

Behavioral Surveillance Surveys Bangkok, Thailand 1993 -- 1996 (waves 1-5)

Behavioral Surveillance Surveys Executive Summaires

#### Introduction to Behavioral Surveillance Surveys

FHI's Behavioral Surveillance Surveys (BSS) provide valuable data about HIV/AIDS-related knowledge, attitudes, and behaviors. The BSS methodology is a monitoring and evaluation tool designed to track trends in HIV/AIDS-related knowledge, attitudes, and behaviors in subpopulations at particular risk of HIV infection, such as female sex workers, injection drug users, migrant men, and youth. Based on classic HIV and sexually transmitted disease (STD) serologic surveillance methods, BSS consist of repeated cross-sectional surveys conducted systematically to monitor changes in HIV/STD risk behaviors. A key benefit of the methodology is its standardized approach to questionnaire development, sampling frame construction, and survey implementation and analysis. BSS findings serve many purposes: they yield evidence of project impact, provide indicators of project success and highlight persistent problem areas, identify appropriate intervention priority populations, identify specific behaviors in need of change, function as a policy and advocacy tool, and supply comparative data concerning behavioral risks.

BSS have been conducted in more than 20 countries -- primarily in Africa and Asia -since 1992, and their use in Latin America and the Caribbean is growing. Since 1999 they have been used in cross-border sites in Asia and Africa, where they are proving beneficial for understanding the pandemic from a regional instead of a purely country-specific perspective. In several countries multiple rounds of BSS have been implemented already, with the trend data used to formulate new programs and to adapt existing ones.

#### Introduction to the Bangkok BSS

Thailand was one of the first countries to implement BSS in the context of an HIV prevention program. The government of Thailand has been proactive in its attempt to arrest and control the epidemic through behavioral and sentinel surveillance and a variety of prevention initiatives. The National AIDS Committee of the Thai Ministry of Health is responsible for developing and implementing programs to educate people about HIV/AIDS and sexually transmitted disease and to prevent the spread of these diseases through condom promotion and STD treatment.

Seroprevalence data have been available annually or semiannually since 1985 and have provided critical information concerning the spread of the epidemic. These data indicate that two independent epidemics evolved among injecting drug users and female sex workers (FSWs), with subsequent waves spreading among clients of female sex workers

and the wives and other sex partners of these clients. Targeted interventions among these populations, such as requiring 100 percent condom use among FSW and their clients, have led to a gradual decrease in HIV incidence and prevalence. Regular behavioral surveillance, combined with ongoing serosurveillance, has allowed the tracking of trends and contributed to the development and adaptation of the interventions responsible for reductions in HIV.

The Bangkok Behavioral Surveillance Surveys (BSS) were carried out between 1993 and 1996. The results of a national BSS, which has been carried out since 1995, have been reported elsewhere (Mills et al. *AIDS* 1997, 11 (suppl 1): S43-S51). This report summarizes findings from the five waves of the Bangkok BSS, conducted twice a year from 1993 through 1996.

## **Study Design and Methodology**

#### Study population

The Bangkok BSS included subpopulations from eight socioeconomic groups. Direct and indirect female sex workers were selected because of the high HIV prevalence among them and the presumed importance of their risk behaviors in the spread of the epidemic. Male and female vocational students, and male and female factory workers, were chosen because they represented young, potentially at-risk populations from a variety of socioeconomic and occupational groups. Male STD clinic attendees and female antenatal clinic attendees were also surveyed. Data from these groups are not presented here, however, because their inclusion in BSS is no longer recommended due to the potential bias in risk behavior in these groups. (ANC clients have necessarily practiced unprotected sexual intercourse in order to become pregnant, just as STD clinic attendees have practiced unprotected -- and presumably high-risk -- sex leading to sexually transmitted infection).

#### **Bangkok BSS Subpopulation Definitions**

#### **Direct Female Sex Workers (DSWs)**

Sex workers who sell sex directly and have received money for sex services in the past year

#### Indirect female sex workers (ISWs)

Sex workers who usually provide a service in addition to sex that is negotiated at a separate price and who have received money for sex services in the past year

#### Male factory workers (MFWs)

Employed at a factory with fewer than 500 employees and 15-29 years of age

#### Female factory workers (FFWs)

Employed at a factory with fewer than 500 employees and 15-29 years of age

#### Male vocational students (MVSs)

Enrolled in a post-secondary educational institution that provides vocational training and 15-18 years of age

#### Female vocational students (FVSs)

Enrolled in a post-secondary educational institution that provides vocational training and 15-18 years of age

Five data sets were collected in two phases. The initial phase was conducted in six Bangkok districts and included two periods of data collection: (1) February - December 1993 and (2) September 1993 - August 1994. The second phase, conducted from October 1994 through July 1996, was a full implementation phase in which three sets of data were collected in 34 of Bangkok's 38 districts: (3) October 1994 - March 1995 (4) June -November 1995 (5) February - July 1996.

#### Sample size

The number of respondents for each group was determined based on the estimated number of subjects needed to detect a 10 percent change in key risk behaviors (such as percentage using condoms with non-regular sex partners) across time. During the full implementation phase, sample sizes were considerably increased for female factory workers and female vocational students in order to obtain larger numbers of subjects reporting risk behaviors. Table 1 shows sample sizes of subpopulations included in the five survey waves.

			Sample Size		
	Wave 1	Wave 2	Wave 3	Wave 4	Wave 5
Subpopulation	Feb - Dec 1993 6 districts	<b>Sept 1993 -</b> <b>Aug 1994</b> 6 districts	<b>Oct 1994 -</b> <b>Mar 1995</b> 34 districts	<b>Jun - Nov</b> <b>1995</b> 34 districts	Feb - July 1996 34 districts
Direct female sex workers	283	212	242	191	283
Indirect female sex workers	279	274	155	371	391
Male factory workers	299	300	296	297	293
Female factory workers	158	161	1256	1249	1259
Male vocational students	300	300	400	399	400
Female vocational students	270	280	1165	1141	1163

#### Table 1. Sample sizes for groups surveyed by data collection wave

## Sample design

Site lists provided by the Bangkok Metropolitan Administration and the Community Mobilization Project of the AIDS Prevention and Control Project (AIDSCAP) were used to construct the sampling frames for the subpopulations included in the Bangkok BSS. Within each district, samples were taken from direct and indirect commercial sex establishments, factories with fewer than 500 employees, and vocational schools. The same sites were used in waves 1 and 2, based on a random selection performed for wave 1. New sites were randomly selected from 34 districts for wave 3, and those same sites were used for waves 4 and 5. Sites included in waves 1 and 2 were only included in waves 3 through 5 if they were randomly selected. Site managers, owners and teachers at randomly selected sites were asked to make a random selection of a fixed number of individuals to participate in the survey.

A structured questionnaire was used to collect data. The questionnaire was administered by trained interviewers of the same sex as the respondents, except for the sexual behavior component of the questionnaire administered to female factory workers and female students, which was self-administered.

## Results

#### Socio-demographic characteristics

#### Age

Among the female subpopulations, direct sex workers (DSWs) had the highest mean age (27). The female and male vocational students (FVSs) had the lowest mean age (18 respectively) of all subpopulations.

#### Literacy

Among all subpopulations, direct sex workers had the least education, with 61 percent

reporting completing secondary school. Among the male and female factory workers, almost all had completed secondary school.

#### **Marital status**

One hundred percent of the "non-sex worker" female subpopulations reported being single. The majority of the direct sex workers were single, separated, divorced or widowed.

	DSV	N ISW	MFW	<b>MVS</b>	FFW	FVS
Mean age (yrs)	27	24	22	18	21	18
no schooling (perce	nt) 12	5	0	0	0	0
primary school (per	cent) 27	17	4	0	4	0
secondary school (p	ercent) 61	78	96	100	96	100
Married (percent)	19	30	26	1	0	0
Single (percent)	39	27	73	99	100	100
Separated/divorced/	/widowed 42	43	1	0	0	0

## Table 2. Sample characteristics of each subpopulation for all data sets

#### Trends in BSS Behavioral Indicator

#### Reported patronage of commercial sex by men in the past year

The data indicate that reported patronage of commercial sex significantly declined between 1993 and 1996 for all male subpopulations (figure 1). Vocational students reported the greatest decline (approximately 50 percent). Male factory workers also decreased patronage of commercial sex, from 22 percent to 14 percent.





#### Currently has a non-paying sex partner

Among sex workers, indirect sex workers were more likely to have a non-paying sex partner (55 percent) than direct sex workers (38 percent).

Non-regular sex partners among men in the past year

In the Bangkok BSS, non-regular sex partners were defined as a sex partner other than a wife for married men and a sex partner other than a girlfriend or fiancée for single men. Only five percent or fewer of the male vocational students or male factory workers reported having had a non-regular, non-commercial sex partner in the past 12 months.

#### Most recent sex and consistent condom use in the past year by sex workers

No significant trends were shown in condom use during most recent sex with a paying client for either direct or indirect sex workers, although condom use at last sex was high for both subpopulations. Significant trends were apparent, however, in consistent condom use with clients for both types of sex workers. Indirect sex workers had the greatest increase in consistent condom use with clients, from 56 percent in 1993 to 89 percent in 1996 (figure 2). Consistent use among direct sex workers increased from 87 percent to 97 percent during the same period of time. At the same time, consistent condom use was much less common with non-paying sex partners than with clients among both types of sex workers, and the data showed no significant changes.





#### Sexual intercourse in the past year among women

All the female vocational students and factory workers surveyed reported being single. In 1995, female factory workers showed a downward trend in the percentage reporting sexual intercourse during the past year. Only three percent had had sexual intercourse in 1995, down from 6 percent in 1993. Sexual activity among female vocational students decreased from a high of 7 percent in 1994-1995 to 3 percent in 1996. Among sexually active women (other than sex workers), the numbers of women having sex with non-regular partners were too low for researchers to draw significant conclusions regarding trends in sexual risk behavior.

#### **Summary of Findings**

- The most remarkable changes over these five survey rounds were in the commercial sex industry, with all male subpopulations reporting decreased patronage of sex workers.
- The percentage of men having non-commercial, non-regular sex partnerships also decreased, suggesting that non-regular partnerships were not replacing commercial sex partnerships.
- Most subpopulations surveyed reported high rates of condom use, with the exception of condom use between sex workers and their non-paying partners. Condom use

between these partners remains low, with no signs of changing.

• All non-sex-worker female subpopulations reported low levels of sexual intercourse.

### **Technical Guidelines**

For more information, see the following technical guidelines:

## UNAIDS and Family Health International, May 1998. Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes.

Discusses behavioral data collection needs by different epidemic state. Reflects recent thinking about the best use of resources in behavioral data collection in the context of second generation surveillance.

## Family Health International, June 2000. Behavioral Surveillance Surveys (BSS): Guidelines for Repeated Behavioral Surveys in Populations at Risk for HIV.

Provides how-to information that includes identifying priority subpopulations, developing sampling frameworks and approaches, and suggesting analysis and dissemination strategies. Also includes sample questionnaires.

#### UNAIDS and WHO, 2000. Guidelines for Second Generation HIV Surveillance.

Provides an overview of the principal issues that need to be considered in strengthening surveillance systems and increasing their utility. Suggests priority approaches for the various epidemic states.

