The Status and Trends of the HIV/AIDS/STD Epidemics in Asia and the Pacific

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Monitoring the AIDS Pandemic (MAP) Network

MAP is a collegial network of internationally recognized technical experts seeking to assess the status and trends of the global HIV/AIDS pandemic. MAP was created in 1996, through the collaboration of the AIDS Control and Prevention (AIDSCAP) Project of Family Health International, the Francois-Xavier Bagnoud Center for Health and Human Rights of the Harvard School of Public Health, and the Joint United Nations Programme on HIV/AIDS (UNAIDS).

MAP's more than 100 members in 40 countries are epidemiologists, modelers, economists, and social, behavioral, public health and international development specialists, recruited through a nomination process and currently guided by an Interim Global Steering Committee.

MAP workshops and membership meetings are held in conjunction with regional and international HIV/AIDS conferences. This enables MAP to function on a small budget and to distribute results from its analyses promptly to conference participants. Specific workshops are convened as needed, with expertise drawn from MAP members and other invited experts. Regional experts are encouraged and supported by MAP in the collection, analysis, synthesis and dissemination of regional information, which is then incorporated into MAP's global reports. AIDS service organizations and regional networks of people living with HIV/AIDS are invited to participate in MAP workshops.

MAP works toward building consensus in an atmosphere of collegiality, cultural sensitivity, and mutual respect for conflicting points of view. It functions on the basis of volunteerism and personal and institutional contributions, with limited financial support from international organizations, including UNAIDS, and thus provides an independent perspective on issues raised by the HIV/AIDS pandemic.

The reports represent the views of the individual participants and not the organizations from which they are affiliated.

MAP reports are available through the following websites:

Family Health International
http://www.fhi.org

FXB Center for Health and Human Rights
http://www.hri.ca/partners/fxbcenter

UNAIDS
http://www.unaids.org

US Census Bureau
http://www.census.gov/ipc
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1. Introduction

The Kuala Lumpur Monitoring the AIDS Pandemic (MAP) Network Symposium, *The Status and Trends of the HIV/AIDS/STD Epidemics in Asia and the Pacific* was held on 19-21 October 1999. This was an official satellite symposium of the 5th International Congress on AIDS in Asia and the Pacific.

The three-day MAP Network symposium held in Kuala Lumpur was the sixth symposium formally organized by this global network formed in December 1996. It was part of a continuing series of regional and global symposia that have been organized to understand the trajectory of the HIV/AIDS epidemics. Starting with *The Status and Trends of the HIV/AIDS Epidemics in Africa Symposium* that was held in Kampala, Uganda in December 1995, a team of internationally recognized technical specialists in epidemiology, modeling, economics, demography, public health, and international development was formed to monitor the dynamics of the HIV/AIDS pandemic and various regional epidemics. By collecting, analyzing and disseminating information on HIV/AIDS, this team of experts, which has grown rapidly over the course of three years into a global network, seeks to assist governments, organizations and the world at large to respond more actively and effectively to the challenges posed by the HIV/AIDS pandemic.

The MAP symposium in Kuala Lumpur brought together 40 global and regional experts, including MAP members and some specially invited participants, to achieve the following objectives:

- To present and share information on the status and trends of the HIV/AIDS epidemics in Asia and the Pacific and analyze this information in a global context;
- To review the epidemiological and behavioral patterns among the HIV/AIDS epidemics affecting the different populations in the region;
- To identify specific data needs for monitoring and estimating the HIV/AIDS epidemics in the region; and
- To produce and disseminate a consensus report on the current status of the HIV/AIDS epidemics in Asia and on the current and projected trends for these epidemics in the region.

Because a large percentage of the world’s population resides in the Asia-Pacific region, the symposium held in Kuala Lumpur was important in enabling MAP to focus strategically on the evolving HIV/AIDS epidemics in the Asian and Pacific region countries, fuse current knowledge, identify gaps therein and determine topical and geographical areas for action.

The symposium began by first reviewing the recommendations made during the Manila MAP symposium, 21-23 October 1997, to determine the progress made to-date. From
then on, the team concentrated on the situation in the overall region and the Western Pacific and Southeast-Asian subregions, presented country-specific epidemic profiles on Bangladesh, Cambodia, China, Japan, India, Indonesia, Pakistan, the Philippines, and Vietnam.

This provisional report, coauthored by the Kuala Lumpur MAP Symposium participants and produced in some 24 hours, reflects a consensus of the analysis, projections and recommendations brought forward during the symposium. Its aim is to provide information that can be used by international as well as local bodies to briefly review the most important aspects of the history of the HIV/AIDS epidemics in the Asia-Pacific region to date, recognize the current status of and trends within these epidemics, and take immediate action to affect the course of these epidemics in the future.

2. The Status and Trends of HIV/AIDS Epidemics in Asia and the Pacific

With a population of nearly 3.5 billion—representing nearly sixty percent of the world's population—the Asia-Pacific region has the potential to influence greatly the course and overall impact of the global HIV/AIDS pandemic. For the purpose of this report, this region stretches from and includes Pakistan on the west, to Japan and island nations in the Pacific, and from China in the north, to countries forming Oceania to the south. The general HIV/AIDS trends and HIV prevalence levels in this region were described in the MAP report that was prepared prior to the 4th International Congress on AIDS in Asia and the Pacific in Manila in 1997. This MAP report, prepared for the 5th International Congress on AIDS in Asia and the Pacific in Kuala Lumpur, Malaysia, in October 1999, updates the status and trends of HIV/AIDS epidemics in the region.

Epidemic patterns and trends

HIV epidemics in the region are diverse, localized, and have different trends over time. The spread of HIV in this region began in the early-to-mid 1980s. Early infections could be traced to sexual contacts with infected persons residing outside the region, as well as some apparent further spread within the region itself. By the late 1980s, however, it became evident that the transmission of HIV was increasing among several populations, in some cases with great velocity, and that two sets of factors strongly influenced the course of the emerging epidemics in this region: patterns in sex work and sexual networking and patterns of injecting drug use (IDU).
As of 1999, this region had close to 60 percent of the world’s adult (15-49 years of age) population and about 20 percent of the estimated adult HIV infections.\(^1\) Several HIV epidemics in this region began about 10 years ago and HIV disease, including AIDS, is now increasing markedly and the associated needs for care are rising steeply. The estimated adult HIV prevalence in the region varies from almost zero (DPR Korea) to one per several thousand in most countries in the region, up to 2 to 3 percent in Cambodia, Myanmar, Thailand, and in several major states in India.

HIV infections were first introduced into several Asian-Pacific countries/cities such as Australia, New Zealand, Japan, Malaysia, Singapore, and Hong Kong, during the early 1980s by men who have sex with men (MSM), who acquired their infections in major cities of North America and Europe. Relatively extensive spread of HIV occurred in the MSM sexual networks in these Asian-Pacific countries/cities. These focal epidemics peaked during the mid-to-late 1980s, but HIV incidence continues in MSM populations in the region, albeit at much lower levels during the 1990s. HIV infection has probably also been introduced to other “hidden” populations of MSM in many other Asian-Pacific countries, but data on such introductions and possible spread has not been collected in most of these countries.

Many intense focal HIV epidemics have been documented in Asian-Pacific countries among their IDU populations beginning around the late 1980s. Such epidemic spread, which can lead to infection levels of over 50 percent within a year or two, have occurred in Australia, Thailand, in northeast India, several provinces of China, Malaysia, Myanmar, Vietnam, and most recently, Nepal. Although HIV can spread rapidly among IDUs who share contaminated injecting equipment, and from them to their sexual partners, these epidemics have so far resulted only in limited spread of HIV to the heterosexual population at large.

As with all other sexually transmitted infections (STI), the major driving force of the HIV pandemic is heterosexual transmission. This is because there are huge numbers of heterosexuals, whose sexual behaviors place them at significant risk of HIV, compared to the much smaller numbers of IDU and MSM who may be at high risk of HIV. Extensive heterosexual spread of HIV resulting in HIV prevalence levels of from 2-3 percent of the total 15- to 49-year-old population have been documented in Cambodia, Myanmar, Thailand, and in several states in India, but have not yet been observed in other countries in the region.

It is becoming increasingly clear that the intensity of HIV epidemics associated with sex work, affecting both female sex workers (FSWs) and their clients, is primarily determined by the daily or weekly number of sex partners (clients) per sex worker, the

\(^1\) For comparison, sub-Saharan Africa has less than 9 percent of the global adult population and more than two thirds of the global total of adult HIV infections, and countries in North America and Western Europe have about 12% of the global adult population but less than 5 percent of the estimated global total of adult HIV infections (UNAIDS/WHO, 1999).
frequency of use of commercial sex by men, and other factors, such as the rate of regular condom use in commercial sex. Outside of the highest heterosexual risk groups (FSWs and their clients), the pattern, prevalence, and frequency of heterosexual risk behaviors may be insufficient to sustain any further significant HIV transmission within the general population at large. However, risk behavior is not limited to sex workers and their clients, and the magnitude of the epidemics will be determined by the size of the larger (sub-) populations at risk.

