

SEA-AIDS-141
Distribution: General

Guidelines for Conducting HIV/AIDS Risk Behavioural Surveillance Surveys

WHO Project: ICP HIV 001



World Health Organization
Regional Office for South-East Asia
New Delhi
June 2004

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ACKNOWLEDGEMENTS

Under the agreement between the World Health Organization Regional Office for South-East Asia and the College of Public Health, Chulalongkorn University, these guidelines for conducting HIV/AIDS risk behavioural surveillance surveys were successfully prepared under the principal responsibility of Associate Professor Dr Oratai Rauyajin of the Faculty of Social Sciences and Humanities, Mahidol University, who reviewed extensively related documents available nationally and internationally, initiated the draft, improving and refining it until its finalization, with contributions from many professional experts of certain institutions and organizations as listed below:

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Their valuable contributions are very much appreciated and grateful thanks are extended to them in this regard. Special thanks are conveyed to Mr Thomas David Chavez, Mr Stanley Zankel and Dr Han Tun for their careful editing of the final draft of the guidelines.

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EXECUTIVE SUMMARY

Guidelines for Conducting HIV/AIDS Risk Behavioural Surveillance Surveys is a distillation of information and experiences from three main sources: Family Health International (and their partners), WHO, and UNAIDS. Its main purpose is to consolidate all available information regarding the use of behavioural surveillance surveys (BSS) in a quick, user-friendly and direct format that is suitable for use in South-East Asian countries. These three organizations have been instrumental in the development of BSS as a workable and systematic approach that complements the traditional HIV/AIDS sentinel sero-surveillance in such a way as to capture the changing nature of the pandemic. However, the *Guidelines* does not replace the detailed BSS information as elaborated in the comprehensive FHI/Impact manual, *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV*.

Throughout the years, it became clear that the traditional approach to collect HIV/AIDS information on incidence and prevalence was inadequate to explain how the virus is spread in one of three states of the epidemic: low-level; concentrated, and generalized. The challenge is for nations to develop an effective response by tailoring the surveillance system to the nature of the epidemic in their localities. Even with an effective BSS system in place, it must still be emphasized that it is only one of the behavioural assessment tools available. Why we need to track HIV/AIDS risk behaviour is a function of many things: to serve as an early warning device, to help HIV prevention programme planning and design, to improve programme evaluation by careful documentation, and to explain changes in HIV prevalence where the epidemic has “stabilized”.

The *Guideline* proposes a set of seven steps or components when planning and implementing the BSS as part of the national response. These steps are: (1) building of support among key stakeholders; (2) choosing the appropriate population groups; (3) setting up the sampling system; (4) designing the appropriate questionnaire; (5) carrying out the fieldwork; (6) data analysis, and (7) dissemination of the results to improve HIV prevention efforts. While each of these steps is explained separately in the appropriate

section of the Guideline, they must be taken together as part of an integrated and systematic flow, all along supported by a dedicated team, which in some countries in the Region is called the National Technical Advisory Committee. This group can further supervise a National BSS Unit.

One of the primary responsibilities of a National BSS Unit can be the implementation of BSS activities, which by definition, consist of repeated cross-sectional surveys of key population groups that affect the spread of HIV in order to monitor changes in HIV/AIDS risk behaviour across time. Thus, while one round or wave of data collection may be appropriate for certain purposes, it is in the comparison of two or more rounds where BSS displays its strong explanatory power. Such power can be harnessed by any of the stakeholders: the government, international organizations, NGOs, public health specialists, universities, and especially the communities and appropriate population groups involved in the surveys.

Therefore, the dissemination of the BSS findings is critical. There is, of course, little use of the BSS if the results are not disseminated to specific audiences who can best act on the information. Dissemination is not only a process where specific audiences are informed, it is also a process where the format is carefully chosen to suit that particular audience's need. Because some of the data may be sensitive for use in public discussion (especially if they involve those in "gate-keeping" positions, like legislators, religious officials or education bureaucrats), the information presented must be carefully "packaged" without losing the substance of why the BSS was implemented in the first place. In such a situation, the ABCs of communication – Accuracy, Brevity, and Clarity – remain prudent reminders in spreading the BSS information. Hopefully, such an approach will help in considerably reducing the spread of HIV/AIDS in the South-East Asia Region.

1. INTRODUCTION

1.1 HIV/AIDS in the South-East Asia Region

In 2002, the HIV/AIDS pandemic claimed the lives of more than 3 million people worldwide. Another 5 million people were newly infected with the Human Immuno-deficiency Virus (HIV) which causes AIDS. As a result of these latest figures, there are now 42 million people in the world with HIV/AIDS infections¹. In the Asia and Pacific Region alone, there were almost 1 million new infections in 2002; a 10% increase since 2001. A further 490 000 individuals are estimated to have died of AIDS in the past year. Approximately 2.1 million young people (aged 15–24 years) are presently living with HIV/AIDS in Asia.

Even though HIV arrived much later in South-East Asia than in other parts of the world, it has since emerged as serious threat to development and public health efforts in all the countries of the Region². These countries have expressed commitment to combat the expanding epidemic. Yet, behavioural patterns that increase the risk of HIV transmission – such as unprotected sex and sharing of needles – are not uncommon in many South-East Asian societies.

Three countries in South-East Asia – Thailand, Cambodia and Myanmar– and several states in India now have serious HIV/AIDS epidemics³. In Thailand, HIV prevalence among pregnant women peaked at just above 2 percent before aggressive prevention efforts slowed the number of new infections. In Cambodia, prevalence among pregnant women reached a peak of more than 3 percent and then began to fall in response to prevention

¹ UNAIDS/WHO *AIDS Epidemic Update Report December 2002*

² East-West Center Population And Health Studies Center Population & Policy Volume 60, "*The HIV/AIDS Epidemic in Asia*" January 2002

³ UNAIDS (2002), *Report on the Global HIV/AIDS Epidemic*, July 2002

programmes. Recent data also show high prevalence levels in Myanmar, and that more than one percent of pregnant women are infected in parts of India.

Other countries in the South-East Asia Region appear to be in a transitional phase. Although national levels may still be low, recent evidence indicates a rapidly growing HIV prevalence among specific population groups and/or in certain geographic regions. Indonesia, Viet Nam and Nepal are included in this group. Lastly there are several countries, such as the Lao PDR and Bangladesh, where reports of HIV/AIDS transmission continue to remain low.

Although the magnitude and timing of HIV transmission are varied, the epidemic has followed a similar pattern, in that HIV/AIDS initially surfaced in epidemic form in specific population groups before spreading to the general population at large. This process is rather complex to detail here but sub-epidemics in the region have been documented among: (1) men who have sex with men (MSM); (2) injecting drug users (IDUs); (3) sex workers and their clients; (4) the wives and girlfriends of the clients, and (5) the children of infected women. However, heterosexual contact remains the predominant mode of transmission. This trend is supported by a simultaneous increase in sexually transmitted diseases in the Region. The future of the epidemic, while much debated, remains dependent on the effectiveness of national responses in current and future prevention efforts. However, as noted above, several countries have witnessed rapid increases in infection rates in the last few years. Current trends in the sexual and drug-taking behaviours that spread HIV can help predict future trends in HIV infection rates. A few Asian nations have been collecting systematic information on trends in HIV infections for several years, the results of which have led to successful HIV prevention efforts. Both Thailand and Cambodia, which applied extensive surveillance systems and acted on this information, have shown that it is possible to limit the spread of the epidemic.

In Thailand, prevention programmes for sex workers and their clients, coupled with education and public awareness programmes, had a quick and dramatic impact on risk behaviour⁴. Condom use in sex work increased from

⁴ East-West Center Population And Health Studies Center Population & Policy Volume 60, *"The HIV/AIDS Epidemic in Asia"* January 2002

less than 30 percent in 1990 to more than 90 percent in 1997. Between 1990 and 1993, the percentage of men using commercial sex services slowed down by half. As a result, STI levels in Thailand fell by more than 90 percent during the 1990s. HIV prevalence among young men peaked at four percent in 1993 and then declined steadily, falling below one percent in 2000. In pregnant women, HIV peaked at 2.4 percent in 1995 and fell to 1.1 percent in 2001.

1.2 HIV/AIDS Surveillance over the Years

In the first decade of the HIV epidemic, many countries set up systems to track the spread of the virus, with industrialized countries focusing on AIDS case reporting. In the developing countries, many set up sentinel surveillance (sero-surveillance or bio-medical surveillance)⁵ systems to detect the spread of HIV. Blood samples were taken for other purposes, most notably antenatal syphilis testing for pregnant women. These samples were then tested for HIV identification after personal identifiers were stripped. This gave some indication of the levels of HIV infection in the general population.

However, as the epidemics developed in various countries, it became clear that this surveillance system was inadequate to capture the diverse nature of the “new” epidemics or explain changes over time in “mature” epidemics. Efforts are thus now being made to build on existing systems, strengthening their explanatory power and making better use of the information they generate.

These strengthened systems, which are sometimes called “second generation surveillance systems⁶”, aim to concentrate resources where they will show information that is most useful in reducing the spread of HIV. *This basically means tailoring the surveillance system to the pattern of the epidemic in a country.* To understand that particular pattern means getting more accurate information about who is most at risk and which behaviours put them at risk.

⁵ In this Guideline, *sero-surveillance* is the term used and is synonymous with “biomedical surveillance”, “biological surveillance”, “serological surveillance”, and “sentinel surveillance” of other sources

⁶ WHO/UNAIDS, Second Generation Surveillance for HIV; The next decade, Geneva 2000

2. EPIDEMIC STATES AND BEHAVIOURAL DATA ASSESSMENT

2.1 Data Collection Methods in the Various Epidemic States

Different data collection methods are used for specific purposes with cost, scale, and frequency matched against the state of the epidemic in a particular country or location. Countries also vary with respect to their capacity to do research and the resources they have. The three tables in this section serve to summarize the minimum package a national programme might find helpful to strengthen their behavioural surveillance system, assuming that general surveillance and HIV sero-surveillance are already in place.

2.2 States of the HIV Epidemic^{7,8}

Countries have different information needs on the basis of their state of the HIV epidemic: low, concentrated, or generalized.

2.3 Low-Level Epidemic

When the assumed HIV prevalence is less than five percent in all known population groups who practice high-risk behaviour, then the epidemic is said to be low-level. In these countries, surveillance efforts are best focused on groups who practice higher levels of HIV-transmitting behaviours. These include sex workers, truckers, migrant workers, military personnel, men who have sex with men, and drug injectors. The aim is to monitor the trends and levels of infection and map the infection patterns.