#### **Acknowledgments**

#### The Bangkok BSS were executed and administered by:

Office for Population and Technical Assistance (OPTA)

#### With technical assistance from:

Family Health International

#### Funded by:

The United States Agency for International Development (USAID)

#### This executive summary is based on the following report:

Mills S, Benjarattanaporn P, Bennett A, Pattaling RN, Trongsawad P, Gregorich SE, Hearst N, Mandel JS. HIV Risk Behavioral Surveillance in Bangkok, Thailand: Sexual Behavior Trends among Eight Population Groups. *AIDS* 1997, 11 (suppl1): S43-S51.

Family Planning

## Fłi

© Copyright 2000, Family Health International (FHI).



Behavioral Surveillance Surveys Cambodia 1997, 1998, and 1999

Behavioral Surveillance Surveys Executive Summaires

## Introduction to Behavioral Surveillance Surveys

FHI's Behavioral Surveillance Surveys (BSS) provide valuable data about HIV/AIDS-related knowledge, attitudes, and behaviors. The BSS methodology is a monitoring and evaluation tool designed to track trends in HIV/AIDS-related knowledge, attitudes, and behaviors in subpopulations at particular risk of HIV infection, such as female sex workers, injection drug users, migrant men, and youth. Based on classic HIV and sexually transmitted diseases (STD) serologic surveillance methods, BSS consist of repeated cross-sectional surveys conducted systematically to monitor changes in HIV/STI risk behaviors. A key benefit of the methodology is its standardized approach to questionnaire development, sampling frame construction, and survey implementation and analysis. BSS findings serve many purposes: They yield evidence of project impact, provide indicators of project success and highlight persistent problem areas, identify appropriate intervention target populations, identify specific behaviors in need of change, function as a policy and advocacy tool, and supply comparative data concerning behavioral risks.

BSS have been conducted in more than 20 countries -- primarily in Africa and Asia -since 1992, and their use in Latin America and the Caribbean is growing. Since 1999 they have been used in cross-border sites in Asia and Africa, where they are proving beneficial for understanding the pandemic from a regional instead of a purely country-specific perspective. In several countries multiple rounds of BSS have been implemented already, with the trend data used to formulate new programs and to adapt existing ones.

#### **Introduction to Cambodia BSS**

The National Center for HIV/AIDS, Dermatology, and STD (NCHADS) of the Ministry of Health is responsible for developing programs to educate people about STDs, including HIV/AIDS, and for implementing programs to prevent the spread of disease through STD treatment and the promotion of condom use. In addition, many nongovernmental organizations in Cambodia are undertaking STD/HIV prevention and care programs in response to the growing epidemic.

An expanded national HIV and behavioral surveillance system has been in place since 1997. This system has provided crucial time series data and provincial-level prevalence figures that have served to mobilize both the government and the provincial AIDS committees. Surveys undertaken as part of this system were carried out by the Cambodian Ministry of Health, through NCHADS.

The Cambodia Behavioral Surveillance Surveys (BSS) have been conducted since 1997. The BSS involve the collection of waves of data among the same subpopulations with the same tools in the same cities. The objectives are to measure trends in high-risk sexual behavior in selected key subpopulations over time and to provide yearly information on social conditions affecting HIV/STD. Survey questions focus on behaviors that create the greatest risk of transmitting HIV infection.

This report highlights finding from the first through the third waves of the Cambodia BSS conducted in 1997, 1998, and 1999.

## Methodology

The initial wave of BSS was conducted in 1997. The second and third waves, conducted in 1998 and 1999, followed the same methodology used in the first wave.

## Study population

The BSS were designed to enable measurement of behavior change over time among specific subpopulations. The highest-risk subpopulations included brothel-based female sex workers (FSWs) and urban men belonging to the police and military. Other target populations included "bridge" groups -- such as women who work for beer companies promoting beer in restaurants and bars ("beer promoters") and moto-taxi and cyclo-taxi drivers ("moto drivers") -- who have significant sexual contact with both high- and low-risk groups. Moderate- to low-risk groups with varying sociodemographic characteristics were also surveyed, including working women, young male vocational students and working men. These low-risk groups were not included in the third wave because in the first two waves they were not found to practice high-risk behaviors.

## **Subpopulation Definitions**

#### **Brothel-based female sex workers (FSWs)**

Brothel-based females engaging in sex in exchange for remuneration

#### Police and military men

In urban areas

#### **Beer promoters**

Women working for beer companies promoting beer in restaurants and bars and often working as indirect sex workers

#### **Moto drivers**

Male moto-taxi and cyclo-taxi drivers

#### Working women

Women ages of 18-30 working in low-paid professions, such as factory, hotel, and restaurant work, and low-level government jobs; sampled in 1997 and 1998

#### Young male vocational students

Sampled in 1997 and 1998

#### Sampled in 1997 and 1998

#### Study sites

Urban areas were selected as BSS sites because they are areas where high-risk behaviors occur most frequently and where behavior change programs may be most effective. The first three waves of the Cambodian BSS were conducted in five major cities in five different provinces: Phnom Penh, Battambang, Siem Reap, Sihanouk ville, and Kampong Cham. Each site was also chosen because of the social context facilitating certain risk behaviors (e.g., both Battambang and Sihanouk ville have a large military presence).

#### Sample size

The number of respondents for each group was determined based on the estimated level of key risk behaviors (such as percentage using condoms in commercial sex) and the degree of confidence required to detect a significant change in behavior over time. Table 1 shows the sample sizes by risk group for each survey wave. The number of FSWs surveyed in BSS one is considerably lower than in BSS two because data on FSWs were collected only in Phnom Penh and Siem Reap in 1997. In BSS two and three, all five sites were sampled.

Subpopulations	BSS 1	BSS 2	BSS 3
FSWs	245*	804	792
Police/Military	407	745	1483
Beer Promoters	581	406	379
Moto Drivers	570	756	746
Working Women	1370	1011	N/A
Vocational Students/	1183	553	N/A
Working Men			
Total	4356	4275	3400

#### Table 1. Subpopulations and Sample Sizes from Each Survey Wave

\* FSWs sampled from Phnom Penh and Siem Reap only.

#### Sample design

A cluster-based design was used to sample each targeted subpopulation. Naturally occurring cluster units, such as brothels and military battalions, were identified for each of these subpopulations. All clusters were listed, and the number of individuals was noted for each cluster, where available. Clusters were then randomly selected from the list, and members of each selected cluster were interviewed until the target sample size was reached for that group. Data entry was done in EXCEL and analysis was done in STATA.

#### Questionnaire

The BSS questionnaire averaged 15 to 20 minutes and included demographic information (age, marital status, education, number of living children), perceptions of peer behavior, STD treatment-seeking behavior, number and types of sex partners, and condom use. Certain parts of the questionnaire were the same for all subpopulations, while other segments were specific to subpopulations. All questionnaires were pretested. Based on results of the pretests, men from vocational schools were given self-administered questionnaires, while all other groups participated in face-to-face interviews. All three surveys were based on the same questionnaire, with few modifications after each wave.

## Results

#### Sociodemographic characteristics

The population surveyed in the BSS was a relatively young, urban population. Relevant demographic data collected from the population surveyed included age, marital status, and education levels.

## Age

In general, the population sampled was a young population, and the mean age for each risk group did not vary much over the waves. The military, police, and moto-drivers consistently had the highest mean age of the sample, between 29 and 31. FSWs had the lowest mean age for all four surveys. Their mean age ranged from 20 to 21, on average about 10 years younger than male subpopulation members.

## **Marital Status**

The marital status of the population sampled did not vary much during the four years of surveys. Not surprisingly, the oldest populations -- military/police and moto drivers -- had the largest percentage of married individuals, ranging from 60 percent to 85 percent over the four years. FSWs had the lowest percentage of married individuals, with less than five percent being married in most years. A possible anomaly in the data appears for 1997, when 51 percent of FSWs reported being married.

## **Education/Literacy**

A consistently high percentage of FSWs reported having no schooling, ranging from 40 percent to 61 percent across survey waves. Other females surveyed reported having more education, but were consistently less educated than the males in all targeted subpopulations.

#### Trends in BSS behavioral indicators

#### **Commercial Sex**

#### Sex with a commercial partner in the past year

One approach to behavior change in STD/HIV control is to reduce the frequency of sex with high-risk partners, such as commercial sex partners. The trends in sex with a commercial partner over the four years of the survey reveal a decline in the percentage of commercial partners for military men from 77.9 percent in 1997 to 62.2 percent in 1999 and for police from 77.9 percent to 60.5 percent for the same years (figure 1).



## Figure 1. Sex with a commercial partner in the past year

#### Condom use with a commercial partner

These data are encouraging because they show an increase in consistent ("always") condom use with commercial partners across all groups (figure 2). The high-risk groups reflect the greatest change. Consistent condom use by military men increased from 54.2 percent in 1997 to 69.7 percent in 1999, while the percentage of police reporting always using a condom rose from 54.2 percent in 1997 to 81.3 percent in 1999. Moto drivers also showed an increase, from 53.8 percent in 1997 to 74.9 percent in 1999.

Figure 2. Always use of condoms with a commercial partner



#### FSW always use of condoms with client

A marked increase in FSWs who report always using condoms with commercial clients is shown between 1997, when 42 percent reported consistent condom use, and 1999, when this behavior was reported by 78.1 percent of FSWs (figure 3).





#### "Sweethearts"

#### Percentage who had a "sweetheart" relationship within the last year

In Cambodia, the term "sweetheart" is used to refer to a variety of relationships, and accordingly is defined differently by members of each subpopulation included in the BSS. Sweetheart relationships may involve sexual intercourse between partners, or may be platonic, just as those involving sexual relationships may or may not include the exchange of money or gifts as payment for sex. In any case, it is hypothesized that sweetheart relationships may be contributing to the transmission of HIV across and among subpopulations. Consequently, sweetheart relationships were included as a risk behavior meriting investigation through the BSS. Given these qualifications, particular care must be taken to interpret findings concerning sweetheart relationships within the sociocultural context of Cambodian society.



Figure 4. Percentage with "sweetheart" relationship in the past year

In 1997, FSWs were shown as having the highest percentage of subpopulation respondents reporting having had a sweetheart relationship in the past twelve months. However, this percentage decreased from 50.6 percent in 1997 to 36.6 percent in 1999. The percentage of military men and police having a sweetheart relationship also dropped between 1997 and 1999, from 19.6 percent to 13 percent. By contrast, in the bridging group, moto-drivers showed a considerable increase in the percentage having a sweetheart relationship, from 10.8 percent in 1997 to 24 percent in 1998, although this percentage declined in 1999. In the low-risk populations, vocational students showed an increase from 23 percent to 30.3 percent, while all other groups showed little change.

#### Condom use with a sweetheart at last sex

The data show a marked increase in the use of condoms with sweethearts over the past four years in all subpopulations. The greatest increases were among the highest-risk groups: the military, police, and FSWs. The percentage of FSWs who reported always using a condom with sweethearts increased from 20.3 percent in 1997 to 47.2 percent in 1999. Consistent condom use with sweethearts rose from six percent in 1997 to 12.8 percent in 1999 among military men and from six percent in 1997 to 32.4 percent in 1999 among police. Beer promoters also showed an increase in condom use with

sweethearts, from 8.2 percent in 1997 to 26.1 percent in 1999.