Over the past decade, epidemiological studies have also shown that HIV epidemics in MSM, IDU, and heterosexual populations may—in large part—develop rather independently of each other. An example for this may be the two concurrent HIV epidemics of different HIV subtypes in Thailand occurring in MSM, IDU and heterosexuals. This is probably due to the rather tenuous social-sexual bridges between IDU and MSM populations and other heterosexually active adults for a variety of reasons, including social isolation of IDU and MSM populations and their sexual partners, and/or the stigmatization to which they are subjected. However, the presence of HIV in any of these risk groups can serve as the spark or “bridge” to ignite an epidemic in another risk behavior group, but any subsequent epidemic spread in that group will depend on the pattern and prevalence of the group’s HIV risk behaviors.

From a regional perspective, the magnitude and short-term trends of HIV epidemics are largely dependent on the extent of ongoing epidemics in a few countries: Cambodia, India, Myanmar, Thailand and, because of their population size, Indonesia and China. With a population of 1 billion and multiple epidemic foci, India has a complex epidemic, involving focal outbreaks among injecting drug users and extensive HIV spread among female sex workers and their clients in several regions.

**Mapping the epidemics**

If the HIV epidemics were analyzed on a country-by-country basis, as if HIV epidemics respected national geopolitical boundaries, many countries in the Asian-Pacific region—still—show comparably low prevalence (proportion of adults living with HIV/AIDS) and low incidence (proportion of adults newly infected each year). Such is the case for the industrialized countries within the region. Australia and New Zealand experienced sudden epidemics in MSM with a peak of incidence in the mid-1980s, followed by a rapid decline. The spread among IDUs in these two countries has been and remains limited (less than 2 percent among the IDU population), due to effective prevention programs that were started early. Heterosexual transmission also remains at low levels (the prevalence of HIV among pregnant women is lower than 1 per 10,000) in these countries. In Japan, where an initial dramatic outbreak of HIV infection among people with hemophilia was brought under control in the mid-1980s, other modes of transmission seem to contribute to a limited HIV burden in the country today.
In some of the developing countries in the region, HIV prevalence has also remained very low (less than 0.1 percent) in the total 15- to 49-year-old population, despite comparably high levels of sexually transmitted infections in segments of this population. In the Philippines, HIV surveillance has found only a few cases of HIV infection among female sex workers, male STI clinic patients and MSM. Similarly, only a small number of AIDS cases and low levels of HIV infection have been reported from Indonesia to date.

Less reassuring would be the estimated and projected trends in India. There, a sharp increase in the estimated number of HIV infections from a few thousand in the early 1990s to a working estimate of about 3.5 million people living with HIV/AIDS in mid-1998, in a context of a severe gap of knowledge about prevailing sexual risk-taking behaviors, creates great uncertainty about the future course and impact of the epidemics. HIV prevalence among sex workers in India varies widely from state to state, with high HIV prevalence in western and southern India and low levels of HIV in eastern and northern India. HIV prevalence among sex workers tested in Mumbai (formerly Bombay) rose from 1 to 51 percent between 1987 and 1993. Prevalence among sex workers in Calcutta was consistently low at about one percent until 1994, but there are suggestions that it might be rising. In Mumbai, HIV prevalence increased from two to three percent in STI clinic attendees before 1990 to 36 percent in 1994.

Cambodia, Myanmar, and Vietnam, as well, have seen substantial spread of HIV, mainly driven by intravenous drug use and sex work. While substantial heterosexual epidemics have been observed with comparably high levels of HIV in pregnant women in Cambodia (Phnom Penh: from no evidence of infection in 1992 to 3 percent in 1995 and 1996) and parts of Myanmar (around 4 percent in Kawthaung and Tachileik in 1997), in Vietnam the epidemic is still concentrated in IDUs (over 45 percent in Ho Chi Minh City, and more than 80 percent in Da Nang) and sex workers (up to 16 percent in 1998 in the border town An Giang). Also in countries such as China, Malaysia and Nepal, HIV has spread substantially in IDU populations. However, the still comparably low levels of HIV in other population groups in these countries offer opportunities for early prevention.

Large-scale epidemics ahead?
Are HIV epidemics likely to expand abruptly in India, or in other countries in Asia and the Pacific? To answer this question, possible clues can be drawn from past history in several countries, including Thailand, Myanmar and Cambodia. In Thailand, information was available on IDU, needle sharing practices and sex work in the country when, in the mid-1980s, HIV had not begun to spread in epidemic form. The epidemics that were predicted but insufficiently prevented did occur later in this decade, infecting an estimated 800,000 women, men and newborns by 1999. HIV rates in army recruits rose to around 4 percent in 1993 with peak levels in the northern provinces about threefold the national average. As a result of a most committed and effective prevention strategy, infection levels then peaked and started to gradually decline. Similarly, prevalence rates in pregnant women reached over 2 percent in 1995 nationwide, have decreased gradually over the past several years and in 1998 was about 1.5 percent.
In Myanmar, rates of HIV infection in IDUs, sex workers and pregnant women are similar to those found in Thailand. Consistent with an East-West gradient of HIV prevalence in Myanmar, the epicenter of the epidemics appears to lie in the eastern part of the country. The analysis of geographical differentials in HIV infection rates and trends over time underscores both the deepening severity of the epidemics and the potential for national, aggregate data to mask important sub-national epidemic trends. In Cambodia, HIV spread rapidly in the early 1990s, reaching high levels in sex workers (about 40 percent HIV prevalence), and from 2 to 3 percent of the 15- to 49-year-old population. The evolution of the epidemic in this country illustrates the potential for HIV to spread fast and widely when patterns of commercial sex involve high mobility, a high sexual partner exchange rate, and low condom use.

Empirical evidence thus exists showing that sudden and sharp increases in HIV incidence can and have occurred in Asia. However, the lack of quantitative and qualitative epidemiological, behavioral and social information on the nature of and linkages between sexual networks in any of these countries makes it difficult to predict the future course of HIV epidemics even in countries that would intuitively appear vulnerable to rapid spread. These countries include, in particular, Malaysia, Nepal and Vietnam, where rapid increases of HIV incidence in various vulnerable populations are being noted. There is an urgent need to collect and analyze systematically the information needed for the dual purpose of projecting epidemic trends and targeting prevention toward factors that seem to influence the vulnerability of the population to the further—and possibly rapid—spread of HIV.

The potential for continued spread of HIV/AIDS in Asia and the Pacific is real and requires determined and sustained prevention efforts. Several countries have already experienced intense HIV epidemics in certain population groups or, in some cases, in the population at large. In these countries, including India, Thailand, Myanmar and Cambodia, the individual impact of HIV has begun to be felt as AIDS has imposed new demands on the health care systems. It is essential that countries reinforce their prevention and care efforts in order to enhance their response to the existing HIV/AIDS challenge. In addition, countries should make every effort to collect and analyze the information needed to assess and monitor the evolving potential for large-scale HIV epidemics.

Recognizing the threat of emerging or fast-growing epidemics in certain populations is essential to an early and effective response. To acknowledge the possibility that, in other populations, rapid and extensive spread of HIV may not occur is equally crucial as policy- and decision-makers may, on the basis of this information, orient efforts and resources towards people who are most at risk.
**HIV/AIDS in China**

China, because of its size and rapid changes in social and sexual behaviors during the past decade, potentially represents a major focus of the HIV epidemic in the Asia-Pacific region. During the last few years, China has rapidly and impressively developed an HIV surveillance system. The following is a report of the HIV distribution, trends, and prevalence in China as of 1999, based on their HIV surveillance findings.

During 1998, close to 100 HIV sentinel sites were operational in 30 provinces in China. There were 36 sites for STI patients, 22 for female sex workers (FSW), 19 for injecting drug users (IDU), 7 for long distance truck drivers, 12 for blood donors, and 1 for antenatal women. This represents an almost doubling of the sentinel sites that were operational in 1997.

The availability of HIV/AIDS data indicates that HIV spread among currently-affected IDU populations is continuing to increase and is spreading to more IDU groups in many other provinces. In 1998, over half of the 19 IDU sentinel sites detected HIV infection and HIV
prevalence rates ranged from 10 to 80 percent in the Provinces of Yunnan, Xinjiang, Guangxi, and Sichuan.


There is increasing public health concern that such high prevalence rates among IDU groups in these provinces will ignite extensive spread of HIV among FSW and their male clients. Indeed, over the last few years, HIV infections have been increasingly detected in FSW sentinel sites.