⁷ The concept of the epidemic states is discussed more in FHI/Impact *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV*, where this summary was taken and also in *WHO/UNAIDS Guidelines for Second Generation HIV Surveillance*. Geneva 2000

⁸ UNAIDS/WHO "Initiation HIV Surveillance systems: practical guidelines", Geneva, August 2002"

Table 1 Behavioural Data Needs and Methods
in a Low-Level Epidemic

Data Needs	Method	Questions Answered	Frequency	Duration*
Preliminary assessment	Review existing data	What is already known? What are the gaps in current knowledge?	One time	
	Rapid assessment of risk behaviours	Which high-risk behaviours are driving the epidemic in this country?	One time	3 months
	Mapping of at-risk populations	Where do people engage in risk behaviour? How many people are associated with each site?	One time	1 month
	Qualitative research**	What particular behaviours must change? Is there resistance to change? What are links with general population? What type of intervention is most appropriate?	One time	2 months
Behavioural monitoring	Repeated surveys in populations with high-risk behaviour	How widespread is risk in defined high-risk-behaviour groups? How widespread are safer behaviours? How common are links with general population? How has behaviour changed over time? And since before the intervention?	Annually/ biannually	3-6 months

Data Needs	Method	Questions Answered	Frequency	Duration*
	Where qualitative research points to links between high- and low-risk groups: Repeated surveys in the general population	What proportion of the general population is a sexual partner of someone with high-risk behaviour? Which behaviours put them at risk?	Every 4-5 years	6-9 months

*Duration: Includes all research or survey stages from preparatory work to the production of findings

**Qualitative research: e.g. in-depth interviews with individuals involved in high-risk behaviour, such as commercial sex workers.

Source: Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes : A joint Impact/FHI/UNAIDS Workshop : Report and Conclusions, May 1998

In a low-level epidemic, the first step is to use common sense in identifying what is already known about risk behaviour in a country, as well as collecting and reviewing pertinent data already available. The task is to do a preliminary assessment of the situation, especially as it relates to what is driving the epidemic there. Behavioural data collection will need quantifying populations with higher risk. Once these populations are described, qualitative research can be done to determine how the target groups interact with the general population. Behavioural monitoring may be done using a behavioural surveillance survey on populations with high-risk behaviour and where “bridges” are formed with the general population. An example of a bridge between a high-risk population and the general population is when a HIV+ intravenous drug user sells sexual services to individuals outside their cohort group.

2.4 Concentrated Epidemic

A concentrated epidemic is where prevalence has exceeded five percent or more in specific populations presumed to practise risky behaviour, but remains less than one percent among pregnant women. The virus may be confined to specific groups because there are a few links to the general population, who generally show little risk behaviour. At a concentrated stage, a country must continue the sero-surveillance among the groups in which HIV infection is concentrated and at the same time, begin to monitor HIV in the general population, especially among sexually active people, particularly

young adults. Teenagers and young adults, because of their limited exposure to certain situations, generally do not consider themselves vulnerable to the consequences of their behaviour. Their chronological age also implies that many in this cohort will practise new or changing behaviour in a short time span. Hence, they are an excellent group to observe as a proxy for the incidence of HIV.

Table 2. Behavioural Data Needs and Methods in a Concentrated Epidemic

Data Needs	Method	Questions Answered	Frequency	Duration*
Preliminary assessment (If not yet done or if it needs to be broadened geographically or in other groups)	Review existing data	What is already known? What are the gaps in current knowledge?	One time	
	Rapid assessment of risk behaviours	Which high-risk behaviours are driving the epidemic in this country?	One time	3 months
	Mapping of at risk populations	Where do people engage in risk behaviour? How many people are associated with each site?	Repeated if survey data shows population or behavioural shift	1 month
	Qualitative research	What particular behaviours must change? Is there resistance to change? What are links with general population?	One time	2months
Behavioural monitoring and	Repeated surveys in populations with high-risk behaviour	How widespread is risk in high-risk-behaviour groups? How common are links with the general population? How do these behaviours change over time?	Annually/ biannually	2 months

Data Needs	Method	Questions Answered	Frequency	Duration*
Explaining trends in HIV prevalence	Repeated surveys in the general population Sampling with emphasis on geographical areas with key HIV sentinel sites	What proportion of the general population has sex with someone with risk behaviour? Which behaviours put them at risk?	Every 4-5 years	3-6 months
	Repeated surveys in the young population Sampling with emphasis on geographical areas with key HIV sentinel sites	What are the risk behaviours among young people? At what age do they begin? How do they change over time? Do trends in self-reported risk behaviour correlate with observed changes in HIV prevalence (e.g., explaining transition to generalized epidemic)?	Every 2-3 years	6-9 months

*Duration : Includes all research or survey stages from preparatory work to the production of findings.

Source: Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes :
A joint Impact/FHI/UNAIDS Workshop : Report and Conclusions, May 1998

In a concentrated epidemic, behavioural data should be collected more systematically. Behavioural surveillance surveys conducted in high risk groups should collect data annually or biannually. Qualitative research may focus on an analysis of the possible links or overlaps between the specific groups and general population. General population surveys for behavioural monitoring are recommended in all concentrated epidemics to identify the proportion of the population who have sex with members of higher risk population groups.

Young people are particularly vulnerable and provide a key to the future course of the epidemic. Even modest changes in the behaviour of young people may have a great impact on the epidemic, since most new infections

occur in these groups. Thus, young people's behaviour should be studied in household-based surveys, supplemented by surveys in particular groups who may not be found in the household survey.

2.5 Generalized Epidemic

In generalized epidemics, HIV is clearly established in the general population of sexually active adults, with over one percent of pregnant women infected. The general population consists of all members of society not considered to be at risk of HIV/AIDS. This can include couples or single individuals in monogamous relationships and/or people with high risk behaviour who take the necessary precautions to prevent the transmission of HIV (e.g. by always using condoms with multiple partners). Groups with high-risk behaviour may continue to drive new infections, but patterns of HIV spread have gone beyond high-risk individuals and their partners. Systematic and repeated behavioural data collection in the general population is necessary to explain changes in prevalence over time. It must also focus on behaviours that have been neglected or have failed to respond to prevention activities. Qualitative studies to understand the social, economic and cultural context supporting risk behaviour may be helpful in designing effective prevention intervention programmes.

In all generalized epidemics, the main risk factor is unprotected sex with a partner of the opposite sex. In this context, surveys must put their resources on tracking the behaviour of sex workers and any subgroups that interact extensively with them. This includes seasonal migrant workers and long-distance truck drivers. With regards to behavioural monitoring of the general population, regular surveys are critical in explaining the progress of HIV infection. Among young people, monitoring becomes even more important, because it is they who have recently become sexually active, and where new infections are most likely to occur.

Table 3. Behavioural Data Needs and Methods in a Generalized Epidemic

Data Needs	Method	Questions Answered	Frequency	Duration*
Preparation for behavioural surveys in selected population groups	Mapping of at-risk populations	Where do people engage in risk behaviour? How many people are associated with each site?	Repeated if indications of behavioural shift	1 month
Behavioural monitoring	Repeated surveys in populations with high-risk behaviour with emphasis on sex workers and their clients	How widespread is risk in high-risk behaviour groups? How common are links with the general population? How do these behaviours change over time?	Annually/ biannually	3-6 months
	Repeated surveys in the general population	What puts people in the general population at risk of HIV infection? Has risk behaviour changed over time? Which behaviours have not changed?	Every 4-5 years	6-9 months
	Repeated surveys in the young population	What are the risk behaviours among young people? At what age do they occur? How do they change over time?	Every 2-3 years	3-6 months

Data Needs	Method	Questions Answered	Frequency	Duration*
Explaining trends in HIV prevalence	Sampling geographical areas with key sentinel sero-surveillance sites, with wide geographic/ethnic range	e.g., Are observed declines in HIV prevalence a result of behaviour change?	Linked to household based surveys	
	In selected sites, household surveys with data on HIV sero-status	Serological confirmation of self-reported trends in risk behaviour by age group and sex.		
Contextual analysis, explaining continuing risk behaviour at community level	A range of methods, largely qualitative	What are the social, economic, or cultural factors supporting risk behaviour? How might these be changed to make sex safer? How can communities contribute to alter these determinants?	One time. Selected communities	

*Duration: Includes all research or survey stages from preparatory work to the production of findings.

Source: Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes : A joint Impact/FHI/UNAIDS Workshop : Report and Conclusions, May 1998

3. BEHAVIOURAL DATA FOR HIV RISK

3.1 Behavioural Assessment

In the Region, HIV/AIDS is a priority health and development issue, with Member Countries continuing to implement vigorous national strategic plans involving all sectors. As part of the national response, many countries have now set up a system to obtain accurate information on HIV prevalence and risk behaviour, including trend data collected through various forms of behavioural assessment. One way to track behaviour is through behavioural surveillance. In the absence of a biological tool or HIV vaccine, a sort of

“social prevention indicator” can be had through behavioural assessment or systematic surveillance of risk behaviour. A specific method of behavioural surveillance is the Behavioural Surveillance Survey (BSS), the subject of this Guideline.

3.2 Strengthened Surveillance Systems

The relationship between HIV incidence and prevalence has grown increasingly more complex as the epidemic matures. This is one reason why UNAIDS and its partners are strengthening sero-surveillance systems into “second generation” surveillance systems, where behavioural data collection is integrated⁹. These strengthened systems focus more closely on segments of the general population, especially among young people. While there are many ways to collect behavioural data, they should at their core, use two cross-sectional methods: one covering the general population (like a household survey) and repeated behavioural surveys of selected population groups (non-household based), which collectively form the Behavioural Surveillance Survey (BSS) described here. For the other methods, please see FHI’s *Meeting the Behavioural Data Collection Needs of National HIV/AIDS and STD Programmes*.

3.3 Reasons for Tracking Behaviour Systematically¹⁰

There are many good reasons why tracking risk behaviour systematically is advised. The first reason is that it can serve as an early warning system. Because behavioural data can be affected by such factors as the population groups being studied, occupation, mobility, geographic location, and other factors, tracking can help locate the pathways by which the virus is spread. It can also indicate the levels of risk behaviour of specific groups and how these groups form links or “bridges” in the general population. Secondly, tracking also helps programme design and intervention by knowing not only how but also why some people practise risky behaviour. If we understand the context and forms of risk behaviour, we are in a better position to design appropriate prevention strategies.

⁹ The framework of “second generation surveillance” is explained more extensively in *WHO/UNAIDS Guidelines for Second Generation HIV Surveillance*. Geneva 2000

¹⁰ The ideas in this section are condensed from FHI/Impact *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV*

Also, tracking behaviour can improve programme evaluation by documenting changes in behaviour over time, which is helpful in building support for ongoing prevention activities. It can also help explain changes in HIV prevalence, especially where prevalence has “stabilized”, which may be explained by processes like saturation effects, differential migration patterns, and the like. Behavioural data can also explain variations in prevalence, such as differences in levels of infection between one region and another.