#### Figure 5. Always use of condoms with a "sweetheart"

## Conclusion

- Condom use during commercial sex has increased across all groups.
- The data reveal a decrease in those having commercial partners across all risk groups, particularly among the high-risk male groups. This is significant because reducing the frequency of sex with high-risk partners is one strategy for preventing transmission of HIV.
- Since 1997, the highest increase in condom use has been among beer promoters. Despite this change, this group continues to report the lowest levels of condom use.
- Condom use with "sweethearts" has increased.

## **Technical Guidelines**

For more information, see the following technical guidelines:

# UNAIDS and Family Health International, May 1998. Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes.

Discusses behavioral data collection needs by different epidemic state. Reflects recent thinking about the best use of resources in behavioral data collection in the context of second generation surveillance.

## Family Health International, June 2000. Behavioral Surveillance Surveys (BSS): Guidelines for Repeated Behavioral Surveys in Populations at Risk for HIV.

Provides how-to information that includes identifying priority subpopulations, developing sampling frameworks and approaches, and suggesting analysis and dissemination strategies. Also includes sample questionnaires.

#### UNAIDS and WHO, 2000. Guidelines for Second Generation HIV Surveillance.

Provides an overview of the principal issues that need to be considered in

strengthening surveillance systems and increasing their utility. Suggests priority approaches for the various epidemic states.

## **Acknowledgments**

#### The Cambodia BSS were executed and administered by:

National Center for HIV/AIDS Dermatology and STD (NCHADS)

#### With technical assistance from:

Family Health International University of Washington

#### Funded by:

United States Agency for International Development (1997, 1998) Cambodian Disease Control and Health Development Project (1999)\*

\* Since 1999 these surveys have been conducted by NCHADS under the Cambodian Disease Control and Health Development Project of the Ministry of Health, which is supported by a World Bank loan.

#### This executive summary is based on the following reports:

The Cambodian Behavioral Surveillance Survey First Round: 1997. BSS II -- 1998 & Changes in Sexual Behavior and Commercial Sex in Cambodia: 1997-1998. Cambodia's Behavioral Surveillance Survey 1999 (BSS I-III).

Family Planning

© Copyright 2000, Family Health International (FHI). URL:http://www.fhi.org



Behavioral Surveillance Surveys Côte d'Ivoire 1998

Behavioral Surveillance Surveys Executive Summaires

#### Introduction to Behavioral Surveillance Surveys

FHI's Behavioral Surveillance Surveys (BSS) provide valuable data about HIV/AIDS-related knowledge, attitudes, and behaviors. The BSS methodology is a monitoring and evaluation tool designed to track trends in HIV/AIDS-related knowledge, attitudes, and behaviors in subpopulations at particular risk of HIV infection, such as female sex workers, injection drug users, migrant men, and youth. Based on classic HIV and sexually transmitted disease (STD) serologic surveillance methods, BSS consist of repeated cross-sectional surveys conducted systematically to monitor changes in HIV/STD risk behaviors. A key benefit of the methodology is its standardized approach to questionnaire development, sampling frame construction, and survey implementation and analysis. BSS findings serve many purposes: They yield evidence of project impact, provide indicators of project success and highlight persistent problem areas, identify appropriate intervention priority populations, identify specific behaviors in need of change, function as a policy and advocacy tool, and supply comparative data concerning behavioral risks.

BSS have been conducted in more than 20 countries -- primarily in Africa and Asia -- since 1992, and their use in Latin America and the Caribbean is growing. Since 1999 they have been used in cross-border sites in Asia and Africa, where they are proving beneficial for understanding the pandemic from a regional instead of a purely country-specific perspective. In several countries multiple rounds of BSS have been implemented already, with the trend data used to formulate new programs and to adapt existing ones.

#### Introduction to Côte d'Ivoire BSS

Côte d'Ivoire is the country hardest hit by the epidemic in West Africa. Of its 15 million inhabitants, nearly 1 million people are living with HIV/AIDS. At least 10 percent of the sexually active population and 70 percent of female sex workers are estimated to be HIV-positive.

The National School of Statistics and Applied Economics (ENSEA), in conjunction with FHI/IMPACT, initiated a first wave of BSS in 1998 among four subpopulations in Côte d'Ivoire. This report summarizes the findings of that study.

#### **Study Design and Methodology**

### Study population

Data on high-risk subpopulations provide information on groups having the greatest impact on the HIV and STD epidemics. For this reason, subpopulations for BSS primarily consist of groups, such as female sex workers (FSWs), who are at high risk of becoming infected and passing the infection onto others. Other subpopulations are considered "bridge" groups and consist of individuals who have significant sexual contact with both high- and low-risk groups. Long distance truckers or miners are examples of bridge populations, as they may have contact with non-regular partners and FSWs while away from their regular partners for extended periods of time. Low-risk groups form more broadly defined general populations with varying socio-demographic characteristics, such as workers and students.

Table 1 provides a list of the selected subpopulations that participated in BSS: FSWs, truck drivers, male migrant workers ages 15 to 49, and male and female youth ages 15 to 19. Youth were sampled from six regional capitals. FSWs were sampled from five of these six cities. Truck drivers were sampled from three cities along the Abidjan --Ouagadougou/Bamako/Niamey truck route. Migrant workers were sampled from three large agro-industrial farms located throughout Côte d'Ivoire and came primarily from Côte d'Ivoire (57 percent), Burkina Faso (35 percent), and Mali (3.5 percent).

#### Sample size

The number of respondents for each group was determined based on the estimated level of key risk behaviors (such as percentage using condoms with non-regular sex partners) and the degree of confidence required to detect a significant change in behavior over time.

	-	Sul	bpopulati	ons	
Study sites	FSWs	Truck drivers	Male migrant workers	Male youth	Female youth
Abidjan	300	206	-	398	458
Bondoukou	-	-	-	406	406
Bouaké	319	-	-	435	428
Daloa	300	-	-	419	420
Korhogo	301	-	-	463	380
San-Pédro	300	-	-	436	426
Ouangolodougou	-	200	-	-	-
Pogo	-	260	-	-	-
Sucrivoire Zuénoula	-	-	505	-	-
Agro-Industrial Company of Bettié (SAIBE)	-	-	169	-	-
Rubber Company of Grand Béréby (SOGB)	-	-	572	-	-
Total	1.520	666	1.246	2.557	2.518

## Table 1. Subpopulations, Study Sites, and Sample Sizes

## Sample design/data collection

Due to the different characteristics of each subpopulation, sampling methods varied. A two-stage cluster sampling design was used for FSWs and youth. During the first stage, a list of clusters was established and the number of individuals per cluster was estimated. Locations such as bars and clubs served as clusters for FSWs, and neighborhood blocks served as clusters for youth. Once the list had been developed, clusters were randomly selected for inclusion. During the second stage, individuals in selected clusters were randomly selected to be interviewed from the selected sites until the desired sample sizes were reached.

A single-stage sampling design was employed for the trucker survey because the sites were pre-determined. All truckers passing through each selected site were interviewed.

A two-stage sampling design was employed for male migrant workers. Company sites were selected based on at pre-determined sites. Systematic random sampling was used in each village until the desired sample sizes were attained.

Interviews with respondents were conducted primarily in French, with local languages and English used as needed. ENSEA analyzed the data with technical assistance from FHI/IMPACT. Epi Info and SPSS were used to perform data entry, management, and analysis.

## **Results for Female Sex Workers**

#### **Sociodemographics**

The age of the FSWs interviewed ranged from 12 to 60. The majority were between 20 and 30 years old, with a mean age of 26. In most sites approximately 16 percent of FSWs were younger than 20 years of age; however, nearly a quarter of the FSWs in San-Pédro were younger than 20.

Overall, it was found that FSWs had little education. On average, 44 percent of FSWs had no schooling and less than one percent had attended high school. One out of four reported attending junior high. FSWs in Korhogo were the least educated: over half (55 percent) had no education, and none of them had attended high school.

Forty-four percent of FSWs reported being single at the time of the interview, while only two percent said they were married. One in five reported living with someone to whom they were not married, and more than one-third were separated or divorced. The average age upon entering sex work was 23 years.

## Knowledge of STDs

When asked if they knew male and female symptoms of STDs, 70 percent of FSWs knew at least two female symptoms and over half (55 percent) knew at least two male symptoms (figure 1). Seventeen percent knew no female symptoms and 24 percent knew no male symptoms.



Figure 1. FSW knowledge of STD symptoms

## Knowledge of HIV/AIDS

Knowledge of the existence of HIV/AIDS was almost universal (98 percent), and only 11 percent of respondents did not know any correct methods to prevent HIV/AIDS (figure 2). Sixty-seven percent could state one correct method of prevention, while 20 percent reported knew at least two methods.



Figure 2. FSW knowledge of HIV prevention methods

Eighteen percent of FSWs reported not knowing anyone infected with HIV/AIDS. Only 6.4 percent said they knew a family member or close friend who was living with HIV or had died of AIDS.

## Behavioral indicators

More than half of FSWs surveyed had had sexual intercourse for the first time before age 15, while the majority (87 percent) had had sexual intercourse before the age of 18. The mean age of first sexual relations among the FSWs interviewed was 15 years old. Of FSWs interviewed who were younger than 20 years old, more than three-quarters had their first sexual relations before age 15. In contrast, 23 percent of FSWs older than 40 reported having their first sexual relations before age 15.

Most FSWs interviewed had used a condom with their last non-regular and regular clients (84 percent and 82 percent, respectively), but the percentage who had used a condom with regular non-client partners was much lower (figure 3). While 73 percent of FSWs older than 35 reported using a condom with the last non-regular client, 89 percent of those younger than 20 reported using a condom with this type of client. Almost all FSWs (99 percent) interviewed stated they knew where to obtain a condom. Half of the women knew what a female condom was, but only 14 percent knew where to get one.





## **Results for Male Rural Migrant Workers, Ages 15-49**

## **Sociodemographics**

All rural migrant worker respondents were male and between the ages of 15 and 49 years old. The mean age of respondents did not vary much among study sites (28.6 to 30.5 percent) and was approximately 30 years old for all respondents.

The majority (57 percent) of the respondents were from Côte d'Ivoire, followed by those from Burkina Faso (35 percent). The percentage of migrants who were illiterate (no schooling) varied substantially among study sites, ranging from 64 percent at the Agro-Industrial Company of Bettié (SAIBE) and 48 percent at the Rubber Company of Grand Béréby (SOGB) to only 21 percent at Sucrivoire Zuénoula. On average, 39 percent of the migrant workers interviewed had no schooling, 25 percent had a primary school education, and the remaining 36 percent had at least a junior high school education.

More than half the migrants interviewed reported being in a union with someone, either married (46 percent) or living with someone (18 percent). The remaining 36 percent reported being single and living alone.

