

**STD and HIV Prevalence
Survey Among
Female Sex Workers
and Truckers on
Highway Routes in the Terai,
Nepal
May 2000**

STD and HIV Prevalence Survey Among Female Sex Workers and Truckers on Highway Routes in the Terai, Nepal

Submitted To:

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EXECUTIVE SUMMARY

Female sex workers (FSW) and truckers in the Terai region have been identified as key core group populations in the HIV/STD control plan for Nepal. In March-July 1999, a cross-sectional study was conducted along the highway routes in the Terai in an effort to determine the HIV/STD prevalence among sex workers and truckers and to determine the demographic, behavioral and biological correlates for infection. Data from this study will also be used as a baseline for evaluating control interventions, and to assist in strategic planning to reduce HIV/STD in the region.

Four hundred and ten sex workers from four representative sites in the Terai and 400 truckers from one central location were enrolled in the study. Following informed consent, a questionnaire was administered, blood, urine, and self-administered vaginal swab samples were collected, syndromic STD treatment was provided, and HIV counseling was conducted. Lab analysis included HIV, gonorrhea, chlamydia, trichomonas, bacterial vaginosis, and syphilis. Subjects returned after one month for results and possible treatment.

The significant findings among the sex workers included: a 70% illiteracy rate; 70% of their clients were truckers; 50% had at least one STD including 20% with syphilis; the HIV prevalence of 4% was 2.5 times the trucker rate and 13 times that of the general public; only 17% of sex workers had worked in India, but 75% of the HIV cases were from this group; only 4% had worked in Mumbai, but 50% of the HIV cases were from this group; sex workers with syphilis had a tenfold higher risk of HIV than those without syphilis.

The significant findings among the truckers included: 75% reported having sex with a sex worker; 10% had at least one STD including 5.3% with syphilis; the HIV rate of 1.5% was 5 times higher than found in the general public; truckers with syphilis had a tenfold higher risk of HIV than those without syphilis; and STDs were associated with older, married men with no schooling.

The implications of these findings include a continued increase in HIV rates among female sex workers, an increased HIV rate among their clients (i.e., truckers), increased secondary transmission of HIV to their steady sex partners, and because of this dynamic, a general increase in the HIV rate among the general population. The high syphilis rates among the truckers and sex workers will lead to 1/3 of those infected developing tertiary syphilis and its fatal health effects. The high rate of chlamydia will lead to 20% sterility.

Recommendations Include:

1. Sex workers and truckers should continue to be targeted for HIV and STD control programs;
2. An active syphilis control program, including rapid diagnostics and treatment should be initiated and should include periodic screening for all STDs;
3. Ongoing outreach and education programs should emphasize: the HIV/STD risk of sex work in India, especially in Mumbai; identification of women returning from India for additional support and services; STD symptom recognition and improved care seeking behavior; and improved condom use, even among married men.

CHAPTER 1:INTRODUCTION

1.1 Background

As of April 2000, 1500 persons had been identified as HIV positive, of which 336 are full-blown cases of AIDS (National Center for AIDS and STD Control -NCASC). Of these, 272 were male and 114 female. The first HIV positive (HIV+) case in Nepal was identified in 1988. These data have been maintained by NCASC since 1991 by conducting annual and biannual HIV sentinel surveillance's of a population subgroup, which includes antenatal women, STD patients, and sex workers in various regions. The limitation of this data was that blood tests were conducted among the incoming patients to the hospital and will therefore give no HIV or STD prevalence rate.

Regular compilation of such data indicates that cases of AIDS/HIV are increasing rapidly in Nepal and HIV infection is highest among the high-risk groups, such as female sex workers and clients of sex workers. The sex workers and their clients are a high-risk group because they tend to have multiple partners and do not use condoms, and also because of other high-risk behavior. Due to the mobile nature of sex workers within the country and across the border (between India and Nepal), the sex workers easily carry the infectious HIV virus and transmit it to their clients. Knowing the sero prevalence rate of this high-risk group will give some indication of its potential for reaching epidemic proportions within the general population.

Studies carried out outside Nepal indicate that HIV appears to be on the rise among high-risk core group populations such as sex workers and their clients. Previous studies carried out on the main highway routes of the Terai (plains area) in Nepal have shown that the majority of the clients of sex workers are transport workers, migrant workers, policemen/army personnel, businessmen, etc. Most of these people are mobile and frequently come in contact with the sex workers, and they can carry the HIV virus to their unsuspecting families.

There is no HIV prevalence data on any of the high-risk core groups here in Nepal. However, such data is essential for the effective implementation of programs aimed at preventing the spread of HIV and STDs among high-risk groups. Because HIV could easily spread from high-risk groups to the general population, Nepal must obtain sero prevalence data which could serve as an indicator for the emergence of HIV among the general population.

This study seeks to measure selected STD prevalence, syndromes, and their correlates among the female sex workers and male truckers in the Terai area of Nepal. The Nepal Terai area was chosen as the geographic location for the survey because of its proximity to neighboring India where HIV prevalence is known to be significantly higher than in Nepal. Trucking and trade traffic between the two countries is heavy on the land transportation routes in the Terai, creating a demand for sex workers, many of whom also migrate to and from India where HIV prevalence is high.

1.2 Objectives of the Study

The general objective of the study is to measure the prevalence of sexually transmitted diseases in the Nepal Terai among sex workers and truckers.

The specific objectives of this survey are to measure the prevalence of the following sexually transmitted diseases (STDs), STD syndromes, and behavioral correlates among sex workers and truckers.

- **STD:** HIV, gonorrhoea, syphilis, chlamydia, trichomonas, and bacterial vaginosis (women only)
- **STD Syndromes:** genital ulcers (men and women), urethral discharge (men), vaginal discharge and lower abdominal pain (women)
- **STD Demographic and Behavioral Correlates:** demographic, behavioral and biological correlates to HIV and STD infection

The study will contribute to national health priorities by providing critical information on the level of sexually transmitted diseases (STDs), including HIV, among two high-risk groups - sex workers and truckers - in the Terai region of Nepal. The result of the study will assist in the implementation of current interventions to reduce STDs in these high-risk groups, and their subsequent spread to the general population.

CHAPTER 2: METHODOLOGY

The study is based on a cross-sectional survey in which truckers and sex workers were the participants of the study. The participants were selected from the major transportation highway route of Nepal in the Terai region. This study comprises clinical as well as behavior data as obtained from the participants.

The methodology of the study includes the collection of blood and urine samples from truckers and sex workers and vaginal swabs from sex workers for inclusion in the clinical data. The demographic and sexual behavior information was collected by the interview technique.

2.1 Sampling

Five study sites were selected along the highway route to recruit the truckers and sex workers. Of the five sites, one site was for truckers and four sites were for sex workers. The sites were selected on the basis of similar previous studies and the Feasibility Study of Sero-Prevalence Survey¹. The basis of site selection was: (1) the geographic coverage of sex workers, (2) the possibility of recruiting the study participants (3) the availability of local support for setting up mobile labs where the blood and urine specimens and vaginal swabs could be collected and stored appropriately before being shipped to Kathmandu for laboratory testing.

The study sites selected were:

- | | | |
|----------------|---|-------------|
| 1. Hetauda | - | Truckers |
| 2. Itahari | - | Sex Workers |
| 3. Lahan | - | Sex Workers |
| 4. Narayanghat | - | Sex Workers |
| 5. Butawal | - | Sex Workers |

The sites selected spread from the East (Itahari) to the West (Butawal). They are shown on the map on the following page.

2.1.1 Sample Size

A total sample size of 800 (400 in the truckers' group and 400 in the sex workers' groups) was planned to yield 95 % confidence intervals (CI) in each group.

Distribution of Sample by Site: At Hetauda, 400 truckers were recruited as participants for the study. Altogether 410 sex workers were recruited to participate in the study. The distribution of samples among the sex workers was Itahari - 138, Lahan -127, Narayanghat - 50 and Butawal - 95.

2.1.2 Sample Population

'Sex workers' is here defined as women who sell sex for money. Itahari, Lahan, Narayanghat and Butawal were the selected sites for the recruitment of sex workers. These sites were

¹ New ERA, 1998. **The Feasibility Study of Sero-Prevalence Survey. (Draft)** Submitted to Family Health International/Nepal, Bakundol, Lalitpur, Nepal by New ERA, Kalo Pool, Sifal, Kathmandu, Nepal

selected because of the support of the local people, the availability of collaborators to conduct the study, and the possibility of recruiting the sex workers from the site and neighboring places to reach the desired number of samples. In each place it took about a month to recruit the desired number of sex workers. The sampling method for the selection of sex workers was different from that of truckers. For the sex workers, the researchers needed to find sex workers who would agree to participate in the study. Because of their fear of the establishment, additional motivation for the sex workers was necessary. A brief description of the method of recruitment is described in next section.