3.4 Behavioural Surveillance Surveys

In the absence of a vaccine for HIV, behavioural change in terms of reducing the number of sex partners and increasing consistent and proper condom use are critical to reduce the spread of the HIV epidemic. It is therefore, necessary to measure and understand whether these changes are occurring in population groups at risk for HIV. Based on classical HIV and STI sero-surveillance methods, **behavioural surveillance surveys (BSS) consist of repeated cross-sectional surveys of key population groups** which affect the spread of HIV in order to systematically monitor changes in HIV/STD risk behaviours over time.

3.5. Uses of Behavioural Surveillance Surveys¹¹

To target prevention programmes. BSS can show which population groups are showing risk behaviours and help decide funding decisions on prevention strategies among target groups.

To identify specific behaviours in need of change. HIV risk behaviours can occur with different types of sexual partners (e.g. commercial sex workers, casual partners, or long-term relationships). Questions in the BSS can point to where interventions are needed to lessen risk.

To provide indicators of success and identify persistent problem areas. Though not designed to directly evaluate specific interventions, BSS can show whether behavioural goals in prevention targets are being met or not. Likewise, risk behaviours that persist even in the presence of interventions can be identified.

¹¹ The ideas in this section were condensed from *HIV Risk Behavioural Surveillance Surveys (BSS): Methodology and Issues in Monitoring HIV Risk Behaviours*. Workshop Summary. Bangkok: FHI 1997

To serve as an advocacy and policy tool. Findings from the BSS can be used to advocate for increased attention to HIV, or to show that protective behaviour change is happening in areas or population groups where prevention interventions have been targeted.

To supply cross-country comparisons in Behavioural risks. If conducted consistently across countries, BSS projects can enhance our understanding of the dynamics between risk behaviours and the magnitude of an epidemic.

3.6 The Limitations of Behavioural Surveillance Surveys¹²

BSS is not meant to answer every risk behaviour question about every community, sub-population or target group. In fact, BSS should be limited to only a few target groups with a questionnaire including only key introductory and behavioural questions. In-depth information about target groups, the evaluation of specific interventions, and relationships between several behavioural variables are better obtained through quantitative and qualitative behavioural research specifically designed to answer these questions. These tools, together with BSS, form a comprehensive package for programme evaluation and monitoring.

3.7 The Link Between HIV Sero-Surveillance and Behavioural Surveillance

Both epidemiological or serological and behavioural surveillance are primary useful tools for monitoring and evaluation of the impact of HIV prevention programmes. Sero-surveillance generally focuses on testing to obtain HIV prevalence in specific population groups believed to be at high risk for HIV. However, as has been noted previously, prevalence as an indicator is very slow to change. Even if risk behaviour stops entirely now, the effects will not show themselves in measurable changes in HIV prevalence for several years¹³. HIV incidence (number of new infections per unit time), though a better

¹² AIDS-Related Risk, Knowledge, and Prevention Behaviour among Young Men in the Philippines, by Deborah Balk, Tim Brown, and Grace Cruz. *East-West Center Working Papers, Population Series*, No.100, February 1998.

¹³ *HIV Risk Behavioural Surveillance Surveys (BSS): Methodology and Issues in Monitoring HIV Risk Behaviours*. Workshop Summary. Bangkok: FHI 1997

indicator, is even more difficult to collect because it requires following a group of individuals for some period of time.

The slow response of epidemiological monitoring systems for HIV has led to an increasing emphasis on the use of trends in self-reported behaviours as a more responsive indicator. However, such behaviours must accurately reflect true trends similar to data obtained from STI monitoring systems. If the behavioural trends track the epidemiological trends well, then one can assume that self-reported behavioural data is an acceptable mechanism to track true changes in behaviour.

3.8 The Behavioural Surveillance Survey System¹⁴

To make a behavioural surveillance survey system part of the national response in prevention efforts, it is necessary to plan how such a system can be put in place. These steps can be summarized into seven major components, namely:

- Step 1: Building up support among key stakeholders
- Step 2: Choosing the appropriate population groups
- Step 3: Setting up the sampling system
- Step 4: Designing the appropriate questionnaire
- Step 5: Carrying out the fieldwork
- Step 6: Data analysis
- Step 7: Disseminating the results to improve HIV prevention efforts

4. THE FIRST STEP – BUILDING UP SUPPORT AMONG KEY STAKEHOLDERS

The key findings of the BSS will be of interest to the community at large, including three groups who are directly involved: government,

¹⁴ The ideas in this chapter were summarized from FHI/Impact *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV* and from WHO Regional Office for South-East Asia *Guidelines for Conducting HIV Behavioural Surveillance*. New Delhi. October 2001

nongovernmental organizations, and donors and international organizations. These three groups must be included from the initial planning stage. Because the national government is most likely the institutional driving force behind the survey system, their involvement is necessary as implementing agency (or supervisory to such agency), in the formation of a technical advisory committee, in the decision-making process, and other official matters. If the target groups involve students, for example, then the education ministry's involvement must be sought. The BSS results can also be used by other government agencies in their prevention efforts.

Nongovernmental organizations (NGOs) involved in HIV programmes have stake in the system because the results can tell them when and how behavioural changes are taking place among the groups they are serving. Frequently, NGOs also act as a link or network with population groups that are hard to reach, like mobile sex workers or migrants. In constructing *the sampling frame*, for example, their insider knowledge can be very helpful¹⁵.

Donors and international organizations frequently have a stake in the BSS because of their interest in measuring behavioural changes among population groups they are serving through their prevention interventions.

4.1 The National Technical Advisory Committee

If the HIV/AIDS surveillance system is part of the national response, then it is advisable for a national technical advisory committee to be created. The members of this committee should include three principal groups:

- (1) Those involved in programme operations (e.g.. sponsors, collaborators, coalition partners, funding officials, administrators, managers, and staff).
- (2) Those served or affected by the programme. Persons or organizations affected by the programme, either directly, (e.g.. by receiving services) or indirectly (e.g.. the government agencies or NGOs that have frequent interactions with some target groups), should be identified and engaged in the behavioural surveillance survey as much as possible.

¹⁵ The sampling frame is a complete listing of sampling units in the population.

- (3) Primary users of the information generated by the surveillance system. Primary users of the information generated by the surveillance system are specific persons who are in a position to do or decide something regarding the programme. A successful surveillance system will identify primary users early in its development and maintain frequent interaction with them so that the surveillance system addresses their concerns and satisfies their unique information needs.

The committee is responsible for reviewing the situation, deciding on the population groups to be included in the behavioural surveillance survey, the frequency with which the surveys will take place, and ensuring that the surveillance method follows the appropriate ethical standards.

4.2 Resources and the National BSS Unit

Depending upon financial and human resources, as well as other health priorities, a country may wish to establish a separate national behavioural surveillance unit as part of an existing department or division in the Ministry of Health, such as the Department of Disease Control or Bureau of Epidemiology. The National HIV Behavioural Surveillance Unit can also be an integral part of the survey groups, such as the Demographic Census Unit. The funding for the behavioural surveillance activity should come from the National AIDS Control Programme. Since a good behavioural surveillance system is crucial to plan an effective HIV/AIDS/STI prevention and control programme, it is recommended that the national HIV/AIDS budget be used for behavioural surveillance activities.

Inadequate financial and human resources are major constraints in establishing effective behavioural surveillance survey systems. Capacity building is very important if behavioural surveillance systems are to be strengthened. If the national programme lacks this capacity, then outside networks should be tapped. An essential team member, often missing in the government team, is a "social scientist". An effective behavioural surveillance unit cannot properly function without a social scientist. The unit also requires input from an epidemiologist, a statistician, and a data collection manager. Since available data are often poorly packaged and communicated, the team

should also include a professional communications specialist. A behavioural surveillance unit should maintain a formalized link with the National AIDS Control Programme and with the primary data users, universities and NGOs.

The surveillance unit works under the direction of a Technical Advisory Committee to implement, maintain and evaluate a surveillance programme. As a technical support team, it should maintain open and responsive links with the stakeholders mentioned earlier and with the community at large.

4.3 Establishment of Objectives

A clear understanding of the objectives of surveillance is very important for planning a behavioural surveillance survey system. It will dictate the design of the survey, the population groups to be chosen, the sampling methods and the analytical framework used once the data are collected. In general, the objectives of a behavioural surveillance data can be:

- To understand a behavioural trend and situation;
- To guide programme planning;
- To assess the access to HIV prevention and control measures, and
- To assess the quality of an HIV control programme.

A behavioural surveillance should be undertaken only when there is reasonable expectation that appropriate control measures will be taken according to the surveillance results. There is little point in setting up a surveillance system whose information is not used for practical purposes, specifically for measures that will prevent or check the spread of the HIV epidemic.

The behavioural surveillance survey unit should also be very clear as to: (1) what the system can or cannot provide in terms of evaluation and monitoring (2) the decision points to be made on important design parameters like sampling locations, questionnaire design and similar concerns (3) their stance on the validity and reliability of sexual behavioural measurements in general, and (4) other difficult issues like accessing hard-to-reach populations, or ethical standards in sensitive survey processes.

5. THE SECOND STEP – CHOOSING THE APPROPRIATE POPULATION GROUPS

5.1 Appropriate Population Groups¹⁶

Once the objectives for a behavioural surveillance survey are clear, it will be easier to select which population groups to include. The decision is based on several factors:

- their contribution or potential contribution to the spread of HIV in the local situation;
- whether prevention efforts are underway in a particular population group, or being planned to reduce risk behaviour in that group, and
- the feasibility and relevance to the objectives of the surveillance system.

In practice, the choice of population groups might be influenced by many factors other than epidemiological concerns. Political considerations, resources and access all have a part to play. One should also keep in mind that for different regions, different population groups may be selected. The behavioural surveillance system should also be flexible enough to be able to meet the needs at the national and regional levels¹⁷.

5.2 A Summary of Factors for Choosing Population Groups

When choosing particular population groups, the following four factors should be considered:

- **Epidemiological considerations** – Three types of groups are recommended for inclusion in a BSS designed as a comprehensive HIV risk behavioural monitoring tool: a) highest-risk (core transmission) groups; b) "bridge" population groups; and c) general population groups.

¹⁶ In this paper, the term "population group" is synonymous to "sub-populations at risk of HIV".

¹⁷ The ideas in this section were summarized from *HIV Risk Behavioural Surveillance Surveys (BSS): Methodology and Issues in Monitoring HIV Risk Behaviours*. Workshop Summary. Bangkok FHI 1997

- **Evaluation and monitoring** – Groups included for evaluation and monitoring purposes should be those: a) targeted for behaviour change by prevention interventions; b) located in geographic areas of emphasis; and c) who have potential to practise risk behaviours targeted by prevention interventions.
- **Sampling** – Criteria needed for appropriate sampling include: a) representative sampling frames of groups can be constructed; b) respondents can be accessed by interviewers; c) respondents' consent to be interviewed and are willing to answer personal questions about their sexual behaviour; and d) adequate number of respondents are present to meet sampling quotas.
- **Political-cultural considerations** – Such considerations may be necessary in response to the pressures for the inclusion or exclusion of certain sentinel groups for BSS. The decision-making process should anticipate and prepare for justification and possible compromise.
- **Ethical considerations** – These considerations are necessary to protect the rights of marginalized groups (e.g. IDUs and commercial sex workers) who may be further stigmatized, victimized, or even criminally prosecuted as a result of behavioural surveillance activities and findings.

