

AIDS in ASIA: Face the Facts



A comprehensive analysis of the AIDS epidemics in Asia

2004

MAP report



AIDS in Asia: Face the facts

Acknowledgements

The members of the Monitoring the AIDS Pandemic (MAP) Network, the grouping responsible for this report, are listed in Appendix 1. The MAP Network would like to thank several people who are not currently network members but who have contributed actively to this report. These people include: Jeanine Bardon, Robert Bennoun, Laxmi Bilas Acharya, Txema Calleja, Cheng Hehe, Cheng Feng, Don DeJarlais, Kimberley Fox, Chris Green, Sara Hersey, Robert Kelly, Lu Fan, Ian Macleod, Parvez Sazzad Mallick, Guy Morineau, Mitra Motamedi, Joyce Neil, Nguyen Thi Thanh Thuy, Graham Nielsen, Wiwat Peerapatana-pokin, Wiwat Rojanapithayakorn, Keith Sabin, Frits van Griensven, Wang Bin, Sharon Weir, Dewa Wirawan. The MAP Network would also like to thank the governments of Asia and their development partners for generously sharing national HIV and behavioural surveillance data for this report.

A number of institutions support the MAP Network financially, including contribution to the preparation and printing of this report. They include UNAIDS, WHO, UNICEF, the Japanese Foundation for AIDS Prevention, the United States Agency for International Development, Family Health International and the U.S. Centre for Disease Control and Prevention. Their support does not imply that they endorse the contents of this report.

The text and graphics of the report were prepared by Elizabeth Pisani. Tim Brown prepared Chapters 5 and 6. Hein Marais edited the text. Ganrawi Winitdhama and Karen Stanecki provided invaluable support throughout.

Executive Summary



Executive Summary

The Asia-Pacific region is home to 60% of the world's population and to 19% of the men, women and children living with HIV in 2004. This amounts to infection rates that are low compared with some other continents, particularly Africa. But because the populations of many Asian nations are so huge, even low HIV prevalence means large numbers of people are living with HIV—some 5.2 million men, 2 million women and 168,000 children according to new estimates from UNAIDS/WHO.

The Asia-Pacific region is vast and diverse, and HIV epidemics in the region share that diversity. This report is produced by the Monitoring the AIDS Pandemic Network (an international network of epidemiologists and public health professionals who contribute data and analysis in their individual capacities). This report focuses largely on prevention of HIV among adults and adolescents. It focuses largely on East, South-East and South Asia, though it also includes information from some Central Asian nations, including Iran, as well as some of the developing countries of the Pacific.

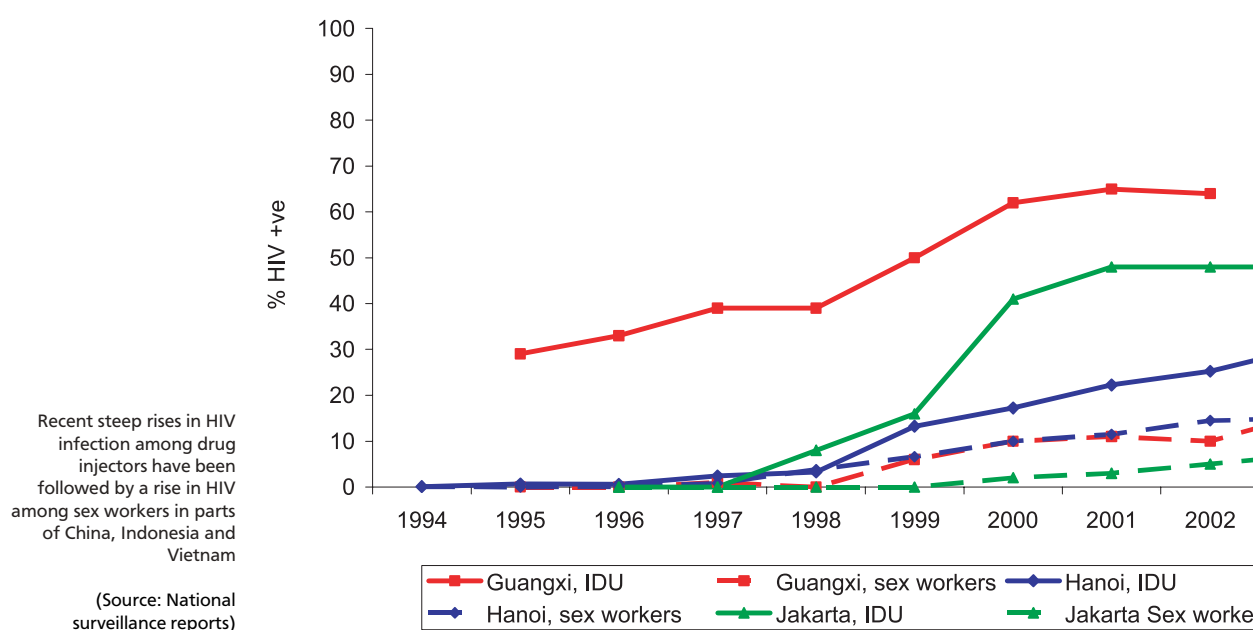
The shape of HIV epidemics in Asia

At the start of 2004, countries or regions of Asia could be divided into five broad categories, according to the epidemics they are experiencing:

1 Recent, sharp rises in HIV among people with identifiable risky behaviours

In a number of regions where HIV levels have been low for many years, prevalence of the virus has begun to rise sharply among people whose behaviours carry a high risk of exposure to HIV—drug injectors, male, transvestite and female sex workers and their clients, and men who have sex with multiple male partners (see page 20). There is strong evidence to suggest that many Asians practise more than one of these risk behaviours, which enables HIV to move from one part of the population to another. Recently, a rapid rise in HIV infection among drug injectors appears to have acted as a catalyst for subsequent rises in HIV infection among people who buy and sell sex in several countries, including parts of China, Indonesia, Nepal and Vietnam.

In the areas where sharp rises in HIV infection have been recorded only recently, there is little evidence that HIV is spreading widely in those parts of populations that have no identifiable risk behaviour. Behavioural data from most of these countries does not suggest that HIV spread among the "lower-risk" parts of population is imminent. However, in some areas, the proportion of the population which has high-risk behaviours is substantial. Given the very large population numbers in Asia, if HIV continues to spread widely among those



with risk behaviours and their immediate sex partners, several million new infections will result. These countries stand at a crossroads. They can choose now whether they move into the second of the categories described here (that of sustained prevention failure) or the third (that of successful limitation).

2 Continuing high prevalence eventually seeps into lower-risk parts of the population

In some areas, HIV has been well-established for several years among groups of people with behaviours that carry a high risk for HIV infection. Prevention efforts that seek to limit exposure to HIV and reduce infection levels do not seem to be succeeding in such areas, which include parts of India, Myanmar and south-western China (more details are given on page 22). Inevitably, HIV infection has filtered gradually from groups of people with the highest-risk behaviours (such as drug injection and unprotected commercial sex) to their regular sex partners, (who may have no other risk of exposure to the virus). This accounts for rising HIV infection rates among women who report being monogamous, and it might lead to a rise in the number of infants infected with HIV.

3 Massive prevention efforts cut risk behaviour, bringing the epidemic under control

Asia provides the world with some of its best examples of large-scale HIV prevention programmes (described on page 24). Most of these come from countries where the virus had already taken hold among people whose sexual or injecting behaviour led to a high likelihood of exposure. Cambodia, Thailand and the Indian state of Tamil Nadu witnessed very high levels of HIV infection among women who sell sex before governments swung into action. But once they did introduce effective prevention efforts, the actions proved decisive. Large and high-profile prevention programmes that address risky sexual behaviour directly, make condoms easily available, and provide young people with the skills to avoid risky behaviour were hallmarks of those efforts, which also included measures to reduce the stigmatization of people living with HIV. The reward was significant reductions in risk

behaviour. And Cambodia and Thailand have recorded steadily declining levels of new HIV and other STI infections.

4 Low HIV prevalence: some prevention success, great prevention opportunities

In a number of countries in Asia, HIV prevalence remains very low, even among those who practice behaviours that could expose them to the virus (see page 26). Some of these countries, such as Bangladesh and the Philippines, have made active efforts to provide prevention services to reduce risky behaviours before the virus becomes firmly established. Those efforts have been only partially successful to date, particularly among the clients of sex workers. But if sustained and expanded, the efforts might permit these countries to avoid the sorts of epidemics recorded elsewhere in Asia. Other countries have been protected by nothing more than geography and time. Drug injectors and men who have sex with men have received only very limited prevention services in Pakistan, for example, though plenty of risk behaviour has been recorded. Commercial sex and male-male sex are neglected in prevention programmes in East Timor, despite recent data showing very low condom use in these settings in the country. Such countries have an important opportunity to provide prevention services to those in need of them, and to deny the virus a foothold.

5 Out of the mainstream: the epidemic in the Pacific takes a different shape

Limited data from the Pacific region, in particular Papua New Guinea and the extreme eastern Indonesian provinces with which it shares an island, present a different picture (as shown on page 27). Here, HIV appears to be following a course more commonly seen in sub-Saharan Africa. Although sparse, the data indicates that sex with non-marital partners is more common among both women and men in this region than in most of Asia, and that sex between older men and younger women is more common too. These behaviours can drive HIV deep into the majority of the sexually active population. It is therefore likely that New Guinea will suffer a more severe HIV epidemic than anywhere in Asia, unless prompt

efforts are made to decrease unsafe sexual behaviours on a population-wide scale.

Engines of growth: the behaviours that spread HIV in Asia

HIV is spread in a limited number of ways. The overwhelming majority of infections worldwide are contracted when people share needles while injecting drugs, or when they have unprotected sex. The more sex partners a person has, the more likely it is that the person will be exposed to the virus. It follows, therefore, that people who have sex with a large number of other people are most at risk of infection. In most Asian contexts, transvestite, female and male sex workers report the highest turnover of sex partners (in that order), with regular clients of sex workers reporting the next highest turnover. A portion of the population of men who have sex with men also reports significant partner turnover in some countries; these men are often faced with the added risk associated with anal sex, which is more likely to result in HIV transmission than vaginal sex, unless condoms are correctly used.

- **Commercial sex remains the most common risk behaviour in Asia**

In Asia, more people engage in commercial sex

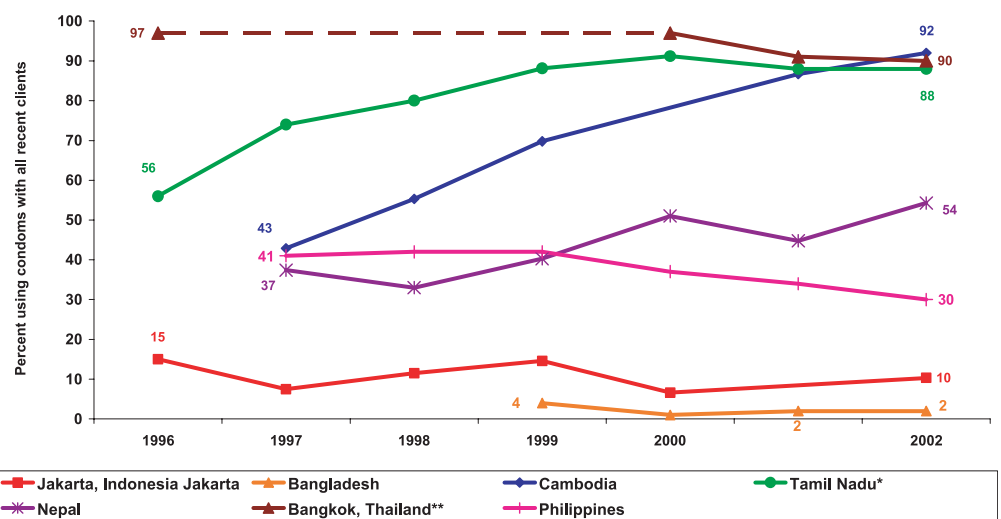
than in any other behaviour that carries a high risk of HIV infection. Indeed, most new infections in the continent are still contracted during paid sex. (see page 32). It is difficult to be sure exactly what proportion of men buy sex. Most behavioural surveillance takes place among men who have jobs that provide them with ready cash and an opportunity to spend nights away from home. These men do not usually reflect the population at large. Household-based surveys in a number of Asian countries suggest that it is not uncommon for between 5% and 10% of men to report that they have bought sex from a sex worker in the preceding year.

The extent to which HIV spreads through commercial sex depends on a number of factors. Client turnover plays a role; the more clients a sex worker serves, the more likely she is to encounter one who is infected, and thus to become infected herself. Screening and treatment for other sexually transmitted infections (STIs) play a role, because untreated STIs increase the likelihood of contracting or passing on HIV. But the biggest single factor is condom use. This varies widely across Asia and within countries. In some countries and regions, reported condom use in commercial sex is consistently high. In Cambodia, Thailand, Vietnam and the Indian state of Tamil Nadu, over 85% of sex workers report using condoms with all recent clients, and in Nepal over 50% report

Condom use in commercial sex varies widely across Asia: countries with high profile campaigns aimed at clients have been most successful in cutting risk

(Source: National and state behavioural surveillance reports)

*Condom use with all clients in the last day
** Condom use with last client



the same. But in the Philippines fewer than one-third of sex workers report always using condoms, and in Bangladesh, East Timor and Indonesia that proportion shrinks to one in 10, or less. Broadly speaking, the countries with high levels of condom use are those that have openly and actively promoted condom use among men as a means of reducing the risk of HIV and STIs. Those with lower levels of condom use have generally concentrated more on urging sex workers to use condoms, with less attention paid to clients and the other men (pimps, brothel-owners and security personnel) who make decisions about condom use or influence the conditions in which sex is bought and sold.