All of the sample truckers (400) were recruited from Hetauda because of its large and frequent turnover. These truckers come from different parts of Nepal. As members of Narayani Transport Enterprise Association (NTEA), they are required to make a stop at the NTEA in Hetauda to report on their loads. There are about 2,500 member of the NTEA. For the purpose of our study, the truckers are composed of drivers and helpers (*khalasi*). Consecutive truckers were recruited as they arrived in Hetauda to make the sample selection as unbiased as possible. They were recruited continuously until a sample of 400 truckers was reached. This process took nearly a month.

2.2 Implementation of the Study

Considerable planning and effort was made to successfully complete the study. Since this study involved the drawing of blood for HIV testing and collecting personal information from the stigmatized and sensitive group (sex workers) and the targeted group (truckers), the study participants had to be assured of the anonymous, confidential and safe nature of the study.

The study started in the second week of February, 1999 with the ethical approval of the National Center for AIDS and STD Control (NCASC) Nepal, and funding from USAID/Family Health International/Nepal (USAID/FHI/Nepal). The research study was conducted in compliance with human rights and ethical standards, which included anonymity of the subjects, pre-counseling before the HIV tests, treatment of the subjects if they were found infected with STDs, and post-counseling for the HIV+ participants. Furthermore, an oral informed consent was received from each of the subjects. All the necessary precautions were taken to maintain the confidentiality of the subjects from the research side.

Because of the sensitivity of this type of study, a qualitative assessment was done to determine if the participants would be willing to provide blood and urine specimens and vaginal swabs (for sex workers only). This assessment indicated that potential study participants would be willing to provide specimens. The same assessment also helped in the design of the methodology of the study (New ERA, 1998).

2.2.1 Research Team

The research team consisted of a project director, project coordinator, interviewers, motivators and lab team. The lab team consisted of lab supervisors, lab technicians, health assistant, and nurses. One consulting doctor and one microbiologist were also on the team, and they supervised all the lab work. Other administrative staff were also fully involved in the study.

2.2.2 Training of Field Researchers

From New ERA's previous experience working with the sex workers and from the assessment study, the research team decided that some field researchers should go to the research sites as motivators prior to the beginning of the study. They would identify and talk with sex workers and truckers and ask them to participate in the study. These motivators explained the purpose of the study, explained the confidential nature of the study, and motivated them to be participants of the study. These motivators were local people who had experience in working with sex workers and truckers. It was felt that the sex workers would have more trust in the local people than in researchers coming from outside. The motivators worked in the research sites three to four weeks before the research team's arrival.

Motivators: Two motivators were recruited for each site. They were hired from their respective sites. They were given a two-day orientation and training at the New ERA Kathmandu Office. During the training they were briefed on the purpose of the study and on FHI. They learned how to find and approach sex workers, how to motivate them, how to build a rapport, how to get an informed consent, and the importance of maintaining confidentiality. They were also given a half-day class on HIV/STDs by a doctor whose field of expertise is HIV/STDs. After the training they were sent to the field.

A two-week intensive training was given to the field research team, which included field supervisors, interviewers, lab technicians, nurses and health assistants. The training included a briefing on the purpose of the study, how to conduct interviews, the importance of maintaining confidentiality and anonymity, the importance of getting an informed consent from each of the participants, the sharing of field experiences from experienced field staff and experts, rapport and trust building, the sampling method, the interview technique, etc. The training also included the actual interviews with sex workers and truckers in the Kathmandu area. The experts gave information on HIV/STDs and counseling. A lab technician gave instructions on how to collect blood and urine samples and their labeling, recording and systematic storing before being frozen and sent to Kathmandu. The nurses and health assistants were given practical lessons on the syndromic management of STD cases and the self-administered vaginal swab.

2.2.3 Field Work and Field Team

Fieldwork was conducted in two phases, and there was some disruption because Nepal's general election took place during the field period.

Phase I of fieldwork was started on March 7, 1999 and completed on April 12, 1999

Phase II of fieldwork was started on June 03, 1999 and completed on July 10, 1999.

In Phases I and II, recruitment of the subjects was as follows:

<u>Field Site</u>	<u>Dates Worked</u>	<u>Subjects Recruited</u>
Hetauda	March 07, 1999 - April 08, 1999	400 (Truckers)
Itahari	March 07, 1999 - April 11, 1999	138 (Sex Workers)
Lahan	March 07, 1999 - April 12, 1999	127 (Sex Workers)
Narayanghat	June 03, 1999 - July 03, 1999	50 (Sex Workers)
Butawal	June 04, 1999 - July 10, 1999	95 (Sex Workers)

Clinical Setup:

Mobile clinics/labs were set up at Hetauda, Itahari, Lahan, Narayanghat and Butawal. In each clinic there were three separate rooms - one for blood drawing and the laboratory testing of blood and urine, one for clinical examination of the subjects, and one for carrying out interviews.

Each clinic/lab was equipped with the following:

- Lab kit for blood drawing, urine collection and vaginal swabs (for sex workers)
- Centrifugal machine (for the separation of blood serum)
- Weighing machine
- Refrigerator and provisions for transportation of frozen samples
- Doctor's kit (sphygmometer, stethoscope, thermometer, etc)
- Supply of medicine for the syndromic treatment of STDs)

Procedure for Recruitment of Sex Workers and Truckers:

Sex workers were recruited from Itahari, Lahan, Narayanghat and Butawal. At each of these sites, two motivators had already been sent in three weeks before the lab was set up. These motivators used various techniques to identify the sex workers in the area. If they could not find them at the lab site area, they went to the surrounding areas to find them. The motivators then explained the purpose of the study, and told them about the informed consent and the study's confidentiality and benefits so as to convince them to take part. When the lab team arrived at the field site, these motivators brought the sex workers to the lab/clinic. The sex workers were then pre-counseled regarding the blood testing procedure and its possible outcome. In this way, they were mentally prepared for the results. Confidentiality and the anonymity of the sex workers were strictly maintained. No names were recorded. For the purpose of identification, each sample was given an identification number so that the STD results could be given upon presentation of the ID number. The turnout of sex workers at the lab came to 10 per day. It took nearly a month to reach the above-mentioned sample at each site.

All the sample truckers were recruited at the Hetauda clinic. To recruit the truckers, help was sought from NTEA, Hetauda. Two motivators had been recruited from NTEA, and they were responsible for convincing the truckers of the safe and anonymous nature of the study. Confidentiality of blood-test results was one of the main motivating factors for the truckers. Other motivating factors were free medical check-ups, identification of blood group and albumen, STD syndromic treatment as well as treatment for syphilis, and a small gift. The truckers were recruited as they came in to report to the NTEA office. All the truckers who consented to participate in the study were lined up for the lab test and interview. Confidentiality and anonymity of the subjects was strictly maintained. No names were recorded. For identification each sample was given an identification number, so that their STD results could be given to those who brought their ID numbers. On average, 10 to 15 truckers per day were recruited.

Steps of the Recruitment:

After the participant was identified, the motivators brought the subject to the lab to meet the interviewer (a woman for the sex workers and a man for the truckers). The interviewer

explained the purpose of the study, pre-counseled the subject on STDs (such as syphilis) and HIV, and explained the clinical procedure in detail regarding blood and urine samples as well as the vaginal swabs for sex workers. Before the interview began, an informed consent was taken from each sample sex worker and trucker (A copy of the informed consent form is given in Annex I).

The interviewer used a structured questionnaire (See Annexes IIA and IIB.) to obtain a profile on the subject, to include the subject's demography, sexual behavior, STD history and STD treatment practices. Each subject received a card with a subject identification number. No names were taken.

After the interview the subject was taken to another room, to be examined by a nurse (for sex workers) or a health assistant (for truckers). The examination included the measurement of weight, blood pressure, pulse, and body temperature. Syndromic treatment approaches were used to determine the presence of STDs; no genital exams were conducted. If STDs were suspected, the subject was given medication as per national guideline for the treatment of STDs with the syndromic approach. Other over-the-counter medicines such as para-citamol, alkalysing agents, vitamins, etc., were given whenever necessary. (Copies of the Clinical/Lab Checklists are given in Annexes IIIA and IIIB).