6. THE THIRD STEP – SETTING UP THE SAMPLING SYSTEM¹⁸

6.1 The Sample Plan

Because the BSS measures trends over time, the importance of sampling cannot be underestimated. Sampling should be systematic and repeatable; otherwise, the changes in behaviour we are interested in are not observable. In the BSS, the main concern is to design sampling plans that are both feasible and capable of producing estimates with minimal bias. This requires (1) the use of conventional probability sampling approaches in non-conventional ways; (2) the use of varied sampling strategies for different target population

¹⁸ This is suggested in *HIV Risk Behavioural Surveillance Surveys (BSS): Methodology and Issues in Monitoring HIV Risk Behaviours*. Workshop Summary. Bangkok: FHI 1997

groups, and (3) the occasional use of non-probability sampling methods when conditions require so¹⁹.

Once population groups are decided in the general BSS plan, a sampling plan is formulated before the locations are mapped and the sampling frame²⁰ constructed. In the process of mapping, the survey managers begin to see the patterns of hard-to-reach populations and how they affect the operational design. The sampling plan may thus be revised a few times because of the emerging understanding of the study populations. In designing a sampling plan, sampling approaches (probability and non-probability techniques) must be selected and sample sizes decided.

6.2 Parks, Gay Bars, Schools and Probability Sampling

In probability sampling, every person in the defined universe may be included in the sample, with a known (or non-zero) probability. A probability sample has two main advantages in that there is lower risk bias and that it is able to estimate the magnitude of sampling error from the survey data themselves. Probability sampling methods can be used for groups where it is feasible to develop a sampling frame of sites where target group members congregate like parks, gay bars, or schools. Among groups where a sampling frame of sites cannot be constructed (e.g., clandestine sex workers), non-probability sampling methods may be used. Consistent use of probability sampling in the BSS has the advantage of producing data that are comparable from one round to the next. Thus, trends in behavioural changes across time can be tracked. Whenever possible, probability sampling methods should be used in the BSS.

6.3 Simple Random Sampling

In a simple random sample, each person has the same probability of being selected for the sample. While it carries fewer margins of error, a simple random is not frequently used in the BSS because it is time-consuming and expensive. It assumes that the units to be sampled are included in the sampling frame. However, when a sampling frame is readily constructed, as in the case of students in a list of schools or military personnel in established camps, then a simple random sample may be used.

¹⁹ The ideas from this chapter were taken from FHI/Impact *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV*

²⁰ A list of sampling units

6.4 Systematic Sampling

Suppose that N units in the population are number 1 to N in some order. To select a sample of n units, we take a unit at random from the first k units and every k th unit thereafter. Say, we like to select 200 samples from 3 000 subjects and where k is 15, if the first unit drawn is 13, then the succeeding units are numbers 28, 43, 58, and so on. The selection of the first unit determines the whole sample. Systematic sampling is suitable in a situation where people stream through a specific entry point, as in the case of clinic attendees.

6.5 Clusters or Primary Sampling Units (PSUs)

Where a complete list of all individuals in a group to be sampled is available, it is possible to select individuals randomly from that list, case of a simple random sample. However, this is rarely the case. More commonly, a list of larger units where the individuals gather is more likely to be available, or easy to construct. These units are known as *primary sampling units* (PSUs) or clusters. These might be schools, brothels, or gay bars. If all PSUs can be compiled, a set number of PSUs can be selected at random. Then lists of individuals need only be compiled for the PSUs selected, and individuals can be chosen (preferably at random) from within the selected PSUs.

6.6 Two-Stage Cluster Sampling and Multi-Stage Cluster Sampling

The selection process of sampling units usually involves steps (or stages), and are thus called two-stage cluster sampling, or multi-stage cluster sampling. In two-stage cluster sampling, the PSUs or clusters are chosen as the first stage of sample selection, and individual respondents are chosen from within each of the selected PSUs as the second stage. Two-stage cluster samples usually meet most BSS efforts, if adopted to meet the needs of different population groups and local conditions. If the sampling process requires more than two stages, then it is multi-staged.

Although cluster sampling is relatively easy to use, the analysis of variance (to compute for confidence intervals) is not easy to extract. Also, advanced statistical analysis (with multivariate relations) is more complex to calculate than with surveys that have simple random sampling. Just the same, cluster sampling is the method of choice for those who wish to do a rapid, inexpensive survey.

6.7 Non-Probability Sampling

Non-probability sampling methods are those that are not based on statistical principles of probability samples. There are reasons why non-probability samples are used. For example, in a *snowball sample*, key informants in a given population identify other members of their community, who in turn once contacted, identify further members. The process is continued until an adequate sample is obtained. Where informants come from a stigmatized section in the community (as in the case of drug injectors or men who have sex with men), a snowball sample frequently becomes the sampling method of convenience. Another non-probability method is *purposive sampling*, which is designed to provide the maximum amount of information possible for key groups of study subjects. Yet another method is the *convenience sample*, which obtains a sample of subjects at the least possible cost.

There are at least two chief disadvantages of non-probability sampling; namely, there is a risk of sampling bias because of the element of subjectivity that enters into the sample selection process; it also has no statistical basis for evaluating the accuracy or reliability of survey estimates. Nevertheless, in practice, these limitations are often overlooked.

6.8 Developing a Sampling Frame

A sampling frame can be simple or complex, depending on the kind of population groups being used as respondents in the BSS. In cases where sampling lists are readily available (like a list of schools in a particular district), it is easier to enumerate respondents by gender, age, or sample size. But if the survey group involves sex workers, the sampling frame will be more complicated. A list of establishments may be required, along with an estimated number of sex workers who work on different nights of the week. The sampling frame would require more intense fieldwork, and the time plan and budget (often with specialized personnel) that go along with the task have to be considered.

6.9 Site Selection and Mapping

In population groups that are hard-to-reach, it may be useful to do preliminary qualitative research and some level of mapping to determine

possible sites and characteristics of the given group. This may involve basic ethnographic techniques, or social mapping, for which purpose specialists may be hired. Community members, NGOs, and the police might be enlisted for help in mapping. Because sampling frames must cover the entire geographic universe for a survey effort, an adequate mapping process is needed. This means including the majority of sites or locations where the respondents gather in significant numbers so as to minimize bias.

6.10 Sample Size and Questionnaire Integrity

Because the BSS is done in rounds across time, some issues regarding sample size and questionnaire integrity need to be considered. If the BSS is to measure significant behavioural changes, then the sample size must be large enough to have statistical power to detect even moderate changes. The recommended measure in the indicators is 15% percentage points at 95% significance level and with 80% power. To help future BSS rounds, information on the respondents' characteristics should also be obtained so that "turnover" effects may be known.

When measuring across rounds, it is important to ensure that: (1) 50% of the sample sites are retained, (2) the questionnaire and its wording are retained for the most part (otherwise comparisons will be hard to make), and (3) sampling procedures are documented carefully to enhance survey repeatability. When questions are changed substantially, it is recommended that the original set be retained for a supplementary sample or be used in a subset of sites in at least two survey rounds.

6.11 A Last Word on Sampling

Developing and carrying out the sampling plan is a technical expertise. This means knowing the existing levels of risk behaviour, making decisions on the magnitude of changes worth measuring, and also the accuracy with which they are to be measured. Most of the BSS projects carried out thus far have used sophisticated tools and procedures, including the statistical techniques, to formulate a precise sampling plan. A trained social science research expert or statistician, with the help of appropriate software, can readily be consulted regarding these decisions. For more information on sampling theory and techniques as used in BSS, please refer to the FHI/Impact *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV*.

7. THE FOURTH STEP – DESIGNING THE APPROPRIATE QUESTIONNAIRE

7.1 The Survey Protocol

At the start of the survey, a survey protocol is usually formulated, which lays out the research methodology to be used for the survey. It includes a description of the goals and objectives of the BSS and the details of the methodology. This covers a description of the chosen target populations and sites, and a sampling plan for each sub-population. The survey protocol also includes the questionnaire or sets of questionnaires to be used by field staff in conducting interviews with survey respondents. Included here are support materials such as interviewer guides used both for training purposes and as an on-site reference for field staff. In some surveys, supervision guides are also prepared in order to standardize supervision of the fieldwork.

7.2 Indicators

Indicators describe a set of behaviours to capture the dynamic aspects of the HIV epidemic which are important to monitor over time²¹. They come from a larger number of carefully designed, culture-specific questions. For example, "non-regular" sex and its frequency are important indicators, but how it is defined and the questions asked to get the information, may vary across cultures. Questionnaire design and choosing key indicators can be a challenging task because there are many ways to measure sexual behaviour. Also, stakeholders may need other information that can lead to a lengthy questionnaire, possibly affecting respondents' answers as a result of interview fatigue.

The following are key considerations when choosing indicators and designing questionnaires:

- Use of recommended best practices (Several standardized questionnaires and indicators, e.g. from WHO, exist which have

²¹ The ideas in this section were summarized from WHO Regional office for South-East Asia Guidelines for Conducting HIV Behavioural Surveillance, New Delhi, October 2001, and also from UNGASS declaration of commitment, 2001.

been field-tested in multiple country settings and can be used as a base. These questionnaires have built-in skip patterns that have been derived from experience and can save time);

- Standardization with other national and international surveys when possible;
- Consideration of the changes over time expected in a desired indicator (Knowledge indicators may peak after several years and no longer indicate change);
- Limitation of the number of questions to an approximately 45-minute interview (if interviewer-administered) to reduce interviewer and respondent fatigue, and
- Ensuring that questions are appropriate for gender, age, and target group characteristics.

Minimum indicator set. This was derived based on the key behaviours that affect HIV epidemic spread. However, even this set may need to be reduced or expanded, given local characteristics of the epidemic, the planned role of the BSS, and population groups sampled. The recommended set of minimum indicator categories and their reasons are as follows:

- *Age at first intercourse* (appropriate in youth samples only) – Interventions frequently promote delay of first intercourse. This delay can contribute to reductions in HIV transmission.
- *Number and characteristics of sexual partners* – The number of sex partners, including whether those partners are non-regular, are important to monitor since reductions reduce the potential for HIV transmission
- *Condom use* – Protected sex through consistent condom use reduces HIV transmission with non-regular sex partners and further reduces HIV spread to regular sex partnerships, e.g. husbands and wives, where condom use is infrequent.

Indicators require specific time and quantity if they are to adequately monitor trends over time. Examples of more refined indicators in each category are provided below. Several of these are the WHO-recommended Prevention Indicators for national HIV prevention programme monitoring.