## Knowledge of STDs

Most of the migrant respondents (91 percent) had heard of STDs. Among migrants younger than 20 years old and those with no education, 25 percent and 18 percent, respectively, had never heard of STDs. Well over half (59 percent) of all migrants did not know at least one female STD symptom, while 20 percent did not know at least one male symptom (figure 4). More than half (55 percent) knew at least two male STD symptoms, but only 23 percent knew at least two female symptoms. Just over eight percent of respondents reported that they had never heard of STDs.



## Figure 4. Migrant knowledge of STD symptoms

## Knowledge of HIV/AIDS

More than 99 percent of migrant workers had heard of AIDS and 55 percent knew at least two correct methods of HIV/AIDS prevention (figure 5). Nine percent could state no correct methods, while 35.5 percent were able to identify one method of prevention. Sixty-eight percent of migrants did not know anyone infected with HIV. However, almost 16 percent reported having a family member or close friend who was living with HIV or had died from AIDS.





## **Behavioral indicators**

Just over six percent of migrant workers reported never having had sexual intercourse. Of the 86 percent who reported having been sexually active in the past 12 months, 69 percent stated that during this period they did not have sexual relations with a non-regular partner. The percentage reporting sex with one non-regular partner was 15.6 percent and with two was 6.1 percent. Only nine percent said that they had had sex with more than two non-regular partners in the past 12 months. Sixty-seven percent of those with non-regular partner (figure 6). The proportion reporting condom use at last sex with a regular partner was only 21 percent, or approximately one-third the level of condom use at last sex with a non-regular partner.





Only five percent of the sexually active migrants reported having sex with an FSW in the past 12 months, with only two percent reporting three or more encounters with FSWs. Of

the respondents who said they had had commercial sex partners, 82 percent reported using a condom during their last sexual relations with an FSW.

## **Results for Truck Drivers, Ages 15-49**

#### **Sociodemographics**

All the truck drivers interviewed were males between the ages of 15 and 48. The mean age of all the truckers was 28 years old, with the majority (38 percent) being 30 years old or older. One-third of the respondents had no schooling, but one-fourth had a secondary school level education or higher. One out of four respondents had a primary school education, and an additional 17 percent had attended a koranic school.

More than half the respondents (54 percent) stated they were not married. Over one-third (38 percent) were married, and eight percent said they were not married but were living with someone. The majority of the truckers were from Côte d'Ivoire (35 percent), Mali (36 percent), or Burkina Faso (23 percent).

#### Knowledge of STDs

Almost all truckers (95 percent) had heard of STDs, but 70 percent could name no female symptoms and more than one-quarter (27 percent) could name no male symptoms (figure 7). While 41 percent knew at least two male STD symptoms, only eight percent knew at least two female symptoms.



Figure 7. Trucker knowledge of STD symptoms

#### Knowledge of HIV/AIDS

More than 99 percent of truck drivers had heard of HIV/AIDS. Among all trucker respondents, 87 percent were able to spontaneously name at least one correct method of preventing HIV infection (40 percent cited one correct method and 45 percent gave two or more) (figure 8). There was a direct relationship between the level of education and the number of prevention methods known. While 20 percent of those with no education knew no correct methods of prevention, only six percent with at least a secondary education could name no correct methods.



## Figure 8. Trucker knowledge of correct HIV prevention methods

More than two-thirds (67.5 percent) of respondents stated they knew no one with HIV/AIDS. The remaining respondents knew either a close friend or family member (18.2 percent) or someone else (14.3 percent) who was living with HIV or had died from AIDS.

## **Behavioral indicators**

Twelve percent of the truckers interviewed said they had not been sexually active in the past 12 months (figure 9). Of those who were sexually active, 63 percent stated that they had not had sex with a non-regular partner in the past 12 months. More than one out of four sexually active truckers reported having one or two non-regular partners; 12 percent had had three or more non-regular partners in the past 12 months. Younger truckers tended to have more non-regular partners than older truckers.



## Figure 9. Number of partners in past year among truckers

Most truck drivers (84 percent) reported they had had no sexual intercourse with FSWs in the past 12 months. Of those who had, eight percent had had one or two encounters with an FSW and an equal percentage had had three or more during the past 12 months. Sexual relations with FSWs over the past 12 months was correlated with age: 24 percent of those under 20 years old had had sexual relations with an FSW at least once, while only 11 percent of those older than 30 had.

Of respondents reporting sexual relations with non-regular partners, 60.6 percent said they always used a condom, compared to 77.4 percent who reported always using a condom with FSWs (figure 10). Younger truck drivers were more likely than their elders to always use a condom with both non-regular partners and FSWs.



Figure 10. Trucker condom use at last sex

Condom use at last sex with non-regular partners (71.8 percent) and with FSWs (87.8 percent) was relatively high. In comparison, only 30 percent of respondents had used a condom at last sex with a regular partner.

## Results for Youth, Ages 15-19 (male and female)

#### **Sociodemographics**

All youth respondents were between 15 and 19 years old. In general, male respondents were evenly distributed across this age range, whereas female respondents tended to be grouped in the younger end of the range. More than twice as many female respondents had no education (29 percent of males compared to 13 percent of females). Male youths were also found to have attended secondary school more often than their female counterparts (60 percent compared to 40 percent). Approximately two percent of the entire sample had attended a koranic school, and less than one-half of one percent had received an education beyond secondary school.

## Knowledge of STDs

Overall, knowledge of STDs among both males and females was poor. Nearly a quarter (23 percent) of female respondents and 12 percent of male respondents had never heard of STDs (figure 11). In addition, over half of both male and female respondents knew no female STD symptoms (66 percent and 54 percent, respectively). Levels of knowledge of male STD symptoms were similar, with 48 percent of males and 59 percent of females not knowing any male symptoms. Knowledge of STD symptoms among males was statistically significant when compared with level of education attained. Data analysis revealed a statistically significant correlation between males' knowledge of STD symptoms and level of education attained.



Figure 11. Knowledge of gender-specific STD symptoms

## Knowledge of HIV/AIDS

Almost all respondents (99 percent of males and 98 percent of females) had heard of HIV/AIDS. Just over three-quarters reported that they knew no one with HIV or AIDS. Approximately eight percent reported having a close family member or friend who was living with HIV or had died from AIDS.

More than two-thirds of males and over half of the females were found to know at least two correct methods of HIV/AIDS prevention (figure 12). Among males, only eight percent knew no correct means of preventing HIV, while 17 percent of female

respondents knew no correct means of prevention.



## Figure 12.Knowledge of HIV prevention methods

## **Behavioral indicators**

Out of all youth surveyed, 55.3 percent of males and 53 percent of females reported having had sexual intercourse, and the average age at first sex for both males and females was 15 years old.

Over two-thirds (68 percent) of males reported having had a sexual partner in the last year, with 32% percent reporting one partner and 35 percent reporting two or more (figure 13). One-third reported they were unsure as to how many partners they had had in the past year. Among female respondents, 56 percent reported having one partner, and 21 percent reported having two or more partners. 22 percent of females did not know how many sexual partners they had had over the past 12 months. Only about one-third of both sexes reported having used a condom the last time they had sex (35 percent of females).



Figure 13. Number of sex partners in last year

## **Summary of Findings**

Knowledge of gender-specific STD symptoms

Of all subpopulations, FSWs were the most knowledgeable regarding STD symptoms. Approximately half of FSWs surveyed knew at least two male STD symptoms, and 65 percent knew at least two female STD symptoms. Among youth, less than one-quarter of both males and females were able to cite at least two gender-specific symptoms. Forty-one percent of truck drivers could site at least two male symptoms, and only eight percent knew two female symptoms.

### Knowledge of means of HIV prevention

Youth were the most knowledgeable of all subpopulations concerning correct methods of HIV prevention, with 67 percent of males and 53 percent of females able to cite at least two correct means of prevention. Less than half (47 percent) of truckers and 55 percent of migrant men were able to site at least two correct prevention methods. The percentage of FSWs who knew at least two correct means of HIV prevention was small (20 percent).

## Sexual initiation

More than half (55 percent) of the youth respondents were sexually active and had started at a young age (15). The majority (51 percent) of FSWs had had their first sexual relations before the age of 15.

#### Non-regular partners

The level of sexually active youth with multiple sex partners was relatively high, especially among males (35 percent compared with 14 percent of females). Among migrant workers and truckers, approximately one-third reported having had at least one non-regular sex partner in the past 12 months.

#### Commercial partners

Only eight percent of truckers and five percent of migrant workers reported having had at least one sexual encounter with an FSW in the past 12 months.

#### Condom use

More migrants reported using a condom during their last encounter with an FSW (82 percent) than with a non-regular partner (67 percent). Truckers reported the inverse: 87.8 percent had used a condom at last sex with an FSW and 71.8 percent had used one at last sex with a non-regular partner. Most FSWs interviewed used a condom with their last non-regular and regular clients, (84 percent and 82 percent, respectively), but FSW condom use at last sex with a regular non-client partner was low (16 percent).

## **Technical Guidelines**

For more information, see the following technical guidelines:

# UNAIDS and Family Health International, May 1998. Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes.

Discusses behavioral data collection needs by different epidemic state. Reflects recent thinking about the best use of resources in behavioral data collection in the context of second generation surveillance.

# Family Health International, June 2000. Behavioral Surveillance Surveys (BSS): Guidelines for Repeated Behavioral Surveys in Populations at Risk for HIV.

Provides how-to information that includes identifying priority subpopulations, developing sampling frameworks and approaches, and suggesting analysis and dissemination strategies. Also includes sample questionnaires.

#### UNAIDS and WHO, 2000. Guidelines for Second Generation HIV Surveillance.

Provides an overview of the principal issues that need to be considered in strengthening surveillance systems and increasing their utility. Suggests priority approaches for the various epidemic states.

## **Acknowledgments**

#### The Côte d'Ivoire BSS was executed by:

Ecole National Supérieur de Statistique et d'Economie Appliquée (ENSEA)

#### Administered by:

National AIDS/STD/TB Control Program of the Ministry of Public Health

#### With technical assistance from:

Family Health International

#### With administrative and logistical support from:

Care and Health Program (CHP)

#### Funded by:

The United States Agency for International Development (USAID) through the Projet Santé Familiale et Prévention du SIDA (SFPS)

#### This executive summary is based on the following report:

Behavioral Surveillance Survey on STD/HIV Related Behaviors in Côte d'Ivoire (BSS 1998).



Behavioral Surveillance Surveys Indonesia 1996, 1997, and 1998

Behavioral Surveillance Surveys Executive Summaires

#### Introduction to Behavioral Surveillance Surveys

FHI's Behavioral Surveillance Surveys (BSS) provide valuable data about HIV/AIDS-related knowledge, attitudes, and behaviors. The BSS methodology is a monitoring and evaluation tool designed to track trends in HIV/AIDS-related knowledge, attitudes, and behaviors in subpopulations at particular risk of HIV infection, such as female sex workers, injection drug users, migrant men, and youth. Based on classic HIV and sexually transmitted disease (STD) serologic surveillance methods, BSS consist of repeated cross-sectional surveys conducted systematically to monitor changes in HIV/STD risk behaviors. A key benefit of the methodology is its standardized approach to questionnaire development, sampling frame construction, and survey implementation and analysis. BSS findings serve many purposes: They yield evidence of project impact, provide indicators of project success and highlight persistent problem areas, identify appropriate intervention priority populations, identify specific behaviors in need of change, function as a policy and advocacy tool, and supply comparative data concerning behavioral risks.