Following the clinical examination, the subject proceeded to the lab, where a trained lab technician drew blood samples of 7 c.c., collected urine sample and asked the sex workers to take vaginal swabs. In those cases where the sex workers did not want take a vaginal swab themselves, the nurse would assist them.

The interview and clinical evaluation (including the collecting of blood and urine specimens and swabs) completed the recruitment process. In order to motivate the subjects to participate in the study, each trucker was given a small gift and each sex worker Rs. 300 in cash. Gift items were unacceptable to the sex workers. Cash was the main motivating factor for them to take part in the study. In addition, they were given transportation expenses to and from the lab/clinic site.

Tests Conducted:

Lab tests were carried out locally in the mobile lab as well as in Kathmandu and the USA. Those that required immediate results (to determine blood group, albumen, blood sugar, and the UTI Scan) were carried out locally. Other tests requiring sophisticated instruments, such as for syphilis, BV, HIV, gonorrhea, chlamydia and trachomonas, were done in Kathmandu and the USA. For these tests, blood, urine and BV slides were kept in a freezer. Once a week these samples were flown to Kathmandu, where the tests were conducted. The urine samples were then flown to the USA to test for gonorrhea, chlamydia and trachomonas.

The following tests were conducted:

Organism	Test	Sample	Test Lab
HIV	ELISA x 2	Blood	SACTS
Syphilis	RPR, MHA -TP	Blood	SACTS
GC	LCR	Urine	UNC
CT	LCR	Urine	UNC
Trichomonas	PCR	Urine	UNC
Bacterial vaginosis	Gram Stain	Vaginal Swab	SACTS

Each field team consisted of the following nine field staff:

- Field Team Supervisor - 1
- Interviewers - 3
- Health Assistant/Nurse - 1
- Lab Technician - 1
- Motivators - 2
- Courier - 1

The fieldwork was completed on July 10, 1999.

2.2.4 Post Counseling and Treatment of Syphilis

As a requirement of the study, post counseling and treatment of the study participants were carried out from July 24, 1999 to October 31, 1999.

Two to three weeks before the results were given out, the motivators informed the study participants about the follow-up protocol, which would include counseling and treatment.

The study participants were identified by their ID numbers. On presentation of their ID cards, the participants were met by trained counselors who counseled them on HIV and syphilis. Each was then told privately about their test results. Those who had syphilis were referred to a local STD doctor's clinic for the appropriate treatment. This doctor was previously briefed about the study. The subjects with HIV were referred for clinical care in Kathmandu and were extensively counseled about HIV transmission.

2.2.5 Research Instruments

Several forms were designed to collect and record the behavioral information and laboratory tests. A structured questionnaire was used to collect the demographic, sexual behavioral and STD histories. Sample questionnaires are shown in Annexes IIA and IIB. The Clinical/Lab Checklists are shown in Annexes IIIA and IIIB.

2.2.6 Data Analysis

All the completed questionnaires were brought to New ERA for checking, processing and analysis purposes. Each form was checked for completeness, accuracy and consistency. Data entry was done using the database program FoxPro. The data were analyzed using the Statistical Package for the Social Sciences for Windows, Version 6.16 (SPSS, Chicago, Illinois, USA). Simple statistical tools such as means, median, frequency, percentages, etc., were used to analyze the data.

A cross-sectional analysis of the data was done to compare the different variables. Correlation between HIV/STDs and the demographic, behavioral and clinical data were compared using chi square and odds ratios ($p < .05$).

CHAPTER 3:SEX WORKERS

Altogether 410 sex workers at four study sites were recruited for the study. A breakdown of the numbers of samples at each site is as follows: Itahari - 138, Lahan -127, Narayanghat - 50, and Butawal - 95.

3.1 *Demographic and Behavioral Characteristics*

Demographic and behavioral characteristics are given in Table 3.1. The mean age of the sex workers was 26, and more than two-thirds (70.7%) were illiterate. Forty-six percent of the sex workers were currently married, but nearly 40 percent of the sex workers were either divorced or widowed. Most of the sex workers (70.5%) had sex before the age of 16. More than two-thirds of the sex workers (72.3%) had been in the sex profession for more than a year.

The number of reported clients per day was low, with 82.7% (339/410) reporting only 1-2 clients on the last day of sex work. The mean amount charged a client was Rs. 267 (Median Amount: Rs. 150; Range: < Rs. 50 -to > Rs. 500).

The most frequently reported client types were transport worker (drivers and helpers), migrant workers, *rickshawala*, businessmen and policemen.

Seventy sex workers (17.1 % of all the sex workers) said they had practiced sex work in India. Of these, 16 (22.9%) had worked in Mumbai. Of all the sex workers who had been to India, 30% said they had been coerced into working in India. The most frequently mentioned places were Mumbai (16), Jogbani (8), Siligudi (8), Gorakhpur (8), Jayanagar (5), Lucknow (4), Nautanawa (5), Sunauli (5), Raxaul (3) and other places (fewer than 2). Except for Mumbai, all of these places are border towns.

Two-thirds (64.8%) of the sex workers said they had used condoms. When asked whether they had used a condom with their last client, nearly 42 % responded positively.

Table 3.1: Demographic and Behavioral Characteristics of Sex Workers

Characteristics	No. of Sex Workers	%
Total Sample	410	100
Age of Sex Workers		
Up to 16	32	7.8
17-19	71	17.3
20-29	181	44.1
30-39	105	25.6
40 & above	21	5.1
Education		
Illiterate	291	70.7
Literate	27	6.6
Grade 1- 5	50	12.2
Grade 6- 10	38	9.3
SLC & Above	4	1.0
Marital Status		
Married	189	46.1
Divorced/Separated	153	37.3
Widowed	16	3.9
Never married	52	12.7
Age at First Sex		
Under 16	289	70.5
17-20	106	25.9
>21	15	3.7
Duration of sex work		
< 1 Year	112	27.3
1-2 years	77	18.8
2-3 years	63	15.4
> 3 years	158	38.5
Number of clients per day (on the day of sexual encounter)		
1	216	52.7
2	123	30.0
3 or 4	65	15.9
>4	6	1.5
Amount charged to clients		
< 50 Rs.	89	21.7
50-100 Rs.	96	23.4
100-500 Rs.	176	42.9
>500 Rs.	49	12.0
Types of clients (The five most)		
Transport workers	281	68.5
Migrant workers	209	51.0
Rickshawalas	99	24.2
Businessmen	82	20.0
Policemen	69	16.8
Sex work in India		
Practiced sex work in India	70	17.1
Sex work in Mumbai	16	3.9
Coerced into going to India	21/70	30.0
Ever use condom	266	64.8
Use of condom by last client	173	41.9

* Other responses: Students (10%), Industrial Workers (17%), Officials (19%), Farmers (6%), Shopkeepers (9%), Local Youths (4%) and Others (3%).

3.2 STD Prevalence among the Sex Workers

Forty-seven percent (47.3%) of the sex workers were found to be infected with any one of the STDs: syphilis, gonorrhea, chlamydia, trichomonas, or bacterial vaginosis (BV). Table 3.2 gives the STD prevalence among the sex workers.

Sixteen sex workers (3.9%) were found to be HIV+. Nearly 20% of all sex workers had untreated syphilis and 25.6% had a history of syphilis. The women were infected equally with gonorrhea, chlamydia and trichomonas, at a prevalence of 9% each. Twenty-one percent of them were found to be infected with BV. Fifty-one (12.4%) were infected with two or more STDs.

Table 3.2: STD Prevalence among the Sex Workers

STD Infection	No. of Sex Workers	%
	410	100
HIV	16	3.9
Untreated Syphilis	77	18.8
Syphilis History	105	25.6
Gonorrhea	37	9.0
Chlamydia	38	9.3
Trichomonas	37	9.0
Bacterial vaginosis	87	21.2
Any STD	194	47.3

3.3 Reported History of STDs and Care Seeking Behavior

All the respondents were asked about their current and past history of STDs. Unlike the situation with truckers, the perceived symptoms are not always directly related to STDs and may, in fact, be caused by non-STD medical problems. On being asked whether they had any perceived symptoms of STDs at present or during the past year, 84.5% (347) of the sex workers reported to have at least one STD symptom at present and 71% (291) said they had at least one STD symptom in the past year. Among the symptoms reported, the majority of sex workers complained about abdominal pain, vaginal discharge, pain during sex, dysuria, etc. (See Table 3.3.) In this study we had a chance to see whether the respondents reported STD symptoms correlated with lab reported STDs. This analysis is reported in the next section on the bivariate analysis.

