH member	62/95	65.3	43/67	64.2	74/107	69.2	22/27	81.5	179/269	66.5 <b>p=0.499</b>
<b>Used condom with paying partner at last sex</b>	• COH member	99/176	56.3	72/127	56.7	88/139	63.3	-	-	259/442	58.6
	• Non-COH member	49/97	50.5	37/74	50.0	58/110	52.7	16/29	55.2	144/281	51.3 <b>p= 0.062</b>
<b>Used condom consistently with paying partner for the past 30 days</b>	• COH member	22/175	12.6	18/128	14.1	27/139	19.4	-	-	67/442	15.1
	• Non-COH member	16/98	16.3	6/74	8.1	21/112	18.8	6/29	20.7	43/284	15.1 <b>p= 0.920</b>

## 5 BIOLOGIC RESULTS

Out of the 1,059 sex workers who participated in the behavioural interview, 1,040 consented for the biological portion of the survey. However, only 909 women were able to successfully provide swabs for gonorrhoea and Chlamydia. The remaining 131 participants could not provide the vaginal swabs due to menstruation.

### 5.1 Prevalence of sexually transmitted infections

There was an overall prevalence of at least one STI in 529 (50.9%) of the 1040 results available. The data shows that 11.2 percent of sex workers had gonorrhoea, 5.1 percent had Chlamydia, 30.1 percent had trichomoniasis and 25.5 percent had syphilis.

**Table 21** presents the prevalence of STIs among female sex workers who participated in the survey.

**Table 21: BBSSII - Prevalence of Sexually Transmitted Infections 2003**

STI	positive	N	%
Gonorrhoea	102	909	11.2
Chlamydia	46	909	5.1
Trichomonas	312	1038	30.1
Gonorrhoea/Chlamydia	130	1040	12.5
Syphilis	264	1037	25.5
Had any of the above	529	1040	50.9

The prevalence of gonorrhoea was highest among the sex workers in Livingstone (14.2%), while the prevalence of Chlamydia and trichomoniasis was highest in the non-COH project site of Nchelenge (6.9% and 39.8% respectively). Syphilis infection was highest among the sex workers in Livingstone (29.7%) and Kapiri Mposhi (29.3%). A total of 130 respondents (12.5%) had either or both gonorrhoea and Chlamydia. Table 20 presents prevalence of STIs according to sites and results of physical examination. During the physical examination, a total of 4.1 percent had genital ulcers and 40.5 percent had abnormal vaginal discharge. **Table 22** shows the prevalence of STIs and physical examination findings by site.

**Table 22: BBSSII – Prevalence of STIs according to sites**

Characteristic	Livingstone		Chirundu		Kapiri Mposhi		Nchelenge		Total	
	n	%	n	%	n	%	n	%	N	%
STI										
Gonorrhoea	41/289	14.2	14/200	7.0	36/304	11.8	11/116	9.5	102/909	11.2
Chlamydia	16/289	5.5	10/200	5.0	12/304	3.9	8/116	6.9	46/909	5.1
Trichomoniasis	101/341	29.6	63/228	27.6	97/341	28.4	51/128	39.8	312/1038	30.1
Syphilis	101/340	29.7	34/229	14.8	100/341	29.3	29/127	22.8	264/1037	25.5
Any of the above	183/342	53.5	95/229	41.5	179/341	52.5	72/128	56.3	529/1040	50.9
Gonorrhoea/Chlamydia	49/342	14.3	22/229	9.6	43/341	12.6	16/128	12.5	130/1040	12.5
Physical examination findings										
Genital ulcers	18/340	5.6	5/224	2.2	9/303	3.0	8/121	6.6	40/968	4.1
Abnormal vaginal discharge	133/276	48.2	57/183	31.1	105/272	38.6	48/115	41.7	343/846	40.5
Lower abdominal pains	34/276	12.3	10/183	5.5	12/272	4.4	6/115	5.2	62/846	7.3
Inguinal buboes	3/321	0.9	2/225	0.9	1/302	0.32	1/120	0.8	7/968	0.7

To measure the frequency and association between prevalence of STIs and project intervention, a stratification of data, comparing female sex workers registered with the project (exposed to intervention) and those not registered (non intervention), was conducted.

**Table 23** presents comparison of STI prevalence rates between the two groups. The rates of all four STIs (gonorrhoea, Chlamydia, trichomoniasis, syphilis) were lower in the female sex worker group that was registered in the project to receive STI services (intervention) compared to the rates of STIs in the group that was not registered (non-intervention) and not receiving STI services from the project. But the difference was statistically significant only for trichomoniasis ( $p=0.001$ ) and the gonorrhoea /Chlamydia combination ( $p = 0.001$ )

**Table 23: Prevalence of STIs Among FSW Registered (intervention) and not Registered (non-intervention) with Corridors of Hope Project**

STI	Registered With Project (Intervention group)					Not Registered (Non-Intervention group)					p
	Livingst	Chirun	Kapiri Mposhi	Nchelen	Total	Livingst	Chirun	Kapiri Mposhi	Nchelen.	Total	

<b>Gonorrhoea</b>	15/147 (10.2)	9/114 (7.9)	14/126 (11.1)	-	38/387 (9.8)	16/85 (18.8)	4/64 (6.3)	15/99 (15.2)	3/26 (11.5)	38/274 (13.9)	0.137
<b>Chlamydia</b>	5/147 (3.4)	3/114 (2.6)	4/126 (3.2)	-	12/387 (3.1)	6/85 (7.1)	5/64 (7.8)	4/99 (4.0)	1/26 (24.2)	16/274 (8.2)	0.127
<b>Trichomonas</b>	43/147 (29.3)	29/113 (25.7)	33/126 (26.2)	-	105/386 (27.2)	33/83 (39.8)	28/64 (43.8)	34/99 (34.3)	17/26 (53.8)	109/272 (40.1)	<b>0.001</b>
<b>Syphilis</b>	43/175 (24.6)	23/129 (17.8)	44/140 (31.4)	-	110/444 (24.8)	38/98 (38.8)	9/75 (12.0)	32/112 (28.6)	5/29 (17.2)	84/314 (26.8)	0.596
<b>Any of the above</b>	80/143 (49.7)	48/113 (42.5)	69/126 (54.8)	-	197/382 (51.6)	52/83 (62.7)	33/64 (51.6)	50/98 (51.0)	16/26 (61.5)	151/271 (55.7)	0.333
<b>Gonorrhoea/ Chlamydia</b>	17/177 (9.6)	11/129 (8.5)	16/141 (11.3)	-	44/447 (9.8)	44/98 (19.4)	8/75 (10.7)	16/112 (14.3)	4/29 (13.8)	72/314 (22.9)	<b>0.001</b>

To adjust for confounding factors for observed differences in trichomonas vaginalis and those with gonorrhoea and or Chlamydia, multivariate logistic analysis was done with sexual, socio-demographic and behavioural factors as possible confounders. The following variables were adjusted:

Sexual behaviours – condom use at last sex, frequency of condom use, number of sexual partners (both paying and non-paying)

General risk behaviours – alcohol consumption

Socio-demographics – age, education level

**Table 24: BBSSII - Results of Multivariate Analysis**

<b>STI</b>	<b>OR, 95% CI</b>
Gonorrhoea	0.67 (0.42,1.09)
Chlamydia	0.51(0.24,1.11)
Trichomonias	0.56 (0.41,0.78)
Syphilis	1.09 (0.45,2.65)

Clients in the intervention group were 44 percent less likely to have had trichomoniasis infection compared to the clients in the non-intervention group. No statistically significant differences were observed in the prevalence rates of gonorrhoea, Chlamydia and syphilis between the two groups.

## **6 Comparison of 2000 and 2003 Findings**

This section provides a comparison of selected results and trends on key variables between the 2000 and 2003 biologic and behavioural surveys in same project sites. The two sites that participated in both surveys were Livingstone and Chirundu. Comprehensive results of comparison are in appendix A.

### **6.1 Demographics**

In both the 2002 and 2003 surveys, the median age of female sex workers recruited in Livingstone was 21. In Chirundu, the median age increased significantly from 23 years in 2000 to 25 years in 2003 ( $p = 0.004$ ).

In both project sites there was a statistically significant increase in education level between the two surveys. In Livingstone, the proportion of females recruited with a secondary education level or higher increased from 11.6 percent in 2000 to 50.1 percent in 2003. This proportion also increased significantly in Chirundu 7.1 percent to 27.5 percent ( $p < 0.001$ ).

**Table 25: Comparison of Demographics Between Round 1 and Round 2 BBSS**

Characteristic	Livingstone					Chirundu				
	Round I		Round II		P value	Round I		Round II		P value
	N	%	N	%		N	%	N	%	
Age in median yrs	21		21		0.360	23		25		0.004
Education Levels										
• None	12	4.8	8	2.3		25	19.7	27	11.8	
• Primary	209	83.6	167	47.6		93	73.2	139	60.6	
• Secondary or higher	29	11.6	176	50.1	<0.001	9	7.1	63	27.5	<0.001

## 6.2 General and Sexual Risk Behaviours

**Table 26** presents the comparison data for general and sexual risk behaviours. There was a significant increase in the level of daily alcohol consumption in both Livingstone and Chirundu over the period of the two surveys. In Livingstone those who said they consumed alcohol every day increased from 16.2 percent in 2000 to 30.3 percent in 2003 ( $p < 0.001$ ). The increase in alcohol consumption in Chirundu by 4.5 percent was also statistically significant ( $p = 0.002$ ).

The age at first sexual intercourse for money did not change significantly between 2000 and 2003. The largest proportion of sex workers reported being between the ages of 15 – 19 in both sites during both surveys. The proportion of women who reported having done sex work elsewhere decreased significantly in both sites between 2000 and 2003. In Livingstone, this proportion decreased from 99.2 percent to 35.5 percent, while decreasing from 100 percent to 42.2 percent in Chirundu ( $p < 0.001$ ).

The median number of paying partners on the last day worked was one in both sites and in both surveys, however, the median number of paying sexual partners in last seven days increased in both sites between the two surveys. The median number in Livingstone increased from two to three while increasing in Chirundu from one to two ( $p < 0.001$ ). There was, however, a reduction in the median number of non-paying partners in Livingstone from 1 to 0 while in Chirundu it remained zero.

**Table 26: Comparison of general and sexual risk behaviours between Round 1 and Round 2 BBSS**

Characteristic	Livingstone					Chirundu				
	Round I		Round II		P value	Round I		Round II		P value
	N	%	N	%		N	%	N	%	

Alcohol use past 4 weeks										
• Every day	42	16.2	106	30.3	<0.001	18	12.7	39	17.2	0.309
• Total	260		351			142		227		
Has done sex work elsewhere										
• Yes	259	99.2	120	35.5	<0.001	143	100.0	95	42.2	<0.001
• Total	261	100	338	100.0		143	100.0	225	100.0	
Median number of clients last day of work	1		1		0.876	1		1		0.012
Median number of paying clients last 7 days	2		3		<0.001	1		2		<0.001
Median number of non-paying clients last 7 days	1		0		<0.001	0		0		0.005

### 6.3 Condom Knowledge, Availability and Use

**Table 27** below presents a comparison of condom use and availability. The proportion of respondents who had ever heard of a male condom increased in Livingstone from 98 percent to 100 percent between the two surveys ( $p = 0.014$ ). There was no significant increase between surveys in Chirundu. There was also a significant increase ( $p = 0.003$ ) among women in Livingstone who had ever used a condom (88.9% to 95.7%). The increase among women ever having used a condom in Chirundu was not significant ( $p = 0.066$ ). The proportion of respondents who knew where to get condoms increased significantly in both sites between the two surveys.

Although in both sites and surveys less than half of the female sex workers had condoms on hand at the time of the interviews, there was a statistically significant increase in the proportion who had condoms on hand between the two surveys. In Livingstone the proportion increased from 20.8 percent to 47.0 percent ( $p=0.001$ ), while in Chirundu the proportion increased from 28.2 percent in Round 1 to 40.0 percent in Round 2 ( $p = 0.027$ ).