BSS have been conducted in more than 20 countries -- primarily in Africa and Asia -- since 1992, and their use in Latin America and the Caribbean is growing. Since 1999 they have been used in cross-border sites in Asia and Africa, where they are proving beneficial for understanding the pandemic from a regional instead of a purely country-specific perspective. In several countries multiple rounds of BSS have been implemented already, with the trend data used to formulate new programs and to adapt existing ones.

#### Introduction to Indonesia BSS

The growing number of HIV/AIDS cases in Indonesia has challenged policy makers to take urgent steps to implement the National AIDS Strategy. More people within government of Indonesia (GOI) agencies and the public at large are now active, both independently and jointly, in efforts against the epidemic. In the continued absence of vaccines and effective, affordable drugs for preventing or treating HIV infection, the GOI promotes culturally and religiously appropriate educational efforts aimed to promote abstinence, encourage people to have fewer sex partners, and increase the use of condoms.

Since 1996 the GOI has collaborated with Family Health International (FHI), USAID, and non-governmental organizations in seaport cities of Indonesia (notably, North Jakarta, Surabaya, and Manado) to implement the HIV/AIDS Prevention Project (HAPP). The HAPP is an intensive project that promotes behavior change, policy reform, improved STD diagnostic and treatment services, and increased access to protective devices for those at greatest risk of infection.

The Indonesia Behavioral Surveillance Surveys (BSS), which have been carried out since 1996, serve as a tool to help measure the progress of HAPP interventions. This report highlights findings from the first through the third waves of the Indonesia BSS, conducted in 1996, 1997, and 1998. The report for the fourth wave of BSS, carried out in 1999, will be available for distribution in 2000.

## **Study Design and Methodology**

All waves of the BSS, from the initial wave in 1996 through 1998, followed the same methodology, described below.

## Study population

The BSS were designed to enable measurement of behavior change over time among specific subpopulations. Data on high-risk groups provide valuable information on the segments of the population having the greatest impact on the HIV and STD epidemics. Therefore, many of the groups included in the BSS were those at highest risk of infection and transmission, such as female sex workers (FSWs). In addition to the high-risk groups, the BSS included other subpopulations that are considered "bridge" groups, consisting of individuals who have significant sexual contact with both high-and low-risk groups. Bridge groups for these surveys included sailors/seaport laborers (S/SLs), truck drivers and their assistants (TD/As), and male factory workers (MFWs). Low-risk groups typically are more broadly defined groups within the general population representing varying socio-demographic characteristics. For the purpose of the Indonesian BSS, women in the general population -- female factory workers (FFWs) and male and female high school seniors -- represented the low-risk groups.

#### **Subpopulation Definitions**

#### Location-based Sex Workers (LSWs)

Females engaging in sex in exchange for remuneration in a formalized setting for commercial sex, such as a brothel

#### Non Location-based Sex Workers (NLSWs)

Females having sex in exchange for remuneration in an informal setting, such as a street or bar

#### Sailors and Seaport Laborers (S/SLs)

#### Truckers (TD/As)

Truck drivers and drivers' assistants

#### **Male Factor Workers (MFWs)**

**Female Factory Workers (FFWs)** 

#### **Male Students**

Male senior high school students

#### **Female Students**

Female senior high school students

Due to practical considerations and logistical issues that arose during data collection, particular groups were, at times, selected in one city but not others, and data were not collected from all subpopulations for all survey waves.

#### Study sites

The HAPP intervention sites of North Jakarta, Surabaya, and Manado, were selected as the sites for the BSS. Besides being major entry ports for the country, these three cities have cosmopolitan and urban characteristics, with active sex industries. Table 1 shows study sites with the corresponding subpopulations for wave one through three.

## Table 1. Survey Populations with Study Sites and Sample Sizes, BSS 1, 2 & 3(1996-1998)

	Nort	h Jaka	rta	Sural	baya		Mana	ido	
Survey Populations	BSS 1	BSS 2	BSS 3	BSS 1	BSS 2	BSS 3	BSS 1	BSS 2	BSS 3
Location-based Sex Workers (LSWs)	200	200	200	201	200	200	-	-	-
Non Location-based Sex Workers (NLSWs)	199	200	198	200	203	201	200	200	201
Sailors and seaport laborers (S/SLs)	399	400	400	200	200	200	400	400	403
Male factory workers (MFWs)	-	-	-	401	-	400	-	-	-
Truck drivers/assistants (TD/As)	-	-	-	200	200	200	-	-	-
Female factory workers (FFWs)	-	-	-	400	-	401	-	-	-
Male senior high school students (MS)	-	400	-	-	400	-	400	-	400
Female senior high school students (FS)	-	-	-	-	401	-	400	-	400
Totals	798	1200	798	1602	1604	1602	1400	600	1404

#### Sample size

Sample size was determined in each group and in each city on the basis of specific behavioral parameters, the behavior change to be detected, the degree of confidence in such a change, statistical power and design effect. With these parameters, sample sizes of 200 to 400 respondents were required for each subpopulation group in each city.

#### Sample design

A two-stage cluster design was employed with each group. During the first stage, clusters were selected by probability proportional to size from a complete list of sites. Respondents were selected from the selected clusters during the second stage.

A sampling frame was initially prepared to provide the basis for selecting clusters. Brothel complexes were used as clusters for LSWs, while areas such as brothel houses, streets, massage houses, hotels, and discotheques, bars, and nightclubs were used for NLSW clusters. Seaport areas were used as clusters for sampling sailors and seaport laborers, factory areas were used for male and female factory workers, and schools were used for students. Information regarding clusters, such as city, population group, geography, and the estimated number of individuals per cluster, was recorded.

#### Questionnaire

The questionnaires were developed in stages parallel to the field preparation. In-depth interviews were conducted to assist in the development of questionnaires. Separate questionnaires were developed for FSWs, female respondents, and male respondents.

Questionnaires were pretested to ensure that the questions and the interviewing techniques were appropriate. Pretest results were also used as a means of validating the

survey data. Questionnaires used in wave 2 and wave 3 were modeled on the wave 1 questionnaires.

## Results

#### Sociodemographic characteristics

The population surveyed in the BSS was a relatively young, urban population. Relevant demographic data collected from this population included age, marital status, and education levels.

#### Age

Except for students, whose ages ranged from 16 to 20 years, respondents' ages were concentrated in the range of 25 to 30 years, and this varied little over the survey years. FSW age varied from 14 to 53 years. While there were few people in the extremes, FSWs had the lowest mean age of all other groups except students. Between 40 percent and 58 percent of S/SLs and TD/As were older than 29. Male respondents were generally older than female respondents.

#### **Marital Status**

The marital status of the population sampled did not vary much during the survey years, except among S/SLs, where the marriage rate dropped from 60 percent in wave one to 30 percent in wave three. The marriage rate among FSWs remained low throughout the survey years, while the divorce rate averaged more than 50 percent in all years and study sites. Most of the NLSWs in Manado had never married, and their divorce rate was lower than those of all other FSWs. The majority of male respondents were married.

#### **Education**

In general, male respondents had a higher level of education than female respondents. Among the female respondents, factory workers had higher education levels than sex workers, and NLSWs tended to have more education than LSWs. Among male respondents (except students), MFWs had attained higher education levels than any other group, with more than half reporting having finished high school.

#### Trends in BSS indicators

#### **Knowledge Indicators**

#### Knowledge of HIV/AIDS

In wave 1 most respondents reported having heard of HIV/AIDS (more than 80 percent), and 60 percent to 80 percent of respondents could correctly recognize at least one of three correct ways to prevent HIV transmission. However, only 50 to 60 percent of those surveyed responded correctly regarding misconceptions about how to prevent

#### transmission.

Students, in particular, indicated a relatively good understanding of HIV prevention. In the first wave of data collection, more than 70 percent of students were able to identify two appropriate prevention strategies. Student knowledge of HIV improved in Manado between waves one and three.

Respondents showed increased knowledge of appropriate ways to prevent HIV from wave one through wave three in all study sites. Specifically, when asked about ways to prevent HIV, an increasing percentage of respondents knew that condom use during sex can prevent HIV transmission. Figure 1 shows an increased trend in knowledge among all groups from wave one to wave three.





Many men, however, still maintain misconceptions about HIV transmission. From wave one to wave three, for example, an increasing number of S/SLs incorrectly believed that avoiding eating with or using the same toilet as a person living with HIV/AIDS were effective prevention methods.

In wave one, LSWs had the least knowledge of appropriate ways to prevent HIV transmission and the highest levels of misconceptions about ways HIV is transmitted. As depicted in Figure 2, knowledge of ways to prevent HIV/AIDS rose steadily among sex workers from wave one through wave three; however, this increase was mostly due to an increase in knowledge among LSWs in Jakarta and NLSWs in Surabaya.

Figure 2. FSW knowledge of two ways to prevent HIV/AIDS



Figure 3 shows that a greater proportion of S/SLs and TD/As knew of two ways to prevent HIV transmission in wave three than in wave one. This increase was due to increases in knowledge levels among both groups in all three study sites.

S/SL and TD/A knowledge of HIV/AIDS improved markedly between waves one and three. For example, whereas in wave one approximately 75 percent of S/SLs in Jakarta and Surabaya knew that avoiding shared needles reduces HIV transmission, by wave three up to 90 percent of respondents knew that this was an appropriate prevention strategy. Overall, a greater proportion of factory workers responded correctly to appropriate ways of preventing HIV/AIDS than did other groups, except students. Younger and more educated respondents had a better understanding of HIV/AIDS.





## Knowledge of condoms

The majority of respondents knew about condoms in wave one. Levels of knowledge increased slightly -- particularly among male respondents and female factory workers -- over the survey years. More than 90 percent of sex workers were able to recognize a condom in wave one, and this percentage increased slightly over the survey years, in some cases to 100 percent. Most FSWs also knew that the purpose of a condom was to avoid STDs, including HIV or pregnancy. FFWs displayed the least knowledge about the purpose of a condom. Fewer than half knew that condom use could prevent STDs, whereas more than 60 percent of MFWs, S/SLs, and TD/As knew this.

## Knowledge related to STDs

All the data revealed that respondents' knowledge of STDs remained limited throughout the survey years. Respondents were able to name only the "popular" types of STD, such as syphilis, gonorrhea, and HIV/AIDS, with syphilis being the best known. This knowledge changed minimally over the survey years, with the percentage of those who could name HIV/AIDS as an STD increasing among male respondents in wave two but then falling again in wave three.

## **Behavioral Indicators**

Analysis of trends in behavioral indicators measured through the BSS has helped to demonstrate that risk behaviors have been slow to change, despite targeted interventions.

#### Sexual behavior among non-FSW respondents

For the majority of respondents, first sexual intercourse -- both marital and premarital -- took place between 15 and 24 years of age. Many of the male students who reported having had sexual intercourse said their first experience with sexual intercourse took place before they were 15 years of age. In Jakarta, the proportion of S/SLs who reported having sex at a young age (15 to 19 years old) increased from wave one to wave three, while the percentage of TD/As reporting early sexual initiation decreased.