Table 3.3: STD Symptoms and Care Seeking Behavior of Sex Workers

STD Symptoms and Care Seeking Behavior	N=410					
	STD Symptoms Currently		STD Symptoms in Past Year		Treated in Past Year	
	n	%	n	%	n	%
Abdominal pain	251	61.2	273	66.6	54	19.8
Vaginal discharge	222	54.2	247	60.2	47	19.0
Painful sex	219	53.4	238	58.0	20	8.4
Dysuria	199	48.5	213	51.9	28	13.1
Vaginal itching	184	44.9	215	52.4	29	13.5
Vaginal odor	175	42.7	196	47.8	21	10.7
Polyuria	160	39.0	185	45.1	20	10.8
Genital ulcers	41	10.0	73	17.8	14	19.2
Genital warts	28	6.8	38	9.3	6	15.8
Unusual vaginal bleeding	27	6.6	37	9.0	4	10.8

Note: Percentages add up to more than 100 due to multiple responses.

Of all the sex workers (347, or 84.6%) who said they had STD symptoms, 98 (28.2%) sought treatment. Of these, 88.7% went to clinical care providers, such as hospitals (47%), private clinics (21%), health posts (8%), health centers (6%), and FPAN clinics (5%). The remaining 23.7% were self treated, such as at pharmacies (17%), with herbs (2%), self medication (1%) and faith healers (3%).

3.3.1 Relationship between Reported STD and Real Disease

There is a poor correlation between the reported STD symptoms and actual disease. Forty-seven percent (or 194) of all the sex workers had at least one STD symptom that could be related to any STD. However, most of these symptoms have a poor correlation with an STD. (See Table 3.4.) Fewer than 11% of the sex workers who reported having an STD were found to be infected with gonorrhea, chlamydia or trichomonas. About 15 - 20% of the sex workers reporting an STD had bacterial vaginosis or untreated syphilis. A slightly higher percentage (37%) of the sex workers who said they had unusual vaginal bleeding was infected with BV.

Table 3.4: Reported STD Symptoms and STDs

STD Symptoms	N	Gonorrhea		Chlamydia		Trichomonas		BV		Untreated Syphilis	
		n	%	n	%	n	%	n	%	n	%
		Abdominal pain	251	18	7.2	18	7.2	23	9.2	46	18.3
Vaginal discharge	222	15	6.8	19	8.6	22	9.9	43	19.3	36	16.2
Painful sex	219	15	6.8	19	8.7	20	9.1	41	18.7	32	14.6
Dysuria	199	15	7.5	11	5.5	18	9.0	38	19.1	33	16.7
Vaginal itch	184	14	7.6	15	8.2	18	9.8	36	19.6	32	17.4
Vaginal odor	175	15	8.6	18	10.3	19	10.9	37	21.1	36	20.6
Polyuria	160	13	8.1	13	8.1	16	10.0	33	20.6	29	18.1
Unusual vaginal	27	1	3.7	3	11.1	3	11.1	10	37.0	5	18.5
Genital ulcer	41	NA		NA		NA		NA		10	24.4

3.4 Relationship between Demographic Profile and HIV

Age, education and marital status are not significantly associated with HIV infection.

Age

Of the sex workers 19 years or younger, 3.8% were HIV+, compared to 4.4% of those between the ages of 20 and 29, and 2.9% for those 30 and above (See Table 3.5.). There were no significant age differences.

Table 3.5: Relationship between Demographic Profile and HIV+

Demographic Characteristics	N	HIV+	
		n	%
Age			*
Up to 19	103	4	3.8
20 - 29	181	8	4.4
Above 30	126	4	2.9
Education Level			*
Illiterate and literate with no	318	13	4.1
Schooling (Grade 1 to 10 and Above	92	3	3.3
Marital Status		0	*
Married	189	7	3.7
Divorced/Separated	153	8	5.2
Widowed	16	0	0.0
Never married	53	1	1.9
Years of sex work			**
< 2 Years	189	2	1.1
> 2 Years	221	14	6.3

* p>0.5

** p<0.5 OR 5.7 (1.4, 28.1)

Education

Age, education and marital status are not significantly associated with HIV infection. However, the following points were noted. Out of the 318 sex workers who were illiterate or had no formal schooling, 4.1% were HIV+ and 3.3% of the sex workers who had been to school were HIV+. (See Table 3.4.)

3.5 Relationship between Behavior and HIV

Duration of Sex Work

There is significant difference ($p > .05$) in the prevalence of HIV among the sex workers who had been in the sex trade for more than two years and those who had been in for less than two years. (See Table 3.5.)

Sex Work in India

Of the 70 women who had practiced sex work in India, 12 (17.1%) were HIV+, whereas out of the 340 women who had not worked in India only 4 (1.2%) were HIV+. (See Table 3.6.)

Sex work in Mumbai

Of the 12 HIV+ women who had worked in India, 8 (66.6%) had worked in Mumbai. In fact, 8/16 (50%) of all of the HIV+ sex workers had worked in Mumbai. (See Table 3.6.) Twelve out of sixteen or 75% of all the HIV+ sex workers had practiced sex work in India.

Table 3.6: Significant Bivariate Relationships with HIV Infection

Sex Work in India	N =400	HIV+	
		n	%
Total Number of Sex Workers Infected with HIV+		16	3.9)
Sex work in India, No	340	4	1.2
Sex work in India, Yes	70	12	17.1*
Worked in India, but not in Mumbai	54	4	7.4
Worked in Mumbai	16	8	50.0**
Coerced into working in India	21	7	33.5***
Went to India on own	49	5	10.2

* p < .05 OR 14.3 (1.6, 27.7)

** p < .05 OR 41.7 (20.9, 337.2)

*** p < .05 OR 59.5 (2.4, 36.8)

3.6 Relationship between STDs and HIV

Nearly half (194, or 47.3%) of the sex workers had at least one STD and 12.4% had more than one STD. Twelve of the sex workers with one STD (6.2%) were HIV+, and 4 (1.8%) of those without an STD were HIV+. Seventy-seven (18.8%) had untreated syphilis, and nine of these (11.7%) were HIV+. Only 4/305 (1.3%) of the women without syphilis were HIV+. (See Table 3.7.)

Table 3.7: Relationship between STD and HIV+

STD Infection	N	HIV+	
		n	(n) %
Any STD	194	12	6.2*
No STD	216	4	1.8
Untreated syphilis	77	9	11.7**
Syphilis history	105	3	2.9***
Gonorrhea	37	0	0.0
Chlamydia	38	2	5.3
Trichomonas	37	2	5.4
Bacterial vaginosis	87	4	4.6

* p < .05

** p < .05 OR 6.1 (2.2, 17.1)

*** p < .05 OR 9.7 (3.0, 30.8)

3.7 Relationship between Demographics and STD

Among the demographic variables, education and marital status have no direct correlation with STD infection. However, there was a higher incidence of gonorrhea and chlamydia among the younger women. (See Table 3.8.)

Table 3.8: Relationship between Demographics and STD

Demographics Variables	N=410	Any STD	BV	Untreated Syphilis	History of Syphilis	Gonorrhea	Chlamydia	Trichomonas
		%	%	%	%	%	%	%
Age of Sex								
Up to 16	32	40.6	9.4	12.5	15.6	12.5	15.6	9.4
17-19	71	35.2	18.3	11.3	12.7	11.3	11.3	7.0
20-29	181	49.2	23.2	19.3	27.6	7.2	9.9	8.3
30-39	105	53.3	21.0	24.8	30.5	10.5	5.7	10.5
40 & above	21	52.4	33.3	19.0	42.9	4.8	4.8	14.3
Education								
Illiterate	291	49.0	23.1	20.3	28.3	9.3	9.0	8.6
Literate	27	40.7	18.5	18.5	22.2	3.7	0.0	7.4
Grades 1- 5	50	40.0	10.0	12.0	14.0	14.0	16.0	8.0
Grades 6- 10	38	52.6	26.3	18.4	25.0	5.3	10.5	13.2
SLC & Above	4	25.0	0.0	0.0	0.0	0.0	0.0	25.0
Marital status								
Married	189	41.3	19.6	14.3	21.7	4.8	8.5	9.6
	153	52.9	26.1	23.5	32.0	10.5	7.2	7.2
Widowed	16	75.0	31.2	25.0	31.3	18.7	25.0	12.5
Never married	52	44.2	9.6	19.2	19.2	17.3	13.5	11.5

3.8 Relationship between STD and Sex Work in India

There were 70 sex workers among the respondents who had been to India to work as sex workers sometime in the past, some for a long time and others for only a couple of days. Any one type of STD was more prevalent (50%) among those who worked in India than those who did not work in India. Furthermore, it is more prevalent among the sex workers who had worked in Mumbai (68.8%), and more than half of the sex workers who were coerced into working in India were infected with at least one type of STD. (See Table 3.9.)