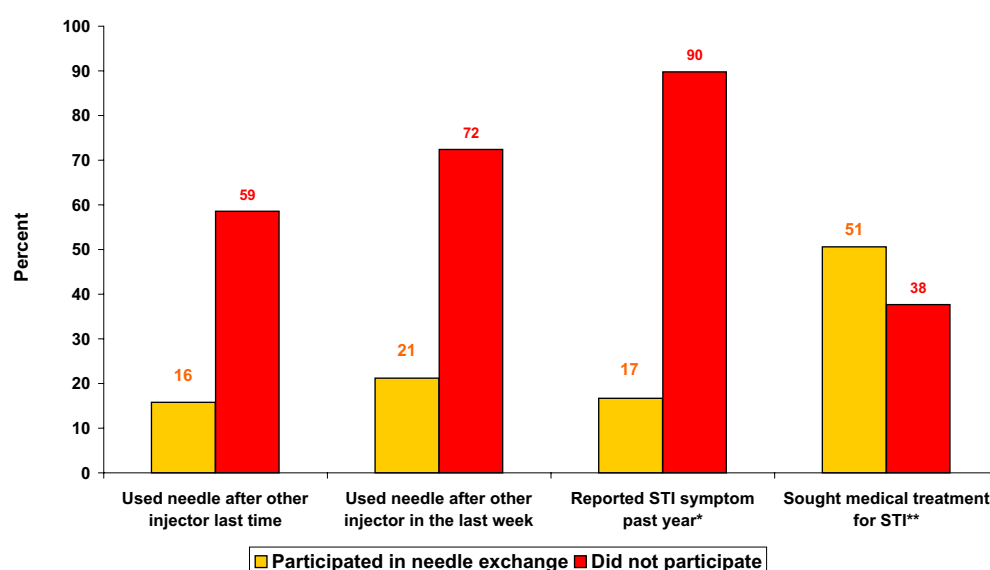
In several places where condom use in commercial sex is high, HIV prevalence has started to drop, both among sex workers and among men who buy their services. The exception appears to be Vietnam, where many sex workers are also at risk for HIV because they inject drugs.

Some places with active HIV prevention campaigns aimed largely at men have seen the proportion of men buying sex from direct sex workers in brothels or on the streets drop since the mid-1990s—Cambodia, Thailand and the Indian state of Tamil Nadu are examples. However, there is also evidence that some of these men have switched to buying sex from women in other settings (such as bars and restaurants),

or are having more unpaid partners. This may expose a group of women who were not previously at risk to potential infection with HIV or STIs, especially since condom use with these other partners tends to be lower than with sex workers in brothels. However since HIV prevalence among these other partners is lower too, the changed behaviour still amounts to an overall reduction in the likelihood of HIV transmission.

- **Less common but riskier: explosive growth of HIV among drug injectors**

Sharing injecting equipment is a very efficient way of passing on HIV. Because of this, HIV prevalence can rise rapidly among injecting drug users (IDUs) who share needles. Very few countries have reliable estimates of the number of people who inject drugs, but we do have information on risk behaviour among those who do inject in a growing number of countries (see page 43). This data shows that in many settings, needle- and syringe-sharing are very common. In Indonesia, around nine out of every 10 injectors said they had used a needle that had been previously used by someone else. In Nepal, injectors commonly report using needles that are hidden in places such as public toilets, for use by any IDU in need of injecting equipment. These behaviours definitely contribute to the very high levels of HIV



Injectors who use comprehensive needle exchange services in Bangladesh report safer injecting behaviour, and safer sex too.

(Source: National behavioural surveillance data.)

*of sexually active respondents

** of respondents reporting STIs

recorded in these populations. Close to half the IDUs in treatment in the Indonesian capital, Jakarta, were living with HIV in 2003, while in Nepal HIV prevalence among male injectors ranged from 22% to 68% across the country in 2002. Parts of China, India, Myanmar, Thailand and Vietnam have all recorded very high levels of HIV infection among IDUs. In some places (including Myanmar, Thailand and the Indian state of Manipur), HIV infection rates have “stabilised” among IDUs, but they have stayed at levels of between 40% and 60% for nearly a decade. Stable prevalence means that one person gets newly-infected for every HIV-infected person who dies or drops out of the population because they stop injecting—a sobering thought in a population where rates of relapse and mortality are high.

All the scientific evidence suggests that large-scale programmes that provide substitutes for injected drugs and that increase access to clean needles will reduce new HIV infections among injectors. While HIV prevention services for drug injectors remain controversial politically, there are now good examples from Asia (including Bangladesh and parts of China and Vietnam) to suggest that these programmes can be effective in Asian settings (details on page 49). These examples are especially important for areas where HIV infection rates among injectors are currently low and can be kept that way if appropriate measures are introduced—areas that include Bangladesh, the central Asian republic of Kazakhstan and Pakistan, as well as other

parts of China.

If injectors are to avoid contracting or passing on HIV, they must have easy access to clean needles. But such access alone is not enough. In several countries, injectors say that the problem is not access to needles but what happens to them if they are caught carrying a needle; fines, arrest and imprisonment are all reported. If a country is serious about tackling HIV among IDUs, it must ensure that drug users can safely use services that reduce the risk of HIV spread.

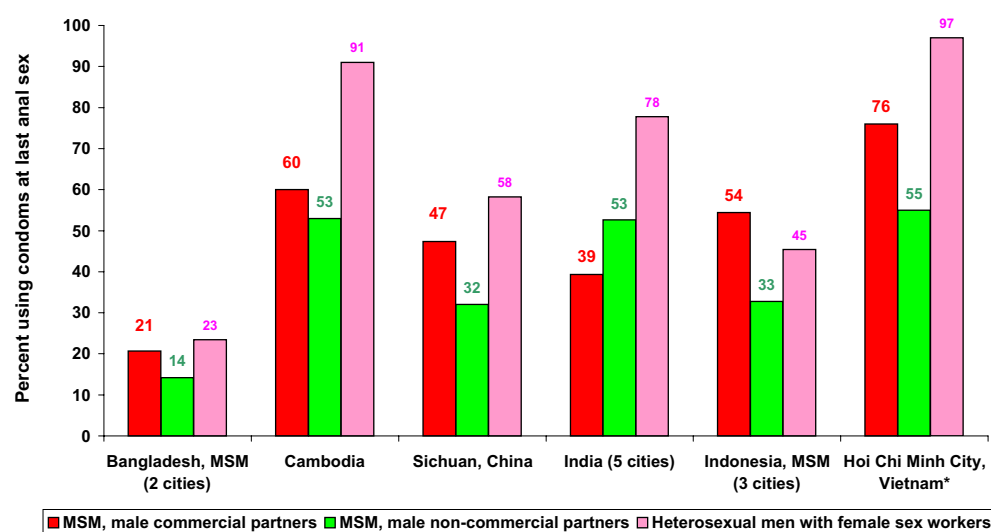
- **Male-male sex. While Asian countries ignore this behaviour, it is spreading HIV**

Many of the first reported HIV cases in Asia were among men who have sex with men. As the heterosexual and injecting epidemics grew, male-male sex was left behind in terms of the number of new infections it generated, and the behaviour was largely ignored in prevention programmes. This is in part because male-male sex is so difficult to define in many Asian countries. It includes homosexual relationships between men who identify themselves as gay, anal sex between heterosexual men and transgender sex workers, as well as a large spectrum of other interactions between people with various social and sexual identities.

Renewed efforts to understand the risk of exposure to HIV in anal sex between men have yielded some shocking findings (see page 55). In Bangkok, Thailand, a 2003 study found that 17% of men who have sex with other men were

Prevention for MSM has been neglected in Asia. Men are more likely to use condoms with female sex workers than in anal sex with other men, even though anal sex is riskier

(Source: National surveillance data and specific studies)



infected with HIV. By 2000, 15% of men who engage in male-male sex in Phnom Penh, Cambodia, tested positive for the virus. Among transgender sex workers in the Indonesian capital, Jakarta, 22% were HIV-infected, according to a 2002 survey. In all of these studies, men or transgenders were recruited from places where males are known to gather in search of new sex partners. The findings therefore represent the high end of the risk spectrum, and should not be generalised to all men who have sex with men. However, they do give cause for alarm in the many Asian countries that continue to neglect male-male sex in their prevention programmes.

This neglect is reflected in behavioural patterns. Most HIV prevention programmes have focused strongly on reducing unprotected commercial sex between men and women, and have done little to tackle risky sex between men or between men and transgenders. The result is that in most countries, men are far more likely to report condom use in sex with a female sex worker than with a male partner, even though the risk of HIV transmission in anal sex is higher than in vaginal sex.

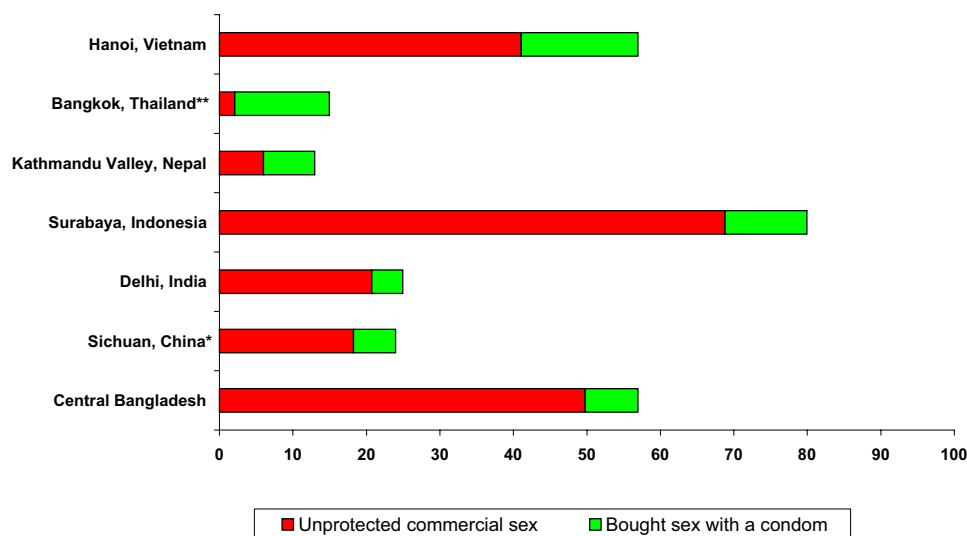
At a population level, the contribution of male-male sex to the HIV epidemic depends in part on the proportion of males in the population who have sex with other men. In a number of countries that include Bangladesh, Hong Kong, India and the Philippines, the proportion of men in household studies reporting recent male-male sex ranges around 3% to 5%. Among men who do report sex with other

men, unprotected anal sex is a very common behaviour virtually everywhere it has been measured (including Bangladesh, Cambodia, China, East Timor, India, Indonesia, Pakistan and Vietnam).

Men and transgenders who sell sex to other males are at particularly high risk, because their turnover of partners tends to be very high. Risky behaviour remains the norm in this part of the population; simple risk reduction methods such as the consistent use of water-based lubricants with condoms in anal sex are in some countries virtually unheard of.

- **A kaleidoscope of risk: multiple risk behaviours are carrying HIV into different parts of the population**

The major risk behaviours for HIV in Asia—the buying and selling of sex, injecting drug use and male-male sex—are by no means mutually exclusive. The interactions are discussed in detail in Chapter 3, beginning on page 63. In a number of countries (Bangladesh, China and Indonesia, for example) some female sex workers inject drugs, and in Vietnam and parts of India many do so. Transvestite and male sex workers also report injecting drugs in most of the countries where they have been asked the question. Because HIV prevalence among drug injectors is very high, it is highly likely that the injecting behaviour of these sex workers is contributing to increasing HIV prevalence in this part of the population.



High proportions of men who inject drugs are also clients of sex workers. Since most do not use condoms, this threatens to spread HIV into commercial sex networks

(Source: Behavioural surveillance reports)

Drug injection increases HIV prevalence among sex workers in another way, too. A significant proportion of drug injectors are sexually active in almost every Asian country where this behaviour has been measured, and of those who do have sex, many buy sex from sex workers. A client who contracted HIV through a needle can easily pass the infection on to a sex worker, who can then pass it on to other clients. Obviously, the contribution of drug injection to an epidemic driven largely by commercial sex depends to a great extent on the level of condom use in commercial sex. If it is high, it will limit the “booster effect” of drug injection. However, modelling shows that in situations where HIV has remained low for years despite low condom use (for example in Bangladesh, Indonesia and the Philippines), a sharp rise in HIV infection among drug injectors could “kick-start” an HIV epidemic that may otherwise have taken many decades to develop. Indeed in Indonesia, rising HIV prevalence among sex workers indicate that this process is already underway.

Different sexual risks also interact. In several countries, many men who have sex with men also have sex with women. Men who sell sex to other men (who have among the highest of sexual risk behaviours) are the most likely of all men who have sex with men to report female partners. Most of those men have wives and regular partners, but many also report buying sex from female sex workers.

Most importantly, the people who engage in these risk behaviours are not special “risk groups”, somehow separated from the “general population”. We are all part of the “general population”, and it is in our collective interest to provide prevention services and care for those among us who are at highest risk of contracting and passing on HIV.