There was an increase in condom use with paying client at last sex in Livingstone from 48.8 percent to 55.2 percent which was not statistically significant ( $p=0.142$ ) while in Chirundu there was slight decline in condom use at last sex with paying client from 51.0 percent in Round 1 to 46.3 percent in Round 2. Consistent (always) condom use in the past 30 days with paying clients did not change significantly in either site between surveys. In Livingstone consistent condom use with paying sexual partner decreased slightly from 17.8 percent to 15.1 percent while in Chirundu the decrease was from 17.5 percent to 11.9 percent. The decrease, however, was not statistically significant ( $p = 0.182$ ).

Condom use at last sex with a non-paying sexual partner increased significantly by 16 percent in Livingstone ( $p = 0.028$ ) but declined significantly in Chirundu by 24.6 percent. Consistent condom use with non-paying sexual partner in last 12 months declined, though not significantly (0.722), in Livingstone from 8.8 percent to 6.5 percent. The decline in consistent condom use with non-paying partners in Chirundu was statistically significant ( $p=0.007$ ) from 16.4 percent to 1.7 percent. However, the percent with non-paying clients also declined statistically significant in both sites. In Livingstone those reporting sex with non-paying clients declined from 56.8 percent in 2000 to 21.4 percent ( $p=0.001$ ) while in Chirundu the decline was from 38.5 percent to 25.6 percent (0.012).

**Table 27: Comparison of Condom Use and Availability Between Round 1 and Round 2 BBSS**

Characteristic	Livingstone					Chirundu				
	Round I		Round II		P value	Round I		Round II		P value
	n	%	n	%		n	%	n	%	
Ever heard of a condom										
• Yes	254	98.1	347	100.0	0.014	142	99.3	227	99.1	1.000
• Total	259		347			143		229		
Ever used a condom										
• Yes	225	88.9	332	95.7	0.003	128	90.1	216	95.6	0.066
• Total	253		347			142		226		
Condoms on hand at time of interview										
• Yes	53	20.8	155	47.0	0.001	40	28.2	85	40.0	0.027
• Total	254		330			142		212		
Condom use at last sex w/ paying client										
• Yes	127	48.8	191	55.2	0.142	73	51.0	122	46.3	0.690
• Total	260		346			143		227		
Consistent condom use past 30 days w/ paying client										
• Yes	46	17.8	52	15.1	0.447	25	17.5	27	11.9	0.182
• Total	259		344			143		226		
Condom used last sex w/ non-paying partner										
• Yes	48	32.7	37	48.7	0.028	28	43.6	11	19.0	0.009
• Total	147		76			55		58		
Consistent condom use with non paying client last 12 months										
• Yes	13	8.8	5	6.5	0.722	9	16.4	1	1.7	0.007
• Total	147		77			55		58		

#### 6.4 Knowledge and History of STIs

The proportion of female sex workers who had ever heard of STIs increased slightly in both sites between surveys. The reported number of STI symptoms known in women increased significantly in both sites between the two surveys. In Livingstone, the proportion of women who knew of 4 STI symptoms increased from 10.1 percent in 2000 to 23.6 percent in 2003 ( $p < 0.001$ ). In Chirundu, this proportion increased from 12.3 percent to 20.5 percent ( $p < 0.001$ ). There was also a significant increase in the number of STI symptoms known in men in both sites between the two surveys.

The proportion of respondents reporting STI symptoms increased in both sites but was only statistically significant with regard to genital discharge (vaginal). In Livingstone those with complaints of genital discharges over the past 12 months increased from 27.0 percent to 35.7 percent in 2003 ( $p=0.031$ ), while in Chirundu the increase was by 14.9 percentage points from 26.1( $p=0.005$ ). The increase in genital ulcers in Livingstone was from 33.7 percent to 37.3 percent (0.414), while in Chirundu it was from 29.1 percent to 37.1 percent. When combined for those reporting either genital discharge or ulcers, in Livingstone the increase was by 3.8

percentage points (p=0.390) while in Chirundu the increase was by 6.6 percentage points (p=0.259).

**Table 28: Comparison of STI knowledge and symptoms between Round 1 and Round 2 BBSSS**

Characteristic	Livingstone					Chirundu				
	Round I		Round II		P value	Round I		Round II		P value
	n	%	N	%		n	%	n	%	
Ever heard of STIs										
• Yes	249	96.1	336	98.0	0.277	140	97.9	226	99.1	0.378
• Total	259		343			143		228		
Number of STI symptoms in women known										
• 0	38	15.4	27	7.7	<0.001	21	15.2	12	5.2	<0.001
• 1	29	11.7	38	10.8		24	17.4	24	10.5	
• 2	61	24.7	53	15.1		25	18.1	36	15.7	
• 3	65	26.3	83	23.6		45	32.6	54	23.6	
• 4	25	10.1	83	23.6		17	12.3	47	20.5	
• 5+	29	11.7	67	19.1		6	4.3	56	24.5	
TOTAL	247		351			138		229		
Percent having a genital <b>discharge</b> during the past 12 months										
• Yes	70	27.0	123	35.7	0.031	37	26.1	94	41.0	0.005
• Total	259		345			142		229		
Percent having a genital <b>ulcer</b> /sore during the past 12 months										
• Yes	87	33.7	129	37.3	0.414	41	29.1	85	37.1	0.141
• Total	258		346			141		229		

## 6.5 VCT and Family Planning

**Table 29** presents the comparison of VCT and family planning use. In both sites less than 17 percent said were ever tested for HIV. In Livingstone the proportion ever tested increased by 3.7 percentage points (p=0.251), while in Chirundu there was a decline of 2.7 percentage points (p=0.567). However, those testing voluntarily increased significantly in Livingstone from 50 to 90.7 percent (p=0.001) and from 56.5 to 74 percent in Chirundu, which was not statistically significant (0.416).

The proportion of female sex workers using a family planning method decreased in Livingstone from 43.2 percent to 35.0 percent (p=0.051) and in Chirundu the reduction was statistically significant from 33.6 percent to 19.3 percent (p=0.003).

**Table 29 Comparison of VCT and family planning use Between Round 1 and Round 2**

Characteristic	Livingstone					Chirundu				
	Round I		Round II		P value	Round I		Round II		P value
	n	%	n	%		n	%	n	%	

VCT										
Ever been tested										
• Yes	32	12.5	56	16.2	0.251	23	16.2	30	13.5	0.567
• Total	256		346			142		223		
Voluntarily tested										
• Yes	16	50.0	39	90.7	0.001	13	56.5	20	74.1	0.416
• Total	32		43			23		27		
Received their results										
• Yes	25	83.3	30	73.2	0.469	13	56.5	19	70.4	0.471
• Total	30		41			23		27		
Family Planning										
Using a family planning method										
• Yes	111	43.2	123	35.0	0.051	48	33.6	44	19.3	0.003
• Total	257		351			143		228		

## 6.6 Knowledge of HIV prevention, transmission and stigma related Issues

This section compares knowledge of HIV and stigma related issues. For one to have a complete knowledge of HIV prevention, respondents should have mentioned Abstinence, Faithfulness and Condom use (ABC) as HIV prevention methods. In both sites and periods of survey there was a slight decline in the complete level of knowledge as defined. In Livingstone the proportion of female sex workers who mentioned all three prevention methods declined by 1.2 percentage points from 63.3 percent in 2000 ( $p=0.681$ ), while in Chirundu the decline was by 4.5 percentage points. There was also a statistically significant decline in Livingstone among those exhibiting comprehensive knowledge of HIV - defined as a complete knowledge of HIV prevention in addition to reporting no incorrect beliefs about HIV transmission. In Livingstone there was a statistically significant decline from 46.9 percent to 35.8 percent ( $p = 0.008$ ) among those exhibiting comprehensive knowledge, while in Chirundu the reduction was by 8.1 percentage points ( $p=0.142$ ). There was, however, an increase in the proportion of respondents with non-discriminating attitudes towards people living with HIV/AIDS. In Livingstone, 23.0 percent of the respondents in 2003 versus 10.1 percent in 2000 said they would be willing to share a meal with an HIV person. In Chirundu, this proportion doubled from 13.5 percent to 29.9 percent in 2003. The increases were statistically significant in both sites between surveys ( $p=0.001$ ) **Table 30** below presents the comparison of HIV knowledge and stigma-related issues.

*Table 30: Comparison of HIV prevention, transmission and stigma related issues*

Characteristics	Livingstone					Chirundu				
	Round I		Round II		P value	Round I		Round II		P value
	n	%	n	%		n	%	n	%	
Knowledge of HIV										
Has complete knowledge of HIV prevention (ABC)	162/256	63.3	209/341	61.3	0.681	86/143	60.1	124/223	55.6	0.455
Comprehensive knowledge about HIV/AIDS (ABC + no misconceptions)	120/265	46.9	122/341	35.8	0.008	55/141	39.0	69/223	30.9	0.142
Stigma Related Issues										

Willingness to share a meal										
• Yes	26	10.1	79	23.0	<0.001	19	13.5	67	29.9	0.001
• Total	257		343			141		224		

### 6.7 Prevalence of STIs in the 2000 and 2003 BBSS

The prevalence rates of STIs in the 2000 and 2003 BBSS in Livingstone and Chirundu were compared. From the results of the first survey the prevalence of gonorrhoea, Chlamydia, trichomoniasis and syphilis declined by 10.9, 1.1, 21.3 and 10.3 percentage points respectively. Only gonorrhoea and trichomoniasis significantly declined (p=0.003 and p=0.007).

*Table 31: prevalence of STIs in Livingstone and Chirundu 2000 and 2003 BBSS.*

STI	BBSS 2000			BBSS 2003		
	Livingstone	Chirundu	Total	Livingstone	Chirundu	Total
	N (%)	N (%)	N (%)	N (%)	N (%)	N (%)
Gonorrhoea	57/246 (23.3)	23/116 (19.8)	80/362 (22.1)	41/289 (14.2)	14/200 (7.0)	55/489 (11.2)
Chlamydia	15/246 (6.1)	8/116 (6.9)	33/362 (6.4)	16/289 (5.5)	10/200 (5.0)	26/489 (5.3)
Trichomoniasis	125/247 (50.6)	58/247 (49.2)	183/365 (50.1)	101/341 (29.6)	63/228 (27.6)	164/569 (28.8)
Syphilis	91/249 (36.5)	35/122 (28.7)	126/371 (34.0)	101/340 (29.7)	34/229 (14.8)	135/569 (23.7)
Any of the above	-	-	-	183/342 (53.5)	95/229 (41.5)	278/571 (48.7)
Gonorrhoea/Chlamydia	65/246 (26.4)	27/246 (23.3)	92/362 (25.4)	49/342 (14.3)	22/229 (9.6)	71/571 (12.4)

## 7. DISCUSSION

Projects like the Corridors of Hope are making serious efforts to confront the challenge of the HIV epidemic in Zambia. Many of the common, curable STIs facilitate HIV spread by increasing both efficiency of transmission and vulnerability to infection. Control of these infections has thus been accorded high priority since the beginning of the HIV/AIDS epidemic. Prevention through education and effective treatment of STIs continues to be the main strategy available for controlling the spread of the disease. The aim is to change peoples' attitudes not only towards the disease and infected persons, but also to encourage the adoption of safer sexual behaviours.

To assess the outcomes of the COH project and to monitor behavioural and biological trends over time, Behavioural and Biological Surveillance Surveys (BBSS) are carried out. The results from the 2003 BBSS show that the STI prevalence among the female sex workers decreased since 2000, but that the overall STI prevalence remains high. The findings also show that some of the behavioural variables have not changed significantly since the 2000 BBSS.

There are a few limitations to consider when evaluating trends. Firstly, while two data points (2000 and 2003) can begin to show what may be happening, additional data points will be

needed before drawing inferences on trends. Secondly, an effort was made to adapt the protocol to maximize comparability with the 2000 BBSS. However, while the study participants were selected from similar clusters (bars, clinic), there were some geographical differences between the two surveys, therefore only results from Livingstone and Chirundu were able to be compared. Interpretation of trends during this period must take these methodological issues into account.