Table 3.9: Relationship between STD and Sex Work in India

Sex Work in India	N=410	Any STD	BV	Untreated Syphilis	Syphilis History	Gonorrhea	Chlamydia	Trichomonas
		%	%	%	%	%	%	%
Sex work in India: Yes	70	50.0	15.7	27.1	32.8	4.3	10.0	11.4
Sex work in India: No	340	46.8	22.3	17.1	25.3	10.0	9.1	8.5
Worked in Mumbai: Yes	16	68.8	6.2	56.3	68.7	0.0	12.5	6.2
Worked in Mumbai: No	54	44.4	18.5	18.5	22.2	5.5	9.3	12.7
Coerced to work in India	21	57.1	9.5	42.7	52.3	0.0	9.3	4.8
Went to India on own	49	46.9	18.4	20.4	24.5	6.1	10.2	14.3

* $p < .05$

* $p < .05$ OR 6.9 (2.3, 20.5)

The following factors had no effect on STD prevalence:

- The amount of money the sex workers charged a client
- The duration of sex work
- Reported use of condoms

CHAPTER 4: TRUCKERS

All together 400 truckers were recruited for the study. All of them were recruited from Hetauda, where a mobile lab was established to collect their blood and urine specimens. For the purpose of this study, the truckers were defined as the drivers of the trucks or their helpers (*khalasis*).

4.1 Demographic and Behavioral Characteristics

The mean age of the truckers was 26.6 (Range 15 - 67). The education level of the truckers was higher than that of the sex workers. Only about 6% were illiterate, and nearly 10% had an education level of SLC or more. Nearly 60% of the truckers were married. (See Table 4.1.)

Table 4.1: Demographic Characteristics of Truckers

Demographic Characteristics	No. of Truckers	%	
Total Sample	400	100	
Age of respondent			
Up to 16	8	2.0	Mean Age: 26.6
17-19	85	21.2	Median Age: 24
20-29	187	46.8	Minimum Age: 15
30-39	85	21.2	Maximum Age: 67
40 & above	35	8.8	
Education Level			
Illiterate	25	6.2	
Literate	23	5.7	
1-5 class	128	32.0	
6-10 class	185	46.3	
SLC & above	39	9.8	
Marital Status			
Married	235	58.8	
Divorced/Separated	2	0.5	
Widower	1	0.2	
Never married	162	40.5	

Due to the mobile nature of the truckers, they are away from their families several days a month. In this study, 64.7% of the truckers reported they were away from their families 15 - 30 days a month. Consequently, their contact with sex workers and other women was more frequent. Of the 94% (376) of the truckers who said they had ever had sex with a woman, 78.5% (295) reported having sex with a sex worker. More than one-third (34%) said they had sex with a sex worker in the past month, just before the interview. Most of them (72.5%) had encountered the sex workers outdoors (on the streets, in the forests, at the bus parks, etc.), and 21.7% of the truckers reported having encountered the sex workers indoors (in hotels, *bhattis* or local bars, the sex workers' homes, etc.). (See Table 4.2.) The mean amount paid to a sex worker per visit was about Rs. 71 (from Rs. 0 - 500).

Among the truckers who were sexually active, 73.1% said they had used condoms, 69.3% used a condom in their last encounter with a sex worker, 23.4% used condoms with their girlfriends, and 3.8% used a condom every time they had sex with their wives.

Of all the truckers, 34.8% said they had driven trucks in India - mostly to border towns.

Less than 4% admitted they had sex with a sex worker in India.

Table 4.2: Behavioral Characteristics of Truckers

Behavioral Characteristics	No.	%
Ever have sex with a woman (N = 400)	376	94.0
Ever have sex with a SW (N = 400)	295	73.7
Had sex with SW in the last three months (N=400)	131	32.8
Had sex with SW in the last year (N = 400)	214	53.5
Sex workers encountered (n = 295)		
Indoors (hotel, diner, <i>bhatti</i> , SW's home)	64	21.7
Outdoors (street, forest, truck, bus park, etc.)	214	72.5
Others	17	3.7
Amount given to SW (n = 281)		
Not Paid	36	12.8
Up to Rs. 50	142	50.5
Rs. 51 to Rs. 100	66	23.5
Rs. 101 to 500	35	12.5
Rs. 501 & above	2	0.7
Ever use of condom (n =376)	275	73.1
Use of condom with SW in last encounter (n = 244)	169	69.3
Regular use of condom with wife (n = 235)	9	3.8
Married Truckers: Days per month away from family (n = 235)		
0 - 7 Days	44	18.7
8 - 14 Days	39	16.6
15 -30 Days	152	64.7
Trucks driven to India (N = 400)	139	34.8
Had sex with SW in India (N = 400)	10	2.5

4.2 STD Prevalence Among the Truckers

Ten percent (10.2%) of the truckers were found to be infected with at least one STD, among which 1.5% (6) were HIV+. Table 4.3 gives the STD prevalence among the truckers. These STDs include: active syphilis, gonorrhea, chlamydia, and trichomonas.

Table 4.3: STD Prevalence among the Truckers

STD Infection	No. of Truckers	%
	400	100
Any STD	41	10.2
HIV	6	1.5
Untreated syphilis	21	5.3
Syphilis history	46	11.5
Gonorrhea	10	2.5
Chlamydia	11	2.8
Trichomonas	2	0.5

4.3 Reported History of STDs and Their Care Seeking Behavior

Compared to sex workers, the reported perceived symptoms of the truckers was low. Only 14 percent of the truckers said they currently had any one STD symptoms. About 20% said they had STD symptoms in the past year. Among the reported STD symptoms were

dysuria, urethral discharge, genital ulcer and genital warts. (See Table 4.4.) Among these four symptoms, those with genital ulcers and genital warts were most likely seek treatment.

Table 4.4: STD Symptoms and Care Seeking Behavior of Truckers

STD Symptoms and Care Seeking Behavior	N=410					
	Current STD Symptoms		STD Symptoms in the Past Year		Treated in the Past Year	
	n	%	n	%	n	%
Urethral discharge	17	4.5	26	6.9	17	48.6
Dysuria	35	9.3	64	17.1	28	35.4
Genital ulcers	16	4.3	25	6.6	21	70.0
Genital warts	6	1.6	3	0.8	7	77.8

Note: Percentages add up to more than 100 due to multiple responses.

Of the 49 truckers who sought treatment for STD symptoms, 53% (26) went for clinical treatment, such as private clinics (45%), health posts (4%), hospitals (4%). while 47% (23) got self-treatment (from pharmacists - 39%, by self-medicating - 6%, and others - 2%).

4.4 Relationship between Reported STDs and Real Disease

There is a very poor correlation between the reported STD symptoms and actual disease. Ten percent (or 41) of all the truckers had at least one STD symptom that could be related to any STD. However, most of these symptoms have a poor correlation with STDs. (See Table 4.5.) Among the truckers who complained of having urethral discharge and dysuria, two cases of gonorrhea and one case of chlamydia were detected. No one complaining of genital ulcers had untreated syphilis.

Table 4.5: Reported STD Symptoms and STD

STD Symptoms	N	Gonorrhea		Chlamydia		Trichomonas		Untreated Syphilis	
		n	%	n	%	n	%	n	%
Urethral discharge	17	1	5.9	1	5.9	0	0.0	NA	
Dysuria	35	1	3.3	0.0	0.0	0	0.0	NA	
Genital ulcers	16	NA		NA		NA		0	0.0

4.5 Relationship between Demographic Profile and HIV

Altogether 1.5% (6) of the truckers were found to be HIV+. Because of the low number of HIV+ persons, statistical correlation will be difficult. Age, education and marital status are not significantly associated with HIV infection. However, the following observations have been made.

Age

All six truckers (or 2.2%) who were HIV + were between the ages of 20 and 40. No one in any other age group was infected with the HIV virus. (See Table 4.6.)