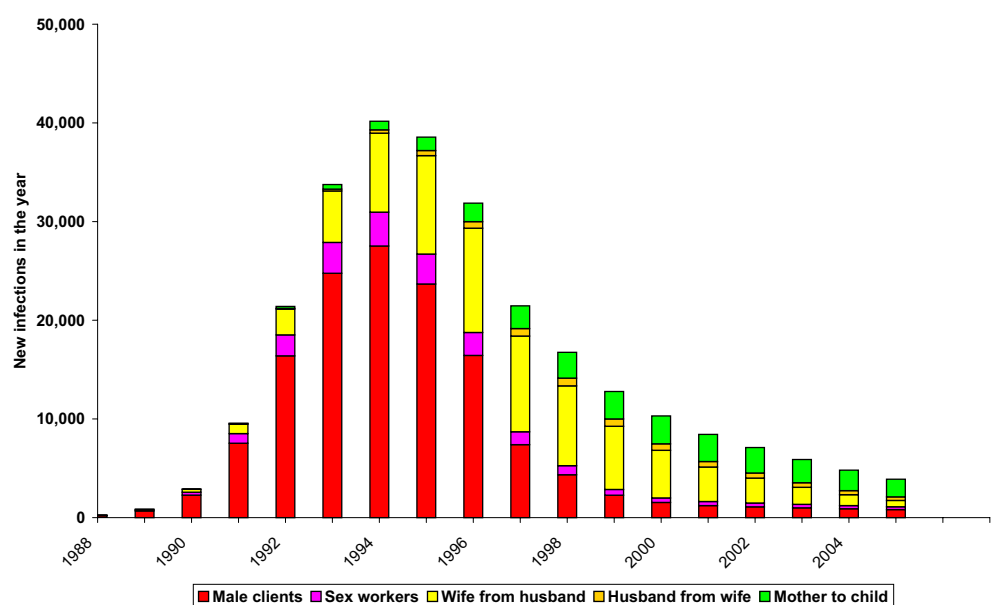
It is important to note, however, that people who have risk behaviours are concentrated among the younger parts of the population (see page 82). In most Asian countries, a majority of both female sex workers and drug injectors are younger than 25, and significant proportions of men who buy sex and who have multiple male partners are also adolescents or young adults.

The right prevention services for the right people will change the course of HIV epidemics in Asia

The diversity of HIV epidemics and national programme successes in Asia demonstrate that there is nothing inevitable about the course of HIV epidemics. Countries and regions that have chosen to provide prevention services on a large scale to those most in need of them have turned their epidemics around, and some may have significantly delayed the onset of any future epidemic. Chapter 7, beginning on page 99, summarises the lessons learned over the

Asian countries that have addressed risk behaviours directly and on a large scale have succeeded in turning around their epidemics, as the example of Cambodia shows

(Source: Cambodian working group on HIV/AIDS projections)



last two decades. Risks that have been ignored or that have been addressed only through small, demonstration projects (that have not been replicated on any significant scale) continue to generate new HIV infections. Prevention efforts that have ignored the social, political and cultural contexts which push people into risk behaviour and which make it difficult for them to adopt safe behaviour have fared less well than efforts that have tackled the structures that prop up risky behaviour and increase the pool of people vulnerable to HIV.

Asia's HIV prevention successes have three features in common:

1) They address the specific behaviours which are causing most infections and provide specific services to reduce the risk of those behaviours.

Programmes to encourage men to use easily available condoms in commercial sex are the most common of these, but there are encouraging examples of success in increasing the use of clean needles among drug injectors.

2) They provide access to information and to services on a scale large enough to make an impact on HIV transmission.

Asia is a continent on the move, which greatly increases the interaction of people who are taking sexual or injecting risks. Small demonstration projects in one district may protect the few people who live in that district and do not interact with anyone from an area with no prevention programme, but they will not make a difference to a national or regional epidemic. Prevention efforts are successful if they change behaviour on a national or regional scale.

3) They ensure that the social, political and security environment supports the provision of appropriate HIV prevention services to those most at risk, allowing them to adopt safer behaviours.

People will not use prevention services if using those services puts them at risk in other ways—for example, being arrested or stigmatized in ways that threaten

their livelihoods. Successful prevention programmes have worked with law enforcement, social services, sex industry power-brokers and others to ensure that those in need of services are supported in protecting themselves and others from HIV.

No country or region has managed to produce these three conditions for everyone who practises behaviours that carry a high risk for HIV transmission. But Asia now has plenty of examples to demonstrate that countries have a choice about the shape the epidemic will take.

Choices made about care, support and treatment will shape the future, too. There is very little experience providing antiretroviral treatment to people living with HIV in Asia, and therefore limited data upon which to draw. It is clear, however, that the majority of people in Asia whose behaviours carry a direct risk for HIV are not currently infected with the virus (a tragic exception can be found among drug injectors in some areas). It is imperative that the growing concern with providing treatment for those infected with HIV does not undermine the first priority for HIV programmes in the Asian region: prevention. That means instituting, maintaining and expanding effective HIV prevention services for those whose behaviours carry the highest risk for contracting the fatal virus, or for passing it on to others. The provision of treatment to those with high-risk behaviours must be seen as an additional opportunity to strengthen prevention efforts.

The countries of Asia have recorded more widespread HIV prevention successes than those of any other continent in the developing world. But the task of providing care for those affected by HIV while expanding prevention services to the many millions more that need them is not an easy one. Only a minority of governments and communities in the world's most populous continent have so far demonstrated the courage and foresight needed to protect their citizens from expanding HIV epidemics. They have shown it is possible. It now falls to the majority of the countries in Asia which do not yet have adequate HIV programmes to face the facts of their own behaviours, and to choose the future course of their HIV epidemics.

Contents

ACKNOWLEDGEMENTS

Inside Front Cover

EXECUTIVE SUMMARY	1
THE SHAPE OF HIV EPIDEMICS IN ASIA	2
ENGINES OF GROWTH: THE BEHAVIOURS THAT SPREAD HIV IN ASIA	4
THE RIGHT PREVENTION SERVICES FOR THE RIGHT PEOPLE WILL CHANGE THE COURSE OF HIV EPIDEMICS IN ASIA	8
TABLE OF FIGURES	12
INTRODUCTION TO HIV IN ASIA	15
CHAPTER 1: THE EPIDEMIOLOGY OF HIV IN ASIA	19
THE SPRINGBOARD EFFECT: SHARP RISES IN HIV, CONCENTRATED AMONG THOSE MOST AT RISK	20
FOLLOWING IN THE FOOTSTEPS: HIV INFECTS LOWER RISK PEOPLE IN SOME REGIONS	22
TURNING THE CORNER: RISK BEHAVIOUR IS FALLING IN SOME PLACES, AND LESS RISK MEANS LESS HIV	24
LEARNING FROM OUR NEIGHBOURS: PREVENTING AN EPIDEMIC IN AREAS WHERE HIV IS STILL RARE	26
THE OTHER EPIDEMIC: INDICATIONS OF WIDESPREAD INFECTIONS THROUGHOUT NEW GUINEA	27
Box: Peering into the shadows—2nd generation surveillance in Asia	29
CHAPTER 2: DRIVING THE EPIDEMIC: BEHAVIOURS THAT SPREAD HIV IN ASIA	31
PAYING FOR IT: COMMERCIAL SEX BETWEEN MEN AND WOMEN REMAINS THE MOST COMMON RISK FACTOR FOR HIV INFECTION IN ASIA	32
THE KNOWLEDGE BATTLE: IT'S NOT OVER YET	32
WINNERS AND LOSERS: WHAT EXPLAINS THE DIFFERENCES IN CONDOM USE?	35
Box: Money talks - the business of sex	37
TARGET MARKETS: ARE PREVENTION PROGRAMMES REACHING CLIENTS OF SEX WORKERS?	37
PASSING IT ON: CLIENTS OF SEX WORKERS ARE FAMILY MEN, OR WILL BE	39
FANNING THE FLAMES: THE FORGOTTEN EPIDEMIC OF STIs	39
A PROBLEM WITH A SOLUTION	40
HIV PREVENTION AT STI SERVICES: THE MISSING LINK	42
SHOOTING UP: HIV INFECTION AMONG DRUG INJECTORS ACROSS ASIA	43
CLEAN NEEDLES, CLEAN LIVES: RISK BEHAVIOUR AMONG DRUG USERS IN ASIA	45
THE KNOWLEDGE-BEHAVIOUR DISCONNECT	47
COMPETING RISKS—LIFE IN THE DANGER ZONE	48
Box: The needle-exchange controversy: the evidence in Asia shows reduced risk	49
MISSED OPPORTUNITIES ON THE ROAD TO AN IDEAL SOLUTION	52
Box: A captive audience: HIV transmission continues in Asia's jails.	53
CLOSING OUR EYES: MALE-MALE SEX IS AN IGNORED ENGINE FOR HIV IN ASIA	55
TURNING A BLIND EYE TO MALE-MALE SEX HAS SKEWED RISK PERCEPTIONS	57
START WITH THE BASICS	58
THE UNSEEN PROBLEM: RECTAL STIs	59
THE OTHER SEX WORKERS	59
CHAPTER 3: PEOPLE ARE NOT SQUARE! ALTHOUGH PREVENTION PROGRAMMES SOMETIMES THINK IN BOXES, PEOPLE OFTEN LIVE IN CIRCLES OF INTERCONNECTED RISKS	63
SEX AND DRUGS: A CLASSIC COMBINATION	64
SELLING SEX TO BUY DRUGS: A LETHAL COMBINATION	64
THE OTHER SIDE OF THE COIN: DRUG INJECTORS WHO BUY SEX	66

DRUGS WITHOUT NEEDLES ARE NOT WITHOUT DANGER	67
GENDER BALANCE: MEN WHO HAVE SEX WITH MEN AND WOMEN	68
CHANGING WITH THE TIMES: WILL BISEXUAL BEHAVIOUR DIMINISH IN ASIA?	69
Box: HIV on the move	71
CHAPTER 4: THE LABORATORY PROVIDES YET ANOTHER WINDOW ON DIVERSITY	75
CHAPTER 5: THE GENERATION GAME: HOW HIV AFFECTS YOUNG PEOPLE IN ASIA	81
NEW THREATS, NEW HOPES	82
Box: More sex equals more HIV? In the Asian context ... not necessarily!	83
NEW GENERATIONS, OLD RISKS	84
GETTING HIGH: THE PROPORTION OF YOUNG PEOPLE TAKING DRUGS SHOULD RING ALARM BELLS	85
SELLING THE FUTURE: YOUNG SEX WORKERS NEED BETTER SKILLS	86
CHAPTER 6: WHAT NEXT? EPIDEMIC DYNAMICS IN THE ASIAN CONTEXT	91
LEARNING FROM ONE ANOTHER: AVERTING IDU EPIDEMICS EARLY ON	95
HOW MUCH IS ENOUGH? "THRESHOLD" LEVELS OF CONDOM USE	97
CHAPTER 7: LEARNING FROM THE PAST TO SHAPE THE FUTURE	99
MAINTAINING FOCUS: PREVENTION AND CARE EFFORTS HAVE TO CONCENTRATE ON PROVIDING SERVICES FOR THE PEOPLE WHO NEED THEM MOST	100
TARGETING THE BEHAVIOURS THAT ARE CAUSING MOST NEW INFECTIONS	100
DON'T SPREAD IT TOO THIN: FOCUS EFFORTS WHERE THEY WILL HAVE MOST IMPACT	101
Box: The ugly question: who should have access to care?	101
KEEPING AN EYE ON THE BALL: HIV PROGRAMMES NEED TO CHANGE WITH THE EPIDEMIC	103
KEEPING IT UP: THE NEED TO MAINTAIN PREVENTION EFFORTS OVER TIME	104
Box: HIV prevention services remain the overwhelming need in much of Asia	105
THE RIGHT THING FOR THE RIGHT PERSON: PROVIDING SERVICES THAT PREVENT HIV INFECTION AND HELP PEOPLE WHO LIVE WITH HIV	106
Box: HIV testing alone does not always lead to safer behaviour	107
SIZE MATTERS! THE TIME FOR "BOUTIQUE" PILOT PROJECTS IS LONG PAST	109
CONCLUSION: ARMED WITH THE FACTS, ASIA MUST CHOOSE ITS FUTURE	113
APPENDIX 1: MEMBERS OF THE MONITORING THE AIDS PANDEMIC NETWORK	115
APPENDIX 2: SURVEILLANCE DATA USED IN THIS REPORT	117
REFERENCES	121
TABLE OF ESTIMATES	Inside Back Cover