Although HIV infections have been detected among FSW and STI patients in these provinces, the number of HIV infections that are not directly associated with IDU is still limited. There is currently no evidence of substantial spread of HIV within the heterosexual general population following a so-called self-sustaining epidemic. However, some behavioral surveillance data have been collected from IDU and FSW groups in China. These data show that the levels of heterosexual and IDU risk behaviors continue to be very high among these HIV/risk behavior groups. A very large proportion of FSW report that they never use condoms and a relatively large proportion of IDU groups continue to share injection equipment. These data need to be monitored closely and prevention programs need to be scaled up in order to limit further spread of HIV.
There are limited, but adequate HIV data to provide reasonable working estimates of HIV prevalence in China, and the official estimate developed by the Chinese AIDS program ranges between 300,000 to 500,000 with a working estimate of 400,000 as of the end of 1998 appears reasonable. However, projection are difficult given the lack of data and the large size of the country’s population. Further spread of HIV within the population at highest risk, in particular IDUs, has to be expected. The still unclear potential for an extensive spread of HIV outside these populations will determine the course of the epidemic in the longer term.

As extensive spread of HIV among injecting drug populations continues to be the major HIV/AIDS problem in China, there is a need to aggressively institute harm reduction programs. However, such programs will not be successful until the police and security forces in China can accept such programs. The findings of high levels of heterosexual risk behaviors in some areas of China, especially among the “mobile working population” should be addressed with specific behavior change programs before HIV prevalence rates are detectable by sentinel surveillance.

**HIV Infection among Prostitutes in China in 1995**

[Map showing HIV infection among prostitutes in China in 1995]
China still has a window of opportunity to assure that extensive heterosexual transmission of HIV will not occur. The epidemiological findings from Thailand and more recently from India, where extensive heterosexual spread of HIV has been documented, show that there is generally a 3-5 year lag after HIV prevalence reaches about 5 percent in FSW before there is any measurable HIV prevalence in antenatal females.

Regardless of whether the overall epidemic potential for extensive heterosexual spread of HIV in China is large or small, the only prudent public health course of action is to promote and aggressively implement a “100% condom use program” for commercial and casual sex settings before HIV prevalence reaches levels of a few percent among FSW and their clients. School education programs addressing sexual health and HIV/AIDS should also be an essential part of the program that will lay the ground for success of a long term strategy in response to HIV/AIDS.
Cambodia is scaling up its prevention efforts

As a strategy for the prevention of HIV and STI, Cambodia is learning from Thailand by piloting a 100% Condom Use Program in one city, Sihanoukville. Through strong support from the local authority, establishment of a network at the community level, and application of the concept of working as partners with different stakeholders of the sex industry, it was shown that it is possible to ensure the safety of sex services in all sex establishments. Based on Cambodian concern about the HIV/AIDS epidemic, as evidenced through survey and other types of data, Prime Minister Hun Sen has clearly stated that, whether legal or illegal, those working in the sex industry should not be denied care, services and education. Recently, the Prime Minister signed an endorsement letter to urge that the 100% Condom Use Program be efficiently applied countrywide. This was done because it became clear that knowledge alone appeared to be insufficient to enable people to change behavior in a timely fashion, to prevent HIV/AIDS. Therefore, “it is imperative to set a social norm: 100% condom use with all sexual partners other than regular spouse”.
**HIV/AIDS in India**

With a population of one billion, the HIV epidemics in India will have a major impact on the overall spread of HIV in Asia and the Pacific and worldwide. Most of the Indian states have a population greater than a majority of the countries in Africa. The spread of HIV within the country is – at least – as diverse as the societal patterns between its different regions, states, and metropolitan areas. Both tracking the epidemic and implementing effective programs pose a serious challenge to the authorities and communities at all levels. Although HIV prevalence is low in a majority of states, the numbers of HIV infections overall are high. The epidemics vary from states with heterosexually transmitted infections predominating in Maharashtra and Tamil Nadu to infections concentrated among injecting drug users (IDU) and their partners in Manipur.

Between 1994 and 1997, HIV prevalence among STI Clinic attendees in Maharashtra state increased from 6 to 36 percent and prevalence among IDU in Manipur increased from 25 to 61 percent. However, there were insufficient numbers of sentinel surveillance sites to get an adequate picture of the overall HIV situation. There was non-participation of some states, inadequate representation of various risk groups, no representation of the rural population, and a scattered schedule of rounds of collection. In order to obtain better HIV prevalence for India, the National AIDS Control Organization instituted a National Sentinel Surveillance program. States were given guidelines on the selection of sentinel surveillance sites to adequately represent the various population subgroups and a regularly scheduled timing for surveillance was instituted.

In 1998, the number of sentinel surveillance sites increased from 55 to 180: 83 STI, 89 ANC and 8 IDU. HIV prevalence data were collected twice in 1998, February – March and August – October. This was the first ever national surveillance survey and all states and Union Territories participated. Starting with 1999, sentinel surveillance data will only be collected once a year, from August to October.

The 1998 Sentinel Surveillance from antenatal clinics in 7 metro cities in the country shows HIV infection over 2 percent in Mumbai, more than 1 percent in Hyderabad, Bangalore, and below 1 percent in Calcutta, Ahmedabad and Delhi. Levels outside these major urban agglomerations are lower in general, and no infection was found in a number of rural sentinel sites.
Based on the analysis of existing sentinel surveillance data, the states and Union Territories can be broadly classified into three groups in accordance with proposed UNAIDS/WHO typology for patterns of the HIV epidemics as part of the UNAIDS/WHO package on Second Generation HIV Surveillance (UNAIDS/WHO, 1999):

Group I: includes states like Maharashtra, Tamil Nadu, Karnataka, Andhra Pradesh and Manipur where the HIV infection is 1 percent or more in antenatal women.

Group II: includes states like Gujarat, Goa, Kerala, West Bengal and Nagaland, where HIV infection is 5 percent or more among high risk groups but infection rates are below 1 percent in antenatal women.

Group III: includes the remaining states where HIV infection in any of the high risk groups is still less than 5 percent.

**India: Strengthened surveillance allows for improved estimation of HIV/AIDS**

Tracking and understanding the spread of HIV in India is a major challenge. India is home to more people than the African continent as a whole, and many of the Indian states have larger population sizes than most countries in the world. The social structures of Indian society are not uniform, and HIV is largely concentrated in sup-populations at high risk for HIV infection. Levels and patterns of HIV spread differ substantially from sub-region to sub-region, and reliable data on HIV prevalence used to be rather patchy.
Consequently, estimates on HIV/AIDS for India included a large range of uncertainty and ranged between 2 or 3 and 5 million for people living with HIV/AIDS (PLWHA) in previous years.

The National AIDS Control Organization (NACO) has undertaken major efforts in improving the HIV surveillance system. In 1998 NACO increased the number of sentinel sites from 55 to 180, which now cover all states and include rural areas in 18 sites. The surveillance groups include women attending antenatal care clinics, injecting drug users, sex workers, and STI patients.

In October 1998 NACO convened a group of national and international experts to review the results of the first round of the expanded HIV sentinel surveillance with the goal of producing state-specific and national estimates on HIV/AIDS. The group took into consideration the HIV prevalence rates obtained through the two rounds of sentinel surveillance in 1998, and agreed on transparent assumptions of HIV prevalence for different populations based on surveillance findings and specific studies, as well as urban-rural and sex differentials. The assumptions as well as the results of this exercise were presented and discussed during the MAP meeting in Kuala Lumpur 19-21 October 1999. While acknowledging the limitations of any of such calculations, the MAP members agreed on the approach and the assumptions in general, given the difficulties described above. The new calculations give greater confidence in the assessment of the magnitude of the epidemic in India, and a working estimate of about 3.5 million people living with HIV and AIDS in mid 1998 lies well within the range of previous estimates.