### **7.1 Socio-Demographic Characteristics of the study Population**

While the median age of the sex workers remained the same between the two surveys in Livingstone, the median age increased by two years among the sex workers in Chirundu. Limited educational and employment opportunities coupled with the high mortality of economically and productive parents compel most young women to earn a living through sex work. In this survey, the low levels of education are evidenced by the fact that less than 40 percent attained a secondary or higher level of education. A majority of the sex workers were neither married nor living with a sexual partner at the time of the survey, although more than half of all the female sex workers claimed to have been married at one time or the other. Many of the sex workers interviewed reported sex work as their sole source of income, depending entirely on sex work for their survival. In addition, more than half reported supporting at least one other person. Perhaps this helps explain why the median number of paying partners increased significantly between the two surveys. Being entirely dependent on sex work renders the female sex workers highly vulnerable to HIV and other STIs, as they will be more likely to engage in unsafe sexual practices in order to earn a living. Even for those who reported work other than sex work, most of them are involved in equally precarious work such as cross border trading. Therefore, investing in programs that empower these women with alternative work to commercial sex is needed for these women. Women who are involved in long distance trade are also more likely to engage in casual sex as they seek favours from men at border posts and free rides from long distance drivers.

One of the reasons cited for the failure of many projects to effectively target sex workers, is because sex workers are a highly mobile population. The findings of this survey indicate that female sex workers may not be as mobile as it is always assumed. More than half of the sex workers interviewed in both the 2000 and 2003 surveys had lived and worked in the same areas for more than five years. In addition, most of the sex workers tended to operate within or near their place of birth. More than two thirds had either not moved from one place to another, or had moved only once by the time of the survey. This finding is important as it suggests that sex workers are a stable and therefore a captive population. This presents a good opportunity for HIV/AIDS intervention activities or programs that target female sex workers.

### **7.2 Alcohol and Drug use**

A WHO report indicates that there is a high correlation between substance abuse and risk sexual behaviour<sup>27</sup>. Most of the female sex workers interviewed in 2003 admitted drinking alcohol at least once per week, and 20 percent said they drank alcohol every day. Daily alcohol consumption increased in both Livingstone and Chirundu between 2000 and 2003 (significant only in Livingstone). Many female sex workers also admitted having taken dagga (marijuana). Slightly less than a third of the sex workers admitted taking dagga on everyday basis, with Livingstone having the highest proportion of those who admitted taking the drug on an everyday basis during one month preceding the survey. Other drugs reported included, heroin and cocaine. In view of the above observations, programmes targeting sex workers,

---

<sup>27</sup> WHO (2003). Substance Use in Southern Africa: knowledge, attitudes, practices and opportunities for intervention. Geneva.

most of whom are predominantly younger women, must begin to take into consideration strategies of reducing substance abuse among this high risk population by integrating into behavioural change messages prevention of substance abuse.

### **7.3 Sexual behaviour**

The median age at first sexual intercourse for sex workers was 15 years in both the 2000 and 2003 BBSS. The national figures show that median age for first sexual debut for girls in Zambia is 17.4<sup>28</sup>. There are clear dangers associated with early sexual debut. In the 2003 survey, there appeared to be a strong link between early sexual debut and the age at which money was received in exchange of sex. Although the median age at which money was first received in exchange for sex was 17 years, some sex workers started receiving money in exchange for sex at the age of 15 years. The maximum number of paying sexual partners in the last seven days was six and the proportion of female sex workers who had five or more paying sexual partners in the last seven days had increased between 2000 and 2003 in both Livingstone and Chirundu. Similarly, the reported number of non-paying sexual partners in the last seven days was high. Sex work as a profession does not preclude other, non-professional partnerships. Only one in ten sex workers interviewed in 2003 used condoms consistently with non-paying partners. The relatively high number of non-paying partners, compounded with the low consistent condom use, begins to illustrate the extent of sexual networking among sex workers, with the consequences of exacerbating the spread of HIV and other STIs to other populations.

### **7.4 Knowledge and Use of Condoms**

In both surveys, almost all FSW had heard of a condom and approximately three-quarters knew that condoms prevent HIV when used correctly. There is often the assumption that if knowledge of HIV prevention is high, then safe behaviours should be equally as high. To investigate this assumption, we correlated the knowledge levels of the sex workers with their behaviours at the individual level. The results showed that the proportion that knew condoms protect against HIV did in fact use condoms more both at last sex and consistently with a paying partner. However, the difference was not statistically different, and the bottom line was that condom use was low, even amongst those who knew about condoms.

It is important to note that of the female sex workers surveyed in 2003, nearly 70 percent had proposed condom use at last sex. Those who actually used condom at last sex, however, were only 55 percent. This suggests the extent to which female sex workers lack the ability to negotiate safer sex. The decision to use condoms is usually left to the client. When asked why condoms were not used at the last sexual encounter, 65 percent said that the partner objected. It is important that sex workers have the knowledge to use condoms, but that is not enough. HIV prevention programs in high-risk groups like sex workers should go beyond messages that promote knowledge about the virus and how to prevent it, and focus on services that will both persuade people to act on their knowledge and make it easier for them to do so.

In all the survey sites, the shop was the most commonly cited source of the male condom. The number of respondents who cited peer educators as a source of the male condom, though few, increased between 2000 and 2003 in both Livingstone and Chirundu, indicating an increase in awareness campaigns put on by COH staff. Knowledge and use of the female condom was not as widespread as that of the male condom. However, with the majority of sex workers indicating that most of their clients object to male condom use, there is a need to promote the

---

<sup>28</sup> ZSBS 2003

use of female condom and to engage female sex workers in condom negotiation skills with their clients.

### **7.5 Sexually transmitted Infections**

Knowledge of STIs was wide spread as almost all the sex workers had heard of diseases that are transmitted through sexual intercourse, and the majority of the respondents could name at least two symptoms in both men and women. The proportion of sex workers who could name at least two STI symptoms in both men and women increased between 2000 and 2003 in both Livingstone and Chirundu. Over a third of the sex workers reported having had either a discharge or a sore in the past 12 months preceding the survey and the proportion of those who reported having had a discharge was highest in Chirundu. The reported prevalence of STI among this population appears to be higher than those found in other subgroups of the populations where self-reported STI symptoms is usually less than a third<sup>29</sup>. The first source of treatment for those who reported an STI was either the government hospital or clinic. This represented the largest source of treatment for sex workers in Livingstone while the COH drop-in centre was the second preferred source of treatment, especially in Chirundu. Less than a third of the sex workers notified their sexual partners about their symptoms and, unfortunately, most of those infected reported continued sexual intercourse despite being symptomatic. A comparison between 2000 and 2003 showed that partner notification and consistent use of condoms while infected with an STI declined in both Livingstone and Chirundu. This is both significant and unfortunate because of the strong association between STIs and HIV transmission. Among those who reported having had symptoms of an STI, the median duration between beginning of symptoms and seeking treatment was seven days, suggesting that most sex workers delay seeking medical treatment once they are infected with an STI. The delay in seeking medical care by those infected, the low levels of partner notification, inability to refrain from sex while having symptoms, and low condom use while infected all pose a great challenge in the fight against the spread of HIV and other STIs among the sex workers.

### **7.6 Knowledge and attitudes towards HIV/AIDS**

The results of the 2000 and 2003 BBSS indicate considerable gaps between knowledge of HIV/AIDS and behaviours necessary to prevent further HIV transmission among the female sex workers. Awareness about HIV/AIDS was high among the sex workers and most of them knew someone infected with HIV or who had died of AIDS.

Complete knowledge of HIV was moderately high, with slightly more than half of respondents being able to identify all three HIV methods of HIV prevention (abstinence, being faithful, and condom use). However, comprehensive knowledge of HIV - defined as having a complete knowledge of HIV in addition to reporting no incorrect beliefs about HIV transmission – considerably lower. In fact, results from the 2003 survey show a decline in comprehensive knowledge from 2000 in both Livingstone and Chirundu.

Misconceptions about HIV transmission still exist, with more than one third believing that mosquito bites could transmit the HIV virus, while more than a quarter believed that it was possible to contract HIV by sharing a meal with someone infected with the virus.

Efforts are needed to remove the misconceptions about HIV transmission, as these misconceptions further stigmatize those living with HIV/AIDS, as exemplified by the results of this survey. Findings show that more than one third of the respondents from each of the

---

<sup>29</sup> ZSBS 2003

survey sites were opposed to the idea of allowing an HIV positive teacher or student to continue teaching or studying. Furthermore, most of the respondents indicated that they would not buy food from a shopkeeper who was HIV positive.

The majority of the sex workers interviewed in 2003 considered themselves to be at risk of contracting the virus, mainly because they never used condoms every time they had sex. The opposite was true for those who considered themselves at no risk of contracting the HIV virus, citing consistent condom use as the main reason for not being at risk. The above findings highlight the fact that despite wide spread knowledge of the risks involved in their work, sex workers do not take necessary measures to protect themselves against HIV/AIDS and other STIs. There could be contextual barriers to effective adoption of safer sexual practices that are beyond the sex workers control that need to be further understood. The wide gap between knowledge and action needs to be addressed in order to hasten success of the activities/programs aimed at combating HIV/AIDS. Most of the female sex workers in this survey perceived themselves as susceptible and therefore have the potential for behaviour change. Unless there is perceived susceptibility, behaviour can never change.

### **7.7 Voluntary Testing and Counseling (VCT)**

Although two-thirds of respondents reported having access to HIV counselling and testing, only 13 percent of all the respondents had ever taken an HIV test, and 63 percent of those tested received their results. Voluntary counselling and testing (VCT) is a crucial entry point into the continuum of HIV/AIDS prevention and care. Efforts to promote VCT services within the COH project requires social marketing of the benefits and perhaps more importantly, creating an enabling environment to reduce stigma towards people with AIDS<sup>30</sup>. Well-planned counselling services and linkages to prevention and care including reproductive health services are needed.

### **7.8 Project Indicators**

The findings indicate that about three-quarters of all sex workers interviewed had heard about the COH project. However, there was a clear gap between awareness of the project and actual membership. In the three sites where COH is present (Livingstone, Chirundu and Kapiri Mposhi), only 58 percent who had heard about COH were registered members. There is therefore an urgent need for expansion of outreach programs and innovative methods to improve coverage and facilitate access to the COH project. Rigorous efforts will be required to recruit as many sex workers as possible into the project. This is particularly important in view of the fact that most of those who were members of COH expressed satisfaction with the services they received the last time they visited the drop-in centre and almost everyone interviewed was willing to go back to the drop-in centre. Also, among non-members, majority indicated willingness to join the project. It is also worth mentioning that members of the project were more likely to use condoms with paying clients than non-members. Overall, about 58 percent of COH members had used a condom the last time they had sex with a paying client, while the proportion among non-members was 51 percent. Furthermore, project sites provided a major source of education materials as revealed by the high proportion of those who had received such materials from the COH project. The project members also received free STI treatment from the COH project health care providers.

---

<sup>30</sup> Kalichma SC, Simbayi LC. "HIV testing attitudes, AIDS stigma and voluntary HIV counseling and testing in a black township in Cape Town, South Africa. *Sexually Transm Infect* 2003;79:442-447.

It is very important to note that the overall prevalence of STIs was lower among the registered COH members relative to non-members. Given that both female sex workers exposed to project services and those not exposed share the same clientele, it is not possible to reduce prevalence levels without the majority of these sex workers accessing the STI services. Interventions directed specifically at higher risk groups, particularly female sex workers, with the objective of reducing prevalence of STIs does work<sup>31</sup>. But many cases of STIs are asymptomatic particularly in women<sup>32</sup>, therefore most of those infected do not know that they have an STI and continue to spread the infection. Despite the encouraging finding that the prevalence of all STIs decreased in Livingstone and Chirundu between the two surveys, the overall prevalence is still high among female sex workers, and most of them are not yet accessing the interventions. Therefore, more innovative approaches are needed to reach a wider range of the target group with both STI and behaviour change interventions services.

Since controlling STIs among the female sex workers has an ultimate spill-over effect into the general population, the STI treatment strategies in the COH project need to be reviewed suitably to make them more effective. An effective primary prevention component and an improved and strengthened STI case management must also support the treatment strategies<sup>33</sup>. There has been considerable progress in other African countries in preventing and treating STIs. A combination of STI service strategies - involving monthly presumptive STI treatment given to high risk population of women, and syndromic approaches of STI care to their male clients - has been shown to reduce STI prevalence rates drastically in a South African gold mining<sup>34</sup> and among Kenya female sex workers<sup>35</sup>. The COH project would do well to learn from these other success stories.