Education

Among the six HIV+ truckers, five had a 6th to 10th grade education (2.7%) and one was literate but had no formal education. (See Table 4.6.)

Marital Status

Four (1.7%) of the HIV+ truckers were married, and 2 (1.2%) were unmarried. (See Table 4.6.)

Table 4.6: Relationship between the Demographic Profile and HIV+

Demographic Characteristics	N	HIV+	
		n	%
Age			*
Up to 19	93	0	0.0
20 - 40	272	6	2.2
Above 40	35	0	0.0
Education Level			*
Illiterate	25	0	0.0
Literate	23	1	4.3
1 -5 Grade	128	0	0.0
6 - 10 Grade	185	5	2.7
SLC and Above	39	0	0
Marital Status			*
Married	235	4	1.7
Divorced/Separated	2	0	0.0
Widower	1	0	0.0
Never Married	162	2	1.2

* p > .05

4.5.1 Relationship between Behavior and HIV+

Sex with a Sex Worker

Of all of the truckers, 78% had a history of having sex with sex workers. Five (1.7%) of these truckers were found to be HIV+, whereas only one (0.9%) of the truckers with no history of contact with sex workers was HIV+. (See Table 4.7.)

Table 4.7: Relationship between Behavior and HIV+

Behavior	N	HIV+	
		n	%
Sex with a sex worker			*
Yes	295	5	1.7
No	105	1	0.9
Use of condom in last sex with SW			*
Yes	169	2	1.2
No	75	3	4.0
Truck driven to India			*
Yes	139	0	0.0
No	261	6	2.3
Sex in India			*
Yes	10	0	0.0
No	285	5	1.8

* $p > 0.5$

Travel and Sex in India

None of the 139 truckers who drove their trucks to India was HIV+, and none of the 10 truckers who reported having sex with a sex worker in India was HIV+.

4.6 Relationship between STDs and HIV

Forty-one (10.2%) of the truckers had at least one STD, Two of these 41 truckers (4.8%) were HIV+, and 1.1% (4/359) of those without an STD were HIV+. No trucker with chlamydia, gonorrhea or trichomonas was HIV+. However, 9.5 % (2/21) of the truckers with active syphilis were HIV+. (See Table 4.8.)

Table 4.8: Relationship between STDs and HIV+

STD Infection	N	HIV+	
		n	%
Any STD	41	2	4.8*
No STD	359	4	1.1
Untreated syphilis	21	2	9.5**
Syphilis history	46	2	4.3
Chlamydia	11	0	0.0
Gonorrhea	10	0	0.0
Trichomonas	2	0	0.0

* $p > 0.5$

* $p < 0.5$ OR 9.8 (1.7, 57.9)

4.7 Demographics and STD

Truckers between the ages of 30 and 39 had the highest prevalence of STDs, especially active syphilis. Chlamydia, however, similar to the sex workers, had a strong relationship to young age. (See Table 4.9.) Unlike HIV rates, the prevalence rate of STDs and active syphilis was highest among the illiterate and informally literate truckers. Married truckers were more likely to have STDs than unmarried truckers.

Table 4.9: Relationship between Demographics and STD

Demographic Variables	N = 400	Any STD	Untreated Syphilis	Syphilis History	Gonorrhoea	Chlamydia	Trichomonas
		%	%	%	%	%	%
Age of Respondent							
Up to 16	8	0.0	0.0	12.5	0.0	0.0	0.0
17-19	85	8.2	1.2	4.7	3.5	3.5	0.0
20-29	187	7.5	2.7	7.5	2.7	2.1	0.0
30-39	85	18.8	14.1	23.5	3.5	2.3	2.3*
40 & above	35	11.4	8.6	20.0	0.0	2.9	0.0
Education Level							
Illiterate	25	16.4	8.0	28.0	8.0	4.0	0.0
Literate	23	21.7	17.4	30.4	4.3	0.0	8.7**
1-5 class	128	10.2	4.7	10.2	1.6	3.9	0.0
6-10 class	185	9.7	4.3	8.1	3.2	2.2	0.0
SLC & above	39	2.6	2.6	10.3	0.0	0.0	0.0
Marital Status							
Married	235	13.6	8.5	17.4	3.0	2.6	0.8***
Divorced/Separated	2	0.0	0.0	0.0	0.0	0.0	0.0
Widower	1	0.0	0.0	0.0	0.0	0.0	0.0
Never married	162	5.6	0.6	3.1	2.5	2.5	0.0

* p < 0.5 OR 2.3 (1.0, 5.1)

** p < 0.5 OR 2.7 (1.2, 5.8)

*** p < 0.5 OR 2.4 (1.2, 4.7)

4.8 Relationship between Behavioral Patterns and STD

The following behavioral patterns have had no effect on STD prevalence:

- a. Driving a truck to India
- b. Amount of time spent away from family
- c. Having sex with a sex worker
- d. Having sex with a sex worker in India
- e. The use of a condom with a sex worker

CHAPTER 5:IMPLICATIONS

HIV

The implications of these findings without a rapid intervention program could have a profound effect on HIV transmission in Nepal. The prevalence among sex workers both in the Terai and in Kathmandu has risen slowly but steadily over the past five years. Because of the complicated relationship between Nepali sex workers, their frequent sex work in India, and high syphilis rates, there is no indication that this trend will not continue.

With rising HIV rates among sex workers, their clients, predominately mobile men (i.e., truckers and migrant workers), will be at increased risk of HIV infection. This situation is again compounded by the high prevalence of syphilis. Because a majority of these men have steady partners, their increasing HIV rate will ultimately mean an increased incidence of HIV among their steady partners. These women are basically general population women who have no other risk factor than having sex with their husbands or steady partners who may be at risk. Should they come down with the virus, these women would be considered to be secondarily infected with HIV, and this is the mechanism that can spread HIV into the general population. Furthermore, because of the mobile nature of these men, they will be the vessels that transmit HIV to other areas of Nepal.

STD

STDs alone can have a negative health effect on a community. They are generally more infectious than HIV so they spread more rapidly, but with the same patterns and mechanisms. Among the truckers, syphilis would have the most negative health effect. One third of those infected, if not diagnosed and treated, will eventually develop tertiary syphilis that leads to severe vascular and neurologic problems. Plus, as mentioned previously, the ulcers of early syphilis cause a tenfold increase in the transmission of HIV. Women with syphilis have the added risk of having reproductive health problems. Syphilis can lead to sterility, spontaneous abortion, and premature birth. If a mother is infected with syphilis at delivery, the newborn will be infected. Syphilis in the newborn causes bony, vascular and developmental complications. Chlamydia and gonorrhea, which were found in over 25% of these women, are the main causes of pelvic inflammatory disease. If left untreated, 20% of these women will become sterile due to asymptomatic adnexal scarring.

CHAPTER 6: CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

HIV and STD prevalence is higher among sex workers (3.9%) than among truckers (1.5%). Other significant findings among the sex workers and truckers were noted as follows:

Sex Workers

- The mean age of sex workers is 26. Nearly 40 % of the sex workers were either divorced or widowed.
- Illiteracy among the sex workers is 70%.
- Most of the sex workers (70%) had sex before the age of 16.
- Seventy percent of their clients were truckers.
- Condom use among the sex workers was 65%; condom use with the last client was 42%.
- Nearly half of the sex workers (47%) were infected STDs. Nearly 20% had syphilis, and 7% had a history of syphilis.
- Their HIV prevalence of 3.9% is about 2.5 times higher than for that of truckers.
- Seventy (17%) had practiced sex work in India, and 75% of the HIV+ sex workers were among the sex workers who had worked in India.
- Only 4% of the sex workers had worked in Bombay, but 50% of those with HIV were from this group.
- The HIV risk factor for those women who worked in India was six times greater, and for those who had worked in Mumbai it was 42 times greater.
- Women with any one STD were three times more likely to get HIV, and those with syphilis were ten times more likely to get it.
- Syphilis was associated with sex work in Mumbai, but not in other areas of India.
- Fewer than 20% sought care for STD symptoms.
- There is a poor correlation between STD symptoms and real disease.
- The factors - amount of money the sex workers charged a client, duration of sex work, and reported use of condom - had no effect on STD prevalence.