The national program and the MAP members agreed that there is still a range of uncertainty around this working estimate, and minor changes in some of the assumptions could result in substantial differences in total estimates of those living with HIV/AIDS, given the sheer size of India’s population. However, this range will probably narrow over time, as more and more consistent data become available through a further expanded sentinel surveillance system. NACO will also increase the efforts to improve the data collection on high-risk populations, such as men having sex with men, injecting drug users, and sex workers. In addition, behavioral studies such as the population-based study in Tamil Nadu will also greatly contribute to a better understanding of the frequency of risk behavior and, thus, the potentials for spread of HIV. NACO plans to repeat this estimation exercise based on the 1999 sentinel surveillance data in early 2000. A working group of expert epidemiologists, including representatives from state AIDS programs, will help to ensure a better understanding of the epidemics and improved estimates. Even more importantly, though, this process will undoubtedly support the efforts to decentralize India’s HIV/AIDS program and strengthen states’ capacity to respond to the epidemic in an appropriate manner.
Adult HIV Prevalence – India, 1998

- > 1% ANC
- > 5% High Risk, < 1% ANC
- < 5% High Risk
# HIV Penetration into Asian and the Pacific Countries

<table>
<thead>
<tr>
<th>Country</th>
<th>Current HIV Epidemic Trends</th>
<th>Main Populations Affected</th>
<th>Projected HIV Epidemic Trends (3-5 Years)</th>
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<td><strong>Countries with epidemic spread</strong></td>
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<td></td>
</tr>
<tr>
<td>Australia</td>
<td>Low and decreasing</td>
<td>MSM</td>
<td>Decline</td>
</tr>
<tr>
<td>Cambodia</td>
<td>High and increasing rapidly</td>
<td>High and increasing</td>
<td>Sustained upward trend</td>
</tr>
<tr>
<td>China</td>
<td>Low except in Yunnan</td>
<td>IDU</td>
<td>Increasing</td>
</tr>
<tr>
<td>India</td>
<td>Moderate and increasing</td>
<td>Individuals with high-risk heterosexual behavior and IDUs</td>
<td>Increasing</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Moderate and increasing</td>
<td>Principally IDUs but increasing among individuals with high-risk sexual behavior</td>
<td>Slowly increasing</td>
</tr>
<tr>
<td>Myanmar</td>
<td>High and increasing</td>
<td>Individuals with high-risk heterosexual behavior, IDUs and their spouses</td>
<td>Increasing</td>
</tr>
<tr>
<td>New Zealand</td>
<td>Low and decreasing</td>
<td>MSM and IDU</td>
<td>Decline</td>
</tr>
<tr>
<td>Papua New Guinea</td>
<td>Moderate and increasing</td>
<td>Individuals with high-risk heterosexual behavior</td>
<td>Slowly increasing</td>
</tr>
<tr>
<td>Thailand</td>
<td>Moderate and increasing</td>
<td>IDUs and individuals with high and moderate-risk heterosexual behavior</td>
<td>Tending to stabilize</td>
</tr>
<tr>
<td>Vietnam</td>
<td>Moderate and increasing</td>
<td>Principally IDUs but increasing among individuals with high-risk sexual behavior</td>
<td>Increasing</td>
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<td><strong>Countries with low transmission</strong></td>
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<tr>
<td>Bangladesh</td>
<td>Low</td>
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<tr>
<td>Hong Kong</td>
<td>Low</td>
<td>IDU, MSM</td>
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</tr>
<tr>
<td>Indonesia</td>
<td>Low</td>
<td>MSM, Bisexual and high-risk heterosexual behavior</td>
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</tr>
<tr>
<td>Japan</td>
<td>Low</td>
<td>Previously blood product related, currently sexual</td>
<td>Slowly increasing</td>
</tr>
<tr>
<td>Nepal</td>
<td>Low except in IDU</td>
<td>Individuals with high-risk heterosexual behavior and IDUs</td>
<td>Slowly increasing</td>
</tr>
<tr>
<td>Philippines</td>
<td>Low</td>
<td>Individuals with high-risk heterosexual behavior</td>
<td>Slowly increasing</td>
</tr>
<tr>
<td>Singapore</td>
<td>Low</td>
<td>MSM, IDUs</td>
<td>Slowly increasing</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>Low</td>
<td>Individuals with high-risk</td>
<td>Slowly increasing</td>
</tr>
</tbody>
</table>
The following countries in the region have minimal spread of HIV infection: Bhutan, Brunei, DPR Korea, Macao, Mongolia, Pacific Island countries and areas, Republic of Korea.
3. Most vulnerable populations

Mobile Populations and the Spread of HIV in Asia

As countries in Asia become more developed economically, population mobility increases. Environmental degradation and the search for more viable economic opportunities steadily feeds rural-to-urban population migration in several countries. Many communities, once thriving, are no longer able to support their greater numbers of people, forcing them into migrant work or jobs depending upon the mobility of others. The desire for economic growth, the need for more jobs and expanding infrastructure are fueling the mobility of more and more individuals, businesses and whole societies in ways non-existent in Asia 20 years ago. At the same time, epidemics of HIV transcend international borders and move through risk groups in greater numbers and with greater frequency.

The fluidity in international markets and especially the lack of economic stability in Asia has erupted into non-stop movement within countries and among countries, mirrored in growing prevalence of HIV. The epidemics themselves are more fluid, passing infection through truckers, traders, contract laborers, sailors, fishermen, traveling salesmen and their sexual partners, many of whom are sex workers, who can increase the spread of HIV in communities exponentially through sexual networks. In Bangladesh, for example, migrant workers originate from the Gulf States, India, Malaysia, Myanmar, Nepal and Singapore, while sailors passing through the country’s prime port of Chittagong also consist of Chinese, Croatians, Greeks, Ghanaians, Indonesians, Koreans, Pakistanis, Poles, Russians, Slovenians, Sri Lankans and Ukrainians.

About 100 foreign ships and more than 2,000 sailors per month dock in Chittagong, along with some 12,000 long-distance truck drivers and more than 1,000 local sailors, who transit Bangladesh’s principal port city. Compounding these numbers are resident populations of nearly 3,500 dock workers and more than 26,000 rickshaw pullers. One recent study found that nearly 42,000 men access sex workers every week in Chittagong, with each sex worker averaging between nine and 15 partners per week. This activity totals an estimated minimum of $7 million per year from the sex trade in Chittagong, and given the economic constraints in Bangladesh, there is a guaranteed influx of young women into this business.

Chittagong sex workers rarely request condom use since condoms are known locally as useful only for family planning purposes. Thus, Chittagong, as a port city with a highly transient population, exemplifies a locale ripe for potential explosive growth in HIV infection, similar to many other Asian border towns and cities. In these towns, the congruence of personal anonymity, quick interactions at drinking establishments and transit hotels, and the general lack of social and legal controls promote risk behaviors, making both transient and resident populations highly vulnerable to sexually transmitted infections, including HIV.

India, China, Thailand, Cambodia, to name only a few, have highly mobile populations within their borders, moving from state to state (or province to province) and rural to
urban areas. In China, permanent and temporary migrants may total as many as 120 million people.

**Cross-Border Risk Areas**

Asian settlements with significant cross-border activity include Poipet and Aranyapratet in Thailand and Cambodia respectively; Raxaul and Birgunj in Nepal and India; and, Bauvet and Moch Bai in Cambodia and Vietnam. These crossings are frequented by populations changing residence, including economic refugees, as well as migrant workers, who may traverse back and forth continually. Examples of cross-border populations include seafaring populations between Merauke, Indonesia, and Mahachai, Thailand, and populations crossing rivers, such as from Mae Sai, Thailand to Taichilek, Myanmar, and Huay Sai, Laos, to Chiang Kong, Thailand. Finally, some border locations have significant land and sea traffic, such as from Tao Tong, Cambodia, to Klong Yai, Thailand.

Border-crossing groups frequently include sex workers, with foreign sex workers in high demand in many places because they are considered, at times erroneously, to be infection-free. Of increasing concern is the illegal international trafficking of women and girls specifically for the sex trade. Beyond issues of basic human rights are those of public health: many of these girls return home to Nepal from India infected with HIV. On the other hand, sex workers living with HIV in Myanmar cross the borders into China and Thailand and infect members of local communities in these neighboring countries.

Analysis of the distribution of HIV in parts of Asia has suggested that busy land border crossings and international fishing ports have higher STI and HIV rates than other locations. In Indonesia, a high percentage of seaport workers has been found to be infected with STIs. One recent Indonesian study determined that between 40 and 90 percent of the seaport workers and truck drivers in the study had commercial sex in the previous year, averaging once or twice a month. Because of the high volume of transit and the atmosphere of risk, ports and border towns can produce explosive pockets of HIV. In Vietnam, some provinces bordering Chinese and Cambodian provinces, where intensive HIV epidemics exist across the border, show the highest HIV prevalence in the country. Pockets such as these can quickly spread HIV across countries and regions when infected individuals work and settle in a wide variety of locations or bring their infection home, as evidenced in sub-Saharan Africa.

**Challenges in Reaching Mobile Populations**

Other risk-taking populations that are highly mobile include the military, who work in a daily environment of readiness for combat, high stress and rigid control, which combined with peer pressure to perform, a need for stress release and loneliness away from home, promote risk-taking behavior while off duty. While members of the military are more systematically being exposed, albeit briefly in most cases, to HIV prevention programs, most other highly mobile populations are not. Most individuals are not aware of their personal risk for HIV infection because they are not resident anywhere long enough to receive targeted behavior change communication messages and essential prevention education. While this factor makes these groups difficult to reach by prevention
programs, there is an urgent need to access mobile populations who are more vulnerable to HIV and can diffuse the virus unknowingly across a wide geographic area. Moreover, these individuals need diagnosis and treatment as well as provision of care.

Reaching mobile populations is difficult for a variety of reasons, including wide variance in language, yet the need is acute. Windows of opportunity for prevention messages of only a few days or weeks in one site can save not only the lives of individuals, but the lives of many others, including members of their families. Recent HIV prevention interventions with truck drivers in Tamil Nadu, India, resulted in an overall reduction in their number of partners and a substantial increase in their use of condoms.