---

<sup>31</sup> Moses S, Ngugi EN, Costigan A et al. Response of a sexually transmitted infection epidemic to a treatment and prevention programme in Nairobi, Kenya'. *Sex Transm Infect*;78(suppl 1):114-i120.

<sup>32</sup> UNAIDS. The public Health Approach to STD control. Technical update, May 1998. Best practice collection.

<sup>33</sup> Steen R, Dallabetta G. *Reproductive Health matters*,2003.

<sup>34</sup> Steen R, Vulsteke B, *STI journal* 2000.

<sup>35</sup> Kaul R, Kimani J, Ngugi E, et al. 'A Randomised, Placebo-Controlled Trial of Monthly Azithromycin to Prevent Sexually Transmitted Infections and HIV in Kenya Female Sex Workers' (unpublished presentation)

## 8 RECOMMENDATIONS

1. A safer sexual practice through consistent condom use is one of the most effective ways of preventing the spread of HIV. However, there are important barriers that continue to impede the consistent use of condoms among the female sex workers that need to be overcome. Even though some of these factors are alluded to in the survey, a detailed understanding is lacking. Therefore, it is worthwhile to systematically investigate some of the factors promoting these barriers and the extent to which they impede consistent use of condoms. This should initially entail an exploratory phase to identify possible costs and obstacles to safer sexual practices. It should then be followed by an empirical examination of the same factors in order to determine the extent to which they hinder the adoption of safer sexual practices.
2. While it is important that sex workers have the knowledge and the skills to negotiate condom use, it is not enough. Short-term prevention efforts should target both sides of the commercial sex equation, as well as its context. That means working with sex workers, and their clients. Long-term prevention efforts should work on changing the social landscape which accepts violence as a norm and which deprives women of choices. Furthermore, all prevention efforts need a multi-sectoral approach, with the recognition that only targeting the risk behaviours and not vulnerability, does not work.
3. A high proportion of the respondents knew where to obtain condoms, which were mostly traditional sources such as health facilities, commercial outlets and the COH peer educators. However, there would appear to be obstacles to accessing these condoms. It should be emphasised that the peer educators and outreach workers must continue to play a key role as the most convenient suppliers of condoms while at same time coordinating other partners involved in condom distributions and sales.
4. In view of continued existence of some misconceptions and stigma against people with HIV/AIDS, there is need to develop better ways and strategies for correcting the misconceptions and negative attitudes. One of the ways to correct these misconceptions, is for the programme to broaden its coverage and reach to more women at high risk with accurate information. Providing accurate information through innovative message delivery will also assist to lessen stigma against people with HIV/AIDS.
5. Although the issues of drug and alcohol abuse may not have been a direct interest to COH, there is currently increasing recognition of the relationship between substance abuse and risky sexual behaviours that predispose people to HIV. In view of the findings from this survey, programme managers should begin to seriously analyse and understand substance use among the high-risk female populations at border posts with a view of integrating primary prevention with substance abuse messages.
6. STI control in the project needs to be further strengthened through intensified peer education and outreach work. An expansion of peer education and outreach work will sensitise the sex workers and other members of the community on the dangers of STIs and the benefits of early treatment seeking behaviour. To achieve this, many women who are at high risk need to be targeted, above and beyond the established sex

workers, as it will not be possible to control the prevalence of STIs if the majority of the vulnerable female populations are not reached.

7. Since the results indicate that the STI prevalence is high among sex workers, a comprehensive STI care package for female sex workers should include reproductive health services and counselling for treatable STIs and HIV. Assurance for privacy, confidentiality and respect should be guaranteed and assurance of continuity care for those identified with any of the STIs including HIV.
8. Based on the high prevalence of STI among sex workers, the management guidelines, including frequency of re-visit, need to be reviewed and revised in line with current STI infection prevalence and drug sensitivity patterns. Effective STI services which are of high quality with continued availability of drugs, condoms, partner treatment services patients and provider referral are needed.
9. Very few of the sex workers interviewed had taken an HIV test. HIV testing and receiving the result is a critical entry point to the continuum of HIV prevention and care. It is therefore necessary for the project to address the importance of VCT and rigorously promote the services within the project.

# 9 APPENDICES

## Appendix 1

FAMILY HEALTH INTERNATIONAL (FHI)  
HIV/AIDS/STD BEHAVIOURAL SURVEILLANCE SURVEYS (BSS)  
FOR USE WITH FEMALE SEX WORKERS (FSWs)  
ZAMBIA-2003

### FEMALE QUESTIONNAIRE BEHAVIOURAL CONSENT FORM

**The Second Behavioral and Biologic Surveillance Survey for HIV/STI Risk Related Behaviors and Sexually Transmitted Infection Prevalence Assessment in Female Sex Workers in Zambia (BBSS), 2003**

001 PARTICIPANT STUDY NUMBER |\_\_|\_\_|\_\_|

002 CITY \_\_\_\_\_ (provide locally appropriate categories)

003 SITE \_\_\_\_\_ (provide locally appropriate categories)

**Introduction:** “My name is... I’m working for... We’re interviewing people here in [name of city, region or site] in order to find out about your perceptions of sexual infections, HIV/AIDS and your behaviours in this same area. Have you been interviewed in the past few weeks [or other appropriate time period] for this study? If the respondent has been interviewed before during this round of bss, do not interview this person again. Tell them you cannot interview them a second time, thank them, and end the interview. If they have not been interviewed before, continue:

**Confidentiality and consent:** “I’m going to ask you some very personal questions that some people find difficult to answer about your sexual behaviour and your opinion and experiences about sexual infections including HIV and AIDS. We are doing this survey in about 2,000 women in Zambia. Your answers are completely confidential. Your name will not be written on this form, and will never be used in connection with any of the information you tell me. You do not have to answer any questions that you do not want to answer, and you may end this interview at any time you want to. Some of the questions may make you feel uncomfortable. However, your honest answers to these questions will help us better understand what people think, say and do about certain kinds of behaviors. We would greatly appreciate your help in responding to this survey. The survey will take about 45 minutes to ask the questions. At the end of the questionnaire we will ask you if you want to participate in another survey where we will take specimens to test for sexual infections. You can answer this questionnaire and say no to the second part of the study. If you say no for this study or for the second study or both studies it will not affect the services you get at the clinics in this area. At the end of this questionnaire we will give you a soft drink and some condoms.

Do you have any questions? Would you be willing to participate?

\_\_\_\_\_  
(Signature of interviewer certifying that informed consent has been given verbally by respondent)

#### *Interviewer visit*

	Visit 1	Visit 2	Visit 3
Date			
Interviewer			
Result			

*Result codes:* Completed 1; Respondent not available 2; Refused 3; partially completed 4; Other 5.

005 INTERVIEWER: Code [\_\_|\_\_] Name \_\_\_\_\_

006 DATE INTERVIEW: \_\_\\_\_\\_\_

CHECKED BY SUPERVISOR: Signature \_\_\_\_\_ Date \_\_\_\_\_

## FEMALE QUESTIONNAIRE

The FEMALE SEX WORKER questionnaire includes the following sections:

Section 0 – Questionnaire identification data (6 codes)	
Section 1 – Background characteristics	12 questions
Section 2 – Marriage, family, work	10 questions
Section 3 – Sexual history: numbers and types of partners	5 questions
Section 4 – Sexual history: paying clients	6 questions
Section 5 – Sexual history: non-paying partners	7 questions
Section 6 – Male and female condoms	12 questions
Section 7 – STDs	10 questions
Section 8 – Knowledge, opinions, and attitudes towards HIV/AIDS	19 questions
Section 9 – Service delivery and access	9 questions
<b>TOTAL NUMBER OF QUESTIONS:</b>	<b>90 questions</b>

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 1: Background characteristics*

No.	Questions and filters	Coding categories	Skip to
Q101	In what month and year were you born?	MONTH [ ][ ] DON'T KNOW MONTH 88 NO RESPONSE 99 YEAR [ ][ ] DON'T KNOW YEAR 88 NO RESPONSE 99	
Q102	How old were you at your last birthday?  (Compare/reconcile Q101 & 102 if needed)	AGE IN COMPLETED YEARS [ ][ ] DON'T KNOW 88 NO RESPONSE 99 <i>ESTIMATE BEST ANSWER</i>	
Q103	Have you ever attended school?	YES 1 NO 2 NO RESPONSE 9	→ Q106
Q104	What is the highest level of school you completed: primary, secondary or higher? CIRCLE ONE	PRIMARY 1 SECONDARY 2 HIGHER 3 NO RESPONSE 9	
Q105	How many total years of education have you completed up to now?	YEARS COMPLETED [ ][ ] NO RESPONSE 99	
Q106	How long have you lived here in (NAME OF COMMUNITY/ TOWN NEIGHBORHOOD/ VILLAGE)?	NUMBER OF YEARS [ ][ ] RECORD 00 IF LESS THAN 1 YEAR DON'T KNOW 88 NO RESPONSE 99	
Q107	Where have you lived in past 1 year?	LUSAKA 1 NDOLA 2 CHIRUNDU 3 KAPIRIMPOSHI 4 NCHELENGE 5 LIVINGSTONE 6 OTHER (SPECIFY) 8	
Q108	What is your religious denomination or Church?  CIRCLE ONE.	CATHOLIC 1 UNITED CHURCH OF ZAMBIA 2 SEVENTH DAY ADVENTISTS 3 REFORMED CHURCH IN ZAMBIA 4 PENTECOSTALS 5 OTHER (SPECIFY)----- 6 NO RELIGION 0 NO RESPONSE 9	
Q109	To which ethnic group/tribe do you belong?  CIRCLE ONE.	(List locally appropriate categories) Lozi 1 Tonga 2 Nsenga/Ngoni 3 Bemba 4 Lala 5 Lamba 6 Kaonde 7 Other (specify)----- 8 NO RESPONSE 99	
Q110	During the last 4 weeks how often have you had drinks containing alcohol? Would you say .....READ OUT CIRCLE ONE	Every day 1 At least once a week 2 Less than once a week or never 3 DON'T KNOW 8 NO RESPONSE 9	
Q111	Some people have tried a range of different types of drugs. Which of the following, if any, have you tried? READ LIST. CIRCLE ALL THAT APPLY.	YES NO DK NR Daga (Ichamba) 1 2 8 9 Heroin 1 2 8 9 Cocaine 1 2 8 9 Mandrax 1 2 8 9 Other -----	
Q112	Would you say you took the above drug frequently?	YES NO DK NR Daga (Ichamba) 1 2 8 9 Heroin 1 2 8 9 Cocaine 1 2 8 9 Mandrax 1 2 8 9 Other ----- 1 2 8 9	

**FHI 2000 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 2 Marriage, family, work*

No.	Questions and filters	Coding categories	Skip to
Q201	Have you ever been married?	YES 1 NO 2 NO RESPONSE 3	→Q203 →Q203
Q202	How old were you when you first married?	Age in years [__][__] DON'T KNOW 88 NO RESPONSE 99	
Q203	Are you currently married or living with a sexual partner?	currently married, living with spouse 1 currently married, living with other sexual partner 2 currently married, not living with spouse or any other sexual partner 3 not married, living with sexual partner 4 not married, not living with sexual partner 5 NO RESPONSE 9	→Q205 →Q205 →Q205
Q204	Does your spouse/partner have other sexual partners?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q205	At what age did you first receive money for sex?	AGE IN YEARS [__][__] DON'T KNOW 88 NO RESPONSE 99	
Q206	Do you earn money- doing work other than sex work?	YES 1 NO 2 NO RESPONSE 9	→Q208
Q207	What is this other work?  MULTIPLE ANSWERS POSSIBLE	YES NO Marketeer 1 2 Waitress 1 2 Kaponya 1 2 Owns restaurant 1 2 Other----- 1 2 DON'T KNOW 1 2 NO RESPONSE 1 2	
Q208	Are you supporting anyone (children, parents or others) now?	YES 1 NO 2 NO RESPONSE 9	→Q301
Q209	How many people are you supporting now?	NUMBER OF PEOPLE [__][__] DON'T KNOW 88 NO RESPONSE 99	
Q210	Do the children/parents or others live with you now?	YES 1 NO 2 NO RESPONSE 9	

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 3 Sexual history: numbers and types of partners*