Table of Figures

Figure 1:	HIV prevalence among IDU at selected sentinel sites in three countries, 1994-2003	21
Figure 2:	HIV prevalence among female sex workers at sentinel sites in three countries, 1994-2003	22
Figure 3:	HIV prevalence in female sex workers, male STI patients and pregnant women at sentinel sites in Mumbai, India, 1994-2002	23
Figure 4:	Percent of truck drivers and helpers in Tamil Nadu who reported buying sex in the preceding 12 months, and condom use at last commercial sex, 1996-2002	24
Figure 5:	Percent of police reporting recent unprotected commercial sex (right scale), and percent infected with HIV and other STIs (all left scale) in Cambodia, 1996-2002	25
Figure 6:	Incident HIV infections measured using the BED-Capture EIA technology, Cambodia 1999-2002	26
Figure 7:	Knowledge and behaviours related to HIV and condoms among female sex workers in Dili, East Timor, 2003	32
Figure 8:	Frequency of condom use with recent clients reported by female sex workers in Guangxi, China, 1995-2003	33
Figure 9:	Percent of brothel-based sex workers reporting consistent condom use with recent clients, various countries, 1996 – 2002	34
Figure 10:	Percent of sex workers and clients reporting condom use at last commercial sex, by availability of condoms at place of interview, Indonesia, 13 provinces, 2002/2003	35
Figure 11:	Percent using condoms with all clients, and new STIs per 100 person years of exposure among sex workers in Guangzhou, China, 1998-1999	36
Figure 12:	Percent of men buying sex in the previous 12 months among groups representing the general population and those chosen to reflect higher risk, various countries	38
Figure 13:	Percent of female sex workers reporting STI symptoms in the last year, by treatment-seeking behaviour	41
Figure 14:	Percent of drug injectors and sex workers testing positive for HIV in routine surveillance, various Asian locations, 2002 or 2003	43
Figure 15:	Percent infected with HIV by duration of injection and by sex, Kathmandu valley, Nepal, 2003	45
Figure 16:	Percent of injectors reporting sharing needles and syringes in recent injections.	47
Figure 17:	Percent of respondents in nine cities in Kazakhstan who share needles, according to how easily needles are obtainable	48
Figure 18:	Percent of male IDUs in Bangladesh Northwest-A who share needles, report STIs, and seek treatment for STIs, by participation in needle-exchange programme in the last year.	51
Figure 19:	Percent of prisoners testing HIV-positive at a West Java jail. 1999-2001 and 2003 are a random sample of all inmates, 2002 is new inmates only	53
Figure 20:	Percent of MSM using condoms at last sex with commercial and non-commercial partners, and comparison with condom use reported by clients of female sex workers in the same locations	57
Figure 21:	Percent of men using condom at last commercial sex, according to source of condom used at last sex, five cities, India	58
Figure 22:	Percent of male-male sex populations reporting unprotected anal sex with any male partner in the preceding month, by HIV status, Jakarta, Indonesia, 2002	60

Figure 23: Percent of sex workers who inject drugs and have sex with injectors, and percent of male injectors who report buying sex, three cities, Vietnam, 2002	65
Figure 24: Percent of female IDUs selling sex and female sex workers injecting drugs, four Central Asian cities	66
Figure 25: Percent of male IDUs buying sex in various cities, by consistent condom use in commercial sex	67
Figure 26: Percent of active MSM who are married or report recent sex with women	68
Figure 27: HIV-positive blood per 100 000 donations for men and women in Japan, 1987-2002	70
Figure 28: Evolution of the subtypes of new infections among injecting drug users in Bangkok, 1988-1999 SOURCE:	77
Figure 29: HIV subtypes among MSM, and heterosexual men and women in Tokyo, Japan, 1998-2002 Source:	78
Figure 30: Percent of MSM in a household study in Hong Kong who reported various risks in the previous six months, according to whether they met sex partners on the internet	84
Figure 31: Percent of high school students aged 16-18 reporting different risk behaviours, Jakarta, 2003	85
Figure 32: Percent of female sex workers who are teenagers or are aged under 25, various countries	86
Figure 33: Percent of sex workers infected with STIs, and condom use by age, Indonesia, seven cities, 2003	87
Figure 34: Percent of IDU and female sex workers testing positive for HIV in surveillance, by age group, nationally aggregated data, Myanmar, 2003	88
Figure 35: Percent of sex workers who have been beaten or raped in the last year, by place of employment, Bangladesh, 2002	88
Figure 36: Extreme variability is seen in the timing and the rate of growth of epidemics among injecting drug users and female sex workers in different places in Asia (a) IDUs (b) FSWs	92-93
Figure 37: The growth of the epidemic as a percentage of adults with HIV in a country where roughly 20% of men visited sex workers, sex workers had two clients per night, and condoms were used in one-third of sex work contacts.	94
Figure 38: The growth of the different components of the epidemic in a country, such as China or Vietnam, where one-tenth of men visit sex workers, sex workers have one client per night, condom use stays at about 30% of commercial sex acts, and it is assumed that an IDU epidemic started in 1995.	95
Figure 39: If behaviours do not change, apparently "mild" epidemics become more severe in a couple of decades	96
Figure 40: HIV prevalence in Jakarta, Indonesia, with and without IDUs. Actual data to 2003, and projections with behaviour unchanged from 2003 levels	97
Figure 41: Effect of increasing condom use on overall adult HIV prevalence in a country where 10% of men buy sex	98
Figure 42: Numbers of people who would have to be counselled and tested for HIV to identify 50 HIV-positive people, at 2002 prevalence rates, Tamil Nadu, India	102
Figure 43: Percent of new infections attributable to different behaviours, Cambodia 1898-2004, generated by EPP-Multi software and based on trends in prevalence	103
Figure 44: Number of people engaging in various behaviours carrying a risk of HIV infection in 2004, and number in need of antiretroviral therapy	105

Figure 45:	Percent of male and female drug injectors in Yunnan, China, who say they received different HIV prevention services in the preceding 12 months	106
Figure 46:	Percent of female sex workers in Nepal reporting having received condoms from an HIV prevention programme, and percent using condoms with all clients in the previous 12 months	107
Figure 47:	Percent of transgender and male sex workers and MSM who report unprotected anal sex in the previous week (transgender) or previous month (others), by VCT history	108
Figure 48:	Estimated number of sex workers in three Indonesian cities, and estimated number covered by interventions, based on percentage of sex workers reporting access to prevention services in the previous 12 months, 2002/2003	110
Figure 49:	Percent of street-based sex workers in Bangladesh using condoms with new clients, according to whether they accessed prevention services in the past year, 2002	111

Introduction to HIV in Asia



Introduction to HIV in Asia

Asia is home to 60% of the world's population and to 19% of the men, women and children living with HIV in 2004. That adds up to infection rates which are low compared to some other continents, particularly Africa. But because the populations of many Asian nations are so large, it also adds up to a large absolute number of people living with HIV—some 5.2 million men, 2 million women and 168,000 children, according to new estimates from WHO/UNAIDS.

The difference between large numbers and small percentages can be confusing, and it has led to lively debate about the future of the epidemic in Asia. Some observers point to the continuing low percentages of people living with HIV in many countries as a reason not to worry too much about HIV in Asia—a continent which, after all, faces many other development challenges. Others point to the large absolute numbers of people living with HIV, draw parallels with Africa and predict that an “African-style” epidemic will unfold on the world's most populous continent.

Each of those views presents an incomplete picture of HIV in Asia. For a fuller understanding, we need to examine the changing patterns of risky behaviour and infection over time, and take into account the number of people who engage in behaviours that carry a risk of HIV transmission.

This report describes the evolving epidemic across the Asian continent, investigates the distribution of the virus and describes the behaviours that spread it. It does not attempt to give a comprehensive picture of the HIV epidemic in every country (country-specific descriptions can be found in a World Health Organization report HIV/AIDS in Asia and the Pacific Region, 2003, accessible at <http://w3.whoasia.org/hivaids/latestpubs.html>).

The report is the work of the Monitoring the AIDS Pandemic network (the MAP Network)—a group of epidemiologists and public health professionals from around the world. MAP has produced independent reports on epidemic trends since 1995. Although many MAP members work in prominent positions in government, international organisations or community groups, we come together under the Network without our institutional affiliations. We aim simply to look critically at the latest data on HIV, sexually transmitted infec-

tions and the behaviours that spread them, and to draw lessons that can help guide the response to HIV and change the course of the epidemic.

A critical evaluation of the data sometimes leads to conclusions that are not in step with the political priorities of communities, international organizations or donor agencies. For that reason, MAP members try to ensure that all their observations and conclusions are based on recent and high-quality data. This explains the prominence of statistics in this report, and the extensive referencing. These data, which were largely gathered and published since the last Asian AIDS conference in Melbourne in late-2001, come from many sources; we thank all those who contributed data and information. If a country or area does not feature prominently in the report, the reader should not conclude that the area has no HIV problem, but rather that the country is not collecting or publishing reliable and appropriate data.

The report begins by looking at epidemic trends in selected countries—those where HIV is spreading rapidly, those where the number of new infections appears to be falling, and those where the epidemic has yet to take off.

We then examine the major behaviours driving the epidemic across the continent—injecting drug use, sex between men and commercial sex—and question whether the social norms of young people are indeed changing. Because human beings do not fit into tidy epidemiological boxes, we investigate the extent to which people engage in more than one type of behaviour that carries a high risk of HIV infection. Those multiple risk behaviours are critical because they can carry the virus from one part of the population to another, providing a key to the future course of the epidemic in Asia. Linkages with other STIs are also discussed.

The future course of the HIV/AIDS pandemic is not predetermined. We look at countries and communities that have managed to shape their own futures by providing services that help people change their behaviours and avoid passing on HIV or becoming infected themselves. Successful prevention services change the shape of HIV epidemics, and expose continuing or emerging prevention needs in specific areas and populations. We identify gaps in prevention efforts, and argue for a more dynamic—and extensive—approach to prevention.

The report focuses on the distribution of HIV among adults, the behaviours that spread it, and the likely effect of prevention programmes on the future course of HIV. Issues such as the political context, the need for care and treatment, and the economic and social impact of the epidemic in Asia are covered in complementary reports, for example *Act now. Asia-Pacific leaders responding to HIV/AIDS* (available at www.policyproject.com) the 2004 *Report on the Global AIDS Epidemic* (available at www.unaids.org) and the *World Health Report, 2004 – Changing History* (www.who.int/whr/2004/en). These reports also address the serious implications that growing levels of HIV infection already have for children in the Asia-Pacific region.

This report focuses largely on prevention of HIV among adults and adolescents. It focuses largely on East, South-East and South Asia, though it does also include information from some Central Asian nations, including Iran, as well as some of the developing regions of the Pacific.

Chapter 1

Chapter highlights

- There is no single “Asian HIV epidemic”.
- Five broad epidemic pathways are currently underway in the region:
 - o HIV prevalence is rising sharply among people with identifiable risk behaviours in some countries, including parts of China, Indonesia and Vietnam.
 - o In mature epidemic settings, continuing high HIV prevalence is seeping into lower-risk segments of the population. Parts of India and Myanmar fall into this category.
 - o In the few countries where massive prevention efforts have cut risk behaviours, principally Thailand and Cambodia, the HIV epidemic is in decline.
 - o Continuing low HIV prevalence offers a great prevention opportunity in many countries, including Bangladesh, Pakistan, Sri Lanka, Laos, the Philippines, and East Timor.
 - o In parts of the Pacific region, risk behaviours threaten a potentially more severe epidemic than elsewhere in Asia.



Chapter 1: The epidemiology of HIV in Asia

Asia is the world's largest and most populous continent. The countries that make up the continent range from vast, ancient nations such as China and India to the tiny newly-independent nation of East Timor. The countries of Asia include some of the world's richest, and some of the world's poorest. They have different languages, different religions and different sexual cultures, often within the same country.

The epidemic in Asia perhaps lends itself to one generalisation: until now, HIV has been spread largely through identifiable risky behaviours that are not practised by the majority of people.

It is no surprise, then, that there is no single "Asian HIV epidemic". Indeed, this entire report bears testimony to the diversity of HIV epidemics in Asia. If there is one generalisation which can be made, it is that until now, the virus has been spread very largely through identifiable risky behaviours which are not practised by the majority of people. Drug injection is emerging as the strongest driver of HIV infection in many parts of Asia. Anal sex between men, or between men and transgenders, contributes significantly to several national epidemics, especially where men buy sex from other males. Commercial sex between men and the women who supply their demand carries a rather lower risk of HIV transmission, but it involves far larger numbers of people in many Asian countries. Together, these behaviours account for the majority of HIV transmission in the region.

Even in countries where HIV prevalence has passed the 1% mark in the general population, catapulting them into the "generalised epidemic" classification according to criteria defined by international organisations, HIV does not spread evenly throughout the general population. Most new infections continue to be contracted through shared needles, commercial sex or anal sex, or are passed on during sex to the regular partners of women and—much more commonly—men who have engaged in one of those behaviours. WHO/UNAIDS estimate that for every adult woman living with HIV in Asia and the Pacific, there are four men living with the virus.

Within that general pattern, large variations can be seen. Here we describe five broad pathways that the virus is taking in Asia and the Pacific. As far as possible, HIV prevalence data and behavioural data in this report are

taken from national surveillance systems or from on-going behavioural surveillance systems. These are listed in Appendix 2; data in this report come from these sources unless otherwise stated. Other data sources are listed in the References section at the end of the report.

The springboard effect: Sharp rises in HIV, concentrated among those most at risk

Several countries in Asia have for many years measured very low rates of HIV infection, even within populations with high-risk behaviours. Surveillance systems in most countries correctly focus on measuring trends in infection and behaviour within these groups. This is because measuring HIV infection among pregnant women can only provide a very limited view of the dynamics of the epidemic if, for example, three-quarters of the HIV infections are among male drug users and men who have sex with men (MSM). Because the majority of infections are concentrated among people with risk-taking behaviour, measuring trends in infection in the general population may be of little use at this stage of the epidemic. The growth in the epidemic is seen in rising infection rates in sub-populations with high-risk behaviours. A number of Asian countries, including some of the most populous, have in the past few years measured sharp increases in HIV infection in these populations.

The steepest recent rises in HIV infections are seen among injecting drug users. Parts of **China, Indonesia and Vietnam** have seen HIV take off among drug injectors in recent years, as **Figure 1** shows. Note that these data represent specific sites, and do not necessarily reflect the situation across the whole of a country. But they *do* illustrate trends that have been observed in some areas.