Approximately one out of four respondents, particularly S/SLs and TD/As in Jakarta and Surabaya, reported that an FSW was their first sexual partner. S/SLs and TD/As reported a much higher level of sexual contact with FSWs than other male groups. Figure 4 shows that the percentage of S/SLs and TD/As who reported having had sex with an FSW in the past year increased from wave one to wave three. A slight increase in commercial sex patronage also occurred among MFWs.





Condom use among both male and female respondents who reported having had sex remained low throughout all survey years. It ranged from 0 to 9.4 percent, except among male and female students in Surabaya, where use was reported to be 15.6 percent and 25 percent, respectively.





Although the proportion of male respondents who reported having sex with FSWs was

Condom use among non-FSWs

high, (between 50 and 70 percent in the study years in all sites), condom use with FSWs was low (5 to 15 percent). With the exception of TD/As in Surabaya, it decreased over the three waves.



Figure 6. MFW condom use with FSWs

The percentage of MFWs who had used a condom in their last sex encounter with an FSW increased from seven percent in wave one to nearly 17 percent in wave three. However, the percentage of MFWs reporting consistent condom use with FSWs dropped slightly, from five percent in wave one to 3.3 percent in wave three.

#### Sexual behavior and condom use among FSWs

The mean reported age at first sexual contact among all the FSW respondents was about 17 years. As shown in Figure 7, in wave only about one-third (36.3 percent) of all FSWs surveyed reported using a condom in their last sexual engagement with a client, and this percentage remained nearly constant across the study waves.

Of the FSWs interviewed, about 40 percent stated that they had had a boyfriend (non-client) in the last six months. Of these, however, only 17 percent reported using a condom in their last sex with a boyfriend. This percentage did not change measurably over the survey years.





## **Summary of Findings**

Analysis of trends across the three waves of data collection supports the following

conclusions:

- High percentages of respondents in all subpopulations had heard of HIV/AIDS.
- Respondents in all study sites showed increased knowledge of appropriate ways to prevent HIV transmission between waves one and three.
- Knowledge of condoms increased for respondents during the survey years.
- Knowledge of STDs remained relatively low throughout the survey years.
- The percentage of male respondents (S/SLs and TD/As) who reported having sex with an FSW increased from wave one to wave three.
- Condom use with FSWs among male respondents (S/SLs and TD/As) decreased between wave one and wave three.
- FSW condom use with clients remained constant between wave one and wave three.

## **Technical Guidelines**

For more information, see the following technical guidelines:

# UNAIDS and Family Health International, May 1998. Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes.

Discusses behavioral data collection needs by different epidemic states. Reflects recent thinking about the best use of resources in behavioral data collection in the context of second generation surveillance.

## Family Health International, June 2000. Behavioral Surveillance Surveys (BSS): Guidelines for Repeated Behavioral Surveys in Populations at Risk for HIV.

Provides how-to information that includes identifying priority subpopulations, developing sampling frameworks and approaches, and suggesting analysis and dissemination strategies. Also includes sample questionnaires.

#### UNAIDS and WHO, 2000. Guidelines for Second Generation HIV Surveillance.

Provides an overview of the principal issues that need to be considered in strengthening surveillance systems and increasing their utility. Suggests priority approaches for the various epidemic states.

#### Acknowledgments

#### **Executed by:**

Center for Health Research, University of Indonesia

#### Administered by:

Indonesia Ministry of Health under the HIV/AIDS Prevention Project

### (HAPP)

### With technical assistance from:

Family Health International

## Funded by:

United States Agency for International Development (USAID)

## This executive summary is based on the following reports:

- Baseline STD/HIV Risk Behavioral Surveillance Survey 1996: Results from the cities of North Jakarta, Surabaya, and Manado.
- STD/HIV Risk Behavioral Surveillance Surveys 1996, 1997, and 1998: Results from cities of Jakarta, Surabaya, and Manado.

Family Planning





Behavioral Surveillance Surveys Senegal 1997 and 1998

Behavioral Surveillance Surveys Executive Summaires

#### Introduction to Behavioral Surveillance Surveys

FHI's Behavioral Surveillance Surveys (BSS) provide valuable data about HIV/AIDS-related knowledge, attitudes, and behaviors. The BSS methodology is a monitoring and evaluation tool designed to track trends in HIV/AIDS-related knowledge, attitudes, and behaviors in subpopulations at particular risk of HIV infection, such as female sex workers, injection drug users, migrant men, and youth. Based on classic HIV and sexually transmitted disease (STD) serologic surveillance methods, BSS consist of repeated cross-sectional surveys conducted systematically to monitor changes in HIV/STD risk behaviors. A key benefit of the methodology is its standardized approach to questionnaire development, sampling frame construction, and survey implementation and analysis. BSS findings serve many purposes: They yield evidence of project impact, provide indicators of project success and highlight persistent problem areas, identify appropriate intervention priority populations, identify specific behaviors in need of change, function as a policy and advocacy tool, and supply comparative data concerning behavioral risks.

BSS have been conducted in more than 20 countries -- primarily in Africa and Asia -- since 1992, and their use in Latin America and the Caribbean is growing. Since 1999 they have been used in cross-border sites in Asia and Africa, where they are proving beneficial for understanding the pandemic from a regional instead of a purely country-specific perspective. In several countries multiple rounds of BSS have been implemented already, with the trend data used to formulate new programs and to adapt existing ones.

#### **Introduction to Senegal BSS**

In Senegal six official HIV cases were reported in 1986; in 1997 there were over 2,000 reported cases. However, in comparison with other countries in sub-Saharan Africa, and even countries in western Africa, the epidemic in Senegal is less severe. Adult HIV prevalence has fluctuated slightly since the early years of the epidemic, but has remained at approximately one to two percent. Prevalence is considerably higher in some high-risk groups, such as female sex workers (33.3 percent infected in the Ziguinchor region in 1997).

From 1992 through 1997, four diverse regions of Senegal -- Dakar, Kaolack, Thies, and Ziguinchor -- were the focus of HIV prevention efforts. Since then, these efforts have been expanded to include other parts of the country. The first wave of BSS was conducted in these four regions due to the level of effort and attention they had received through prevention interventions. Findings from BSS one prompted researchers to add a number of subpopulations before implementing BSS two, which included all ten provinces and a total of ten subpopulations from both genders and from diverse backgrounds and occupations. Data on the three subpopulations surveyed in both waves are presented in this report. A third wave of BSS is currently planned for 2000.

## **Study Design and Methodology**

## Study population

Data on high-risk subpopulations provide information on the groups that have the greatest impact on HIV and STD epidemics. For this reason, subpopulations for BSS primarily consist of groups such as female sex workers (FSWs) who are at high risk of becoming infected and passing the infection onto others. Other subpopulations consisting of individuals who have significant sexual contact with members of both high- and low-risk groups are considered "bridge" groups. Long-distance truckers or miners, who may have contact with non-regular partners and FSWs while they are away from their regular partners for extended periods of time, are examples of bridge populations. Low-risk groups are more broadly defined subgroups of general populations with varying sociodemographic characteristics, such as workers and students.

The first wave of BSS in Senegal included female and male students, female sex workers, and informal sector workers. The second wave included female and male students, female sex workers, apprentices in the informal sector, young female domestic workers, male and female workers from the formal sector, truck drivers, prisoners, and female NGO members (a low-risk group serving as a proxy for the general population). Results for the three subpopulations included in both waves one and two are presented here.

#### **Senegal BSS Subpopulation Definitions**

#### Male students

Secondary school students (majority ages 15 to 19 years old)

#### **Female students**

Secondary school students (majority ages 15 to 19 years old)

#### Female Sex Workers (FSWs)

Female sex workers registered with the government

#### Sample size

The number of respondents for each group was determined based on the estimated level of key risk behaviors (such as percentage using condoms with non-regular partners) and the degree of confidence required to detect a significant change in behavior over time. The sample size for youth increased considerably for the second BSS because, based on the outcomes of the first wave, researchers decided to expand the geographic scope of the sample, necessitating an increase in sample size (see Table 1). While the geographic scope of sampling was also enlarged for FSWs, their numbers did not increase as dramatically due to their small overall numbers in some of the regions added in BSS two.

#### Table 1. Subpopulations, Sample Sizes, and Study Sites

Subpenulations	Samp	le Size	Survey Sites		
Subpopulations	1997	1998	1997	1998	
Male students	444	1181	Dakar, Kaolack, Thies, and	Dakar, Kaolack, Thiés,	
Female students	478	1179	Ziguinchor provinces	Ziguinchor, Saint-Louis, Louga,	
Female sex workers (FSWs)	449	681		Tambacounda, Fatick, Diourbel, and Kolda provinces	

## Sample design

The size of each subpopulation within selected towns was estimated and a two-stage sampling procedure was used to select respondents. Clusters were selected using probability proportional to size (PPS) in the first stage and respondents were selected randomly from those clusters in the second stage. During the first stage, a list or sampling frame was prepared to provide the basis for selecting clusters. Schools were used as clusters for male and female students, and bars and STD clinics were used as clusters for FSWs.

Teams of field staff received in-depth training in data collection methods and used standardized data collection tools. Each data collection team consisted of trained interviewers and supervisors, who closely monitored the fieldwork.

## **Youth Results**

#### **Sociodemographics**

Eighty-one percent of females in wave one and 79 percent in wave two were ages 15 to 19 years. The same respective proportions of males ages 15 to 19 were sampled in wave two. A further 14.6 percent of females in wave one and 16.9 percent in wave two were 20- to 24-years-old; males in this age group were similarly represented, with 17.1 percent in wave one and 16.3 percent in wave two. The remaining students were younger than 15 or older than age 25. Married females comprised 1.5 percent of those surveyed in wave one and 2.5 percent in wave two. The remaining females and all males surveyed were unmarried.

#### Trends in BSS indicators

#### **Knowledge of STDs**

Sixteen percent of female students were able to name two or more STD symptoms in females; this figure had increased to 21.3 percent by wave two (figure 1). For males, the ability to correctly name two STD symptoms in males dropped 4 percentage points, from 21.4 percent to 17.4 percent. The majority of both males (57.6 percent) and females (59.3 percent) could not identify any gender-specific symptoms of STDs in wave two, down from 60.6 percent of males and 65.3 percent of females in wave one.





### **Knowledge of HIV/AIDS**

Over 95 percent of all students surveyed were able to correctly identify two methods of preventing HIV transmission during both waves, with 100 percent of females able to identify two or more methods in wave two. At the same time, in both waves approximately one-quarter of males and one-third of females reported that transmission can be caused by using the same toilet as someone who is HIV-positive and by mosquito bites.

#### **Behavioral Indicators**

The majority of females in both waves had never had sexual intercourse, and that percentage increased from almost 88 percent in wave one to almost 95 percent in wave two. On the other hand, approximately one-third of male students had had sexual intercourse, and this level remained stable across the two survey waves (34.2 percent in wave one and 35 percent in wave two). Since the level of sexual activity was low among the females surveyed, the remainder of this section will focus on males.