No.	Questions and filters	Coding categories	Skip to
Q301	<p>Now I'd like to ask you some questions that may be difficult and too personal to answer. But like I said at the beginning, your answers to these questions will be treated with strict confidentiality and will not be linked to you in any way. The questions that will follow will all be about your sexual activities and partners...</p> <p>At what age did you first have sex?</p>	<p>AGE IN YEARS [ ][ ]  DON'T REMEMBER 88  NO RESPONSE 99</p>	
Q302	<p>Among all of your partners in the last seven days (one week), how many were:</p> <p>a) PAYING CLIENTS: That is, how many were partners who you had sex with in exchange for money?</p> <p>b) NON-PAYING PARTNERS: How many Partners you have sex with who do not give you money in exchange for sex (INCLUDE SPOUSE AND LIVE-IN SEXUAL PARTNERS)</p>	<p>PAYING CLIENTS [ ][ ]  DON'T KNOW 88  NO RESPONSE 99</p> <p>NON-PAYING PARTNERS [ ][ ]  DON'T KNOW 88  NO RESPONSE 99</p>	
Q303	<p>With how many different sexual partners in total have you had sex during the last seven days (one week)?</p> <p><b>INCLUDE SPOUSE(S), AND LIVE-IN SEXUAL PARTNERS</b></p> <p>NOTE: CHECK TOTAL NUMBERS OF PARTNERS IN Q302 AND Q303 TO MAKE SURE THE NUMBERS MATCH.</p>	<p>NUMBER IN LAST 7 DAYS [ ][ ]  DON'T KNOW 88  NO RESPONSE 99</p>	
Q304	<p>Where else did you do sex work before coming to this community? (other town than site of interview)</p>	<p>NONE 1  NO RESPONSE 2  Other (specify)----- 3</p>	
Q305	<p>How long have you been doing sex work in this community?</p> <p>(STATE CITY WHERE YOU ARE DOING INTERVIEW)</p>	<p>11. RECORD THE EXACT YEARS</p>	

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 4 Sexual history: paying clients*

No.	Questions and Filters	Coding categories	Skip to
Q401	On the last day you worked, how many clients (people who gave you money in the exchange of sex) did you have?	Number of clients DON'T KNOW NO RESPONSE	<input type="text"/> 88 99
Q402	The last time you had sex with a client (someone who gave you money in exchange of sex) how much money did you receive?	List amount of money in local currency DON'T KNOW NO RESPONSE	 88 99
Q403	The <b>last time</b> (round) you had sex with a client, did you and your client use a condom?	YES NO DON'T KNOW NO RESPONSE	1 2 8 9 →Q405
Q404	Who suggested condom use that time?  CIRCLE ONE	Myself My partner Joint decision DON'T KNOW NO RESPONSE	1 2 3 8 9 →Q406 →Q406 →Q406 →Q406
Q405	Why didn't you and your client use a condom that time? Any other reasons?  ADD OTHER LOCALLY APPROPRIATE CATEGORIES AFTER PRE-TESTING  CIRCLE ALL ANSWERS MENTIONED	Not available Too expensive Partner objected Don't like them Used other contraceptive Didn't think it was necessary Didn't think of it Other _____ DON'T KNOW NO RESPONSE	Y N 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2
Q406	In general, how often did you and all of your clients use condoms over the last 30 days, that is since the beginning of-----	EVERY TIME ALMOST EVERY TIME SOMETIMES NEVER DON'T KNOW NO RESPONSE	1 2 3 4 8 9

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 5 Sexual history: non-paying partners*

No.	Questions and Filters	Coding categories	Skip to
Q501	FILTER: CHECK Q302  HAS NON-PAYING PARTNER [ ] ↓	HAS NO NON-PAYING PARTNER [ ]→	→Q601
Q502	Think about your most recent non-paying sexual partner. How many times did you have sexual intercourse with this person over the past 30 days? <i>That is since beginning of -----</i>	Number of times [ ] [ ] DON'T KNOW 88 NO RESPONSE 99	
Q503	The last time you had sex with a NON-PAYING partner, did you and your partner use a condom?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	→Q505
Q504	Who suggested condom use that time?  CIRCLE ONE	Myself 1 My partner 2 Joint decision 3 DON'T KNOW 8 NO RESPONSE 9	→Q506 →Q506 →Q506 →Q506
Q505	Why didn't you and your partner use a condom that time?  ADD OTHER LOCALLY APPROPRIATE CATEGORIES AFTER PRE-TESTING.  CIRCLE ALL ANSWERS MENTIONED.	Y N Not available 1 2 Too expensive 1 2 Partner objected 1 2 Don't like them 1 2 Used other contraceptive 1 2 Didn't think it was necessary 1 2 Didn't think of it 1 2 Other _____ 1 2 DON'T KNOW 1 2 NO RESPONSE 1 2	
Q506	In general, how often did you and your non-paying partner(s) use a condom over the last 12 months?  Would you say every time, almost every time, sometimes, or never?	EVERY TIME 1 ALMOST EVERY TIME 2 SOMETIMES 3 NEVER 4 DON'T KNOW 8 NO RESPONSE 9	
507	During the past 12 months, did any of your sexual partner(s) paying or non-paying force you to have sex with them even though you did not want to have sex?	YES 1 NO 2 NO RESPONSE 9	

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 6 Male condoms*

No.	Questions and Filters	Coding categories	Skip to
Q601	Have you ever heard of a male condom? (Show picture or sample of one) <i>I mean a rubber object that a man puts on his penis before sex.</i> ↓	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	→Q608 →Q608
Q602	Have you and any sexual partner ever used a male condom?  <b>(Show picture or sample of one.)</b> (The respondent may not have used a condom with partners in sections 4-5, but may have used a condom at some other time in the past.)	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q603	Do you know of any place or person from which you can obtain male condoms?	YES 1 NO 2 NO RESPONSE 9	→Q607
Q604	Which places or persons do you know where you can obtain male condoms?  PROBE AND RECORD ALL ANSWERS  Any others?	Yes No Shop 1 2 Pharmacy 1 2 Market 1 2 Clinic 1 2 Hospital 1 2 Family planning center 1 2 Bar/guest house/hotel 1 2 Peer educator 1 2 Friend 1 2 OTHER _____ 1 2 NO RESPONSE	
Q605	How long does it take you to obtain a condom close to your house or to where you work?	(Adjust categories as locally appropriate)  Under 1 hour 1 1 hour to 1 day 2 More than 1 day 3 DON'T KNOW 8 NO RESPONSE 9	

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 6 female condoms (continued)*

No.	Questions and Filters	Coding categories	Skip to
Q606	How many condoms do you have on-hand right now in your room (if brothel-based) or on your person (if street-based).	Number of condoms on-hand NO RESPONSE	□□□ 99
Q607	Have you ever heard of a female condom? (Show picture or sample of one.)	YES NO DON'T KNOW NO RESPONSE	1 2 8 9
Q608	Have you ever used a female condom? (Show picture or sample of one.)	YES NO DON'T KNOW NO RESPONSE	1 2 8 9
Q609	Do you know of any place or person from which you can obtain female condoms?	YES NO NO RESPONSE	1 2 9
Q610	Which places do you know where you can obtain female condoms?  PROBE AND RECORD ALL ANSWERS  Any others?	Shop Pharmacy Market Clinic Hospital Family planning center Bar/guest house/hotel Peer educator Friend OTHER _____ NO RESPONSE	Yes No 1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 1 2 1 2
Q611	Have you ever purchase female condom?	YES NO NO RESPONSE	1 2 9
Q612	Why have you never purchased female condom?	It is expensive Don't know where to buy them Other _____ NO RESPONSE	1 2 3 9

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 7 STDs*

No.	Questions and filters	Coding categories	Skip to
Q701	Have you ever heard of diseases that can be transmitted through sexual intercourse?	YES 1 NO 2 NO RESPONSE 9	→Q704
Q702	Can you describe any symptoms of STDs in women? ..... Any others? DO NOT READ OUT THE SYMPTOMS CIRCLE 1 FOR ALL MENTIONED. CIRCLE 2 FOR ALL NOT MENTIONED. MORE THAN ONE ANSWER IS POSSIBLE.	Yes No ABDOMINAL PAIN 1 2 GENITAL DISCHARGE 1 2 FOUL SMELLING DISCHARGE 1 2 BURNING PAIN ON URINATION 1 2 GENITAL ULCERS/SORES 1 2 SWELLINGS IN GROIN AREA 1 2 ITCHING 1 2 OTHER _____ 1 2 NO RESPONSE 1 2	
Q703	Can you describe any symptoms of STDs in men? ..... Any others? DO NOT READ OUT THE SYMPTOMS CIRCLE 1 FOR ALL MENTIONED. CIRCLE 2 FOR ALL NOT MENTIONED. MORE THAN ONE ANSWER IS POSSIBLE.	Yes No GENITAL DISCHARGE 1 2 BURNING PAIN ON URINATION 1 2 GENITAL ULCERS/SORES 1 2 SWELLINGS IN GROIN AREA 1 2 OTHER _____ 1 2 NO RESPONSE 1 2	
Q704	Have you had leakage (a genital discharge) during the past 12 months? That is since-----	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q705	Have you had a sore on your private parts (genital ulcer/sore) during the past 12 months? That is since	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q706	FILTER CHECK Q704 AND 705 had discharge or sore in the last 12 months <input type="checkbox"/>	NO DISCHARGE OR ULCER <input type="checkbox"/> → IN LAST 12 MONTHS	→Q708
Q707	Did you do any of the following the last time you had a genital ulcer / sore or discharge: <i>read out: more than one answer is possible.</i> a. Seek advice/medicine from a government clinic or hospital? b. Seek advice/medicine from a workplace clinic or hospital? c. Seek advice /medicine from a church or charity- run clinic or hospital? d. Seek medicine from a private clinic or hospital? e. Seek advice/medicine from a chemist? f. Seek advice/ medicine from a tradition healer? g. Bought capsules on the street? h. Took medicine you had at home? i. Tell your sexual partner about the discharge / STD? j. Stop having sex during the time when you had the symptoms? Always use a condom when having sex during the time you had symptoms?	YES NO 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2 1 2	
Q708	Are you currently using any method to protect yourself from getting pregnant?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	→Q710
Q709	Which methods are you currently using to protect yourself from getting pregnant?	Yes No TRADITIONAL METHOD 1 2 ORAL CONTRACEPTIVES PILLS 1 2 INJECTION 1 2 NEO PLANT 1 2 IUD 1 2 MALE CONDOMS 1 2 FEMALE CONDOMS 1 2 SPERMICIDES 1 2 DIAPHARM 1 2 NATURAL 1 2 OTHER..... NO RESPONSE	
Q710	Have you ever lost a pregnancy	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE	

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 8 Knowledge, opinions, and attitudes*

No.	Questions and filters	Coding categories	Skip to
Q801	Have you ever heard of HIV or the disease called AIDS?	YES 1 NO 2 NO RESPONSE 9	
Q802	Do you know anyone who is infected with HIV or who has died of AIDS?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q803	Do you have a close relative or close friend who is infected with HIV or has died of AIDS?	YES, A CLOSE RELATIVE 1 YES, A CLOSE FRIEND 2 NO 3 NO RESPONSE 9	
Q804	Can people protect themselves from HIV the virus that causes AIDS by using a condom correctly every time they have sex?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q805	Can a person get HIV from Mosquito bites?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q806	Can people protect themselves from the HIV by having one uninfected faithful sex partner?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q807	Can people protect themselves from the HIV virus by abstaining from sexual intercourse?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q808	Can a person get HIV by sharing a meal with someone who is infected?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q809	Can a person get HIV by getting injections with a needle that was already used by someone else?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q810	Do you think that a healthy-looking person can be infected with HIV, the virus that causes AIDS?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	