In Pakistan’s Sindh province, where HIV infections number the highest in the country, the percentage of immigrant workers is substantial, documenting just one example of a country facing an emerging epidemic being fueled by mobile population influx. However, a recent organized situational response to population mobility and the HIV pandemic shows what can be done to help protect populations through international cooperation: The Nepal-India border project at Raxaul-Birgunj accesses mobile populations through well-coordinated NGO and private sector business collaboration, providing HIV prevention interventions, STI diagnosis and treatment, and access to affordable condoms for all, including community residents at high risk of HIV/STI.

More programs such as the one at Raxaul-Birgunj are needed urgently in areas with high population mobility, both at border crossings and other high-transit locations in Asian countries. While intensive ethnographic and behavioral survey efforts would be ideal to determine specific risk-taking characteristics and effective communication messages for diverse populations, rapid assessments can enable an adequate design and launching of solid programs. Given the crucial role mobile populations play in bridging HIV infection from high- to seemingly low-risk populations all along their pathways, they may prove to be one of the most critically important and cost-effective groups to reach with interventions over the long term, preventing the spread of HIV infection in general populations throughout Asia.

Sex Work and HIV Transmission in Asia and the Pacific
In the Asia/Pacific Region, sex workers are particularly vulnerable to HIV as well as other STIs and represent the most significant core group for transmission to the rest of the population through their clients. The critical factors influencing the rate of spread from sex workers include the number of clients per day and the proportion of men in a society who regularly visit sex workers. In nations with high levels of both of these factors and where sex is not protected by condoms, HIV epidemics spread very rapidly. In Cambodia, HIV infection among sex workers has risen to well over 50 percent in many areas. Similarly, in India, where the sex trade is large, in some cities nearly half the sex workers are infected. Even in Papua New Guinea, where formal brothels and red light districts do not exist, HIV levels among urban floating sex workers reached 16 percent in 1998.
In China, even though HIV infection is reportedly less than 0.1 percent of sex workers, the total sex worker population – male and female – is estimated to be between three and four million. Neighboring Vietnam is facing a more advanced HIV epidemic, with surveillance data showing that nearly 2.5 percent of sex workers are infected, although in some areas the percentage is much higher.

When HIV prevalence reaches higher levels among sex workers, its spread to client groups becomes easier as more men are exposed to HIV. Regular clients of sex workers in turn infect other sex workers, and this cycle can lead to higher rates of infection among both groups in the absence of condom use. Thus, comprehensive targeted interventions for sex workers carried out when levels are low are essential to success in diminishing the spread of HIV. Unfortunately, few nations have moved quickly to accomplish this. Even when such programs have been implemented early, they rarely have been large enough to have the impact needed to affect an HIV epidemic in an entire nation.

Sex work is highly varied, and both the types and intensity of risks associated with it vary accordingly. In the brothels in parts of South and South East Asia, female workers are generally highly controlled and financially pressured under the threat of violence or eviction. Without the cooperation of persons having power over these women, safer sex strategies – for example, 100 percent condom use – are highly likely to fail. In Thailand and Cambodia, much of the success in obtaining high rates of condom use has come from involving brothel owners and encouraging them to establish condom-only establishments.

While sex workers who are independent and working on their own can be difficult to reach, they may sometimes have greater control over their own decision-making and learn to promote condom use with their clients. Naturally, the most effective programs are those which intervene with both the sex workers themselves and their clients.

Since sex workers often carry a high STI burden, programs that provide user-friendly STI services to sex workers – often involving them in the design and management – are also important. A major example of this is the Sonagachi project of Calcutta, which originally started as a research project in the early 1990s. It has since grown into a respected organization operated by sex workers themselves. The project provides STI treatment, health services, and a wide range of other services such as literacy classes to sex workers. While populations of sex workers in other areas of India such as Mumbai and Pune are experiencing extremely high rates of HIV prevalence, the Sonagachi project has been able to keep HIV prevalence at approximately 5 percent and to reduce syphilis prevalence. However, since HIV has firmly entered the population, the project remains challenged to increase condom use and to mobilize the women even more to protect themselves.

For most people, the condom represents a barrier to intimacy, and many sex workers continue to take high risks with steady partners even while practicing safer sex with their clients. This gap in prevention behavior needs intervention attention. Monitoring the levels of reported condom use among sex workers with both their clients as well as their non-paying partners is thus critical.
Sex work continues to be illegal in most countries, and therefore it is often hidden and clandestine, making prevention interventions difficult. Attention by public health organizations can also bring attention by law enforcement organizations leading to arrests and forcing sex workers even further underground where they are less reachable. The most effective interventions are those which work together with law enforcement agencies so that they do not undermine prevention efforts. In a recent address about the seriousness of HIV in Cambodia, Prime Minister Hun Sen expressed his support for the 100 percent condom in brothels project saying that condoms must be promoted with sex workers whether prostitution is legal or illegal in countries.

**Men who have sex with men**

As in all societies around the world, men having sex with men (MSM) constitute a measurable part of the population in Asian countries. However, structure and patterns of MSM groups are widely unknown and MSM feel marginalized and stigmatized. Men who have sex with men represent a diverse group that is not easily identifiable for intervention, let alone surveillance purposes. Yet they represent one of the highest risk groups because of the transmission probabilities associated with anal intercourse.

Governments need to build collaborative relationships with non-governmental organizations (NGOs), which are often better at understanding networks of men who have sex with men and provide safe spaces for services. MSM constitute an ill-defined group, and include men who both sell and buy sex as well as those who exclusively practice homosexual behavior and others who are bisexual. Many of these men are married, and all socioeconomic classes are represented in this group. In some settings, biological males who maintain a transvestite lifestyle, or a transgendered identity, may also be part of the MSM community.

While MSM are usually not covered in national HIV surveillance systems in the region, examples exist that show both the importance and feasibility of such surveys. In Bangladesh, based on the collaboration between one NGO and surveillance investigators, MSM have become an important part of the sentinel surveillance system, carrying out their own behavioral surveys. In 1998, survey results showed 12 percent syphilis (TPHA+) and 0.2 percent HIV in a sample of 401 MSM from Dhaka. Behavioral surveillance revealed new and valuable information for the development and refinement of targeted interventions.

In addition to self-identified MSM, other males included in the sample also were asked about male-to-male sex. As shown below, the majority of MSM engage in anal sex and suffer from anal STIs. This figure separates male sex workers from other MSM, transgender males, and males who most often are considered heterosexual. MSM accessing health care can sometimes encounter problems from disapproving or discriminating health practitioners. In the Dhaka MSM sample, most men sought treatment quickly, but those of lower socioeconomic status preferred traditional practitioners and medicine shops. Transgender males had greater problems accessing care. The number and types of partners also varies considerably among MSM. The figure
below shows the median number of partners last month and last year among the full sample of MSM, those who were male sex workers (MSW), and MSM who were not sex workers. Although a few MSM sex workers had some female partners, the non-sex worker component of the sample had the majority of the female partners.

The study showed that condom use varied by type of partner, as did whether sex was bought or sold. The highest risk sub-group, MSW, used condoms for 26 percent of sex acts during the prior week with their clients. Overall, only 8 percent of the entire MSM sample used condoms consistently the last time they had sex.

In India, the West Bengal Sexual Health Project has included MSM in their recently established behavioral surveillance system to monitor progress toward risk reduction in this group. The first wave, completed in 1999, indicated substantial risk among men: 25 percent reported insertive or receptive anal sex with a male sex worker in the past year, 71 percent with a non-regular partner, and 50 percent with a long-term partner. Condom use was highest with their most recent sex worker partners (79 percent), followed by other non-regular partners (72 percent), and, finally, long-term partners (59 percent). In the future, behavioral surveillance in West Bengal will be conducted at regular intervals in order to determine trends among MSM as well as other risk groups in the state.

Very few countries have carried out studies indicating the levels of HIV or other STIs among MSM. These are important to indicate disease burden in this group, as well as for policy and advocacy purposes to initiate prevention interventions. Many of the existing studies have taken place among male sex workers, as opposed to non-sex work MSM. The Thai Ministry of Health conducts HIV surveillance among male sex workers in selected provinces in addition to ANC clinic attendees, female sex workers, and IDUs. In 1997, 14.8 percent of male sex workers in Chiang Mai tested HIV-positive.
In all surveillance and monitoring studies including MSM, design and implementation requires the active participation of target group members and the organizations that serve them. This not only guarantees that data are more valid and accurate, it also facilitates the design of effective HIV prevention interventions targeted for MSM.
**HIV Epidemics Among Injecting Drug Users (IDUs) in Asia and the Pacific**

The Asia and Pacific region has been significantly affected by drug-related HIV epidemics compared with other regions of the developing world. In most countries in South and South East Asia, injecting drug users (IDUs) are the first community to be affected by HIV. Typically, HIV epidemics among IDUs reach very high levels of infection within one year of diffusion into this population. Users in Asian and Pacific countries are rapidly switching from non-injecting drugs to injecting drugs, forcing previously undetectable levels of HIV to skyrocket in these groups. Examples include some provinces in China, New Delhi, India, and Kathmandu, Nepal, reporting HIV prevalence rates of 80 percent or more, 45 percent, and 45 percent respectively among IDUs. Other Asian countries and locations such as Myanmar, Northeastern India, and Vietnam have reported HIV infection levels as high as 80-90 percent in this group.