Subsequent to the rise in HIV infection among IDUs, HIV has also risen in other populations with high-risk behaviour. The link between the sexual and the drug-driven epidemics is discussed at length in Chapter 3, below. It is clear that infections which have spread among drug users through the sharing of unclean injecting equipment have then been passed on sexually to non-injectors and have played a significant role in "kick-starting" rapidly-growing HIV

epidemics in at least some sites in all three countries shown in Figure 1. The rise in HIV among sex workers in the same sites, shown in **Figure 2**, is slower, but no less prominent.

Sex workers do not infect one another with HIV (unless sex workers who inject drugs share needles). They are infected by their clients or boyfriends, and, once infected, they are likely to pass the infection on to other clients who do not use condoms or who use them incorrectly. Few data are available for male client groups anywhere in Asia, but both China and Vietnam collect information from men seeking treatment for sexually transmitted infections. These men have almost always had recent unprotected sex with a casual partner, often a sex worker, so they serve as a proxy for the “high-risk” end of the sex market. As expected, HIV began to appear in these men not long after it became apparent among sex workers. Prevalence never reaches the same levels among male STI patients as it does among sex workers, but overall, the trend is the same—a sharp rise in HIV infection, beginning in the late 1990s, in a number of populations with high-risk behaviour in three of Asia’s more populous countries.

One of the most frequently discussed questions in these epidemics is the extent to which infections among people with high-risk behaviours are likely to spread to the millions

The growth in the HIV epidemic is seen in rising infection rates in subpopulations with high-risk behaviours. In several Asian countries, including some of the most populous, HIV infection rates in those populations have risen sharply—most dramatically among injecting drug users.

of men and women in the population who do not have those behaviours.

Sticking purely to the evidence available in early 2004, it appears that despite sharp rises in HIV infection among people with risk behaviour, no significant spread of HIV throughout populations with lower risk has begun in the countries under review here. Not one HIV infection was found in recent premarital testing of 6,210 people in urban and rural areas of the wealthy eastern Chinese province of Zhejiang, for example. (Hesketh, Huang et al 2003) In a household study of over 3,400 Chinese men and women in an area experiencing rapid economic development, STIs other than HIV were also found to be rare (fewer than one in 1,000 had gonorrhoea, while around one in 40 had the much more common infection chlamydia). These infections were concentrated among people who reported risky behaviour such as recent sex with a sex worker. (Parish, Laumann et al 2003)

In other countries, population-based data is rare, and pregnant women are often taken as indicative of the “general population”. It is

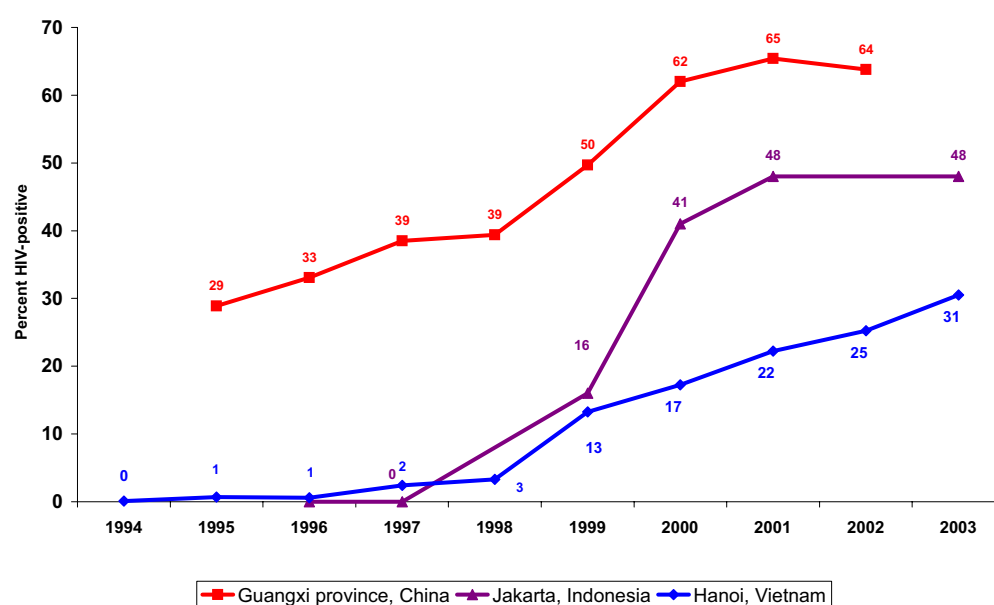


Figure 1: HIV prevalence among IDU at selected sentinel sites in three countries, 1994-2003

HIV has shot up among drug injectors in several IDU populations in Asia

(Source: National surveillance reports from China, Indonesia

important to remember that drug injectors, sex workers and former sex workers are all also members of the “general population” and the women among them may become pregnant. It cannot be assumed that every HIV infection in a pregnant woman in a concentrated epidemic is indicative of an infection in someone with little or no risk behaviour. Nevertheless, the sentinel site with the highest HIV prevalence among pregnant women in Vietnam recorded a prevalence of 1.25% in 2002—the majority of other sites either registered no infections or had fewer than one in 200 positive test results. In the same year in Indonesia, no HIV infections were recorded among 1,400 soldiers returning from assignments away from home—a group that would normally be considered to be likely to have high-risk behaviour. And among blood donors, fewer than 1,000 HIV infections were found among more than half a million donors nation-wide—an infection rate of around one in 500 (Indonesian Red Cross, personal communication). Similarly, in Iran, where HIV prevalence has reached 20% among drug injectors in some sites, HIV infection rates in the general population were found to be extremely low—just seven blood samples tested positive out of nearly 250,000.

Following in the footsteps: HIV infects lower risk people in some regions

Some Asian countries are so large that they

contain many simultaneous HIV epidemics which are developing in different populations and at different rates.

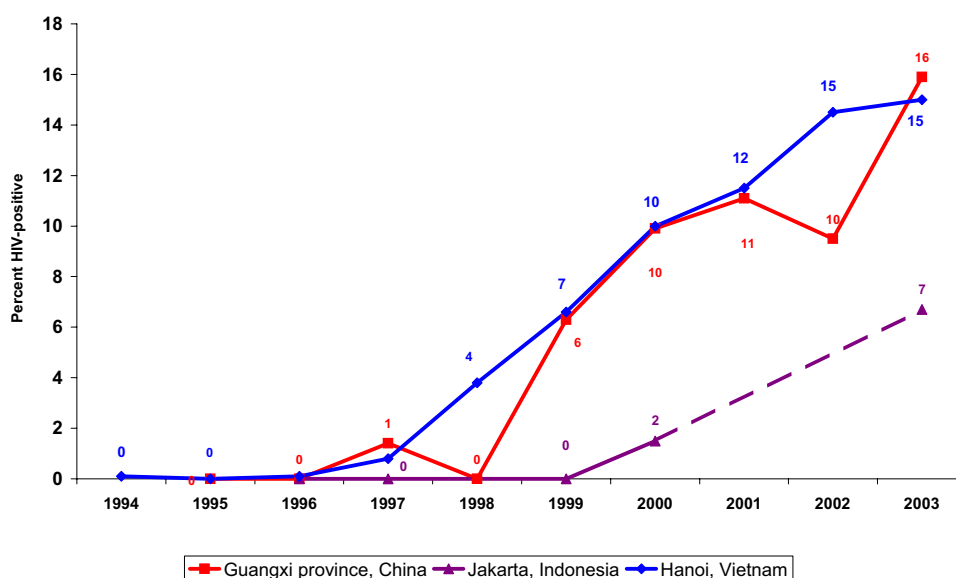
The preceding section presented data for Guangxi province in **China**, for example. Though nearly one-quarter of drug injectors were already infected in 1995 (when surveillance began), HIV prevalence did not start to rise rapidly in other groups until the following decade.

In other areas, however, the HIV epidemic is better-established, and there are signs that it is gaining a foothold among men and women whose behaviours do not necessarily put them at high-risk of infection. In **Myanmar**, for example, between 38% and 75% of drug injectors tested positive for HIV infection in sentinel surveillance every year between 1992 and 2003, while HIV among sex workers rose significantly from around 5% to above 30% over the same period. As seen in other epidemics (in **Thailand**, for example) the proportion of male and female STI patients who tested positive for HIV in sentinel surveillance in Myanmar also rose, to between 6% and 9% by 2003. New military recruits, a population of young men of an age where high-risk behaviour is common, are included in surveillance in two cities. In the northern Myanmar city of Mandalay, over 3% tested positive for HIV in 2003. There are large geographical variations within the country, but there is every indication that HIV has become entrenched in lower-risk populations in at least some parts. In Tachilek, near

Figure 2: HIV prevalence among female sex workers at sentinel sites in three countries, 1994-2003

Where HIV has gone among IDUs, it has followed among sex workers

(Source: National surveillance report from China, Indonesia and Vietnam)



the Thai and Lao borders, between 5% and 10% of pregnant women tested positive for HIV for most of the decade, while other northern cities, such as Myitkyina and Mandalay, saw steady rises in HIV prevalence at antenatal clinics (to between 3% and 4%). By 2003, 12 out of 29 sentinel sites for pregnant women recorded HIV prevalence above 2%, just over 2% of 1,200 new military recruits were HIV-positive, and prevalence among almost 5,600 blood donors was 1.2%. Given the prevention successes in other high-prevalence countries, such as Cambodia and Thailand, described below, Myanmar may soon become the country with the highest national HIV infection rates in Asia.

In India, the world's second-most populous country, the HIV epidemic is just as diverse as it is in its larger neighbour, China. In some north-eastern states, such as Manipur, an epidemic driven by drug injection has been underway for well over a decade. In people attending drug addiction centres in Imphal and Churachandpur, for example, HIV prevalence has fluctuated between 50% and 70% since 1995. Antenatal clinics for pregnant women in the same cities show HIV prevalence rates rising from below 1% to over 5%. Some of these pregnant women may be injecting drug users themselves but, since the overwhelming majority of users are men, it is likely that most of the women are sex partners of male drug users. The extent to which the virus spreads more widely will be determined by the sexual

behaviour of these women—if they have multiple partners, then the conditions for a sexual epidemic exist. It is worth noting that 20% of female sex workers in Manipur reported in behavioural surveillance that they injected drugs—more than 10 times the average in the rest of the country.

Other states in India—notably Maharashtra, Tamil Nadu and Andhra Pradesh—also have long-established HIV epidemics, although these are mainly driven by sex, in particular commercial sex, and not by injecting drug use. Surveillance data suggest that prevention efforts in some of these areas have been less than successful. Although safe sex programmes for sex workers in Mumbai began in the early 1990s, sentinel surveillance has shown no significant drop in HIV prevalence among sex workers. The reasons for such apparent failure (discussed in detail in Chapter 2) may include inappropriate prevention efforts, as well as small, patchy or short-term interventions that do not provide services to a large enough proportion of the population to make a difference. Regardless of the reasons, the consequences of such failure are evident in Figure 3, which shows HIV infections increasing among client populations (represented in the graph by male STI patients).

After several years of prevention failure among those at highest risk, HIV has also begun to rise rapidly among pregnant women. Without services to prevent transmission during pregnancy and birth, this will cause HIV infection in infants to rise, too.

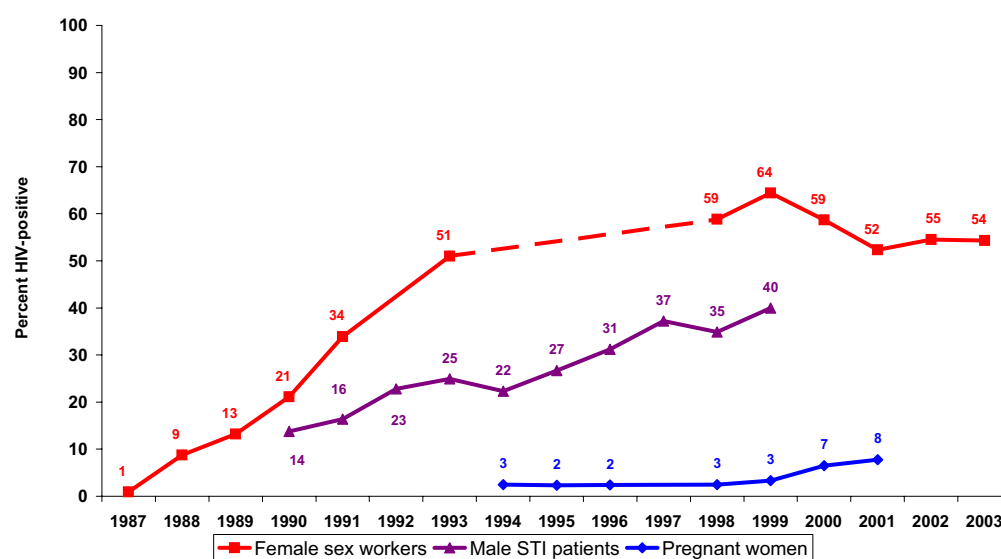


Figure 3: HIV prevalence in female sex workers, male STI patients and pregnant women at sentinel sites in Mumbai, India, 1994-2002

Where prevention services for people at highest risk are inadequate, HIV is eventually passed on to those with no high-risk behaviour

(Source: National surveillance reports, India)

We should point out that the STI patient data do not reflect levels of HIV in the entire male population, or even the whole of the population of clients of sex workers. Men who have adopted safer behaviour, such as consistently using condoms in commercial sex, are less likely to become infected with HIV. In behavioural surveillance, 77% of clients of sex workers in Maharashtra said they used condoms every time they bought sex in the three months prior to being questioned. Because condoms prevent STIs as well as HIV, these men are less likely than other clients to become infected with an STI. This means that they do not show up in the STI clinic population, and they do not get tested for HIV during routine surveillance. The surveillance data among STI patients therefore almost certainly exaggerate HIV levels among clients of sex workers where condom use is relatively high—but they do serve as a warning that stronger and more effective prevention programmes are needed.