#### Figure 2. Number of non-regular partners for male youth

Apparent changes in risk behavior among male youth were ambiguous. While the percentage of men reporting non-regular partners increased between waves one and two (figure 2), "always"' use of condoms with these non-regular partners also increased over the same period (figure 3). Specifically, the percentage of males reporting non-regular partners increased from 31.3 percent in wave one to 44.8 percent in wave two. ("Non-regular partners" are sexual partners who do not live with and are

not currently married to the respondent and with whom the respondent has not been sexually active for longer than the past 12 months). Those having two or more non-regular partners increased from 14.1 percent in wave one to 17.4 percent in wave two.

The majority of males in both waves reported consistent use of condoms with their non-regular partners. "Always" use of condoms with non-regular partners increased between waves one and two from 54.3 percent to 63.6 percent.



Figure 3. Male youth condom use with non-regular partners

In both wave one and wave two, fewer than 3 percent of sexually active respondents reported sex with a female sex worker.

## Female Sex Worker (FSW) Results

#### **Sociodemographics**

Table 2 provides selected demographic characteristics of FSWs. In both waves one and two, only approximately 15 percent of respondents were younger than 25 years old, while approximately one-half were between the ages of 25 and 34 years and an additional 20 percent were ages 35 to 39. The proportion of women without any schooling was 42.4 percent in wave one and 51.5 percent in wave two. Of women who had been formally educated, approximately one-third (36.7 percent in wave one and 31.9 percent in wave two) had only a primary school education. The majority of FSWs were divorced (57.3 percent in wave one and 58.3 percent in wave two), and 38 percent in wave one and 33.5 percent in wave two were single.

Variable	1997	1998
Sample size (n)	449	681
Age (years)		
< 20	1.6	2.3
20 24	14.1	10.4
25 29	27.1	25.6
30 34	22.9	23.3
35 39	18.0	19.7
40 49	12.7	16.5
50+ Missing	3.0	2.1
Education		
No school (illiterate)	42.4	51.5
Primary	36.7	31.9
Junior high level / +	18.3	15.1
Literate in Arabic or other languages	2.7	1.5
Marital status		
Single	38.0	33.5
Married	1.1	1.5
Widowed	3.6	6.7
Divorced	57.3	58.3

## Table 2: Basic Demographics, Female Sex Workers

## Trends in BSS indicators

## **Knowledge of STDs**

In wave two FSWs were better able to identify two or more correct STD symptoms in

women and men (44.4 percent and 36 percent, respectively), than in wave one (40.7 percent in women and 30.7 percent in men). Also, fewer FSWs were unable to identify any symptoms in wave one (35.3 percent in women and 41 percent in men) in comparison with wave one, where 42.4 percent of FSWs could not correctly identify any symptoms in women and 46.2 percent could identify no correct symptoms in men (figure 4).



Figure 4. FSW knowledge of STD symptoms

## **Knowledge of HIV/AIDS**

When provided with a list of possible methods of HIV prevention, almost all respondents were able to name at least two correct methods of preventing HIV transmission (91.1 percent in wave one and 98.5 percent in wave two). At the same time, however, beliefs about incorrect means of prevention continued to be prevalent across the two waves of behavioral surveillance (figure 5).



Figure 5. Percentage of FSWs identifying popular misconceptions as correct methods of prevention

#### **Behavioral Indicators**

The majority of FSWs in both wave one (54.4 percent) and wave two (55.2 percent) experienced first intercourse between ages 15 and 19 years, and approximately a quarter of women in both waves had experienced intercourse before the age of 15 (figure 6).

## Figure 6. FSW age at first intercourse



Decreases of less than 2 percentage points in condom use at last sex were reported between waves one and two for all types of partners; however, these decreases were not significant. In contrast, reported frequency of condom use with clients improved, although again, the changes were small across the two waves. Between waves one and two, "always" condom use increased from 90.2 percent to 94.5 percent with regular clients, but decreased from 71.2 to 51.4 percent with non-clients (figure 7). Rates of "always" condom use with one time-clients were high. Almost 98 percent of FSWs reported always using condoms with one-time clients in wave two, up from 93.9 percent in wave one.



Figure 7. FSW frequency of condom use by partner type

## **Summary of Findings**

Only two data points were available at the time of this report, while at least three data points are necessary to demonstrate a trend. Although it is not possible to draw conclusions about changes in knowledge and behavior related to HIV/AIDS/STD at this time, summarized here are highlights from the Senegal BSS waves one and two:

#### Youth

- More than half of the youth surveyed do not know gender-specific symptoms of STDs.
- Nearly all high school youth know at least two methods of HIV/AIDS prevention, and knowledge of methods improved between waves.
- Almost all the females and two-thirds of the males surveyed had never had sexual intercourse. Rates changed little between waves one and two.
- The percentage of sexually active males having non-regular partners over the previous 12 months increased from nearly one-third to nearly one-half between waves one and two.

• More than half of males with non-regular partners reported always using condoms with those partners, with "always" condom use increasing between waves one and two.

#### Female sex workers

- Approximately 40 percent of FSWs in both waves could not correctly identify any symptoms of STDs in men or women.
- Knowledge of two or more methods of HIV prevention improved between waves, with more than half of FSWs able to name at least two methods by wave two.
- More than half of FSWs surveyed experienced first intercourse between the ages of 15 to 19.
- "Always" condom use with regular clients was over 90 percent during both waves.

## **Technical Guidelines**

For more information, see the following technical guidelines:

# UNAIDS and Family Health International, May 1998. Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes.

Discusses behavioral data collection needs by different epidemic state. Reflects recent thinking about the best use of resources in behavioral data collection in the context of second generation surveillance.

## Family Health International, June 2000. Behavioral Surveillance Surveys (BSS): Guidelines for Repeated Behavioral Surveys in Populations at Risk for HIV.

Provides how-to information that includes identifying priority subpopulations, developing sampling frameworks and approaches, and suggesting analysis and dissemination strategies. Also includes sample questionnaires.

#### UNAIDS and WHO, 2000. Guidelines for Second Generation HIV Surveillance.

Provides an overview of the principal issues that need to be considered in strengthening surveillance systems and increasing their utility. Suggests priority approaches for the various epidemic states.

#### Acknowledgments

#### The Senegal BSS were executed by:

Institut Supérieur Africain pour le Développement de l'Entreprise (ISADE) and the Cabinet d'Etudes et de Recherche (HYGEA)

#### Administered by:

Senegal National AIDS Control Program and the Ministry of Public Health

## With technical assistance from:

## Family Health International

### Funded by:

United States Agency for International Development (USAID), the United Nations Development Programme (UNDP), and the United Nations Children's Fund (UNICEF)

## This executive summary is based on the following reports:

Comparison of BSS 1997 and 1998 for Students and Female Sex Workers, 1998. Senegal Behavioral Surveillance Survey, 1998.

Family Planning

© Copyright 2000, Family Health International (FHI). URL:http://www.fhi.org



Behavioral Surveillance Surveys Tamil Nadu, India 1996, 1997 and 1998

Behavioral Surveillance Surveys Executive Summaires

#### Introduction to Behavioral Surveillance Surveys

FHI's Behavioral Surveillance Surveys (BSS) provide valuable data about HIV/AIDS-related knowledge, attitudes, and behaviors. The BSS methodology is a monitoring and evaluation tool designed to track trends in HIV/AIDS-related knowledge, attitudes, and behaviors in sub-populations at particular risk of HIV infection, such as female sex workers, injection drug users, migrant men, and youth. Based on classic HIV and sexually transmitted diseases (STD) serologic surveillance methods, BSS consist of repeated cross-sectional surveys conducted systematically to monitor changes in HIV/STI risk behaviors. A key benefit of the methodology is its standardized approach to questionnaire development, sampling frame construction, and survey implementation and analysis. BSS findings serve many purposes: They yield evidence of project impact, provide indicators of project success and highlight persistent problem areas, identify appropriate intervention target populations, identify specific behaviors in need of change, function as a policy and advocacy tool, and supply comparative data concerning behavioral risks.

BSS have been conducted in more than 20 countries -- primarily in Africa and Asia -since 1992, and their use in Latin America and the Caribbean is growing. Since 1999 they have been used in cross-border sites in Asia and Africa, where they are proving beneficial for understanding the pandemic from a regional instead of a purely country-specific perspective. In several countries multiple rounds of BSS have been implemented already, with the trend data used to formulate new programs and to adapt existing ones.

#### **Introduction to Tamil Nadu BSS**

The AIDS Prevention Control Project (APAC) of Tamil Nadu, India, administered by the Voluntary Health Services (VHS) Chennai and funded by The United States Agency for International Development (USAID), has been implementing intensive HIV/AIDS prevention activities in the Indian state of Tamil Nadu since 1995. Through this project, APAC assists nongovernmental organizations in implementing intervention strategies for behavior change and the control and prevention of STDs, including HIV. These strategies include promoting condom use through intensive outreach work and peer education. APAC also works with the private sector on marketing strategies to increase condom accessibility and availability.

APAC assesses the effectiveness of its programs among the target populations by gathering data on behaviors that put people at risk of HIV infection. This approach

recognizes that behavior is the engine driving the HIV/AIDS epidemic and that knowledge of relevant behaviors is critical to assessing the impact of prevention programs.

The project launched the first wave of Behavioral Surveillance Surveys (BSS) in 1996 and followed up with successive surveys to observe trends in high-risk behavior among selected population groups. This report highlights findings from the first, second, and third waves of the Indian Tamil Nadu BSS, conducted respectively in 1996, 1997, and 1998. The findings of a fourth survey carried out in 1999 will be released in 2000 and are not presented in this document.

The Tamil Nadu BSS involved several waves of data collection. Data for the Tamil Nadu BSS were collected with the same tools among the same subpopulations in the same sample towns. The objective was to measure trends in high-risk sexual behavior in selected key subpopulations over time. Survey questions focused on HIV/STD-related risk behaviors.

## **Methodology**

The initial wave of BSS was conducted from October through December of 1996. The second and third waves, conducted from October through December of 1997 and 1998, followed the same methodology used in the first wave. In each wave, data were collected on the following indicators:

- Knowledge indicators
- Behavioral indicators
- Urethritis prevalence
- STD treatment-seeking behavior
- Appropriate perception of risk

#### Study population

BSS are designed to enable measurement of behavior change over time among specific subpopulations. In Tamil Nadu these subpopulations included persons at high risk, such as female sex workers (FSWs), "bridge" groups, such as truck drivers and their helpers (THs), who have significant sexual contact with both high- and low-risk groups, and moderate to low-risk groups with varying sociodemographic characteristics, such as factory workers and students. Students were excluded from the third wave of the Tamil Nadu BSS when results of the first two waves revealed very low levels of risk behavior among them. Consequently, data on students' behavior are not presented in this summary.

#### **Subpopulation Definitions**

#### **Female Sex Workers (FSWs)**

Females who had engaged in sex in exchange for remuneration during the previous 3 months

#### **Truck Drivers and Helpers (THs)**

Males driving trucks or assisting drivers along transport routes

#### **Male Factory Workers (MFWs)**

Males ages 18-35 who had worked for the past 3 months at factories functioning for more than 12 months and employing at least 10 persons

### **Female Factory Workers (FFWs)**

Females ages 18-35 who had worked for the past 3 month at factories functioning for more than 12 months and employing at least 10 persons

#### Study sites

Table 1 shows the four subpopulations included in all three survey waves, sample sizes, and survey sites. BSS sites were chosen from large urban areas in the state of Tamil Nadu, as well as several small towns considered priority intervention areas (e.g., industrial areas, tourist areas, trucking towns, ports and harbors, marketplaces, and towns near highways).