The table below shows the estimated number of IDUs, HIV prevalence, and the types and coverage of prevention programs in selected countries in Asia and the Pacific.

<table>
<thead>
<tr>
<th><strong>Country</strong></th>
<th><strong>Estimated number of drug injectors</strong></th>
<th><strong>HIV prevalence among IDUs</strong></th>
<th><strong>Types of harm reduction programs</strong></th>
<th><strong>Percentage of IDUs covered by prevention programs</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>25,000</td>
<td>0-2.5%</td>
<td>Needle exchange</td>
<td>Low</td>
</tr>
<tr>
<td>China</td>
<td>1,000,000</td>
<td>0.4-86%</td>
<td>Peer education</td>
<td>Low</td>
</tr>
<tr>
<td>India</td>
<td>&gt; 100,000</td>
<td>1-80%</td>
<td>Needle exchange, substitution</td>
<td>Low</td>
</tr>
<tr>
<td>Japan</td>
<td>Not available</td>
<td>.03%</td>
<td>Not available</td>
<td>Not available</td>
</tr>
<tr>
<td>Malaysia</td>
<td>Not available</td>
<td>30-40%</td>
<td>Peer education</td>
<td>Low</td>
</tr>
<tr>
<td>Myanmar</td>
<td>Not available</td>
<td>34-90%</td>
<td>None</td>
<td>Low</td>
</tr>
<tr>
<td>Nepal</td>
<td>28,000</td>
<td>45% (Kathmandu)</td>
<td>Needle exchange, substitution</td>
<td>Low</td>
</tr>
<tr>
<td>Pakistan</td>
<td>Few hundred thousand</td>
<td>0-11%</td>
<td>Needle exchange</td>
<td>Low</td>
</tr>
<tr>
<td>Philippines</td>
<td>Several thousand</td>
<td>&lt;1%</td>
<td>Peer education</td>
<td>Low</td>
</tr>
<tr>
<td>Thailand</td>
<td>60,000</td>
<td>30-40%</td>
<td>Needle exchange, drug treatment</td>
<td>Low</td>
</tr>
<tr>
<td>Vietnam</td>
<td>130,000</td>
<td>37-46%</td>
<td>Peer education, Bleach, pilot needle exchange</td>
<td>Low</td>
</tr>
</tbody>
</table>
Unfortunately, the response to drug-related HIV epidemics has been unsatisfactory. Most countries in Asia and the Pacific have depended largely on using traditional legal measures, abstinence-based messages, and correctional efforts with little or no proven efficacy. An example is Malaysia, where demand reduction using legal means has not eliminated an emerging IDU-related HIV epidemic. The table above shows that most countries in the Asia and Pacific region do not have comprehensive HIV prevention programs for IDUs, such as peer education and needle exchange.

Even where intervention programs exist, there is little access to the IDU community. In most countries, coverage of IDUs by any kind of HIV prevention program is 10 percent or less. A recent example is the rapid increase of HIV infection among IDUs in Kathmandu, Nepal, where the HIV prevalence has risen from 0 percent to 45 percent, despite a pioneering needle exchange program, which is the first of its kind in the country.

These lessons should inform countries yet to experience growing HIV infection among drug users. Of the 26 countries reporting HIV prevalence to the World Health Organization from the Asia and Pacific region, 19 have reported drug-related HIV epidemics, including nine countries with significant levels of HIV. Nepal was one of two countries where HIV has gone up because of low access to the IDU community by prevention programs. In Pakistan, a country with low levels of HIV infection, a recent study in Lahore revealed an 89 percent prevalence of hepatitis C among IDUs, indicating high rates of needle sharing. Despite the growing recognition of inadequate programs, successful and sustainable HIV prevention among injecting drug users remains an enigma. Thus, there is a need for much greater research and prevention outreach to the IDU community, including participation in the design of studies and interventions related to HIV prevention that will prove more effective over time.

In summary, the following six points would better inform HIV prevention programs for IDUs in the Asia and Pacific region:

- Most countries in the Asia and Pacific region have recognized HIV epidemics among IDUs, yet there has been little response until after high prevalence of HIV has been reported.
- Only two countries in the region initiated harm reduction early, but did not ensure adequate programmatic coverage.
- Drug-related HIV epidemics are still unfolding in Asia and the Pacific.
- Denial of drug-related HIV epidemics continues in some countries.
- Denial of the contribution injecting drug-related HIV epidemics can make to HIV epidemics in the general population continues in many countries.
- There is an urgent need for better designed HIV prevention interventions for IDUs, including the critical elements of comprehensive intervention, broad coverage and the creation of enabling environments.
4. **HIV risk behavioral surveillance: Tracking and monitoring behavioral trends**

Behavioral surveillance surveys have emerged as a critical component of an integrated surveillance package for countries. Adding to the contributions of HIV and STI surveillance, behavioral surveillance consists of the systematic monitoring of risk behaviors in key groups which affect epidemic spread. Why is this necessary? Changing risk behaviors – specifically increasing condom use and reducing the number of sex partners - remains a key strategy to reduce the spread of HIV, and behavioral surveillance provides the tool to monitor whether interventions as a whole are reaching this goal.

Furthermore, where HIV is still low, behavioral surveillance helps to pinpoint which population groups are most vulnerable to HIV infection and where HIV may appear in the future if prevention interventions are not initiated. This early warning is particularly important in Asia where many countries are fortunately still experiencing low rates of HIV infection. Behavioral surveillance data can also be used for policy purposes – for politicians, religious and community leaders, and non-government organizations – to indicate that behaviors are putting people at risk for HIV even though it is not yet visible.

Behavioral surveillance consists of repeated cross-sectional surveys of sub-population groups in relatively large geographic areas such as large metropolitan areas or a province or state. As such, the results are meant to describe broad-based behavioral trends from these large geographic areas rather than small project areas where specific interventions are located. For the evaluation and monitoring of individual projects, other types of behavioral research – both quantitative and qualitative - are necessary which complement behavioral surveillance. Nevertheless, it indicates whether interventions as a whole combined with other environmental influences are producing behavioral change. If results indicate that behavioral change is not occurring, then this is a signal that existing intervention strategies need to be adjusted and re-configured.

As with HIV surveillance, behavioral surveillance necessitates careful planning in its design and implementation. Behavioral surveillance depends on the reliable and valid collection of sensitive self-reported behaviors such as sexual intercourse, condom use, and injecting drug-using practices. It requires careful scientific attention to such design aspects as choice of groups to include, mapping of the sample universes, sampling, questionnaire design and administration, and analysis.

Furthermore, since the mapping and surveying of critical highest-risk population groups such as sex workers, injecting drug users, and men who have sex with men are important for behavioral surveillance, the active involvement of the target group members themselves and the organizations which serve them is indispensable.

**Behavioral surveillance in Asia: Improvements, but still notable gaps**

In Asia, the tracking of behavior in key risk groups has improved in several countries with the implementation of systematic behavioral surveillance surveys conducted on a regular basis. To cite several examples, Thailand, Cambodia, Vietnam, Nepal, the
Philippines, and Bangladesh have initiated systematic behavioral surveillance surveys in the past five years. In larger countries such as China, India, and Indonesia, several provincial and state-level behavioral surveillance surveys have been initiated to provide more regional estimates.

In Thailand, where some of the earliest behavioral surveillance began and indicated that condom use among sex workers and their clients has reached 90 percent or more levels, the challenge will be to maintain these levels. “Relapse” to unsafe sexual behaviors has been documented in Western countries among men who have sex with men populations, and it is likely that long-term maintenance of condom use among sex workers and their clients in Thailand will confront similar challenges.

Behavioral surveillance in Cambodia was initiated in 1997 by the National AIDS Program among the following population groups: female sex workers, beer promotion women (who also operate as indirect sex workers), working women, military/police, motorcycle taxi drivers, and male vocational students. These groups were chosen to represent a diverse cross-section of population sub-groups important to track behavioral trends. Results between 1996-1998 indicate that all three male groups reduced their HIV risk. In 1996, 58 percent of military/police, 42 percent of motorcycle taxi drivers, and 27 percent of vocational students reported visiting a sex worker in the past month. By 1998, this was reduced to 36 percent, 34 percent, and 18 percent, respectively. Likewise, condom use increased among all the groups with their sex worker partners. The sex worker samples corroborated these results with 16 percent of them reporting consistent condom use in 1996, increasing to 42 percent in 1996 and 54 percent in 1997.