Turning the corner: Risk behaviour is falling in some places, and less risk means less HIV

The 38 million men, women and children that WHO/UNAIDS estimate are now living with HIV globally, along with the 2.9 million people who died of AIDS in 2003, remind us that preven-

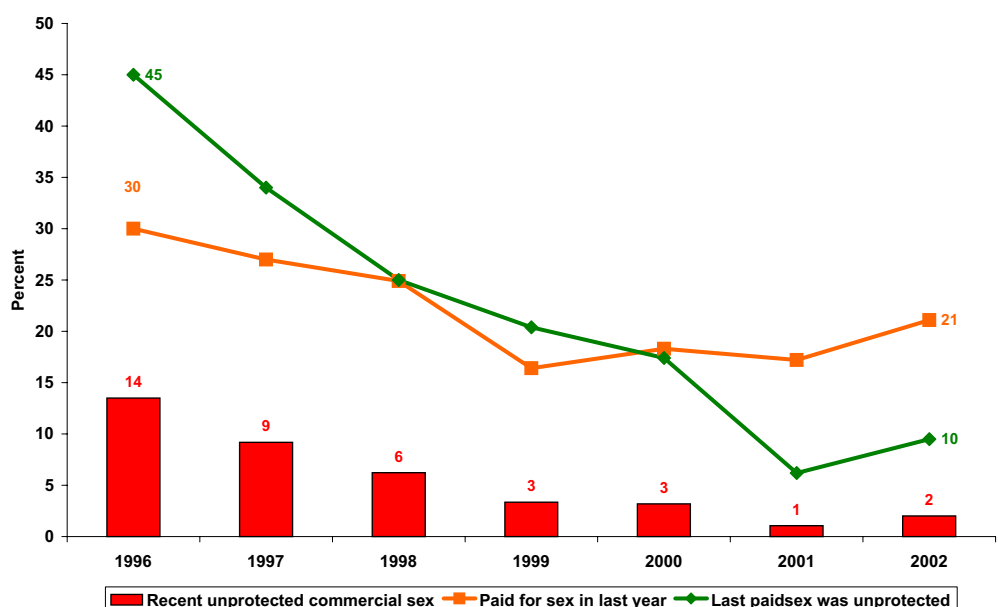
tion efforts have been largely unsuccessful. This is mostly because countries waited until it was too late to begin effective prevention efforts, and then did too little. The soaring lines on the HIV prevalence graphs in so many Asian countries confirm this. But it is not the only story the continent has to tell. HIV prevalence is not a one-way street. It can come down as well as go up, and some of the best examples of prevention success are in Asia.

India, for example, has significant successes to its credit in some areas. The southern state of Tamil Nadu was one of the earliest to be affected by the HIV epidemic. The state government joined with community groups and other development partners to confront the problem, running high-profile public campaigns to discourage risky sexual behaviour and making condoms and STI screening and treatment services readily available for those who needed them. The result has been a significant drop in risky sex. **Figure 4** shows data from behavioural surveillance among truck drivers and their helpers in Tamil Nadu. In 1996, before the prevention campaigns began, 30% of these men reported sex with a female sex worker in the preceding 12 months, and just over half had used a condom the last time they bought sex. That means that a total of 14% of truck drivers reported recent unprotected sex with a sex worker. By 2002, that had fallen to just 2%, partly because fewer men were buying sex and partly because condom use rose

Figure 4: Percent of truck drivers and helpers in Tamil Nadu who reported buying sex in the preceding 12 months, and condom use at last commercial sex, 1996-2002

High-profile prevention efforts have reduced unprotected commercial sex in Tamil Nadu, India

(Source: AIDS Prevention and Control Project 2003)



from 55% to over 90% during six years of prevention programming.

Significant reductions in unprotected commercial sex have also been measured in other Asian countries where high-profile HIV prevention campaigns have focused on increasing condom use and providing other essential prevention services to who need them most.

In **Nepal**, the proportion of transport workers along the main national highway who reported buying sex in the previous year dropped by 25% between 1998 and 2002. More importantly, by 2002, those who reported that they continued to buy sex were more than twice as likely to use condoms. One in three transport workers reported having had unprotected commercial sex in the preceding year when surveillance began in 1998. After four years of prevention efforts among these men, just one in 13 of them reported unprotected commercial sex—a significant drop in a population that had been reached with a large-scale intervention.

Both **Thailand** (which has a population of 64 million, similar to that of Tamil Nadu) and its much less populous neighbour **Cambodia**, have been rewarded for their efforts with significant falls in HIV prevalence among clients of sex workers, greatly reducing the chance that sex workers themselves, their clients, and their clients' wives, other girlfriends and children would become infected with HIV.

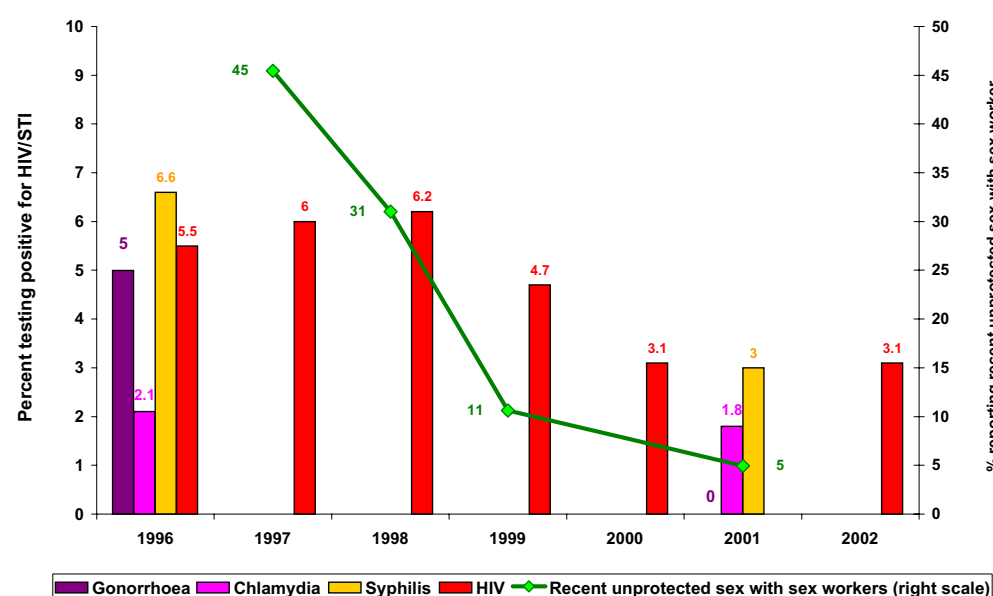
Figure 5 shows data from the national surveillance system in Cambodia, where police-

Significant reductions in unprotected commercial sex have also been measured in other Asian countries where high-profile HIV prevention campaigns have focused on increasing condom use and providing other essential prevention services to who need them most.

men, many of whom are frequent clients of sex workers, have for several years been included as a proxy for people with high-risk behaviour. Just as in Tamil Nadu, widespread prevention efforts, including vigorous condom promotion, have led to a fall in the proportion of men visiting sex workers in the preceding year, as well as a dramatic rise in condom use in all commercial sex over the preceding three months. The combined effect of these two safer behaviours is shown by the green line in Figure 5—nearly half of all policemen reported recent unprotected commercial sex in 1996, but by 2001 that proportion had fallen to just 5%.¹

The safer behaviours are confirmed by a steep decline in STIs. Syphilis rates among police in Cambodia halved between 1996 and 2001; by 2001 there were no syphilis infections at titres of over 1:8, a level which usually indicates recent infection. The fall in gonorrhoea rates was just as dramatic. While one policeman in 20 was infected with gonorrhoea in 1996, no positive cases were found five years later. Only chlamydia rates, which can be sustained in populations with relatively low levels of sexual risk, showed little change.

HIV prevalence also fell substantially in this sentinel population, halving from a high of



¹ This combined indicator multiplies the proportion of men who bought sex in the last year by the proportion of clients who did not always use condoms in the past three months. Because of the different time reference periods, this indicator may not reflect absolute levels of unprotected sex with perfect precision, but it is useful for showing trends over time.

Figure 5: Percent of police reporting recent unprotected commercial sex (right scale), and percent infected with HIV and other STIs (all left scale) in Cambodia, 1996-2002

Lower risk translates directly into fewer STIs, and later into lower HIV levels

(Source: Cambodia National Center for HIV/AIDS Dermatology and STDs 2003; Cambodia National Center for HIV/AIDS Dermatology and STDs 2004)

6.2% in 1998 to 3.1% in 2001. The STI data suggest that risk behaviour (and therefore exposure to new HIV infections) in this population fell over time, contributing to lower prevalence at the end of the period. But it should be noted that because HIV is incurable, people may test positive for the virus many years after they stop engaging in risky behaviour. A sharp fall in the proportion of people testing positive for HIV may reflect the fact that many of those infected have died or are no longer being included in surveillance samples (they lost their jobs or were moved to a city not included in the surveillance system, for example). Similarly, if sex workers are very mobile or drop out of the profession after only a few years, prevalence rates in sentinel surveillance may appear to be stable or falling, even though the number of people infected may be rising.

In order to confirm that the trend towards safer behaviour has really led to fewer HIV infections, one ideally would measure new infections only. Until recently, this has rarely been possible. However, new testing technologies are beginning to allow researchers to estimate what proportion of infections were recently acquired, and thus to estimate trends in new infections (or incidence).²

The trends shown in **Figure 6** make for encouraging news. Cambodia deserves to be supported to maintain prevention efforts that are centred on reducing the risk of HIV transmission in commercial sex, while expanding its efforts to include other risk behaviours such as

sex between men and drug injection.

Learning from our neighbours: Preventing an epidemic in areas where HIV is still rare

Not every country in Asia has seen the rises in HIV infection rates described so far. Several countries still record very low rates of HIV infection, even in populations whose behaviours greatly increase the likelihood of exposure to HIV. **Table 1** shows HIV prevalence among various behavioural groups in countries that maintain or are setting up active surveillance systems.

Long periods of low HIV prevalence, even in groups at high risk of exposure, do not mean there is no cause for concern. Where risky behaviours exist, HIV will eventually follow.

As the recent histories of **Indonesia**, **Vietnam** and parts of **China** have taught us, long years of low HIV prevalence, even in groups at high risk of exposure, do *not* mean there is no cause for concern. Where risky behaviours exist, HIV will eventually follow.

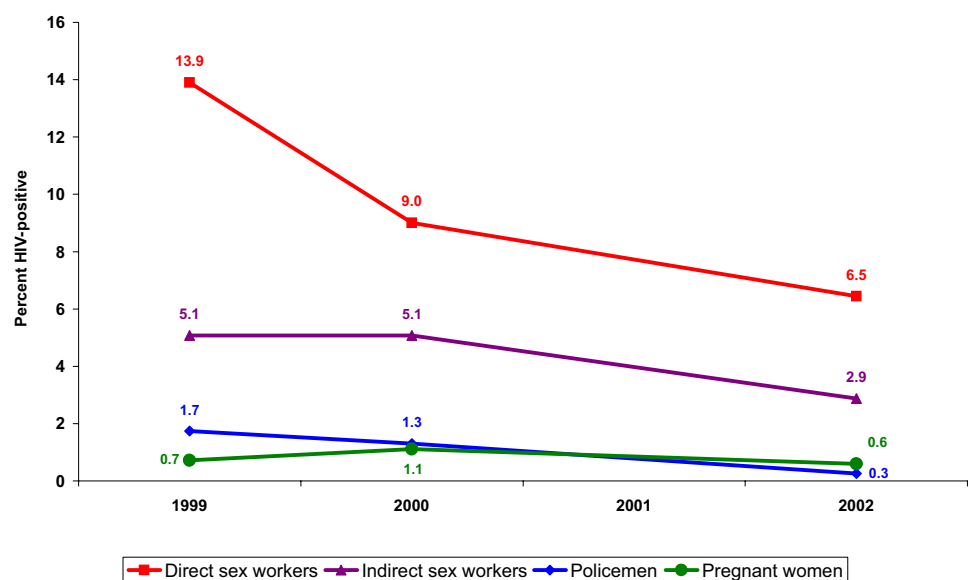
Given the current situation in some countries, it is possible that the levels of risk behaviour are not high enough to build the critical mass of infections needed to get an HIV epidemic going. But societies change, and tiny socioeconomic shifts can sometimes trigger large epidemic changes. Factors such as an increased availability of injectable drugs (which, in some

² These technologies remain in the experimental stages; they have not yet been widely validated or used in Asia.

Figure 6: Incident HIV infections measured using the BED-Capture EIA technology, Cambodia 1999-2002

New infections really are falling in Cambodia, in high- and low-risk behaviour groups

(Source: Vonthanak and Parekh 2004)



places, has accompanied the end of autocratic rule), a sudden influx of migrant workers, peace-keepers or other people returning from high-prevalence areas, or economic growth that increases consumerism and disposable income and increases the numbers of willing buyers and sellers of sex—all these developments can alter the dynamics of an HIV epidemic.