Age at first intercourse

- Mean age of respondent when they first had sex

Number and characteristic of sex partners

- % of population group ever having sex
- % of population group sexually active (conversely % abstinent) in specified time period
- % of population group reporting at least one non-regular partner during the previous 12 months (WHO Prevention Indicator #4)
- Median number of sex acts in specified time period with non-regular sex partners
- Median age of non-regular sex partners
- % of males who visit sex workers in a specified time period
- Median number of sex acts with sex workers in a specified time period

Condom use

- % of population group reporting ever used condoms (appropriate for youth populations)
- % of population group reporting condom use during last sex act with a non-regular partner (WHO Prevention Indicator #5)
- % of population group reporting consistent condom use with non-regular sex partners

As mentioned above, BSS may include other types of indicators and related questions depending on its scope, interest from stakeholders, and available funding for data collection. Possible indicators include behaviours or factors promoting high-risk sexual behaviour (such as alcohol and drug use) or reducing it (knowing someone with HIV/AIDS); behaviours which precede reductions in high-risk behaviours (developed in the Stages of Change Model); HIV testing; STI health-seeking behaviour; and exposure to interventions. Some indicators may also wish to seek information on how specific population groups perceive their own vulnerability to infection:

Behaviours related to high-risk behaviours

- **Alcohol/drug use:** % of population group reporting use of alcohol or drugs in a specified time period
- **Knowing someone with HIV/AIDS:** % of population who reports knowing someone who has HIV/AIDS or died of AIDS
- **Condom access:** % of population group who can acquire a condom (WHO Prevention Indicator #3)

Behaviours and other items often preceding high-risk sexual behaviour change

- **Knowledge:** % of population group who can cite two acceptable (correct) methods of HIV prevention (WHO Prevention Indicator #1)
- **Past behaviour change:** % of population group reporting having changed behaviour since hearing about AIDS
- **Behaviour change intent:** % of population group reporting intent to change behaviour
- **Perceived risk:** % of population group who can state their risk of becoming infected with HIV and who have appropriate justification
- **Communication:** % of population group who have discussed HIV/AIDS/STIs with their partners
- **HIV testing:** % of population group who have had an HIV test

Sexually Transmitted Infections

- **STI health seeking behaviour:** % of population group who have sought appropriate treatment for their last STI screening
- **STI symptom recognition:** % of population who can cite at least two gender-specific signs/ symptoms of STIs

Others

- **Coercion:** % of population group reporting having been forced to engage in sex

- **Exposure to interventions:** % of population group contacted by outreach workers, who know HIV prevention slogans, and have seen/read/heard communication messages (as appropriate)
- **Migration:** % of population group reporting having moved to current location in a specified recent time period

Translating indicators into questions on questionnaire instruments. Moving from the wording of the indicator to the wording of questions on questionnaires can be difficult. The following recommendations are made for this process:

- (1) Review the wording on existing field-tested questionnaires (e.g. from WHO) as well as other questionnaires used locally in order to help the survey design team in drafting the instrument.
- (2) Conduct adequate formative/qualitative research to determine appropriate question wording, i.e. use of local phrases.
- (3) Pre-test questionnaire according to accepted scientific standards.
- (4) Leave out questions better assessed through complementary qualitative research.
- (5) Be certain that filter questions and skip patterns are appropriate.
- (6) Ensure that the choice of responses is appropriate for the question and for calculating the indicator – especially for open-ended questions that get coded (incorrect responses tend to get coded as 'other' when they may be the most important responses).
- (7) Be sure that substantial "other" responses are coded.

Frequency of data collection. Behaviour change can occur rapidly or slowly depending on a variety of factors such as the characteristics of the behaviour itself, the presence or absence of interventions, and the stage of the epidemic and the characteristics of the population. Since the purpose of BSS is to monitor trends in a variety of behaviours, it is important to consider the frequency of data collection so that an appropriate length of time exists between data rounds. The following are suggested guidelines:

- Since BSS can serve as a monitoring tool for prevention interventions, yearly data collection is recommended. Yearly results also promote continuous and systematic focus on persistent behaviour change in problem areas.

- If necessary for cost-efficiency reasons, the general population may be surveyed less frequently (every 2 years) than high-risk groups because their change tends to be more gradual than traditional high-risk groups (e.g. sex workers, male groups with high patronage of sex workers).
- Sustainability of the overall BSS system over multiple years is important. Yearly data collection helps to maintain the institutional capacity of research organizations conducting BSS. Planning and budgeting should prepare for long-range inclusion of multiple rounds of BSS.

7.3 Questionnaires

Once the survey instruments have been “finalized”, they need to be pre-tested and if necessary, adapted to the appropriate local conditions. FHI’s *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV* compiles a set of questionnaires for different population groups. These questionnaires are the result of long experience and have been widely tested in many different settings. The use of standardized questionnaires maximizes comparability of data across time, population groups and geographic regions. However, it is still essential to pre-test and adapt survey instruments for every local setting. Often this will involve translating the instruments into local languages and searching for the correct local word choice to ensure that the original meaning of the question is not lost. It may also be necessary to conduct qualitative research; it is certainly desirable to involve local members of the respondent groups who can help with the interpretation of the questions. To help in this process, an “interviewer guide” laying out the original purpose of the questions for each respondent group should be used.

7.4 A Word on Data Collection

In the BSS, one of two data collection techniques is possible: (1) face to face interviews (i.e., between interviews and respondents) using an interview schedule, and (2) a self-administered questionnaire (when the respondent completes the questionnaire format). Both formats have advantages and disadvantages. Face to face interviews require more time and can result in untruthful responses while covering sensitive topics. On the other hand, they

allow the interviewer to probe and collect important details on cross check inconsistent responses. Self-administered questionnaires take less time to complete, allow for greater confidentiality, but present problems for illiterate or semi-literate respondents. They also can not be cross-checked by interviewers for inconsistent responses thus increasing the chances for invalidating the entire questionnaire.

In the national BSS in Thailand covering 20 provinces, a self-administered questionnaire (see Appendix) was used successfully across five groups: male and female factory workers, male and female students, and 21-year old Thai male military conscripts. In a sample where respondents are relatively well-educated and congregate in a defined location like factories or schools, the Thailand data collection technique was appropriate. In other regions or areas, this may not be the case. Many of the interview schedules (questionnaires/indicators) found in FHI's Behavioural Surveillance Guidelines for Repeated Behavioural Surveys require the use of trained interviewers.

8. THE FIFTH STEP – CARRYING OUT THE FIELDWORK

Carrying out the fieldwork is a procedure that starts from selecting and training the survey personnel, managing and supervising the personnel conducting the fieldwork and managing the data as soon as they are collected from the field²².

8.1 Selecting and Training the Survey Personnel

Sexual behaviour and drug taking behaviour are primary data to be collected in Behavioural surveillance surveys. Such kind of sensitive data need highly experienced interviewers to collect. It is best to sub-contract an experienced agency or professional organization to conduct Behavioural surveillance surveys. In the event that there are not any experienced individuals, or organizations, available for conducting behavioural surveillance surveys, the National BSS Unit may have to carry out the fieldwork themselves. As such, appropriate personnel need to be selected, hired, and trained. Experienced interviewers make a difference in surveys on sensitive subjects like drug taking

²² The ideas in this section were summarized from *WHO Regional Office for South-East Asia Guidelines for Conducting HIV Behavioural Surveillance*. New Delhi. October 2001

behaviour or sex. Contacting agencies or organizations with experience in conducting BSS and gaining access to their interviewers is one way to start building up a cadre of experienced interviewers.

If your committee is asked to select and train interviewers and their supervisors, it is helpful to consider the following:

- Screen for attitudes as well as technical capacity. Recommendations from previous employers should be reviewed in order to find appropriate people.
- Train on the basics about HIV and STIs, how to talk about all kinds of sexual or drug-using practices, what prevention programmes seek to do, and some aspects of the lives of the target groups they will be interviewing. They should be taught about ethical issues in holding interviews and informed consent, interviewing techniques, and how to elicit true information. Using persons who participated in earlier assessments or mapping helps to build knowledge and capacity.
- An “interviewer guide” laying out the original purpose of the questions for each respondent group should be used.
- If sampling is integrated into data collection process, it needs training how to do mapping and sampling.
- Supervisors of teams need an extra day of training and written instructions, preferably in the form of a checklist. They need the sampling frames and forms that will help them record any needed information in the field. They should have a notebook in which they can record a narrative of each day's events.

8.2 Supervising the Fieldwork

Actual data collection should begin only after all of the above steps have been completed. During data collection in the field, one field supervisor should take care of 4-5 interviewers. Supervisors should remain alert to provide technical advice and facilitate interviews throughout the survey, especially when interviewer fatigue sets in. Supervisors should also spot-check questionnaires for completeness and accuracy. They can also begin the work of coding open-ended responses. If there is a principal investigator, he/she should coordinate this process, and ideally all the coding should be done by

one person. Certainly no more than three different people are recommended in this process. If the work is to be done by more than one supervisor, they should agree ahead of time on exactly how the coding is to be done. In some instances, it may be possible to begin the work of data entry in the field, while data collection is still ongoing. If not, the questionnaires should be transported to a central location where data entry can begin.

8.3 Managing the Data

Once the survey data have been gathered, they need to be entered as computer data and checked for errors and inconsistencies. This may be time-consuming, but absolutely necessary. Great care must be taken at this stage of the survey to minimize difficulties will be at the analysis stage. Several types of data checks are done before analysis. First, data entry should be verified for accuracy against the completed questionnaire. If possible, the data should be entered twice, where the two sets can be compared for data entry errors. Some research groups are now beginning to use a scanner to enter data, a practice designed to help increase accuracy.

Once data entry errors have been reconciled, the data should be checked for values that are "out of range" (i.e., values that are improbable or impossible) or are inconsistent with other information gathered. The data should also be checked for "missing" items — that is, items that should have been completed during the course of the interview but were not, either because of respondent inability/refusal or interviewer error. Decisions will need to be made as to whether to insert values for missing data items (a process known as "imputation") or to simply disregard missing data items during analysis.

8.4 Practical Considerations in the Fieldwork

While conducting a survey in the field may be a routine procedure for experienced researchers, the nature of the BSS makes it necessary to prepare for the following points:

- Arrange for travel, funds, and needed materials ahead of time. Clipboards are usually necessary; carry bags and other items are required in many situations.