In the Southern state of Tamil Nadu in India where HIV rates are among the highest in the country, a behavioral surveillance project there by the AIDS Prevention and Control (APAC) Project has been monitoring behavioral trends since 1996 in several urban areas of the state. Population groups included in the survey are female sex workers, truck drivers/helpers, male factory workers, and female factory workers. Among other risk reduction findings, the survey has found two important trends: reductions in non-regular sex partnerships and increases in condom use among non-regular sex partners. Non-regular sex partnerships declined from 48 percent in 1996 to 32 percent in 1998 among truckers/helpers, 15 percent to 9 percent among male factory workers, and 3 percent to 1 percent among female factory workers. More in-depth analysis revealed that among the male groups, most of the reduction was among the men’s paid partners, not their casual partners.

Furthermore, as the figure below indicates, condom use among all the groups with their non-regular sex partners increased as well. Sex workers increased condom use with their clients from 56 percent in 1996 to 80 percent in 1998, truckers/helpers from 44 percent to 66 percent, male factory workers from 17 percent to 50 percent, and female factory workers from 20 percent to 26 percent (low sample sizes in the latter group makes the estimates unstable.)
Behavioral surveillance may sometimes indicate that strategic changes are necessary. In Indonesia, HIV prevention interventions have been under way for several years to increase condom use between sex workers and their clients. But amidst low HIV risk perception and social, political, and economic disruption during the past few years in Indonesia, behavioral change has been difficult to realize. Behavioral surveillance in Jakarta, Surabaya, and Manado from 1996 to 1998 indicates that condom use between sex workers and their clients remains to a great extent still very low and unchanged, despite substantial interventions during the past few years.

In 1998 Bangladesh undertook expanded HIV, syphilis and behavioral surveillance. This initial wave showed striking differences in risk behaviors, corroborated by the levels of syphilis found among brothel and street-based sex workers, MSM, IDUs in two cities, and long-distance truckers. The sampling frame included a full proportional random sample of all 18 registered brothels (n=1,147) and cluster samples among the other groups, for a total of 3329 respondents.

The findings indicated a serious problem of needle sharing in both Dhaka and Rajshahi. Fewer than 5 percent of men in both samples injected safely over the past week. Brothel-based sex workers averaged more clients per week than street-based women (9 vs.16), but the street-based women experienced far more violence. Street-based women reported 56 percent group hire sex the previous week, as compared with 18 percent of brothel women. Anal sex and anal STI symptoms were common among men who have sex with men, and 25 percent of brothel women reported anal sex the previous week. Reported condom use in the past week ranged between 2 percent and 42 percent, depending on gender and on whether the partner was a client or lover. Overall, condom use was highest among street based sex workers at 28 percent. About half of the truckers revealed they had non-marital sex the previous month, over 80 percent of which was commercial. About 12 percent of truckers had sex with both males (or hijras) and females over the past year.
Despite the above accomplishments, there remain considerable gaps in monitoring behavioral trends among several important target groups in Asia, notably injecting drug users and men who have sex with men. These gaps in behavioral surveillance reflect a lack of prevention interventions. However, given the vulnerabilities of these groups, they require special attention, both in the design and implementation of programs, as well as behavioral surveillance to monitor the success of these programs.

**Community prevalence of sexually transmitted infections in Tamil Nadu**

The emerging HIV epidemic in India has made STI control one of the most important strategies since early diagnosis and prompt, appropriate treatment of STI have a vital role to play in the prevention of HIV transmission. There is a dearth of community-based data on STI, and estimates are highly variable. In this background, the AIDS Prevention and Control (APAC) Project of Voluntary Health Services in Tamil Nadu commissioned a study to obtain the prevalence of seven major STIs and five syndromes. A consortium of institutions was formed with expertise in epidemiology, biostatistics, microbiology, social work, and management.

Using a multi-stage sampling design, 1,981 adults (15-45 years) were randomly selected from 1,114 households in 90 clusters distributed in three districts of Tamil Nadu. During a 45-day period, 90 medical camps were held and all members in the community were invited to obtain basic medical care. Before the commencement of medical camps, social workers visited the selected households 3 or 4 times and motivated the study population to participate in the research. During the medical camp, the study population was identified by the social workers that obtained their informed consent and accompanied them to the interview, medical examination, and specimen collection. Specimens collected were blood, urine, vaginal smears, cervical smears, and urethral swabs, and care was taken by laboratory experts to label and transport them to a central laboratory. In total, 8,791 specimens were collected and 18,349 tests were done.

Overall, the community prevalence of STIs was 9.7 percent. Including Hbs Ag and HIV, the prevalence was 15.8 percent. The prevalence of HIV was 1.8 percent. Thirty-two percent of the women and 72 percent of the men who were diagnosed with STIs had no significant genital/urinary symptoms on clinical examination.

![Prevalence of selected STIs](image)

Syndrome:  
- Vaginal discharge (W)  
- Genital Ulcers (W)  
- Scrotal swelling (M)  
- PID (W)  
- Urethral discharge (M)  
- Genital ulcers (M)
(W=women M=men)
5. **Recommendations from the MAP Symposium in Kuala Lumpur, Malaysia, 19-21 October 1999**

1. Recognizing the fundamental principles of human rights is critical in mounting an effective response to the HIV/AIDS pandemic. Most populations in Asia and the Pacific at high risk for HIV infection are marginalized. They may practice activities considered illegal, making the provision of effective prevention and care services for these groups very challenging. Yet it is precisely these populations – including injecting drug users (IDUs), sex workers and men who have sex with men (MSM) – who need HIV services the most.

   Better understanding of the extent and distribution of these populations is essential for planning and providing the comprehensive prevention and care services they deserve. Effective service delivery requires not only a non-discriminating and non-stigmatizing approach, but also the participation of community members in planning, implementing, and evaluating surveillance and initiatives to ensure their success and the overall sustainability of programs.

2. MAP recognizes that mobile populations in the Asia-Pacific region are one of the groups most vulnerable to infection, as HIV is not confined by state or national borders. Mobility includes cross-border and within-country movements of workers (farm workers, truck drivers, fishermen), traders and refugees within and between countries and between rural and urban areas. Sex workers are often highly mobile as well. Specific programs need to be developed for effective surveillance of these populations to provide guidance for prevention and care services. Although such programs may be difficult to start due to the need for multi-sectoral and international cooperation, it is essential to initiate these programs even if they are only of limited scope initially.

3. Confidentiality is key in all activities related to HIV/AIDS surveillance, prevention, and care. For HIV and AIDS case reporting, confidentiality is absolutely essential to ensure confidence in the system and the protection of individual human rights. For HIV sentinel surveillance, the use of unlinked anonymous studies is preferred, but where they are not possible, confidentiality is crucial for enabling participation and data validity. Access to confidential, voluntary HIV counseling and testing is becoming an increasingly important part of effective HIV/AIDS programming around the world. Confidentiality is also crucial for effective case finding and providing adequate care and support for people living with HIV/AIDS.

4. Building on the achievements of existing surveillance systems and their various improvements over the last five years, most countries in Asia and the Pacific need to develop comprehensive surveillance packages. Described by UNAIDS and the World Health Organization in their recent publication on second generation surveillance, guidelines for such packages focus on the
following elements: improved HIV sentinel surveillance, behavioral surveillance, surveillance of sexually transmitted infections (STIs), and HIV/AIDS case reporting. MAP encourages countries to examine the elements of second generation surveillance and determine the feasibility for national and local implementation.

5. A key element of second generation surveillance is the use of behavioral surveillance to better monitor HIV epidemics among selected population groups. Behavioral surveillance includes both qualitative aspects (mapping of risk groups, assessment of networks) and quantitative aspects (following key behavioral variables over time to monitor trends). Such behavioral information is needed to better understand the HIV epidemics, indicate the potential for the spread of HIV, and help guide effective prevention programs, contributing to monitoring and evaluation.

6. The close association between the transmission of STIs and HIV means that STI surveillance, prevention and treatment programs should be integrated with their corresponding HIV programs. Further, STIs themselves are markers for unprotected sex, signaling that STI data forms an important part of overall behavioral and epidemiologic surveillance.

7. MAP recommends that greater emphasis be placed on the need for quality in surveillance data. For HIV sentinel surveillance, more attention needs to focus on selecting representative sentinel sites and using appropriate data collection methods to reduce participation and selection biases. In this regard, the quality of sites may be even more important than the quantity of sites. Moreover, multiple data sources should be used wherever possible to provide a “triangulation” of results for greater validity and more precision. It is particularly important to use data sources in addition to traditional surveillance data, such as qualitative and quantitative data from community groups, non-governmental organizations, and the private sector. The quality of policy and program decisions can only be as good as the data upon which they are based.