Truckers

- The mean age of the truckers is 26.
- Seventy-five percent of the truckers have had sex with a sex worker.
- Reported condom use was 73% and condom use during the last encounter with a sex worker was 70%.
- Regular use of condoms with wives was only 3.8%
- Ten percent of the truckers were infected with at least one STD, and 5% were infected with syphilis. Over 11% have syphilis now or had it in the past.
- HIV prevalence is 1.5% among the truckers.
- Truckers with syphilis had a tenfold higher risk of getting HIV than those without syphilis.
- STDs are associated with older, married truckers with no schooling.
- STD symptom recognition and effective care seeking behavior are poor.
- There is a poor correlation between STD symptoms and real disease.

B. *RECOMMENDATIONS*

- Sex workers and truckers should continue to be targeted for HIV and STD control programs
- An active syphilis control program, including rapid diagnostics and treatment, should be initiated and should include periodic testing for all STDs.
- Ongoing outreach and education programs should emphasize:
 - The HIV/STD risk of sex work in India, especially in Mumbai
 - Identification of women returning from India for additional support and services
 - STD symptom recognition and improved care seeking behavior
 - Condom use, even among married truckers

Annex - I

Consent Form for Participation in Research Work

Date : _____

Study Number: _____

Study to Determine STD Prevalence in Terai

Chief Researchers

Family Health International, New ERA and SACTS

You are being included to participate in the study programme conducted jointly by FHI/Nepal, the National Centre for AIDS and STD Control (NCASC) of His Majesty's Government, STD/AIDS Counselling and Training Services (SACTS) and New ERA. The objective of this study is to find out to what extent the people living and travelling in the Terai are afflicted with these diseases and to determine some of the common features of those affected by these diseases.

About 800 people will participate in this study. We will take about one hour of your time. We will ask you some questions. Most of the questions are related your travel and sexual behaviour. We will also ask you about the symptoms of STDs which are prevailing and which are likely to prevail. If some symptoms of STDs are found in you, we will provide you treatment free of cost. The diagnosis and treatment of this type of disease will be done on the basis of the National STD Case Management Guidelines.

We will then ask you to give us samples of your urine and blood. For this, you will have to urinate in the given cup and allow us to draw your blood in a tube. Women should give samples of their vaginal should by inserting into their vagina the cotton wrapped around a small stick. As you know, we have not recorded your name, we have given you only the study number. All samples of the lab will be known merely by the study number. Different types of STDs, gonorrhoea, chlamydia, trichomonas, bacterial vaginosis, syphilis and HIV will be examined from these samples. As these tests cannot be carried out in the Terai area, the samples will be sent to Kathmandu and the United States for examination. We can give you a report of syphilis and HIV test within one month. You can receive these reports only by showing the card bearing the study number given to you by us. This appears to be the best way to keep the test report confidential.

In case you lose your card there is no way for you to get the report because we have not got your name. The researcher will tell where to go to get your report. Today you will receive advice about HIV and STDs. You will be told about the symptoms, such as; What is a wound? What is a test? What are the serious effects of a wound? What are the care/treatment that we are going to provide you? Finally, we will give you vitamins for one month and a small gift for participating in our study programme. There is no compulsion for you to participate in this study. It does not mean that there will be any effect or difference in the care that you receive from this clinic by your refusal to participate in our study programme. Even if you are a participant in this study, you can withdraw your consent form at any time during the course of this study.

Benefits of this study: If you are afflicted with STDs, you will get treatment according to the symptoms. You will receive the lab test report of syphilis and if you deem it necessary, you will also receive the report of your HIV test. We hope the data obtained from this study will help minimise the prevalence of HIV and STDs in future.

The only risk in this study is that you will feel some inconvenience while the blood is taken out. You will not lose anything by giving urine and vaginal swab samples. Since we have not recorded your name the information that you give and your lab test results will not affect you adversely.

If you have any problems or questions related to this study you can telephone Mr. Siddhartha Man Tuladhar or Vidya Laxmi Shrestha, New ERA, telephone number 413603, or Dr. Vijay Lal Gurubacharya SACTS, telephone number 227895.

If you have fully understood what will be done in the course of this study and agree to the procedure involved, the person who examined to you about the study consultant will read out the following statement for you and sign the consent form.

"I have clearly read out and explained the consent form to the person selected for this study. S/he explained to me the activities of the study and I am convinced that s/he has understood it. S/he has given oral consent that s/he will willingly participate in all the activities of this study".

Signature : _____

Date : _____

Annex - IIA
CONFIDENTIAL

STD PREVALENCE STUDY
FHI/SACTS/New ERA - 1999

Female Questionnaire

Name of Interviewer: _____

101. Respondent ID Number _____

102. Interview Location

102.1 District : _____

102.2 VDC/Location : _____

103. Date of Interview: _____ / _____ / _____

104. Where were you born?

District: _____

Municipality/VDC: _____

Village/Tole: _____

2.0 Personal Information

201. How old are you?

_____ (Write the completed year)

202. What class have you passed?

_____ (Write '0' for illiterate, '19' for literate without attending school, and the exact number for the grade passed.)

203. What is your present marital status?

1. Married
2. Divorced/Permanently Separated
3. Widowed
4. Never Married
5. Others (specify) _____

204. How long have you been exchanging sexual intercourse for money or other things?

For _____ Years _____ Months

98. Don't know

99. No answer

205. For how long have you been working as a sex worker in this location?
(If less than one month, use code 0; if more than one month, write the exact completed month)

_____ months ago 98. Don't know/Can't say

206. In the last two years have you worked in this profession in other locations?

1. Yes 2. No (Go to Q 206.2)

↓

206.1 Where did you work? (*List all the places*)

Name of the locations Municipality/VDC	District
_____	_____
_____	_____
_____	_____
_____	_____

206.2 Have you ever worked as a sex worker in India?

1. Yes 2. No (Go to Q 301)

↓

206.2.1 Where did you work in India? (*List all the locations.*)

Locations

206.2.2 How many days did you stay in India?

_____ Years _____ Months

206.3 Were you coerced into going there or did you go on your own?

1. Was coerced 2. Went on my own

206.3.1 How old were you when you first went to India?

_____ Years (completed years)

206.3.2 How old were you when you came back from India?

_____ Years (completed years)

3.0 **Information on Sexual Intercourse**

301. How old were you when you first had sexual intercourse?

_____ Years old (completed years) 98. Don't know/Can't recall

302. When did you last have sexual intercourse with a client?

_____ Days before

303. How many people did you have sexual intercourse with on that day?

_____ (Number)

304. How much money (including cash equivalent of gift) was given to you by your last client?

1. ___ Rs. (Cash)+(Gift equivalent in Rupees) _____ Rs. = Total Rs. _____

2. Others (Specify) _____

305. Who of the following clients frequently visit you? (Multiple answers possible. Do not read the possible answers given below)

1. Transport workers

5. Students

2. Migrant workers

6. Rickshawalas

3. Industrial workers

9. Others (specify) _____

4. Police/Soldiers

98. Don't know

306. Have you ever used a condom?

1. Yes

2. No (Go to Q. 401)

307. Did your last client use a condom?

1. Yes

2. No

4.0 STDs (Sexually Transmitted Diseases)

401. Do you currently have any of the following symptoms?

Symptoms	Yes	No
1. Pain in the lower abdomen	1	2
2. Pain during urination	1	2
3. Frequent urination	1	2
4. Pain during sex	1	2
5. Ulcers or sores in the genital area	1	2
6. Itching in or around the vagina	1	2
7. Vaginal odor or smell	1	2
8. Vaginal bleeding (unusual)	1	2
9. Discharge from the vagina	1	2
10. Genital warts	1	2
11. Others (Specify) _____	1	2

402. If you do not have any of the above symptoms now, have you had any of them in the past year/in the past one month?

Symptoms	In the Past Year		In the Past Month	
	Yes	No	Yes	No
1. Pain in the lower abdomen	1	2	1	2
2. Pain during urination	1	2	1	2
3. Frequent urination	1	2	1	2
4. Pain during sex	1	2	1	2
5. Ulcers or sores in the genital area	1	2	1	2
6. Itching in or around the vagina	1	2	1	2
7. Vaginal odor or smell	1	2	1	2
8. Vaginal bleeding (unusual)	1	2	1	2
9. Discharge from the vagina	1	2	1	2
10. Genital warts	1	2	1	2
11. Others (Specify)_____	1	2	1	2

(If answer is No to all in the past year and in the past month in Q. No. 402, STOP INTERVIEW)