**FHI 2000 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 8 Knowledge, opinions, and attitudes (continued)*

No.	Questions and filters	Coding categories	Skip to															
Q811	Can a pregnant woman infected with HIV or AIDS pass the virus to her unborn child?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	→Q812 →Q812															
Q812	What can a pregnant woman do to lower the chance of passing HIV to her unborn child?  DO NOT READ LIST  CIRCLE ALL THAT ARE MENTIONED.	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 60%;"></td> <td style="text-align: center;">Yes</td> <td style="text-align: center;">No</td> </tr> <tr> <td>TAKE MEDICATION (Antiretroviral)</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>OTHER _____</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>DON'T KNOW</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> <tr> <td>NO RESPONSE</td> <td style="text-align: center;">1</td> <td style="text-align: center;">2</td> </tr> </table>		Yes	No	TAKE MEDICATION (Antiretroviral)	1	2	OTHER _____	1	2	DON'T KNOW	1	2	NO RESPONSE	1	2	
	Yes	No																
TAKE MEDICATION (Antiretroviral)	1	2																
OTHER _____	1	2																
DON'T KNOW	1	2																
NO RESPONSE	1	2																
Q813	Can a woman with HIV or AIDS pass the virus to her newborn child through breastfeeding?	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9																
Q814	Is it possible in your community for someone to get a confidential test to find out if they are infected with HIV? 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 8 NO RESPONSE 9																
Q815	<i>Restate confidentiality statement</i> I don't want to know the result, but have you ever had an HIV test?	YES 1 NO 2 NO RESPONSE 9	→Q901															
Q816	Would you be interested to have an HIV test?	YES 1 NO 2 NO RESPONSE 9																
Q817	Why would you not be interested in an HIV test?	SCARED 1 DON'T WANT TO KNOW 2 FEAR TO BE ISOLATED 3 THERE IS NO CURE FOR HIV 4 OTHER SPECIFY-----5																
Q818	Did you voluntarily undergo the HIV test, or were you required to have the test?	Voluntary 1 Required 2 NO RESPONSE 9																
Q819	Please do not tell me the result, but did you find out the result of your test?	YES 1 NO 2 NO RESPONSE 9																

**FHI 2003 HIV/AIDS/STD BEHAVIORAL SURVEILLANCE SURVEY (BSS) FOR FSWs**

*Section 9 Service delivery*

No.	Questions and filters	Coding categories	Skip to
Q901	When your friends have an STD where do they seek care?	government health facility 1 private medical practioner 2 traditional health practioner 3 self treat 4 CBI project site 5 DON'T KNOW 8 NO RESPONSE	
Q902	When your have an STD where do you normally seek care?	government health facility 1 private medical practitioners 2 traditional health practitioners 3 self treat 4 CBI project site 5 DON'T KNOW 8 NO RESPONSE 9	
Q903	Why do you seek STI care from the facility you go to? (tick as appropriate)	It is Near to my place yes no Staff is friendly yes no They have drugs yes no Others (state) yes no	
Q904	Are you registered member with CBI project and receiving regular STI services	YES 1 NO 2 NO RESPONSE 9	→Q905
Q905	Would you be willing to register with CBI to receive STI services	YES 1 NO 2 DON'T KNOW 3 NO RESPONSE 9	<b>End and thank</b>
Q906	Last time you sought care at CBI facility, what would you say about the care you received?	Very good 1 good 2 bad 3 DON'T KNOW 8 NO RESPONSE 9	
Q907	Will you go back to seek care at CBI facility	YES 1 NO 2 DON'T KNOW 8 NO RESPONSE 9	
Q908	Why would you not go back to CBI facility?	Staff not friendly yes no No drugs yes no There is no privacy yes no Other (specify) yes no	
Q909	Last time you visited CBI facility how was reception>	Very good 1 Good 2 Poor 3 DON'T KNOW 4 NO RESPONSE 5	

That is the end of the questionnaire. Thank you very much for taking time to answer. We appreciate your help. As I stated earlier we would also like to take some specimens to test for STDs (NOT HIV). Your name will never be asked and you will receive treatment. Are you willing to go with me?

FAMILY HEALTH INTERNATIONAL (FHI)  
**HIV/AIDS/STD BEHAVIOURAL AND BIOLOGIC TABLES**  
 FOR FEMALE SEX WORKERS (FSWs)  
 ZAMBIA-2003

**Table 1.1** *Socio-demographic characteristics of the study population by study site*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11			Round 1		Round 11		
	N	%	N	%	P value	N	%	Chirundu n (%)	%	
<b>Age group (years)</b>					0.852					0.014
< 20	93	35.6	120	34.3		35	24.5	48	21.1	
20-24	103	39.5	132	37.7		53	37.1	57	25.1	
25-29	41	15.7	60	17.1		33	23.1	60	26.4	
30+	24	9.2	38	10.9		22	15.4	62	27.3	
Total	261	100	350	100		143	100	227	100	
<b>Level of education</b>					<0.001					<0.001
No education	12	4.8	8	2.3		25	19.7	27	1.8	
Primary	209	83.6	167	47.6		93	73.2	139	60.7	
Secondary or higher	29	11.6	176	50.1		9	7.1	63	27.5	
Total	250	100	351	100		127	100	229	100	

**Table 1.2** *Socio-demographic characteristics of the study population by study site continue –Church denomination)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11			Round 1		Round 11		
	N	%	N	%	P value	N	%	N	%	
<b>Denomination</b>					0.165					0.381
Catholic	79	31.0	83	24.1		58	41.1	87	38.5	
United Church of Zambia	19	7.5	32	9.3		7	5.0	17	7.5	
Seventh Day Adventist	15	5.9	31	9.0		7	5.0	20	8.8	
Other churches	142	55.7	198	57.6		69	48.9	102	45.1	
Total	255	100	344	100		141	100	226	100	

**Table 1.3** *Socio-demographic characteristics of the study population by study site (Continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11			Round 1		Round 11		
	N	%	N	%	P value	N	%	N	%	
<b>Ever married</b>					0.971					0.475
Yes	118	45.2	157	44.9		94	66.2	161	70.3	
Total	261	100	351	100		142	100	229	100	
<b>Current marital status</b>					0.002					0.067
Married	16	6.1	4	1.2		8	5.6	4	1.8	
Not married	245	93.9	339	98.8		135	94.4	222	98.2	
Total	261	100	343	100		143	100	226	100	
<b><sup>1</sup>Age at first marriage (years)</b>					<0.001					<0.001
<15			3	2.0				9	6.0	
15-19	14	11.9	101	67.8		10	11.4	92	61.3	
20-24	48	40.7	37	24.8		32	36.4	39	26.0	
25+	56	47.5	8	5.4		46	52.3	10	6.7	
Total	118	100	149	100		88	100	150	100	

<sup>1</sup> Based on ever married respondents

**Table 1.4** *Socio-demographic characteristics of the study population by study site (Continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 2			Round 1		Round 11		
	N	%	N	%	P Value	N	%	N	%	
<sup>2</sup> Spouse having more than one wife					0.648					0.592
Yes*	8		5			5		3		
Total	15		7			7		6		
<b>Time period of current residence (years)</b>					0.819					0.001
<1	38	14.6	41	11.7		49	34.3	38	16.6	
1-1.9	9	3.5	15	4.3		12	8.4	23	10.0	
2-4.9	29	11.2	48	13.7		35	24.5	68	29.7	
5-9.9	35	13.5	53	15.1		15	10.5	29	12.7	
10-14.9	24	9.2	37	10.5		7	4.9	12	5.2	
15-19.9	44	16.9	54	15.4		13	9.1	14	6.1	
20+	81	31.2	103	29.3		12	8.4	45	19.7	
Total	260	100	351	100		143	100	229	100	

\* Percentages not reported because denominators are less than 30.

<sup>2</sup> Based on currently married respondents

**Table 1.5** *Socio-demographic characteristics of the study population by study site (Continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11			Round 1		Round 11		
	N	%	N	%	P value	N	%	N	%	
<b>Occupation other than sex work</b>					0.578					0.261
Yes	83	31.9	103	29.6		59	41.3	77	34.8	
Total	260	100	348 (100)			143	100	221	100	
<b>Type of occupation</b>										
Marketeer	47 N=82	57.3	30 N=61	49.2	0.426	32	55.2	33 N=49	67.3	0.277
Waitress	12 N=82	14.6	8 N=55	14.5	0.816	1	1.7	4 N=39	10.3	0.154
Other	23 N=82	28	62 N=404	15.3	0.009	25 N=58	43.1	42 N=266	18.3	<0.001

**Table 1.6** *Socio-demographic characteristics of the study population by study site (Continued)*

Characteristics	Livingstone					Chirundu					p value
	Round 1		Round 11		P value	Round 1		Round 11			
	N	%	N	%		N	%	N	%		
<b>Supporting others</b>					0.245					0.690	
Yes	149	57.1	181	52.0		83	58.0	139	60.7		
Total	261	100	348	100		143		229	100		
<b>Number of people supporting</b>					0.174					0.049	
1	56	37.8	76	41.5		24	28.9	53	38.4		
2	36	24.3	45	24.6		17	20.5	31	22.5		
3	15	10.1	28	15.3		24	28.9	19	13.8		
4+	41	27.7	34	18.6		18	21.7	35	25.4		
Total	148	100	183	100		83	100	138	100		

**Table 1.7** *Alcohol and drug use by the study population*

Characteristics	Livingstone					Chirundu					p value
	Round 1		Round 11		P value	Round 1		Round 11			
	N	%	N	%		N	%	N	%		
Alcohol use in past four weeks											
Every day	42	16.2	106	30.3	<0.001	18	12.7	39	17.2	0.002	
At least once a week	172	66.2	133	38.0		83	58.5	90	39.6		
Less than once a week or never	46	17.7	111	31.7		41	28.9	98	43.2		
Total	260	100	350	100		142	100	227	100		
<b>Ever used drugs</b>											
Yes	59	22.6	81	23.1	0.968	41	28.7	40	17.5	0.016	
Total	261	100	351	100		143	100	229	100		
<b>Drugs used</b>											
Dagga	57	21.8	80 N=339	23.6	0.681	40	28.0	40 N=223	17.9**	0.033	
Heroin	2	0.8	1	0.3	0.584	2	1.4	0	0	0.153	
Cocaine	4 (1.5)	1.5	5	1.5	1.000	1	0.7	2	0.9	1.000	
Other	1	0.4*	67	20.0	<0.001	0	0	8	3.6	0.026	
Total	261		335			143		222			

\*\* Denominator is 260

\*\* Denominator is 223

**Table 2.1** *Characteristics of sex work of the study population*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11			Round 1		Round 11		
	N	%	Livingstone n (%)	%	P value	N	%	N	%	
<b>Age at first sexual intercourse</b>					0.808					0.432
<15	73	29.4	105	31.8		42	32.6	57	26.6	
15-19	168	67.7	215	65.2		82	63.6	145	67.8	
20+	7	2.8	10	3.0		5	3.9	12	5.6	
Total	248	100	330	100		129	100	214	100	

**Table 2.2** *Characteristics of sex work of the study population (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Age at first sex work</b>					0.207					0.206
<15	37	15.3	35	10.4		12	9.1	18	8.1	
15-19	142	58.7	223	66.6		82	62.1	119	53.6	
20-24	46	19.0	56	16.7		24	18.2	44	19.8	
25+	17	7.0	21	6.3		14	10.6	41	18.5	
Total	242	100	335	100		132	100	222	100	
<b>Sex work elsewhere before</b>					<0.001					<0.001
Yes	259	99.2	120	35.5		143	100	95	42.2	
Total	261	100	338	100		143	100	225	100	

**Table 2.3** *Characteristics of sex work of the study population (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Period of sex work in current community (months)</b>					0.008					0.002
<1	11	4.2	10	2.9		16	11.2	5	2.2	
1-11	57	21.8	37	10.8		32	22.4	45	19.8	
12-23	46	17.6	58	16.9		31	21.7	42	18.5	
24-35	52	19.9	74	21.5		27	18.9	38	16.7	
36-47	27	10.3	48	14.0		13	9.1	36	15.9	
48-71	33	12.6	59	17.2		10	7.0	26	11.5	
72+	35	13.4	58	16.9		14	9.8	35	15.4	
Total	261	100	344	100		143	100	227		

**Table 2.4** *Characteristics of sex work of the study population (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Number of sexual partners in the last 7 days</b>					0.002					<0.002
0	15	5.7	18	5.2		14	9.8	15	6.6	
1	59	22.7	45	13.1		41	28.7	30	13.2	
2	64	24.5	62	18.0		46	32.2	55	24.1	
3	53	20.3	78	22.7		20	14.0	49	21.5	
4	31	11.9	56	16.3		12	8.4	44	19.3	
5	12	4.6	35	10.2		5	3.5	15	6.6	
6+	27	10.3	50	14.5		5	3.5	20	8.8	
Total	261	100	344	100		143	100	228	100	