- Arrange identification documents for all team members.
- Supervisors should be reminded to record a narrative of each day's events and conditions.
- Prepare letters of explanation to authorities who might be concerned about unknown persons appearing in their territory.
- To minimize embarrassment of interviewing, gender and age of interviewers should be the same as respondent's. Female interviewers should interview female sex workers, whereas male interviewers should interview truck drivers.
- During the beginning of the period of data collection, supervisors should meet with interviewers daily after the fieldwork to discuss and solve any problems emerging during the fieldwork. To improve quality of data, this process should be arranged continuously until no further problem emerges.
- Supervisors should check each completed questionnaire in the field to assure consistency and completion of the responses recorded. Invalid data collected is useless for data analysis.
- Supervisors should complete "fieldwork form" to provide adequate information about any relevant conditions or circumstances under which the data was collected.
- The completed questionnaires collected daily from all team members should be listed and placed in envelopes for protection. Nothing should be altered on forms after the original completion. Corrections can be done in red ink.
- Supervisors should comment on what procedures were adopted for non-respondents initially identified to be included as subjects in the study.
- Coding should be completed before questionnaires go to data entry. Code lists must be kept and consistency assured. It is conventional to use 99 or 9999 for missing data. Care must be taken to keep true numerical data separate from numbers that represent coded responses.

- Database files can be constructed after questionnaires are finalized, ready for entry as soon as forms are delivered from the field and coded.
- All data must be double-entered and files compared for validation. After final corrections are made, analysis can begin.
- Data from questionnaires must remain confidential, ensuring the privacy of respondents. Access to the original data should be limited to principal investigators, and not made available for general distribution.

9. THE SIXTH STEP – DATA ANALYSIS

After the data are cleaned for errors and inconsistencies, the analysis and interpretation stage begins. This involves three main steps: (1) to calculate the values of the chosen indicators, (2) to assess changes in the indicators over time, and (3) to explore relationships between some interesting variables²³. Because we used probability sampling methods explained in the previous chapter to make sure our data are representative and replicable, we are able to use appropriate statistical methods for data analysis.

There are recommended methods of statistical analysis of BSS data. They include statistical tests that are appropriate and that use recognized formulas in social science research. Statistical computer packages like Epi-Info®, SPSS®, SAS®, and STATA® are useful in analysing behavioural data such as those obtained from the BSS. However, these packages are best used by experienced researchers who understand the statistical tests, and what they are able (and not able) to do.

For BSS, statistical analysis can be classed according to whether the data are used for a single round (one wave of data) or used for trend analysis (to analyse across rounds or waves). Within each category, a number of analytical tools can be used to study their variables, which are simply aspects of the person or their behaviour that can be measured; for example, their age or the time of their first sexual intercourse. These analytical tools are: (1) univariate analysis, (2) bivariate analysis, and (3) multivariate analysis.

²³ These steps in the analysis stage are explained intensively in FHI/Impact *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV*

Univariate Analysis. To analyse one variable only, we use univariate analysis. Most of the indicators in the BSS questionnaire are calculated for univariate analysis. For example, they cover indicators like the proportion of young men who have had sex with one partner during a given period, or the use of a condom the last time they had sex. Confidence intervals are used for these proportions to show how precise the estimates are. A confidence interval is simply the range in which you can be “confident” (within a specified degree) that the proportion of people reporting the behaviour is accurate. In a BSS analysis across rounds, statistical analysis is used to show whether behavioural changes are caused by chance or are real changes.

Bivariate Analysis. When we want to know whether one variable (the independent or explanatory variable) influences the distribution of another (the dependent or outcome variable), we use bivariate analysis. Here we look for a relationship between the explanatory variable and the outcome variable. For example, we want to know if there is an association between the respondents’ age (the explanatory variable) and their use of condoms (outcome variable). Statistical analysis will show whether the relationship is only by chance or a true one.

Multivariate Analysis. We use this when we look at the influence of at least two variables on another, because the relationships are often complex and interwoven. Multivariate analysis can show how the individual effects of some explanatory variables are related to an outcome variable.

9.1 Sources of Bias

In the BSS as in other types of surveillance, there is a real danger of making false conclusions that come not only from statistical misuse, but also from sources of bias. Bias describes systematic differences between the results of the survey and the true situation in the population. Researchers must be aware of these potential sources of bias, which can in fact be minimized from the initial planning stage. These sources may come from: (1) selection bias, which happens when indicated behaviours of the actual individuals who participate in the survey differ from the behaviour of those persons who don’t participate, (2) refusal bias, which is a type of selection bias, that happens when those who refuse to participate in the survey (because they don’t want their illegal behaviour like drug-taking known) have different behaviours from

those who agree to join, and (3) measurement bias, which is error in the measurement of the variables that arise from a number of factors like unclear question items and the like.

9.2 Weighting Bias

A common measurement bias comes from not using weighted analysis if a cluster design was used (i.e. target group members chosen for the sample have unequal probabilities for selection). The sampling probabilities should first be calculated. If the sampling probabilities turn out to be approximately the same across the clusters, then there is no need to do a weighted analysis. However, if sampling probabilities differ by an order of magnitude greater than two or three, then a weighted analysis should be performed. This is to avoid bias of the point estimates resulting from the sampling design. This type of bias could occur if the variables being measured differ according to the size of the cluster. When performing a weighted analysis, sampling weights for each cluster should be standardized so that they don't distort sample sizes and statistical tests for trends.

9.3 Other Points to Consider in Data Analysis

- Pay attention to denominators²⁴. One common problem in data analysis is that the wrong denominators are used to calculate indicators, or that denominators used are inconsistent from one data round to another. This leads to incorrect and often misleading conclusions. It also makes data hard to compare. Indicators should be calculated for the entire target group except when otherwise specified. Any tables or text reporting data should clearly state who is in the denominator.
- Measures of central tendency (means and standard deviations, medians) should be calculated for all numerical data (numbers of partners, etc.). Medians are needed for variables with high variation, e.g. age or income.
- In assessing behavioural trend or changes over time from repeated surveys, one should keep in mind that the conclusion of behavioural changes emerging is the true change, not changes due

²⁴ WHO Regional Office for South-East Asia *Guidelines for Conducting HIV Behavioural Surveillance*. New Delhi, October 2001

to altered in question wordings, change in timing of field data collection period in different rounds, and other design effects.

- One of the common problems in data analysis is that the sample size is too small to disaggregate data as desired. For example, behavioural data cannot be analysed by gender, age, and other variables, if wanted. Hence, to avoid such problem, adequate sample size should be considered for desired analysis at the design stage.
- If any unexpected or doubtful results appear, investigation for the reasons must be attempted. All the steps of data collection and data processing (coding, verifying, etc.) should be thoroughly reviewed to figure out the mistakes and make corrections. If no error is found, qualitative studies such as in-depth interviews and focus group discussions should be conducted to clarify the specific doubtful findings and to help explain the quantitative findings.
- Even though no doubtful results appear, in the absence of additional evidence, the survey result of self-reported sexual behaviours might be considered invalid. For promoting validity and reliability of the findings, the consistency of BSS results should be compared to all other available and relevant data such as biological data from HIV sero-surveillance surveys, relevant behavioural data from qualitative research studies, and others.

10. THE SEVENTH STEP – DISSEMINATION OF THE BSS RESULTS

10.1 HIV Prevention Efforts

Once the BSS data are analysed, the information obtained is published for specific audiences who can best act on them. All efforts to gather and analyse data on HIV risk-related behaviour will be of no use unless people from whom they were collected will benefit. The decisions about how data are used specifically will rest with public health officials in the national AIDS programme. They will decide how best to present data to different audiences. These audiences may include partners in HIV prevention both within the government and outside it, members of the respondent groups themselves and those who provide services to them, and key decision-makers both

national and international who can contribute resources to a more effective response to HIV. BSS data will usually be combined with other sources of HIV-related data such as that coming from the sero-surveillance system, and packaged differently for different audiences.

Dissemination as a process²⁵. If the collected data are not used for prevention efforts, then there is no need to publish them to the stakeholders who need them most. If the BSS is done in the early stages of the epidemic, its purpose is to inform the stakeholders of the possible rapid spread of HIV and encourage everyone, policy-makers included, to prevent that spread. If done across several rounds, the BSS data - which now show behavioural changes over time - can increase support for prevention activities, especially to policy-makers.

The elements of the dissemination process include:

- The first step in the BSS process is building consensus among various stakeholders about the communities to be surveyed, the data to be collected and disseminated, and the forms of dissemination;
- Developing a complete dissemination programme at the time the BSS is planned;
- Preparing specific audiences to understand the meaning, limitations, and interpretation of BSS before they are actually released;
- Developing separate dissemination materials for each audience type to best explain the findings in clear and simple language they can understand, and
- Actively following up with specific audiences to answer questions, clarify meanings and interpretations, and make recommendations on policies, programmes, or actions as suggested by the data. Important audiences include policy-makers; programme managers in government agencies, NGOs, and CBOs; members and leaders of the communities surveyed; mass media; donors and other funding agencies, and the general public.

²⁵ The ideas here were summarized from *HIV Risk Behavioural Surveillance Surveys (BSS): Methodology and Issues in Monitoring HIV Risk Behaviour*. Workshop Summary. Bangkok: FHI 1997

Each of these specific audiences has a role in reducing HIV transmission and can act based on the findings. However, there are often local sensitivities about the open discussion of behaviours that transmit HIV. These sensitivities are often very strong among key government officials or high-ranking religious leaders, who might block prevention efforts or the information in the BSS data. In designing dissemination activities and materials, careful attention should be paid to these concerns. Whenever possible : (1) the data should be disseminated in forms which respect the concerns of the specific audience; (2) the specific audience should be involved in the dissemination process, and (3) the results must be presented in language that is not objectionable.

BSS programme managers have the duty to inform the community leaders and members of the survey findings. Their active participation throughout the entire process of design, implementation, and dissemination of BSS will strengthen the system and help to ensure its reliability and validity.

Possible forms of dissemination²⁶. Writing a detailed final report with statistical analysis for a “general” audience will be almost useless. This is because a general report will not communicate to anyone. If such words like “confidence interval” or “standard error” are used, they are more likely to confuse readers. To avoid communication problems and to reach various types of audiences, several forms of dissemination should be prepared, including:

- *A detailed report with complete statistical analysis.* This report is the technical document of the survey and used for the programme managers and staff of organizations working with the survey communities. Even within such a report, significant results must be highlighted and summarized in clear, non-technical language.
- *Briefing materials for the press or other mass media.* The use of technical language in these materials should be avoided. Each press release or briefing should be focused on only one or two key findings. Whenever possible a written summary of remarks should be provided when discussing BSS findings with broadcast media. This will help lessen misquoting and misinterpretation.
- *Short policy briefs.* Because policy-makers and leaders of the surveyed communities can act on the possible prevention measures,

²⁶ These were taken from FHI/Impact *Behavioural Surveillance Surveys: Guidelines for Repeated Behavioural Surveys in Populations at Risk of HIV*

materials specifically designed for them are important. Each policy brief should be focused on one or two key aspects of the findings discussing what this means to their own activities, and making recommendations on possible actions to positively influence prevention activities.