8. National estimates of HIV prevalence may be valuable for advocacy, facilitation of political support and program planning. Producing useful estimates, however, is only feasible with good data. Good data overall are more important than HIV prevalence estimates as such. The process of creating estimates is more important than the final numbers, since the process itself improves the understanding of the HIV epidemics. This process should be both participatory and consensual, involving national and local experts as well as representatives of the affected communities. Only by using such an informed mechanism can a sense of ownership of the resulting estimates be ensured.
Description of Routine HIV Prevalence Data Collection in the Asia-Pacific Region

Most of the countries in the Asia-Pacific region have programs in place to collect HIV prevalence information from different populations. The data-collection methods and other details vary considerably from country to country and from one population to another. Differences also exist in the number of sites and the geographic coverage of those sites. The following table presents some of the details of HIV data collection for countries in the region. Differences in data collection approaches should be considered when making comparisons between countries or populations.

### Description of Routine HIV Prevalence Data Collection in Selected Populations, by Country

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Site Type</th>
<th>Samp. Method</th>
<th>No. of Sites</th>
<th>Total Sample</th>
<th>Rural Sites</th>
<th>Data Frequency</th>
<th>Test Type</th>
<th>Resp. ID</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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<td><strong>Bangladesh</strong></td>
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<tr>
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<td>ELISA*2.</td>
<td>UA</td>
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<tr>
<td></td>
<td>Sex workers--brothel</td>
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<td>2</td>
<td>Annual</td>
<td>ELISA*2.</td>
<td>UA</td>
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<td></td>
<td>Sex wkrs.--direct</td>
<td>Brothels</td>
<td>Sequential</td>
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<td>UA</td>
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</tr>
<tr>
<td></td>
<td>IDU</td>
<td>Rehab. ctr.</td>
<td>1st 250-400</td>
<td>19</td>
<td>4000+</td>
<td>0</td>
<td>2x per year</td>
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<td>UA</td>
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<tr>
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<td>Prostitutes</td>
<td>Educ. ctr.</td>
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<td>2x per year</td>
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<td>STI clinics</td>
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<td>9000+</td>
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<td></td>
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<td>Blood bank</td>
<td>1st 250-400</td>
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<td>3000+</td>
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<td>2x per year</td>
<td>ELISA*2.</td>
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<td>Long dist. Truckers</td>
<td>Health ctr.</td>
<td>1st 250-400</td>
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<td>1750+</td>
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<td>Annual</td>
<td>ELISA*2.</td>
<td>UA</td>
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<td>Drug detox. ctr.</td>
<td>Sequential</td>
<td>89</td>
<td>22250</td>
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Description of Routine HIV Prevalence Data Collection in Selected Populations, by Country (continued)

<table>
<thead>
<tr>
<th>Country</th>
<th>Population</th>
<th>Site Type</th>
<th>Samp. Method</th>
<th>No. of Sites</th>
<th>Total Sample</th>
<th>Rural Sites</th>
<th>Data Frequency</th>
<th>Test Type</th>
<th>Resp. ID</th>
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<td><strong>Indonesia</strong></td>
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<tr>
<td>Female sex workers</td>
<td>Brothels</td>
<td>Most prov.</td>
<td>Yearly</td>
<td>Dipstick, ELISA</td>
<td>UA</td>
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<td>STI pts.</td>
<td>Clinics</td>
<td>Several prov.</td>
<td>Occasional</td>
<td>ELISA</td>
<td>UA</td>
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<td>Several prov.</td>
<td>Occasional</td>
<td>Dipstick, ELISA</td>
<td>UA</td>
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<td>Transvestites</td>
<td>Street</td>
<td>One province</td>
<td>Yearly</td>
<td>Dipstick, ELISA</td>
<td>UA</td>
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<td>Blood donors</td>
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<td>Occasional</td>
<td>ELISA</td>
<td>UA</td>
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### Description of Routine HIV Prevalence Data Collection in Selected Populations, by Country (continued)

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<tr>
<th>Country</th>
<th>Population</th>
<th>Site Type</th>
<th>Samp. Method</th>
<th>No. of Sites</th>
<th>Total Sample</th>
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<th>Data Frequency</th>
<th>Test Type</th>
<th>Resp. ID</th>
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<tbody>
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<tr>
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<td>STI pts.</td>
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</tr>
<tr>
<td></td>
<td>Pregnant women</td>
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<tr>
<td></td>
<td>TB pts.</td>
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<td><strong>Vietnam</strong></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>IDU</td>
<td>Drug rehab. ctr.</td>
<td>All admissions</td>
<td>20</td>
<td>8362</td>
<td>0</td>
<td>2x per year</td>
<td>ELISA, Serodia</td>
<td>Conf.</td>
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<tr>
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<td>Sex workers</td>
<td>Rehab. ctr.</td>
<td>All admissions</td>
<td>20</td>
<td>7498</td>
<td>0</td>
<td>2x per year</td>
<td>ELISA, Serodia</td>
<td>Conf.</td>
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<tr>
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<td>STI pts.</td>
<td>STI clinics</td>
<td>1st 200 per site</td>
<td>20</td>
<td>6494</td>
<td>0</td>
<td>2x per year</td>
<td>ELISA, Serodia</td>
<td>Conf.</td>
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<tr>
<td></td>
<td>TB pts.</td>
<td>TB hospital</td>
<td>1st 400 per site</td>
<td>20</td>
<td>7624</td>
<td>0</td>
<td>2x per year</td>
<td>ELISA.</td>
<td>Conf.</td>
</tr>
</tbody>
</table>

(Continued below)

### Japan

- **IDU**
  - Site Type: Min. Justice
  - Sample: 13102
  - Frequency: Annual
  - Test Type: ELISA or Serodia Conf.

- **MSM Clinic**
  - Site Type: Sequential
  - Sample: 968
  - Frequency: Annual
  - Test Type: ELISA or Serodia Conf.

- **Pregnant Women ANC**
  - Site Type: Sequential
  - Sample: 179462
  - Frequency: Annual
  - Test Type: ELISA or Serodia Conf.

### Malaysia

- **IDU**
  - Site Type: STI clinics
  - Sample: All deliveries
  - Frequency: National

### Pakistan

- **IDU**
  - Site Type: Drug detox. ctr.
  - Sample: 313
  - Frequency: Every 2 yr.
  - Test Type: Rapid, ELISA Conf.

- **STI pts.**
  - Site Type: STI clinics
  - Sample: All admissions
  - Frequency: Every 2 yr.
  - Test Type: Rapid, ELISA Conf.

- **TB pts.**
  - Site Type: Chest hosp.
  - Sample: Consecutive
  - Frequency: Every 2 yr.
  - Test Type: Rapid, ELISA Conf.

- **Pregnant Women ANC**
  - Site Type: Consecutive
  - Sample: 5179
  - Frequency: Every 2 yr.
  - Test Type: Rapid, ELISA Conf.

### Papua New Guinea

- **Sex wkr.s.**
  - Site Type: STI clinics
  - Sample: All admissions

- **Pregnant women**

### Philippines

- **IDU**
  - Site Type: Community
  - Sample: Convenience
  - Frequency: Annual
  - Test Type: ELISA, WB conf.

- **Sex wkr.s. -- registered**
  - Site Type: Establishments
  - Sample: Random
  - Frequency: Annual
  - Test Type: ELISA, WB conf.

- **Sex wkr.s. -- freelance**
  - Site Type: Street and brothels
  - Sample: Convenience
  - Frequency: Annual
  - Test Type: ELISA, WB conf.

- **MSM**
  - Site Type: Community
  - Sample: Convenience
  - Frequency: Annual
  - Test Type: ELISA, WB conf.

- **Armed forces**
  - Site Type: Hospital
  - Sample: Random
  - Frequency: Annual
  - Test Type: ELISA, WB conf.
<table>
<thead>
<tr>
<th>Population</th>
<th>Site Type</th>
<th>Test Type</th>
<th>No. of Sites</th>
<th>Total Samples</th>
<th>Reporting</th>
<th>Notes</th>
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<tbody>
<tr>
<td>Pregnant women</td>
<td>ANC clinics</td>
<td>Serodia ELISA, Conf.</td>
<td>20</td>
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<td>Army recruits</td>
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<td>Serodia ELISA, Conf.</td>
<td>20</td>
<td>16540</td>
<td>Annual</td>
<td></td>
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</tbody>
</table>

**Notes:**
- Population—Description of target population
- No. of total sites—Total sites in all areas
- Total sample—Total sample across all areas in one round of surveillance
- Respondent ID—(UA) Unlinked anonymous; (Conf) Confidential
- ANC—Antenatal clinics
- IDU—Injecting drug users
- MSM—Men who have sex with men
- STI—Sexually transmitted infections

**Source:** Based on information from symposium participants and WHO Western Pacific Regional Office reports.
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