**Table 2.5** *Characteristics of sex work of the study population (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Number of paying partners in the last 7 days</b>					<0.001					<0.001
0	30	11.5	18	5.2		18	12.6	11	4.8	
1	86	33.0	49	14.1		62	43.4	37	16.2	
2	63	24.1	82	23.6		34	23.8	75	32.8	
3	48	18.4	86	24.8		14	9.8	51	22.3	
4	12	4.6	40	11.5		7	4.9	25	10.9	
5	6	2.3	30	12.1		5	3.5	13	5.7	
6+	16	6.1	42	12.1		3	2.1	17	7.4	
Total	261	100	347	100		143	100	229	100	

**Table 2.6** *Characteristics of sex work of the study population (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Number of paying partners in the last day worked</b>										
0	9	3.4	2	0.6	0.002	1	0.7	0	0	0.384
1	166	63.6	245	71.2	0.003*	109	76.2	202	88.2	<0.001*
2	66	25.3	54	15.7		30	21.0	18	7.9	
3+	20	7.6	43	12.5		3	2.1	9	3.9	
Total	261	100	344	100		143	100	229		

\*excludes 0 number of paying partners

**Table 2.7** *Characteristics of sex work of the study population (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 2		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Amount received in the last sexual act (Kwacha)</b>					0.001					0.098
<10000	27	10.8	16	4.6		7	4.9	3	1.3	
10000-19999	79	31.5	67	19.4		36	25.2	50	21.9	
20000-29999	57	22.7	62	18.0		36	25.2	45	19.7	
30000-39999	28	11.2	58	16.8		16	11.2	39	17.1	
40000-49000	24	9.6	36	10.4		10	7.0	24	10.5	
50000+	36	14.3	106	30.7		38	26.6	67	29.4	
Total	251	100	345	100		143	100	228	100	

**Table 2.8** *Characteristics of the non-paying partners of the study population.*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		pvalue	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Number of non-paying partners in the last 7 days</b>					<0.001					0.019*
0	118	45.2	271	78.1		87	60.8	171	74.7	
1	109	41.8	56	16.1		51	35.7	53	23.1	
2	24	9.2	16	4.6		4	2.8	4	1.7	
3+	10	3.8	4	1.2		1	0.7	1	0.4	
Total	261	100	347	100		143	100	229	100	
<b>Frequency of sexual intercourse in the last 30 days</b>					<0.001					<0.001
<3	58	39.5	29	8.5		19	34.5	15	6.6	
3-5	47	32.0	92	26.9		27	49.1	94	41.6	
6-8	25	17.0	60	17.5		6	10.9	32	14.2	
9+	17	11.6	161	47.1		3	5.5	85	37.6	
Total	147	100	342	100		55	100	226	100	

\*combined 2 and 3+

**Table 2.9** *Characteristics of the non-paying partners of the study population (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Forced sexual intercourse during the past 12 month</b>					0.078					0.518
Yes	62	42.5	23	29.5		20	36.4	26	44.1	
Total	146	100	78	100		55	100	59	100	

**Table 3.1** *Condom use with paying partners*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Condom use at last sexual intercourse</b>					0.130					0.719
Yes	127	48.8	190	55.4		73	51.0	121	53.5	
Total	260	100	343	100		143	100	226	100	

**Table 3.2** *Condom use with paying partners (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Who suggested condom use</b>					0.945					0.074
Myself	89	70.1	133	69.6		45	61.6	79	65.8	
My partners	17	13.4	24	12.6		11	15.1	27	22.5	
Joint decision	21	16.5	34	17.8		17	23.3	14	11.7	
Total	127	100	191	100		73	100	120	100	

**Table 3.3** *Condom use with paying partners (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P Value	Round 1		Round 11		
	N	(%)	N	%		N	%	N	%	
<b>Reasons for no condom use</b>										
Not available	21	15.8	27	17.4	0.833	7	10.0	28	26.7	0.012
Too expensive	1	0.8	2	1.3	1.000	0	0	2	1.9	0.517
Partner objected	46	34.6	86	55.5	<0.001	32	45.7	71	67.6	0.006
Don't like them	20	15.0	7	4.5	0.004	8	11.4	1	1.0	0.003
Used other contraceptives	0	0	0	0	--	1	1.4	0	0	0.400
Didn't think it was necessary	8	6.0	11	7.1	0.896	7	10.0	7	6.7	0.609
Didn't think of it	23	17.3	10	6.5	0.007	12	17.1	3	2.9	0.002
Itching	5	3.8	-	--	--	2	2.9	-	--	-
Other	6	4.5	20	12.9	0.023	2	2.9	10	9.5	0.127
Don't know	3	2.3	0	0	0.097	1	1.4	105	0	0.400
Total	133		155			70				

Percentages do not add up to 100 because questions were independently asked.

**Table 3.4** *Condom use with paying partners (continued)*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Regularity of condom use over the last 30 days</b>					<0.001					0.001
Every time	46	17.8	52	15.1		25	17.5	27	11.9	
Almost every time	17	6.6	38	11.0		10	7.0	16	7.1	
Sometimes	151	58.3	233	67.7		78	54.5	163	72.1	
Never	45	17.4	21	6.1		30	21.0	20	8.8	
Total	259	100	344	100		143	100	226	100	

**Table 3.5** *Condom use with non-paying partners*

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Condom use at last sexual intercourse</b>					0.022					0.007
Yes	48	32.7	38	49.4		24	43.6	11	18.6	
Total	147	100	77	100		55	100	59	100	

**Table 3.6 Condom use with non-paying partners (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	n (%)	%		N <sup>1</sup>	%	N	%	
<b>Who suggested condom use</b>					0.042		+		+	
Myself	31	64.6	15	40.5		12		4		0.532*
My partners	6	12.5	4	10.8		5		0		0.073**
Joint decision	11	22.9	18	48.6		7		7		
Total	48	100	37	100		24		11		

+Percentages not reported because the denominator is less than 30.

\*comparing myself and my partner

\*\*comparing individual joint decision

**Table 3.7 Condom use with non-paying partners (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		p value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Reasons for no condom use</b>										
Not available	14	14.1	1	2.6	0.067	4	12.9	0	0	0.022
Too expensive	0	0	0	0	--	0	0	0	0	--
Partner objected	29	29.3	10	25.6	0.827	14	45.2	8	17.0	0.014
Don't like them	21	21.2	3	7.7	0.102	6	19.4	0	0	0.003
Used other contraceptives	0	0	0	0	--	1	3.2	0	0	0.397
Didn't think it was necessary	14	14.1	0	0	0.011	4	12.9	3	6.4	0.427
Didn't think of it	14	14.1	2	5.1	0.235	3	9.7	1	2.1	0.295
Itching	1	1.0	0	0	1.000	0	0	0	0	--
Other	2	2.0	25	64.1	<0.001	0	0	37	78.7	<0.001
Don't know	1	1.0	0	0	1.000	0	0	0	0	--
Total	99			39		31		47		

Percentages do not add up to 100 because questions were independently asked.

**Table 3.8 Condom use with non-paying partners (continued)**

Characteristics	Livingstone					Chirundu					p value
	Round 1		Round 11		P value	Round 1		Round 11			
	N	%	N	%		N	%	N	%		
<b>Regularity of condom use over the last 30 days</b>					0.008					0.469*	
Every time	13	8.8	5	6.5		9	16.4	1	1.7		
Almost every time	5	3.4	10	13.0		0	0	1	1.7		
Sometimes	95	64.6	54	70.1		35	63.6	40	69.0		
Never	34	23.1	8	10.4		11	20.0	16	27.6		
Total	147	100	77	100		55	100	58	100		

\*comparing never against the rest combined

**Table 4.1 Knowledge and available of male condoms**

Characteristics	Livingstone					Chirundu					p value
	Round 1		Round 11		P value	Round 1		Round 11			
	N	%	N	%		N	%	N	%		
<b>Ever heard of a male condom</b>					0.014					1.000	
Yes	254	98.1	347	100		142	99.3	227	99.1		
Total	259	100	347	100		143	100	229	100		
<b>Ever used a male condom</b>					0.003					0.066	
Yes	225	88.9	332	95.7		128	90.1	216	95.6		
Total	253	100	347	100		142	100	226	100		
<b>Knows where to get condoms</b>					<0.001					<0.001	
Yes	26	10.2	340	98.3		13	9.2	218	96.0		
Total	254	100	346	100		142	100	227	100		

**Table 4.2 Knowledge and available of male condoms (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Places or persons where condoms can be obtained</b>										
Shop	15	--	281	82.6	0.004	8	--	184	84.4	0.049
Pharmacy	19	--	211	62.1	0.368	11	--	45	20.6	<0.001
Market	13	--	233	68.5	0.085	6	--	139	63.8	0.242
Clinic	10	--	192	56.5	0.115	3	--	59	27.1	1.000
Hospital	12	--	115	33.8	0.289	1	--	54	24.8	0.311
Clinic/hospital	16	--	--			4	--	--		
Family planning centre	0	--	67	19.7	0.007	1	--	45	20.6	0.473
Any health facility	18	--	--			7	--	--		
Bar/guess house/hotel	11	--	211	62.1	0.075	8	--	109	50.0	0.601
Peer educator	1	--	105	30.9	0.007	0	--	92	42.2	0.006
Friend	0	--	61	17.9	0.012	0	--	34	15.6	0.225
Other	2	--	58	17.1	0.279	0	--	52	23.9	0.044
Total	26	--	340			13		218		

Note: questions were independent and percentages were not calculated for denominators of less than 30.

**Table 4.3 Knowledge and available of male condoms (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 2		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Delays in obtaining condoms (hours)</b>					+					1.000*
<1	25		337	99.7		13		212	98.6	
1+	0		0	0		0		1	0.5	
Don't know	1		1	0.3		0		2	0.9	
Total	26		338	100		13		215	100	
<b>Condoms at hand</b>										
Yes	4		176	50.1		3		128	55.9	
Total	26		351	100		13		229	100	

+comparing between <1 and 1+ hours delay not possible

\*comparing between <1 and 1+ hours delay

**Table 4.4 Knowledge and available of female condoms (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P Value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Ever heard of a condom</b>					<0.001					<0.001
Yes	142	56.6	303	88.9		92	65.2	194	87.0	
Total	251	100	341	100		141	100	223	100	
<b>Ever used a condom</b>					0.695					<0.001
Yes	25	17.6	61	19.7		30	32.6	25	12.5	
Total	142	100	310	100		92	100	200	100	
<b>Knows where to get condoms</b>					0.210					<0.001
Yes	72	51.1	137	45.2		55	59.8	70	35.4	
Total	141	100	303	100		92	100	198	100	

**Table 4.5 Knowledge and available of female condoms (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Places or persons where condoms can be obtained</b>										
Shop	26	35.6	55	40.1	0.621	23	41.8	17	24.3	0.058
Pharmacy	34	46.6	78	56.9	0.198	5	9.1	16	22.9	0.071
Market	9	12.3	28	20.4	0.201	6	10.9	13	18.6	0.351
Clinic	28	38.4	59	43.1	0.608	14	25.5	15	21.4	0.752
Hospital	28	38.4	38	27.7	0.155	22	40.0	13	18.6	0.014
Clinic/hospital	43	58.9	73	53.3	0.526	30	54.5	18	25.7	0.002
Family planning centre	5	6.8	23	16.8	0.071	6	10.9	9	12.9	0.956
Any health facility	44	60.3	78	56.9	0.749	34	61.8	18	25.7	<0.001
Bar/guess house/hotel	17	23.3	34	24.8	0.938	18	32.7	14	20.0	0.158
Peer educator	0	0	37	27.0	<0.001	5	9.1	28	40.0	<0.001
Friend	5	6.8	15	10.9	0.473	5	9.1	7	10.0	0.893
Other	6	8.2	14	10.2	0.823	2	3.6	22	31.4	<0.001
Total	73		137			55		70		

Note: Denominator being those who sated that they knew where to obtain a female condom.