- *Group dissemination meetings or presentations.* Larger meetings or presentations are a good opportunity to communicate with the surveyed communities, policy-makers, programme managers, or the general public. These meetings should be planned accordingly; that is, before, during, and after the release of the findings.
- *Individualized meetings.* Individual personalized meetings with influential policy-makers, community leaders from the surveyed groups, or interested NGOs and government programme managers can make them explore the implications for their own work in a non-threatening environment. Because such meetings take time and careful preparation, groups who can maximize the information best, or multiply the information further must be chosen.

In preparing materials for each specific audience, the basic goal is to give them the information they need to encourage, target, or implement meaningful prevention activities. The results should be presented in action-oriented or policy-oriented terms.

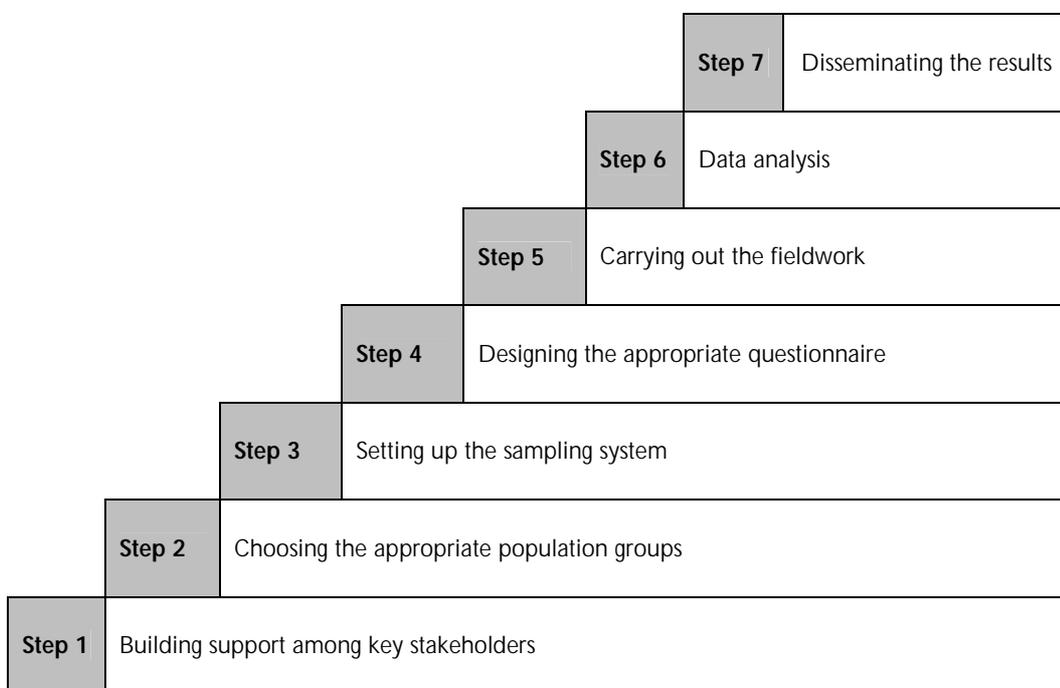
10.2 Dissemination: Summary and Recommendations²⁷

- Dissemination is a process that begins when a BSS system is first planned and continues through the lifetime of the project. The purpose is not only to disseminate the findings widely, but also to see that they are understood and acted upon.
- In general, BSS results should be disseminated to as many people, but in ways that respect the sensitivities of the specific audiences and key stakeholders.
- Many forms of dissemination are needed to reach all specific audiences who can act upon the findings. They include technical reports, policy briefs, mass media briefings, and group and individual meetings.

²⁷ These were taken from *HIV Risk Behavioural Surveillance Surveys (BSS): Methodology and Issues in Monitoring HIV Risk Behaviours*. Workshop Summary. Bangkok: FHI 1997

- Materials must be prepared in simple language. In targeted materials, the implications of the findings for the specific audience should be discussed and ideas for appropriate action by them presented.
- Careful attention must be paid to the way stigmatized communities are presented in the information. The idea is not to contribute more to their marginalization.
- It must be borne in mind that a good dissemination plan for BSS findings to key stakeholders is an important factor in supporting the societal response to HIV prevention.

A Summary of Steps in Planning and Conducting a Behavioural Surveillance Survey



Appendix

**Self-administered Questionnaires used in
Thailand BSS**

Questionnaire for Female Factory Worker

Please answer all 15 questions by marking an X on the appropriate number or filling in the empty space.

Questions #1 through #5 concern general information such as age, marital status, and residence:

1. Year in which you were born:
You are presently years old.
2. You are presently
 - (1) Single [never been married]
 - (2) Married [and currently living with your husband]
 - (3) Divorced or separated
 - (4) A widow
 - (5) Other. Please specify
3. The highest level of formal education you have completed is
4. How long have you lived in the province where you are answering this questionnaire?
 - (1) Less than one year
 - (2) More than one year
 - (3) Do not live in this province.
5. During the past one-year period in which province did you live for the longest period?.....

Questions #6 through #8 concern your first sexual experience:

6. Have you ever had sex with anybody?
 - (1) Yes. My first sexual experience occurred when I wasyears old
 - (2) No.

If you have never had sex with anybody kindly skip over to question #15.

7. With whom did you have your first sexual experience?
- (1) A man whom you knew superficially
 - (2) Boyfriend, lover or close friend
 - (3) Husband
 - (4) Other. Please specify
8. During your first sexual experience did you use a condom?
- (1) Yes
 - (2) No
 - (3) Cannot remember.

In questions #9 and #10 please provide information about your sexual experiences during the past year or over the past 12-months. In this period how frequently did you have sex and did you use condoms?

9. During the past year with how many men, not including your husband or regular partner, did you have sex?
- (1) One man
 - (2) Two men
 - (3) Three men
 - (4) Four men
 - (5) Five men
 - (6) More than five men
 - (7) Never had sex with any man.
10. During the past year when you had sex with a man, who was not your husband or regular partner, how often did you use a condom?
- (1) Never used a condom
 - (2) Sometimes used a condom
 - (3) Always used a condom
 - (4) Never had sex with any man.

Questions no. 11 and no. 12, concern your perception about your risk for STDs and any treatment you received for STDs.

11. During the past year have you noticed any genital lesions or vaginal discharge after having sex?
- (1) Yes
 - (2) No
 - (3) Did not have sex.
12. During the past year if you noticed any genital lesions or vaginal discharge, what action did you take?
- (1) Bought medicine from a pharmacy without receiving any treatment from a clinic or hospital
 - (2) Bought medicine from a pharmacy, as well as received treatment from a clinic or hospital
 - (3) Received treatment from a clinic or hospital
 - (4) Did nothing
 - (5) Did not notice any problem after engaging in sexual activities
 - (6) Did not have sex.

Questions no. 13 through no. 15 concern payment for sexual services, as well as your abortion experience during the past 12-month period.

13. During the past year have you ever received any money in exchange for sexual services?
- (1) Yes
 - (2) No
 - (3) Never had sex.
14. During the past year have you had an abortion?
- (1) Yes, I had an abortion
 - (2) No, I did not have an abortion
 - (3) Never had sex
15. In answering this questionnaire, did you encounter any questions that you did not understand very well or where you were uncertain about your answer?
- (1) Yes. Please specify
 - (2) No.

Questionnaire for Male Factory Worker

Please answer all 16 questions by marking an X on the appropriate number or filling in the empty space.

Questions #1 through #4 concern general information such as age, marital status, and residence:

1. Year in which you were born:
You are presently years old.
2. You are presently
 - (1) Single [never been married]
 - (2) Married [and currently living with your wife]
 - (3) Divorced or separated
 - (4) A widower
 - (5) Other. Please specify
3. The highest level of formal education you have completed is
4. During the past one-year period, in which province did you live for the longest period?

Questions #5 through #7 concern your first sexual experience:

5. Have you ever had sex with anybody?
 - (1) Yes. My first sexual experience occurred when I wasyears old.
 - (2) No.

If you have never had sex with anybody kindly skip over to question #16.

6. With whom did you have your first sexual experience?
 - (1) Commercial sex worker, such as a prostitute, masseuse, singer, waitress, etc.

- (2) A woman who was not a commercial sex worker, your wife, or your regular partner
- (3) Wife [or regular partner]
- (4) A man
- (5) Other. Please specify

7. During your first sexual experience did you use a condom?

- (1) Yes
- (2) No
- (3) Cannot remember.

In questions #8 through #13 please provide information about your sexual experiences during the past year or over the past 12-months. In this period how frequently did you have sex and did you use condoms?

8. During the past year, how frequently did you have sex with a commercial sex worker, such as a prostitute, masseuse, singer, waitress, etc.?

- (1) Once
- (2) Twice
- (3) Thrice
- (4) Four times
- (5) Five times
- (6) More than five times
- (7) Did not have sex with a commercial sex worker.

9. During the past year, if you had sex with a commercial sex worker [such as a prostitute, masseuse, singer, waitress, etc.], how often did you use a condom?

- (1) Never used a condom
- (2) Sometimes used a condom
- (3) Always used a condom
- (4) Did not have sex with a commercial sex worker.

10. During the past year how many women, not including your wife [or regular partner], did you have sex with who was not a commercial sex worker?
- (1) One woman
 - (2) Two women
 - (3) Three women
 - (4) Four women.
 - (5) Five women
 - (6) More than five women
 - (7) Did not have sex with any woman.
11. During the past year when you had sex with a woman, who was not your wife [or regular partner] or a commercial sex worker, how often did you use a condom?
- (1) Never used a condom
 - (2) Sometimes used a condom
 - (3) Always used a condom
 - (4) Never had sex with a woman who was not a commercial sex worker.
12. During the past year with how many men did you have sex?
- (1) One man
 - (2) Two men
 - (3) Three men
 - (4) Four men
 - (5) Five men
 - (6) More than five men
 - (7) Did not have sex with any man.
13. During the past year, if you had sex with a man, how often did you use a condom?
- (1) Never used a condom
 - (2) Sometimes used a condom

- (3) Always used a condom
- (4) Did not have sex with any man.

Questions no. 14 and no. 15, concern your perception about your risk for STDs and any treatment you received for STDs.

14. During the past year have you noticed any genital lesions or discharge after having sex?

- (1) Yes, had discharge
- (2) Yes, had lesions/sores
- (3) Yes, had both discharge and lesions/sores
- (4) Did not have any problems after having sex
- (5) Did not have sex.

15. During the past year if you noticed any genital lesions or discharge, what action did you take?

- (1) Bought medicine from a pharmacy without receiving any treatment from a clinic, STD centre or hospital
- (2) Bought medicine from a pharmacy as well as received treatment from a clinic, STD centre or hospital
- (3) Received treatment from a clinic, STD centre or hospital
- (4) Did nothing
- (5) Did not notice any problem after engaging in sexual activities
- (6) Did not have sex.

16. In answering this questionnaire, did you encounter any questions that you did not understand very well or where you were uncertain about your answer?

- (1) Yes. Please specify
- (2) No.