402.1 Have you been treated for any of these symptoms?

Symptoms	Yes	No
1. Pain in the lower abdomen	1	2
2. Pain during urination	1	2
3. Frequent urination	1	2
4. Pain during sex	1	2
5. Ulcers or sores in the genital area	1	2
6. Itching in or around the vagina	1	2
7. Vaginal odor or smell	1	2
8. Vaginal bleeding (unusual)	1	2
9. Discharge from the vagina	1	2
10. Genital warts	1	2
11. Others (Specify) _____	1	2

403 Where did you go for the treatment? (Multiple answers. Do not read the possible answers given below).

- | | |
|-----------------------------------|------------------|
| 1. Private clinic | 2. FPAN clinic |
| 3. Health post | 4. Health center |
| 5. Hospital | 6. Pharmacy |
| 7. Self treatment (Specify) _____ | 8. No treatment |
| 9. Others (Specify) _____ | |

404 Are you currently on any medication for any of the above symptoms?

1. Yes 2. No.
 ↓

404.1 What medication for which symptoms?

Symptoms	Treatment
1. Pain in the lower abdomen	_____
2. Pain during urination	_____
3. Frequent urination	_____
4. Pain during sex	_____
5. Ulcers or sores in the genital area	_____
6. Itching in or around the vagina	_____
7. Vaginal odor or smell	_____
8. Vaginal bleeding (unusual)	_____
9. Discharge from the vagina	_____
10. Genital warts	_____
11. Others (Specify) _____	_____

Thank the respondent and send for clinical testing.

Annex - IIB

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**STD PREVALENCE STUDY
FHI/SACTS/New ERA - 1999**

Male Questionnaire

1.0 General information:

Name of Interviewer: _____

101. Respondent ID Number : _____

102. Interview Location

102.1 District: _____

102.2 VDC/Location: _____

103. Date of Interview : ____/____/____

104. Where were you born ?

District: _____

Name of the VDC/Municipality: _____

Name of the Village/Tole: _____

105. Where do you live now ? (Name of current place of residence.)

District: _____

Name of the VDC/Municipality: _____

106. Before you moved there, where did you live?

District: _____

Name of the VDC/Municipality: _____

107. With whom are you staying currently?

1. With the family (wife and children)
2. With friends
3. Alone
4. With parents
5. Others (specify) _____

202. Have you ever had sex with a sex worker?
1. Yes 2. No Response 3. No (Go to Q 301)
203. How many times have you visited sex workers in the past three months?
1. _____ times
2. _____ (Others specify)
204. When was the last time you had sexual intercourse with a sex worker?
- _____ Days ago
_____ Weeks ago
205. Where did you meet that last sex worker for sexual intercourse?
1. Lodge/hotel 4. On the street
2. Eating-place (restaurant) 5. In the forest
3. *Bhatti* (liquor shop) 9. Others (specify) _____
206. How many rupees and/or other items did you pay the sex worker at that time? (Ask about the amount of money spent for sexual intercourse only.)
1. _____ Rs. (Cash)+ (Gift equivalent in Rupees) _____ Rs. = Total Rs. _____
2. Other (specify) _____
207. Have you had sexual intercourse with sex workers in India during the past year?
1. Yes 2. No (Go to Q. 301)
↓
207.1 Where?
- Name of the place: _____
- 207.2 When was your last sexual contact?
- _____ weeks ago

3.0 Use of Condom

301. Have you ever used a condom?
1. Yes 2. No. (Go to Q 401)
302. Did you use a condom when you last had sexual intercourse with a sex worker?
1. Yes 2. No. (Go to Q 401)

4.0 Sexual Behavior with Others than Sex Workers

(Note: Ask the married truckers only)

401. When is the last time you had sex with your wife?

_____ days ago

402. When is the last time you had sex with your girl friend?

_____ days ago 96. No girls friend

403. Did you use a condom during every sexual encounter with these women?

	USED	
	Yes	No
1. Wife	1	2
2. Girl friend	1	2

5.0 STD (Sexually Transmitted Disease)

501. Do you currently have any of the following symptoms?

	Yes	No
Urethral discharge	1	2
Pain during urination	1	2
Burning sensation when urinating	1	2
Ulcers or sores in the genital area	1	2
Others (Specify) _____	1	2

502. Have you been treated for any of these symptoms?

1. Yes 2. No (STOP INTERVIEW)

503. Where did you go for the treatment? (Multiple answers. Do not read the possible answers given below).

- | | |
|-----------------------------------|---------------------------|
| 1. Private clinic | 2. FPAN clinic |
| 3. Health post | 4. Health center |
| 5. Hospital | 6. Pharmacy |
| 7. Self treatment (Specify) _____ | 9. Others (Specify) _____ |

504. For which symptoms did you get treatment? Specify the treatment.

Symptoms	Treatment
Urethral discharge	
Pain during urination	
Burning sensation when urinating	
Ulcers/sores in the genital area	
Others (Specify)	

505. If you do not have any of the above symptoms now, have you had any of them in the past year/in the past one month?

Symptoms	In the Past Year		In the Past Month	
	Yes	No	Yes	No
Urethral discharge	1	2	1	2
Pain during urination	1	2	1	2
Burning sensation when urinating	1	2	1	2
Ulcer or sores in the genital area	1	2	1	2
Others (Specify) _____	1	2	1	2

506. Did you get treatment for the symptoms cited 'Yes' in Q 505?
(If not treated in Q 506, STOP INTERVIEW)

Symptoms	Yes	No	Yes	No
Urethral discharge	1	2	1	2
Pain during urination	1	2	1	2
Burning sensation when urinating	1	2	1	2
Ulcers or sores in the genital area	1	2	1	2
Others (Specify) _____	1	2	1	2

507. Where did you go for the treatment? (Multiple answers. Do not read the possible answers given below.)

1. Private clinic
2. FPAN clinic
3. Health post
4. Health center
5. Hospital
6. Pharmacy
7. Self treatment (Specify) _____
9. Others (Specify) _____

508. Had you been treated for any of those symptoms?

1. Yes
2. No (STOP INTERVIEW)

509. For which symptoms did you get treatment and what treatment?

Symptoms	Treatment
Urethral discharge	
Pain during urination	
Burning sensation when urinating	
Ulcer/sores in the genital area	
Others (Specify) _____	

(Thank the respondent and send for clinical testing.)

Annex - IIIA

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**STD PREVALENCE STUDY
FHI/SACTS/New ERA - 1999**

Clinical/Lab Checklist (Sex Workers)

Respondent ID Number : _____

Date: _____

Name of Clinician : _____

Name of Lab Technician : _____

(A) Clinical Information

(B) Specimen Collection

	<u>Yes</u>	<u>No</u>
Age of respondent: _____	1	2
Weight: _____	1	2
B.P. : _____	1	2
Pulse : _____	1	2
Temperature : _____	1	2
Albumin : _____	1	2
Sugar : _____	1	2
Vaginal Swab collected	1	2
Urine Collected	1	2
Blood Collected	1	2
HIV Counseled	1	2
HIV & Syphilis post-test results protocol given	1	2
Condom given	1	2
Vitamins given	1	2
Gift given	1	2

1.0 Syndromic Treatment Information

101. Has any man you had sex with in the past three months had a urethral discharge or genital ulcer?

1. Yes, urethral discharge [Give treatment for gonorrhea and chlamydia]
2. Yes, genital ulcer [Give Erythomycin and give time for follow-up]
3. No
4. Don't know

Annex - IIIB

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**STD PREVALENCE STUDY
FHI/SACTS/New ERA - 1999**

Clinical/Lab Checklist (Truckers)

Respondent ID Number : _____ Date: _____

Name of Clinician : _____

Name of Lab Technician : _____

(A) Clinical Information

(B)

Specimen Collection

		<u>Yes</u>	<u>No</u>
Age of respondent: _____	Urine collected	1	2
Weight: _____	Blood collected	1	2
B.P. : _____	HIV counseled	1	2
Pulse : _____	HIV & syphilis post-test		
Temperature : _____	results protocol given	1	2
Blood Group : _____	Condoms given	1	2
Albumin : _____	Vitamins given	1	2
Sugar : _____	Gift given	1	2
UTI Scan : _____			

1.0 Syndromic Treatment Information

101. In the last month have you had a discharge from you penis or burning sensation when you urinate?

1. Yes

2. No

[If yes, give treatment for gonorrhoea and chlamydia]

102. Did you have sores or ulcers on or around your genitals in the past one month?

[If yes, give Erythromycin at present and set a time for a follow-up visit.]

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