#### Table 1. Subpopulations, Sample Sizes, and Study Sites from Each Survey Wave

Subpopulations	Sar 1996	nple Si 5 1997 1	zes 1998	Survey Sites
Female Sex Workers (FSWs)	400	400	406	Chennai, Salem, Madurai, Palani
Truck Drivers/ Helpers (THs)	689	864	863	Chennai, Vellore, Salem, Madurai, Dindigul
Male Factory Workers (MFWs)	1,386	1,963	1,956	Chennai, Coimbatore, Erode, Madurai, Dindigul
Female Factory Workers (FFWs)	1,873	1,691	1,720	Chennai, Coimbatore, Erode, Madurai, Dindigul

#### Sample size

The number of respondents for each group was determined based on the estimated level of key risk behaviors (such as percentage using condoms with non-regular sex partners) and the degree of confidence required to detect a significant change in behavior over time.

#### Sample design/data collection

The size of each target subpopulation within selected towns was estimated with the assistance of nongovernmental organizations and others working with specific subpopulations. A two-stage sampling procedure was used to select respondents, with clusters selected using probability proportional to size (PPS) in the first stage and respondents selected randomly in the second stage.

Teams of field staff received in-depth training in data collection methods and used standardized data collection tools. Each data collection team consisted of trained interviewers and permanent field staff. A team of research staff closely monitored the fieldwork, which was conducted over a six-week period. As data were collected, they were sent to Chennai for quality control and analysis.

#### **Results**

#### Sociodemographic characteristics

#### Age

Female sex workers (FSWs) had the highest mean age (approximately 30 years) of all groups across the three survey waves. Compared with other groups, female factory workers (FFWs) had the lowest mean age (approximately 24 years), with little change over

the three survey periods. The average age of both truckers and helpers (THs) and male factory workers (MFWs) remained relatively constant at about 27 years for all three survey waves.

### Literacy

FSWs had the lowest rate of literacy compared with all other subpopulations, with an average of about 60 percent for all survey waves. MFWs had the highest literacy rate of all groups, consistently exceeding 98 percent from 1996 to 1998. Literacy among FFWs increased from 89 percent to 95.6 percent from 1996 to 1998. THs reported a rate of approximately 95 percent in all survey years.

## **Marital Status**

While a greater proportion of FSWs were married than any of the other groups (approximately 80 percent on average over the three years), approximately 60 percent of these women were not living with their spouses. Virtually none of the married THs and MFWs were living away from their spouses. Approximately four percent of married FFWs were living apart from their husbands.

	Fei W	male S Vorke	Sex rs	Tı F	rucke Ielper	rs/ ·s	Mal W	e Fac /orke	tory rs	I F W	Femal Factor Vorke	e y rs
Wave	1	2	3	1	2	3	1	2	3	1	2	3
Mean age (years)	31.2	29.3	32.1	27.7	28.3	27.9	27.4	26.8	27.4	23.7	23.8	24.7
Illiteracy (%)	38.3	47.5	40.4	5.4	8.0	3.9	1.2	1.5	1.1	11.2	5.1	4.4
Literate, no formal schooling (%)	6.5	5.8	8.4	3.6	4.1	3.9	0.5	0.6	0.6	2.8	5.3	2.5
Married, living with spouse (%)	33.3	33.8	28.1	48.2	50.1	54.0	51.2	45.8	51.3	37.4	40.7	45.2
Married, not living with spouse (%)	33.8	26.0	32.0	0.0	0.3	1.0	0.1	0.1	0.2	3.9	3.2	5.2
Married, living with somebody else (%)	15.8	20.0	15.3	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.1	0.0

#### **Table 2. Selected Sociodemographic Characteristics**

#### Trends in BSS indicators

#### **Knowledge Indicators**

Two of the knowledge indicators measured in the survey were the ability of respondents to cite (1) at least two acceptable ways of preventing sexually transmitted diseases, and (2) at

least two acceptable ways of preventing HIV/AIDS. Figures 1 and 2 show that with the exception of FFWs, knowledge levels exceeded 85 percent among all survey groups in the first wave and 90 percent among all survey groups in waves two and three. FFWs' levels of knowledge about STD prevention were particularly low. While FFWs seemed to gain knowledge of STD prevention in 1997, a trend toward decreased knowledge levels was observed in 1998.

Another knowledge indicator measured the respondents' misconceptions about modes of HIV transmission. Certain misconceptions were commonly reported in the first wave of the survey (for example, that washing genitals with lime or liquor after intercourse and avoiding public toilets will prevent HIV infection). However, figure 3 shows that knowledge of HIV

-	-0	-	FSW
-	_	_	TH
-	-	-	MFW
-	-	-	FFW

transmission modes increased significantly among THs, MFWs, and FFWs across survey waves. Only FSWs showed a decrease in knowledge regarding correct modes of transmission between waves one and three. FFWs experienced the sharpest increase in

levels of knowledge, from 19 percent in 1996 to nearly 64 percent in 1998.

Figure 1. Correct knowledge of prevention of STDs



Figure 3. Knowledge of HIV transmission without misconceptions



Figure 2. Correct knowledge of prevention of HIV







Figure 4 shows that knowledge of condoms as a means of preventing STD transmission increased among all groups from 1996 to 1998, with significant increases (p<.05) among THs and MFWs. FSWs appear to have the highest knowledge level of all groups that condom use prevents STD transmission, while the level of this knowledge among FFWs remained low across all three survey waves. Gains in FFWs' knowledge from 1996 to 1997 were lost by 1998.

## **Behavioral Indicators**

Analysis of trends in behavioral indicators measured through the BSS has helped demonstrate the effectiveness of APAC programs' efforts to promote condom use and single sexual partnership in targeted subpopulations. Several of the behavioral indicators used in the surveys measure the targeted subpopulations' sexual behavior with non-regular sex partners. For the purposes of the Tamil Nadu BSS, a non-regular partner was defined as any partner other than a person's spouse or other primary sexual partner. Non-regular partners were further divided into two categories: casual partners or commercial partners (FSWs). A casual partner could be an acquaintance, neighbor, friend, or coworker.

BSS data revealed that THs engaged in sexual intercourse with non-regular partners (including commercial partners) significantly more often than factory workers. However, the trend reflected a decrease in this behavior over the three survey waves among all groups. For THs, the drop from 48 percent to 32 percent was significant, as was the drop for MFWs from 15 percent to nine percent. A mere three percent of FFWs reported involvement in non-regular sexual intercourse in 1996; this figure fell to one percent for each of the following two years (figure 5).



Figure 5. Sex with a non-regular partner (commercial and casual) in last 12 months

FSWs reported the highest use of condoms during the last sexual encounter with a non-regular partner (including clients) than any other group, and this figure remained consistently higher than those for other groups every survey year. An increase was seen in reported condom use with the last non-regular partner (commercial and casual combined) by FSWs, THs, and MFWs from 1996 to 1998, as shown in figure 6. Although few FFWs engaged in sex with non-regular partners, those who did had the lowest rate of reported condom use compared to the other groups. Reported condom use among FFWs increased by six percent from 1996 to 1998 (from 20 percent to 26 percent) despite a seven percent drop in use between 1996 and 1997.





Data on reported condom use with the two types of non-regular partners, commercial and casual, are available for THs and MFWs. As depicted in figure 7, THs and MFWs who engaged in sex with a commercial partner reported significant increases in condom use from 1996 to 1998. Over the three survey waves, THs' condom use with commercial partners increased from 55 percent to

75 percent, while MFWs reported an increase of nearly 40 percentage points, from 28 percent to 67 percent. Condom use with a casual partner also increased among both groups, from 19 percent to 43 percent for THs and from 13 percent to 37 percent for MFWs over the three waves.



## Fig. 7. Condom use with non-regular partners, by type of partner

## **Appropriate Perception of Risk of HIV/AIDS**

Respondents who reported not using a condom during their last act of sexual intercourse with a non-regular partner were asked whether they perceived non-use of condoms with such partners as high risk for contracting HIV/AIDS. Only a small percentage of FFWs engaged in sexual intercourse with non-regular partners (see figure 5), but of those who did, most did not use a condom (see figure 6). A majority of these FFWs perceived that not using a condom put them at high risk of HIV infection, although those perceiving such a risk decreased from 61 percent in 1996 to 57 percent in 1998. In contrast, data from THs, MFWs, and FSWs reported the lowest perceived risk of contracting HIV, as compared to all other groups for all years, they also showed the greatest increase in level of perceived risk from 1996 to 1998 (see figure 8).





## **Summary of Findings**

- Knowledge of methods of prevention of STD/HIV has increased among all targeted subpopulations.
- Knowledge that condoms prevent STD and HIV was high among FSWs and MFWs.
- Misconceptions about HIV transmission were significantly reduced from 1996 to 1998 for all groups except FSWs.
- Sexual intercourse with non-regular partners decreased among THs and MFWs and remained low among FFWs.
- Condom use with non-regular sex partners increased gradually for all groups.
- Condom use with commercial sex partners increased among THs and MFWs.
- In population groups engaging in high-risk sexual behavior, the perceived risk of contracting HIV through casual sex increased in the third wave among all groups except FFWs.

## **Technical Guidelines**

For more information, see the following technical guidelines:

# UNAIDS and Family Health International, May 1998. Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes.

Discusses behavioral data collection needs by different epidemic state. Reflects recent thinking about the best use of resources in behavioral data collection in the context of second generation surveillance.

# Family Health International, June 2000. Behavioral Surveillance Surveys (BSS): Guidelines for Repeated Behavioral Surveys in Populations at Risk for HIV.

Provides how-to information that includes identifying priority subpopulations, developing sampling frameworks and approaches, and suggesting analysis and dissemination strategies. Also includes sample questionnaires.

#### UNAIDS and WHO, 2000. Guidelines for Second Generation HIV Surveillance.

Provides an overview of the principal issues that need to be considered in strengthening surveillance systems and increasing their utility. Suggests priority approaches for the various epidemic states.

#### **Acknowledgments**

#### The Tamil Nadu BSS were executed by:

Asian Marketing and Social Research (AIMS)

#### Administered by:

The AIDS Prevention and Control Project of Voluntary Health Services, Chennai

#### With technical assistance from:

Family Health International

## Funded by:

The United States Agency for International Development (USAID) under a bilateral agreement with the Government of India

#### This executive summary is based on the following reports:

Tamilnadu HIV Risk Behavior Surveillance Final Report: Baseline Round October-December 1996. Research Summary of HIV Risk Behavior Sentinel Surveillance Survey Wave — II in Tamilnadu. HIV Risk Behaviour Surveillance Survey in Tamilnadu: Report on Third Wave 1998.

Family Planning

## FHi

© Copyright 2000, Family Health International (FHI). URL:http://www.fhi.org