As shown in Chapter 7, some of the low-prevalence countries in **Table 1** are taking advantage of the opportunities they still have to prevent major HIV epidemics, by providing services that reduce risk behaviours before the virus acquires a foothold. Other countries should follow their example while the opportunity still exists.

The other epidemic: indications of widespread infections throughout New Guinea

In epidemiological terms, the island of New Guinea, which contains the nation of **Papua New Guinea** and **Indonesia's** two eastern-most provinces, stands apart from other areas covered in this report. Because surveillance of HIV infection and the behaviours that spread it is still in its infancy in New Guinea, understanding of the island's epidemic is poor. However, there is every indication that the island is facing an epidemic which resembles those seen in parts of sub-Saharan Africa.

Sentinel surveillance in New Guinea has shown considerable variation across the mountainous island, many parts of which are inaccessible. Overall, the picture is very troubling. In several parts of Indonesian Papua, HIV prevalence among groups at high risk is far greater

than anywhere else in Indonesia. Among sex workers in Sorong, for example, HIV prevalence had risen to 17% by 2003, over five times the national average. Trends in the general population are particularly worrisome. In Indonesia's westernmost province of Papua, a recent sero-survey among adults in five villages found that close to 1% were HIV-positive. This is over 10 times the estimated national prevalence for Indonesia. HIV was also more common among blood donors in Papua than among blood donors in other parts of Indonesia. Pregnant women, who are generally taken to represent the sexually active population at relatively low risk for HIV infection, are more likely to test HIV-positive in Papua New Guinea than in most Asian countries—in late 2003, 1.4% of pregnant women at antenatal clinics in the capital Port Moresby were HIV-positive, while in Lae, in the central highlands, 2.5% of pregnant women were HIV infected.

There are some biological reasons why HIV may spread more quickly in New Guinea than in neighbouring areas. It is by now well established that male circumcision protects against HIV infection, most likely by removing cells in the foreskin which provide an easy conduit for the virus into a man's body. For areas where data are available, it appears that most men in New Guinea are not circumcised, while in neighbouring countries such as Indonesia male circumcision is the norm. But a bigger part of the explanation for the difference in the developing epidemics probably lies in differences in sexual behaviour. Behavioural surveillance is not well-developed in any part of New Guinea. However, recent household surveys of young men and women in Jayapura

Table 1: HIV infection rates in populations at risk in various Asian countries

	Bangladesh, 2002	East Timor, 2003	Mongolia, 2003	PDR Lao, 2001	Pakistan, 2003	Philippines, 2003	Sri Lanka, 2003
Female sex workers/ service women	0 – 0.7%	3%	0	0 – 1.1%	0	<1%	0–0.2%
Men who have sex with men	0 – 0.2%	0.9%	-	-		0	
High-risk men*	0	0	0	0		0	0
STI clinic clients	0	-	0	-			0 – 1%
Drug injectors	0 – 4%	-	-	-	0	0	-

* Bangladesh: Truck drivers, launch workers, boyfriends of sex workers. East Timor: Taxi drivers and soldiers. Laos: Truck drivers. Philippines: Military recruits. Sri Lanka: Transport workers and male military

(Sources: Lao People's Democratic Republic National Committee for the Control of AIDS Bureau 2001; Philippines Department of Health 2002 and national surveillance reports; Bangladesh National AIDS/STD programme 2003; Pisani and Dili STI survey team 2004a)

and Merauke, on the Indonesian side of the border, offer some clues about the spread of HIV. While young people in Papua report far less drug use than those in other parts of Indonesia, they report far more sexual activity. This is true of both young women and young men. In a recent household survey, unmarried women aged 15-24 in Papua were almost 10 times more likely to report having had sex compared with women elsewhere in Indonesia, and young men were five times more likely to report being sexually active. (Indonesia Central Bureau of Statistics and MACRO International 2004; Indonesia Ministry of Health and Central Bureau of Statistics 2004)

A similar survey, undertaken by the same institution, used the same sampling methods but conducted the interviews outside the household and away from parents. It found that young people in Papua were even more likely to report being sexually active. The survey was able to distinguish between the behaviours of ethnic Papuans and those whose families were originally from other parts of Indonesia (such migrants make up one-third of the population of the region, according to census data). Some 45% of unmarried Papuan men aged 15-24 and 41% of Papuan women reported being sexually active. Non-Papuan men reported similar rates of sexual activity, at 37%. But the difference among women was significant—just one-quarter of the non-Papuan women in the Papua survey reported ever having had sex. The contrast with reported behaviour in the rest of Indonesia was striking for both sexes: just 5% of unmarried men and 0.9% of unmarried women questioned in households elsewhere in Indonesia reported ever having had sex. (sources as above).

Even more worrying is the fact that 29% of sexually active young Papuan women reported having sex with an older man (10 or more years their senior). Because older men are more likely to be infected with HIV, this sort of age mixing is an important conduit for the virus from older to younger generations.

It is worrying that 29% of sexually active young Papuan women reported having sex with a man 10 or more years older. Because older men are more likely to be infected with HIV, such age mixing is an important conduit for HIV from older to younger generations.

Adult men in the groups included in behavioural surveillance were also far more

likely to report casual sex partners in Papua than elsewhere in Indonesia. This despite the fact that the surveyed Papuan populations of port workers and motorbike taxi drivers were far less mobile than the truck drivers and seafarers surveyed in other provinces.

These data are far from conclusive, but they suggest that patterns of sexual networking in New Guinea may be more active and diffuse in the general population than in most of the Asian countries included in this report. In much of Asia, extramarital sex is more likely to be commercial. This puts the regular partners of female sex workers and their clients at risk of HIV infection, but it limits the pathways through which the virus can spread more widely in the population of men and women who have no contact with sex workers or their clients. Improved surveillance is needed to confirm the indications that women and men in New Guinea are more likely to have multiple non-commercial partners than is common in Asia. If this is indeed the case, the risk of an epidemic similar to those seen in parts of sub-Saharan Africa cannot be ruled out in the Pacific region. Existing data, though limited, are enough to demonstrate that urgent action is needed to improve HIV prevention and care services throughout the population in New Guinea.

Attention should also be paid to other Pacific islands, where data is extremely limited. HIV infection levels are apparently still very low in other islands in Oceania, but sexually transmitted infections are high. In Vanuatu, chlamydial infection and trichomoniasis are chronically high among pregnant women (28% and 22% respectively, according to the most recent studies). Some 6% of pregnant women are infected with gonorrhoea, and 13% with syphilis. About 40% of the women had more than one sexually-transmitted infection in the most recent study. Similarly, in Samoa, chlamydial infection and trichomoniasis are extremely common among pregnant women, at 31% and 21% respectively. Overall, 43% of pregnant women had at least one STI. These rates of STI infections among pregnant women approach those recorded among sex workers in Asia (see page 39). They indicate the potential for a widely diffuse HIV epidemic in the small populations of Oceania, and should be a cause for grave concern in the countries concerned.

Peering into the shadows—2nd generation surveillance in Asia

HIV infects in silence, takes years to reveal its presence and then, in the absence of treatment, it kills relatively quickly. In low-prevalence countries (which includes most of Asia), HIV is still largely hidden. The epidemic claims lives, but the stigma so often associated with HIV keeps the real cause of death secret. The only way to pierce this cloak of invisibility—and to understand how HIV is spreading and where it might move next—is by using surveillance systems to detect HIV and the pathways along which it spreads. In the low-prevalence countries of Asia, this requires both epidemiological and behavioural surveillance to locate where HIV currently lurks and to anticipate where it will be a few years from now.

To their credit, most Asian countries have now established 2nd generation surveillance systems that incorporate both epidemiological and behavioural surveillance components. These systems are collecting vital information about the epidemic, and have provided the foundations for this report. In general, the HIV surveillance systems in the region compare well with those in other parts of the world, but there is some room for improvement. (Walker, Garcia-Calleja et al 2001)

Surveillance systems wanted!

Not all Asian countries currently have surveillance systems. At present **Japan**, **Malaysia** and **Taiwan** depend largely on case reports and ad hoc studies, rather than explicit sentinel surveillance in at-risk populations. Case reports tell us more about who gets tested for HIV than about how HIV is distributed throughout the population. In Malaysia, case reports are heavily biased toward those with injecting risk because of the extensive testing of detained IDUs. Given the significant rates of HIV detected among Malaysian sex workers the last time surveillance was conducted, in 1996 (6.3% in Kuala Lumpur and 10.2% in Selangor), it is far from clear that case reporting provides a clear picture of the current state of the Malaysian epidemic.

It's so big! Limitations in geographic coverage.

In a number of countries, especially the larger countries of the region, geographic coverage of the surveillance system is currently inadequate. For example, **India**, a country of one billion people, has 384 national surveillance sites. But only two of the sites focus on sex workers, whose jobs put them at high risk for contracting HIV and passing it on to clients. Neighbouring **Myanmar** also has only two sex worker surveillance sites. Given the key role played by commercial sex in Asian epidemics, more such sites are needed in both countries. **China** has only 158 national surveillance sites across all at-risk populations. Local and provincial governments in China, India and **Indonesia** conduct surveillance in additional sites, but the data are often not reported up to central level, which limits the utility of the locally collected data for assessing the national situation. Improved linkages between local and national surveillance staff need to be fostered.

Out of sight, out of mind. No easy access means no data. And no data means "no problem"!

In many places, access to important at-risk populations remains a problem. Nowhere is this more apparent than with men who have sex with men. Only a handful of surveillance systems in the region include MSM—**Bangladesh**, India, Indonesia and the **Philippines**. But recent ad hoc surveys around the region have been finding extremely high levels of HIV infection: 16.1% in men attending gay saunas in Taiwan, 14.4% at a cruising area in **Cambodia**, 17% in a community sample in **Thailand**, and 2.5% to 22% in samples of different populations engaging in male-male sex in Indonesia. (Chen, Chung et al 2001a; Girault, Saidel et al 2004; van Griensven, Thanprasertsuk et al 2004; Pisani, Girault et al 2004b) In many places

similar problems exist in reaching female sex workers or injecting drug users for surveillance. And if access for surveillance is not possible, it's usually also the case that access for prevention is extremely limited.

So many men, so little data!

Men play a key role in the epidemic—men who buy sex from women or from other men are by far the largest at-risk population around the region. We have an increasing amount of behavioural data on men in occupations where clients of sex workers are thought to be concentrated, but very few biological data on these men. And there is even less data of any type on males in general. In many countries, no large-scale surveys have measured the percentages of adult men visiting sex workers. Sometimes the resistance to collecting these essential data stems from the notion that “it is inappropriate to ask those kinds of questions here”. But the reality remains that commercial sex is an integral part of sexual cultures around Asia. Biological data is not available, either. While HIV prevalence among pregnant women is often available as a proxy for HIV prevalence in general population females, no equivalent source of information is available for males, except where the sex of blood donors is known and positive samples are retested rather than immediately discarded. Blood donor data may also be misleading because some countries turn away potential donors if they report any risky behaviour. Most often, male HIV surveillance populations are chosen for higher risk, making them impossible to generalise to the larger male population. Overall, it is important to maintain the focus of Asian surveillance systems on those most at risk. It would, however, be useful to have a minimal amount of information related to “low-risk” male groups in settings where HIV prevalence is already high among those with known risk behaviours.

The centre cannot hold: maintaining consistency in a decentralised world.

In several countries, surveillance systems are being decentralised. In the Philippines, this is leading to difficulties in sustaining surveillance because decisions on funding HIV surveillance are being made at the local level, where the usefulness of the data is less apparent. In Indonesia, insufficient training and guidance is being given to the provinces as they take over responsibility for surveillance from the national system. And in several countries serious problems exist with the implementation of surveillance protocols at the provincial level—for example, recruitment of prisoners when sufficient IDUs could not be found to “make quota”. These kinds of issues might affect the comparability of data from round to round, an essential requirement for useful surveillance. National programmes need to take a stronger role in defining implementable protocols and ensuring that surveillance done at the local level is of adequate quality.

Don't confuse me with the facts, I know it's working! All too often, surveillance data is not being linked to programmes. In many countries and regions of Asia, condom use by at-risk individuals has stayed very low for an extended period, as the surveillance data reported elsewhere in this paper show. This suggests that the programmes currently in the field have insufficient coverage or intensity to make an impact, or they are simply not working. In either case, there should be systems in place that encourage programme managers to make full use of the data, and data managers to present information in ways that will inspire action at the programme level. Surveillance that does not lead to effective action is not working.

Chapter 2

Chapter highlights

- Commercial sex remains the most common risk behaviour in Asia.
 - Countries with high levels of condom use in commercial sex have typically been those that openly and actively promote condom use among men as a means of reducing the risk of HIV and STIs.
 - There is evidence that active HIV prevention campaigns aimed largely at men have changed social norms in some countries, cutting the proportion of men who visit brothels or red-light areas.
 - Curable sexually transmitted infections (STIs), which increase HIV transmission, are very common among sex workers and their clients in most Asian countries. Quality screening and treatment services for those most in need of them are rare.
- Needle-sharing between infected and uninfected people is one of the most efficient ways of spreading HIV. It is no surprise, then, that HIV infection is higher among drug injectors than in any other group.
 - Even where the numbers of people injecting drugs are relatively small, their contribution to the overall HIV epidemic in a country can be considerable.
 - In high-prevalence settings, drug injectors have to adopt very high levels of safe injecting practices right from the start if they are to avoid infection.
 - There is evidence from several Asian countries that promoting easy, safe and consistent access to sterile injecting equipment for a high proportion of all injectors cuts needle sharing and the risk of HIV infection.
 - Helping people to stop injecting drugs is a long-term commitment. The “ideal outcome” will not be reached immediately, so it is important to use other strategies that can reduce the likelihood that a person will have been infected with HIV by the time he or she stops injecting drugs.
- After years of programming neglect, HIV has reached high levels among transgender sex workers and men who have sex with other men in some Asian countries.
 - Appropriate sexual health services for men who have sex with men should be an important component of HIV prevention services for men in the Asian region, but they are currently badly overlooked.
 - When sex workers are discussed in Asia, people usually think of women who sell sex to men. But Asian men also buy sex from male and from transgender sex workers.