**Table 5.1 Knowledge on STD**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Ever heard of STDS</b>										
Yes	249	96.1	336	98.0	0.277	140 (97.9)	97.9	226	99.1	0.378
Total	259	100	343	100		143 (100)	100	228	100	
<b><sup>1</sup>STD symptoms in women known</b>										
Abdominal pain	127	51.0	182	54.2	0.500	58	41.4	131	58.0	0.003
Genital discharge	89	35.7	157	46.7	0.010	58	41.4	110	48.7	0.214
Foul smelling discharge	41	16.5	122	36.3	<0.001	25	17.9	83	36.7	<0.001
Any discharge	101	40.6	202	61.1	<0.001	68	48.6	134	59.3	0.058
Burning pain on urination	74	29.7	97	28.9	0.895	38	27.1	65	28.8	0.830
Genital ulcers/sores	125	50.2	231	68.8	<0.001	67	47.9	157	69.5	<0.001
Swelling in groin area	66	26.5	101	30.1	0.396	37	26.4	68	30.1	0.526
Itching	72	28.9	136	40.5	0.005	21	15.0	96	42.6	<0.001
Total	249	100	336	100		140		226		

<sup>1</sup> Some questions had only one missing value and therefore assumed that the respondents had no knowledge

**Table 5.2 Knowledge on STD (continued).**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	%		
<b>Number of STD symptoms in women known</b>					<0.001					<0.001
0	38	15.4	27	7.7		21	15.2	12	5.2	
1	29	11.7	38	10.8		24	17.4	24	10.5	
2	61	24.7	53	15.1		25	18.1	36	15.7	
3	65	26.3	83	23.6		45	32.6	54	23.6	
4	25	10.1	83	23.6		17	12.3	47	20.5	
5+	29	11.7	67	19.1		6	4.3	56	24.5	
Total	247	100	351	100		138	100	229	100	
<b>STD symptoms in men known *</b>										
Genital discharge	138	55.4	158	47	0.054	70	50.0	105	46.5	0.581
Burning pain on urination	76	30.5	169	50.3	<0.001	34	24.3	124	54.9	<0.001
Genital ulcer/sores	130	52.2	208	61.7	0.024	72	51.4	137	60.6	0.106
Swelling in groin area	86	34.5	94	28.0	0.107	35	25.0	67	29.6	0.399
Total	249		336			140		226		

\* based on the number of respondents who had ever heard of STDs

**Table 5.3 Knowledge on STD (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Number of STD symptoms in men known</b>					0.001					0.004
0	52	21.0	48	13.7		34	24.3	29	12.7	
1	39	15.7	75	21.4		29	20.7	45	19.7	
2	85	34.3	115	32.8		40	28.6	72	31.4	
3	44	17.7	93	26.5		36	25.7	66	28.8	
4+	28	11.3	20	5.7		1	0.7	17	7.4	
Total	248	100	351	100		140	100	229	100	

**Table 5.4 Behaviour related to STD**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>History of STD symptoms in the past 12 months *</b>										
Genital discharge	70	27.0	123 N=345	35.7	0.031	37	26.1	94 N=229	41.0	0.005
Genital ulcer sores	87	33.6	129 N=346	37.3	0.394	41	28.9	85 N=229	37.1	0.129
Genital discharge or ulcers/sores	106	40.9	156 N=346	45.1	0.348	56	39.4	106 N=229	46.3	0.236
Total	259		*			142		*		

\* Independent variables

**Table 5.5 Behaviour related to STD (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		p value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Behaviour the last time had STD symptoms</b>										
Sought advice from a government health facility	67	25.9	74	21.4	0.233	41	28.9	30	13.1	<0.001
Seek advice from a workplace health facility	11	4.2	2	0.6	0.005	6	4.2	0	0	0.003
Seek advice from a church or charity run health facility	9	3.5	2	0.6	0.012	4	2.8	3	1.3	0.435
Seek advice from a private health facility	22	8.5	8	2.3	0.001	13	9.2	0	0	<0.001
Seek advice at any of the 4 above	73	28.2	81	23.4	0.215	41	28.9	33	14.4	0.001
Seek advice from a chemist	23	8.9	17	4.9	0.075	8	5.6	6	2.6	0.230
Seek advice from a traditional healer	54	20.8	33	9.5	<0.001	22	15.5	21	9.2	0.119
Total	259		346			142		229		

**Table 5.6 Behaviour related to STD (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Behaviour the last time had STD symptoms</b>										
Bought capsules on the street	24	9.3	16	4.6	0.035	9	6.3	9	3.9	0.423
Took medicine had at home	32	12.4	13	3.8	<0.001	9	6.3	18	7.9	0.732
Stopped having sex while symptomatic	31	12.0	41	11.8	0.935	14	9.8	23	10.0	0.904
Always use condom while symptomatic	25	9.7	31	9.0	0.881	8	5.6	12	5.2	0.942
Total	259		346			55		229		

**Table 6.1 Family planning practices**

Characteristics	Livingstone					Chirundu					p value
	Round 1		Round 11		P value	Round 1		Round 11			
	N	%	N	%		N	%	N	%		
<b>Currently using a family planning method</b>											
Yes	111	43.2	123	35.0	0.051	48	33.6	44	19.3	0.003	
Total	257	100	351	100		143	100	228	100		
Method using											
Oral contraception	53	47.7	60	48.8	0.979	19	39.6	22	50.0	0.427	
Injection	24	21.6	21	17.1	0.474	4	8.3	7	15.9	0.427	
NEO plant	3	2.7	3	2.4	1.000	0	0	0	0	-	
IUD	0	0	0	0	-	0	0	0	0	-	
Any of the above methods above	75	67.6	83	67.5	0.900	23	47.9	29	65.9	0.126	
Male condom	33	29.7	39	31.7	0.853	22	45.8	15	34.1	0.350	
Spermicides	0	0	0	0	-	0	0	0	0	-	
Diaphragm	0	0	1	0.8	1.000	1	2.1	0	0	1.000	
Traditional method	4	3.6	5	4.1	1.000	3	6.3	2	4.5	1.000	
Natural	0	0	1	0.8	1.000	2	4.2	0	0	0.495	
Other	2	1.8	8	6.5	0.106	0	0	0	0	-	
Total	111		123			48		44			

Denominators based on the number of respondents currently using a family planning method

**Table 6.2 Family planning practices (continued)**

Characteristics	Livingstone					Chirundu					p value
	Round 1		Round 11		P value	Round 1		Round 2			
	N	%	N	%		N	%	N	%		
<b>Ever lost a pregnancy</b>											
Yes	69	26.7	65	18.8	0.027	52	36.6	60	26.2	0.045	
Total	258	100	345	100		142	100	229	100		

**Table 7.1 Knowledge, opinion and attitudes related to HIV.**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Ever heard of HIV/AIDS</b>										
Yes	256	99.2	346	99.7	0.578	143	100	224	97.8	0.161
Total	258	100	347	100		143	100	229	100	
<b>Knows someone living with HIV or has died of AIDS</b>										
Yes	188	73.7	266	77.1	0.324	100	70.4	168	75.3	0.360
Total	255	100	345	100		142	100	223	100	
<b>Has close relative or friend living with HIV or has died of AIDS</b>										
Close relative	74	39.4	123	45.7	<0.001	42	42.0	94	55.3	<0.001
Close friend	24	12.3	106	39.4		2	2.0	51	30.0	
No	90	47.9	40	14.9		56	56.0	25	14.7	
Total	188	100	269	100		100	100	170	100	

**Table 7.2 Knowledge, opinion and attitudes related to HIV (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		p value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Thinks that a person can get HIV from:</b>										
Mosquito bites	48	18.8	106 N=347	30.5	0.001	42	29.4	69 N=224	30.8	0.861
Sharing meals	26	10.2	79 N=344	23.0	<0.001	19	13.3	67 N=224	29.9	<0.001
Infected needles	231	90.2	328 N=346	94.8	0.047	127	88.8	216 N=224	96.4	0.008
Mother to child during pregnancy	226	88.3	290 N=346	83.8	0.153	129	90.2	181 N=224	80.8	0.023
Breast feeding	195	76.2	282 N=336	83.9	0.024	113	79.0	198 N=222	89.2	0.012
Total	256					143				

**Table 7.3 Knowledge, opinion and attitudes related to HIV (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Knew that people can prevent HIV by:</b>										
Condom use	198	77.3	282 N=346	81.5	0.249	104	72.7	167 N=224	74.6	0.790
Faithfulness	200	78.1	284 N=345	82.3	0.238	111	77.6	175 N=223	78.5	0.950
Abstaining	210	82.0	253 N=344	73.5	0.019	117	81.8	174 N=224	77.7	0.411
Treating infected pregnant women	30	11.7	107 N=341	31.4	<0.001	25	17.5	88 N=223	39.5	<0.001
Total	256					143				

**Table 7.4 Knowledge, opinion and attitudes related to HIV (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Knows that a healthy looking person can be infected</b>					0.979*					0.149*
Yes	240	93.8	328	94.8		131	91.6	199	88.8	
No	12	4.7	15	4.3		8	5.6	24	10.7	
Don't know	4	1.6	3	0.9		4	2.8	1	0.4	
Total	256	100	346	100		143	100	224	100	

\*comparison between yes and no

**Table 8.1 HIV voluntary counselling and testing**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>Access to confidential testing for HIV</b>					0.118					0.758
Yes	174	68.0	255	74.1		95	66.4	144	64.3	
Total	256	100	344	100		143	100	224	100	
<b>Ever been tested</b>					0.251					0.585
Yes	32	12.5	56	16.2		23	16.1	30	13.5	
Total	256	100	346	100		143	100	223	100	
<b>Voluntary tested</b>					0.004					0.416
Yes	16	50.0	39	83.0		13	56.5	20	71.4	
Total	32	100	47	100		23	100	28	100	
<b>Found out the result</b>					0.486					0.471
Yes	25	78.1	30	68.2		13	56.5	19	70.4	
Total	32	100	44	100		23	100	27	100	

**Table 9.1 Project indicators**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>% who can correctly cite at least two major STD symptoms in women</b>					<0.001					<0.001
Yes	138	55.4	280	79.8		78	55.7	191	83.0	
No	111	44.6	71	20.2		62	44.3	38	16.6	
Total	249	100	351	100		140	100	229	100	
<b>% who can correctly cite at least two HIV prevention strategies</b>					<0.001					0.017
Yes	210	82.0	328	93.4		117	81.8	208	90.8	
No	46	18.0	23	6.6		26	18.2	21	9.2	
Total	256	100	351	100		143	100	229	100	

**Table 9.2 Project indicators (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>% who reported easy access to condoms</b>					np					np
Yes	233	95.9	337	100		127	92.7	212	100	
No	10	4.1	0 *			0		0 *		
Total	243	100	337	100		137		212		
<b>% who reported condom use in last commercial sex act</b>					0.130					0.719
Yes	127	48.8	190	55.4		73	51.0	121	53.5	
No	133	51.2	153	44.6		70	49.0	105	46.5	
Total	260	100	343	100		143	100	226	100	

\*pv not possible (np) one or the rows =0

**Table 9.3 Project indicators (continued)**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 11		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
% who reported condom use in last sex act with non-paying partner					0.022					0.007
Yes	48	32.7	38	49.4		24	43.6	11	18.6	
No	99	67.3	39	50.6		31	56.4	48	81.4	
Total	147	100	77	100		55	100	59	100	

**Table 10.1 STI prevalence**

Characteristics	Livingstone					Chirundu				p value
	Round 1		Round 2		P value	Round 1		Round 11		
	N	%	N	%		N	%	N	%	
<b>STI</b>										
Gonorrhoea	57	23.2	41/289	14.2	0.010	23	19.8	14/200	7.0	0.001
Chlamydia	15	6.1	16/289	5.5	0.927	8	6.9	10/200	5.0	0.653
Gonorrhoea/or Chlamydia	65	26.4	49/342	14.3	<0.001	27	23.3	22/229	9.6	0.001
Total	246					116				
Syphilis	91	36.5	101	29.7	0.097	35	28.7	34/229	14.8	0.003
Total	249		340			122		229		
Trichomoniasis	125	50.6	101	29.6	<0.001	58	49.2	63	27.6	0.001
Total	247		341			118		228		0.001