Questionnaire for 21-Year Old Thai Male Military Conscript

Please answer all 17 questions by marking an X on the appropriate number or filling in the empty space.

Questions #1 through #5 concern general information such as age, marital status, and residence:

1. Year in which you were born:
You are presently years old.
2. Your profession before being recruited into the Army:
3. You are presently
 - (1) Single [never been married]
 - (2) Married [and currently living with your wife]
 - (3) Divorced or separated
 - (4) A widower
 - (5) Other. Please specify
4. The highest level of formal education you have completed is
5. During the past one-year period in which province did you live the longest time?

Questions #6 through #8 concern your first sexual experience:

6. Have you ever had sex with anybody?
 - (1) Yes. My first sexual experience occurred when I wasyears old
 - (2) No.

If you have never had sex with anybody kindly skip over to question #17.

7. With whom did you have your first sexual experience?
 - (1) Commercial sex worker, such as a prostitute, masseuse, singer, waitress, etc.
 - (2) A woman who was not a commercial sex worker, your wife, or your regular partner.

- (3) Wife [or regular partner]
- (4) A man
- (5) Other. Please specify

8. During your first sexual experience did you use a condom?

- (1) Yes
- (2) No
- (3) Cannot remember.

In questions #9 through #14 please provide information about your sexual experiences during the past year or over the past 12-months. In this period, how frequently did you have sex and did you use condoms?

9. During the past year how frequently did you have sex with a Commercial Sex Worker, such as a prostitute, masseuse, singer, waitress, etc.?

- (1) Once
- (2) Twice
- (3) Three times
- (4) Four times
- (5) Five times
- (6) More than five times
- (7) Did not have sex with a commercial sex worker.

10. During the past year, if you had sex with a commercial sex worker [such as a prostitute, masseuse, singer, waitress, etc.], how often did you use a condom?

- (1) Never used a condom
- (2) Sometimes used a condom
- (3) Always used a condom
- (4) Did not have sex with a commercial sex worker.

11. During the past year how many women, not including your wife [or regular partner], did you have sex with who was not a commercial sex worker?

- (1) One woman
- (2) Two women

- (3) Three women
- (4) Four women
- (5) Five women
- (6) More than five women
- (7) Did not have sex with any other woman.

12. During the past year when you had sex with a woman, who was not your wife [or regular partner] or a commercial sex worker, how often did you use a condom?

- (1) Never used a condom
- (2) Sometimes used a condom
- (3) Always used a condom
- (4) Never had sex with a woman who was not a Commercial Sex Worker.

13. During the past year with how many men did you have sex?

- (1) One man
- (2) Two men
- (3) Three men
- (4) Four men
- (5) Five men
- (6) More than five men
- (7) Did not have sex with any man.

14. During the past year, if you had sex with a man, how often did you use a condom?

- (1) Never used a condom
- (2) Sometimes used a condom
- (3) Always used a condom
- (4) Did not have sex with any man.

Questions no. 15 and no. 16, concern your perception about your risk for STDs and any treatment you received for STDs.

15. During the past year have you noticed any genital lesions or discharge after having sex?

- (1) Yes, had discharge
- (2) Yes, had lesions/sores
- (3) Yes, had both discharge and lesions/sores
- (4) Did not have any problems after having sex
- (5) Did not have sex.

16. During the past year if you noticed any genital lesions or discharge, what action did you take?

- (1) Bought medicine from a pharmacy without receiving any treatment from a clinic, STD centre or hospital
- (2) Bought medicine from a pharmacy as well as received treatment from a clinic, STD center or hospital
- (3) Received treatment from a clinic, STD centre or hospital
- (4) Did nothing
- (5) Did not notice any problem after engaging in sexual activities
- (6) Did not have sex.

17. In answering this questionnaire did you encounter any questions that you did not understand very well or where you were uncertain about your answer?

- (1) Yes. Please specify
- (2) No.

Questionnaire for Fifth Year Female Secondary School Student

You do not have to identify yourself by your name or by your class. Please answer all 18 questions by marking an X on the appropriate number or filling in the empty space. After answering all the questions, put the questionnaire into the envelope, seal the envelope, and then put the envelope into the box.

1. Year in which you were born:
You are presently years old.
2. You presently
 - (1) Have never had a boyfriend or lover
 - (2) Have a boyfriend or lover, but do not live together
 - (3) Have a boyfriend or lover, and live together as a married couple
 - (4) Other. Please specify
3. You have lived in this province for years.
4. You were born in province.
5. Have you ever had sex with a man?
 - (1) Yes. My first sexual experience occurred when I wasyears old
 - (2) Never had sex with a male.
6. With whom did you have your first sexual experience?
 - (1) A boyfriend, lover, or close friend
 - (2) A male you knew superficially
 - (3) Other. Please specify
 - (4) Never had sex with a male.
7. Did you voluntarily engage in your first sex experience or were you forced to do?
 - (1) Voluntarily
 - (2) Forced to do so
 - (3) Never had sex

8. During the past 12-month period with how many men did you have sexual relations?
 - (1) One man
 - (2) Two men
 - (3) Three men
 - (4) Four men
 - (5) Five men
 - (6) More than five men
 - (7) Never had sex.

9. During the past 12-month period have you ever had sex with a boyfriend, lover, or close friend?
 - (1) Yes, I had sex with a boyfriend, lover, or close friend
 - (2) No, I never had sex with a boyfriend, lover, or close friend

10. During the past 12-month period, when you had sex with a boyfriend, lover, or close friend, how frequently did you use condoms?
 - (1) Always used a condom
 - (2) Sometimes used a condom
 - (3) Never used a condom
 - (4) Never had sex with a boyfriend, lover, or close friend.

11. During the past 12-month period have you ever had sex with a man whom you knew superficially?
 - (1) Yes, I had sex with a man whom I only knew superficially
 - (2) No, I never had sex with a man whom I only knew superficially.

12. During the past 12- month period, how frequently did you use condoms when having sex with a man whom you only knew superficially?
 - (1) Always used a condom
 - (2) Sometimes use a condom
 - (3) Never used a condom
 - (4) Never had sex with a man whom I only knew superficially.

13. During the past 12-month period, have you noticed any of the following symptoms after having sex:
- (1) Vaginal discharge
 - (2) Genital lesion/sore
 - (3) Vaginal discharge and genital lesion/sore
 - (4) No vaginal discharge or genital lesion/sore
 - (5) Never had sex.
14. In the past one year, if you had a vaginal discharge or genital lesion/sore, what action did you take?
- (1) Bought medicine from a pharmacy
 - (2) Bought medicine from a pharmacy as well as received treatment from a clinic, STD centre or hospital
 - (3) Received treatment from a clinic, STD centre or hospital
 - (4) Did not receive any treatment
 - (5) Did not have any vaginal discharge or genital lesion/sore after engaging in sex
 - (6) Never had sex.
15. During the past 12 months, did you ever receive money, gifts, etc. in exchange for sexual services?
- (1) Yes, I received money, gifts, etc. in exchange for sexual services
 - (2) No, I never received any money, gifts, etc. in exchange for sexual services
 - (3) Never had sex.
16. During the past 12-month period were you ever pregnant or did you have a menstrual related problem?
- (1) No, I was not pregnant nor had a menstrual related problem
 - (2) Yes, I was pregnant or had a menstrual related problem
 - (3) Never had sex.

17. During the past 12-month period, if you were pregnant or had a menstrual related problem, what action did you take?

- (1) Never became pregnant
- (2) Had an abortion
- (3) Took the pills for menstrual regulation
- (4) Never had sex.

18. In answering this questionnaire, did you encounter any questions that you did not understand very well or where you were uncertain about your answer?

- (1) Yes. Please specify
- (2) No.

Questionnaire for Fifth Year Male Secondary School Student

You do not have to identify yourself by your name or by your class. Please answer all 15 questions by marking an X on the appropriate number or filling in the empty space. After answering every question, put the questionnaire into the envelope, seal the envelope, and then put the envelope into the box.

1. Year in which you were born:
You are presently years old.
2. You presently
 - (1) Have never had a girlfriend or lover
 - (2) Have a girlfriend or lover, but do not live together
 - (3) Have a girlfriend or lover, and live together as a married couple
 - (4) Other. Please specify
3. You have lived in this province for years.
4. You were born in province.
5. Have you ever had sex with a woman?
 - (1) Yes. My first sexual experience occurred when I wasyears old.
 - (2) Never had sex with a female.
6. With whom did you have your first sexual experience?
 - (1) A girlfriend, lover, or close friend
 - (2) A female you only knew superficially
 - (3) A commercial sex worker
 - (4) Others. Please specify
 - (5) Never had sex with a female.
7. During the past 12-month period how often have you had sex with a commercial sex worker, such as prostitute, masseuse, singer, or waitress?
 - (1) Once
 - (2) Twice
 - (3) Three times.

- (4) Four times
 - (5) Five times
 - (6) More than five times
 - (7) Never has sex with a commercial sex worker.
8. During the past 12-month period, how frequently did you use a condom when having sex with a commercial sex worker?
- (1) Always used a condom
 - (2) Sometimes used a condom
 - (3) Never used a condom
 - (4) Did not have sex with a commercial sex worker.
9. During the past 12-month period, with how many women did you have sex who were not commercial sex workers?
- (1) One woman
 - (2) Two women
 - (3) Three women
 - (4) Four women
 - (5) Five women
 - (6) More than five women
 - (7) Did not have sex with this type of female.
10. During the past 12-month period how frequently did you use condoms when having sex with women whom were not commercial sex workers?
- (1) Always used a condom
 - (2) Sometimes used a condom
 - (3) Never used a condom
 - (4) Did not have sex with this type of female.
11. During the past 12-month period how often have you had sex with a man?
- (1) One man
 - (2) Two men
 - (3) Three men

- (4) Four men
- (5) Five men
- (6) More than five men
- (7) Never had sex with a man

12. During the past 12-month period, how frequently did you use condoms when having sex with the man?

- (1) Always used a condom
- (2) Sometimes used a condom
- (3) Never used a condom
- (4) Never had sex with a man.

13. During the past 12-month period did you notice any genital lesions/sores or discharge from your penis?

- (1) Yes, discharge
- (2) Yes, genital lesions/sores
- (3) Yes, both discharge and genital lesions/sores
- (4) Did not have any discharge or genital lesions/sores.

14. During the past year, if you had a discharge or genital lesions/sores, what action did you take?

- (1) Bought medicine from a pharmacy
- (2) Bought medicine from a pharmacy as well as received treatment from a clinic, STD centre or hospital
- (3) Received treatment from a clinic, STD centre or hospital
- (4) Did not receive any treatment
- (5) Did not have the symptoms after having sex
- (6) Never had sex.

15. In answering this questionnaire, were there any questions that you did not understand very well or where you were uncertain about your answer?

- (1) Yes, Please specify
- (2) No.

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