Chapter 2: Driving the epidemic: behaviours that spread HIV in Asia

Paying for it: commercial sex between men and women remains the most common risk factor for HIV infection in Asia

Commercial sex between men and women is without doubt one of the major drivers of the HIV epidemic in many countries of Asia—simply because a larger proportion of the population buys or sells sex than engages in the other behaviours that carry an elevated risk of HIV infection (drug injection and anal sex with multiple partners).

Commercial sex between men and women is without doubt one of the major drivers of the HIV epidemic in many countries of Asia

People who buy or sell sex are undoubtedly more likely to be exposed to HIV and other sexual infections than those who do not. In a study of truck drivers attending an STI clinic in southern **India**, for example, HIV prevalence was 3% among those who had not had commercial sex, while among those who reported a history of sex with sex workers, prevalence was over seven times higher at 22%. (Manjunath, Thappa et al 2002) In **China**, men who reported recent unprotected sex with a sex worker were over eight times more likely to be infected with chlamydia than those who did not.

As discussed in Chapter 1, some countries have recorded low HIV prevalence among sex workers for over a decade, while others are only now witnessing a sharp rise in infection rates. A third group of countries appears to have steadied at very high levels of prevalence, while in a fourth, earlier sharp rises in HIV prevalence among sex workers and their clients are now being reversed. The reason for these differences will be explored in detail in Chapter 6. Here, we concentrate on describing some of the behavioural contexts that account for the differences.

The knowledge battle: it's not over yet

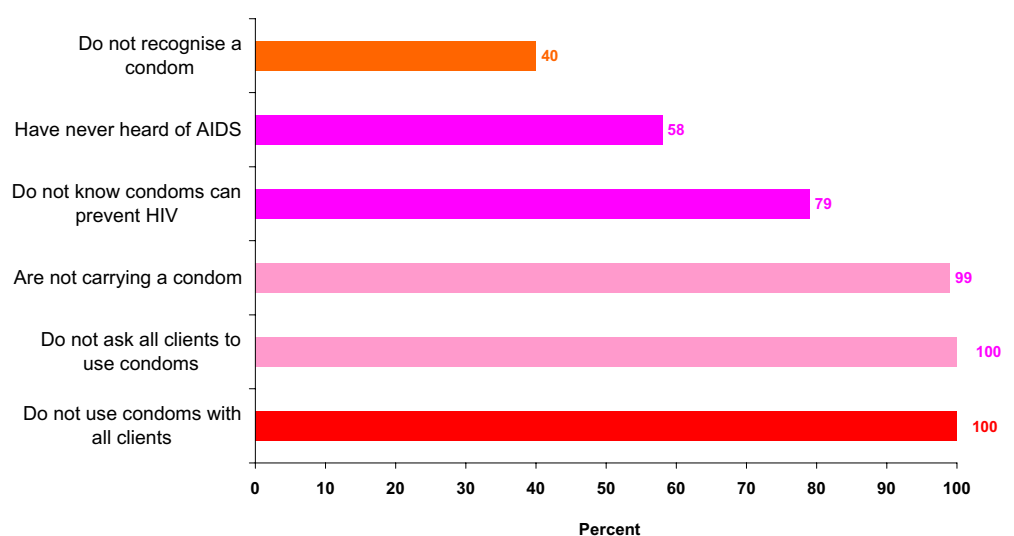
Female sex workers have probably been exposed to more HIV prevention efforts than any other population in Asia. One might therefore assume that the basic building blocks of effective prevention—knowledge of how HIV can be prevented, together with the means and ability to action that knowledge—would be present almost everywhere. This is not the case:—an indictment of our collective prevention efforts.

Overall in **India**, 85% of brothel-based sex workers in 2001 knew that condoms prevent HIV. But over one-quarter of non-brothel-based sex workers did not know this and, in some states, such as Haryana, fewer than half of all sex workers were equipped with this basic fact.

Figure 7: Knowledge and behaviours related to HIV and condoms among female sex workers in Dili, East Timor, 2003

After 20 years, even the basics are still missing in some places

(Source: Pisani and Dili STI survey team 2004a)



Just as worrying, high proportions of Indian sex workers thought they could tell someone had HIV just by looking—nationally, 42% believed they could visually screen clients to choose the safe ones. In Yunnan, **China**, only one-third of sex workers knew that they could not tell someone's HIV status from his or her physical appearance.

Survey data are not designed to explore people's deeper understandings of HIV transmission or prevention, but inconsistent answers on survey questions are usually a good indication of imperfect understanding. In behavioural surveillance in China's Sichuan province, for example, 94% of sex workers knew that sex with a condom is safer than sex without, yet under two-thirds believed that condoms offer good protection from HIV, and the picture was very similar among high-risk men.

In a few places where virtually no HIV prevention services have been made available, even to those at high risk, basic knowledge is dismal. **East Timor** is an example. Looking at **Figure 7**, it is hard to know whether to be more upset because nearly six out of 10 sex workers have never heard of AIDS, or because four out of 10 do not even recognize a condom when shown one. But given these basic statistics, it is no surprise to find that zero out of 10 always use condoms with their clients.

Nor is it heartening to discover that the sex workers' clients confirmed this information.

Only two out of 210 surveyed clients said they always used condoms when buying sex. East Timor is the world's newest independent nation, recovering from a brutal conflict with Indonesia and facing massive challenges in all areas of development. It is perhaps understandable, then, that it has not prioritised politically-sensitive efforts to make commercial sex safer.

Other countries have fewer excuses for low rates of condom use. In a study of sex workers in the **Iranian** city of Kermanshah, 92% of sex workers knew about condoms, but only 50% had ever used one. (Iran National AIDS Program. Ministry of Health 2004) In the **Indonesian** capital Jakarta, condom use in commercial sex barely budged over the seven years it was measured from 1996 to 2002. One in two sex workers in massage parlours and discotheques reported using a condom at last sex in 2002, it is true, but fewer than one in five used them consistently. And among sex workers in brothel areas (a group that ought to be much easier to reach with interventions), rates of condom use with all clients in the previous week stayed stubbornly at just 4%. This situation was the mirror image of that found in **the Philippines** in 2003. In Angeles City, over one-half of registered sex workers said they used condoms with all clients last week, but just 6% of "guest relations officers" (hostesses in karaoke bars and night clubs) consistently used condoms. Questions directed

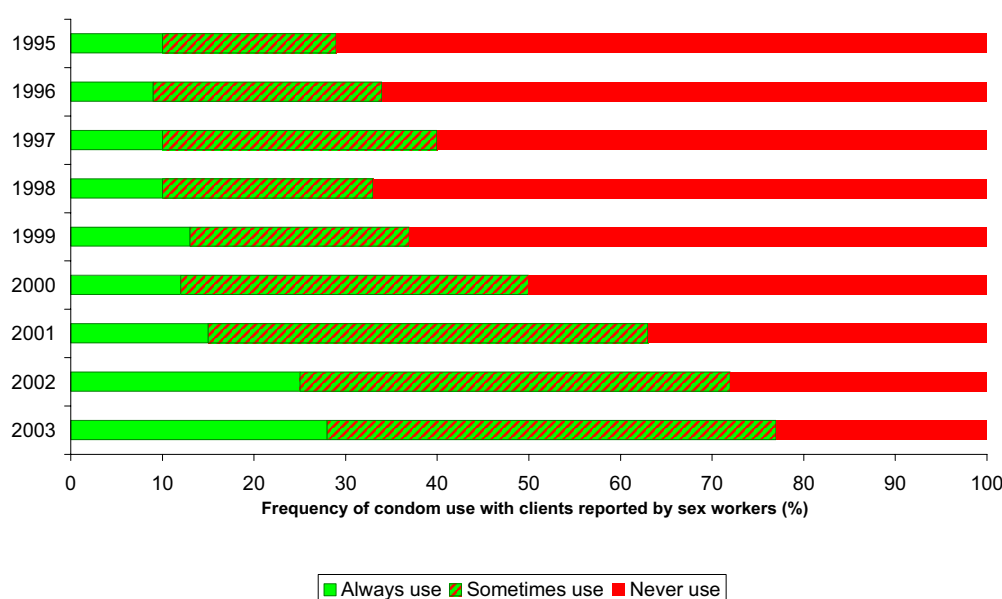


Figure 8: Frequency of condom use with recent clients reported by female sex workers in Guangxi, China, 1995-2003

Making progress: More sex workers use condoms more of the time in China

(Source: China Center for Disease Control)

at clients reveal gaps, too. In studies among **Pakistan** truck drivers, one in three had never heard of condoms, and 19 out of 20 who bought sex from women did not use condoms. (Agha 2002; Greenstar Social Marketing 2002)

Happily, these extremely low levels of condom use in commercial sex are no longer the norm in Asia. From China to Vietnam, from Nepal to Laos, condom use in commercial sex has risen to very high levels in recent years.

Figure 8 shows changes in condom use reported by sex workers in Guangxi, **China**, in 1995-2003. Consistent condom use with all clients is still very far from the norm, but in 2003, for the first time, the number of sex workers who reported always using condoms outstripped the number who said they never used them. The data shown here are mirrored by data from other parts of China. In Sichuan, 81% of sex workers in surveillance reported using a condom with their last client in 2002, although only around half that proportion used condoms with all their clients over the last month. Typically, men reported lower rates of condom use than sex workers did, with 58% of truck drivers in Sichuan saying they used a condom the last time they bought sex, and one-third reporting that they used condoms with all sex workers.

These disparities raise a question that tends to accompany high rates of reported condom

use: how do we know that people are telling the truth? One way of finding out is to compare people's reports with biological markers of risk. And in some areas, the figures just do not add up. Close to three-quarters of sex workers in the **Indian** state of Maharashtra reported always using condoms with their clients, and yet biological surveillance shows HIV sticking firmly above 50% in this population. This is not impossible, but it does suggest that condom use may be over-reported in this population. In other areas, biological data tend to confirm self-reported risk. In a study among truck drivers in southern India, for example, none of those who reported that they always used condoms in commercial sex were infected with HIV, compared with 18% of those who used condoms occasionally and 90% of the small number who said they never used condoms. (Manjunath, Thappa et al 2002) These kinds of associations are only possible in special studies, since HIV surveillance in Asia is normally anonymous and is not linked to behavioural surveillance.

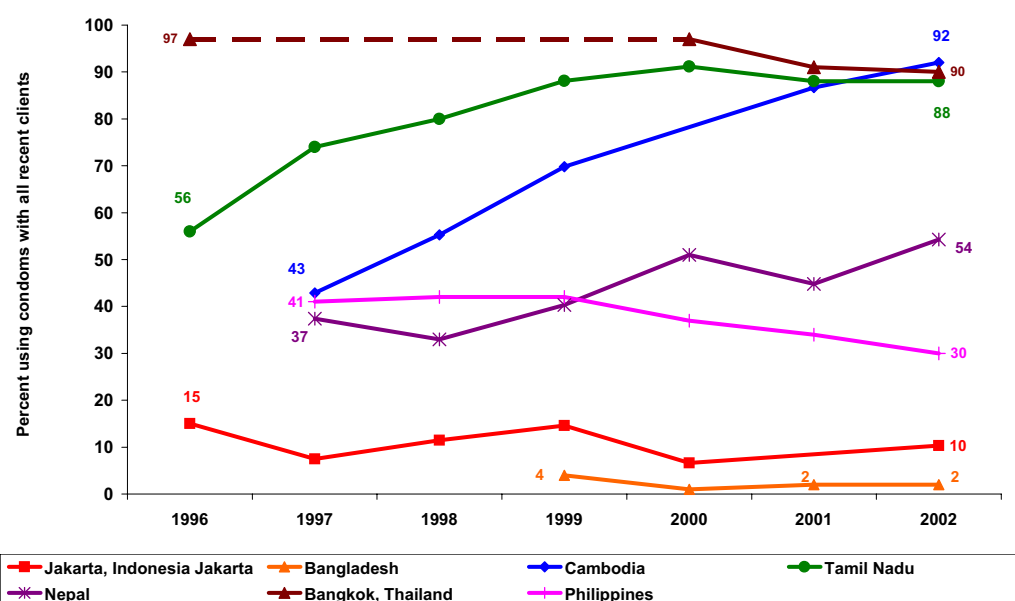
One area that has reported steep rises in condom use is the Indian state of Tamil Nadu. There, the state has added "mystery client" surveys to their surveillance methods in order to help verify sex workers' reports of high condom use. In 2002, some 88% of sex workers reported that they used a condom with their

Figure 9: Percent of brothel-based sex workers reporting consistent condom use with recent clients, various countries, 1996 – 2002

While some countries are managing to increase condom use, others are not

(Source: Behavioural surveillance survey reports. See Appendix 2)

Note that time reference periods for consistent condom use vary between countries. Tamil Nadu data refers to condom use with most recent client. Bangkok data refers to condom use with all clients on the most recent working day



last client. Surveillance workers posing as clients negotiated buying sex from sex workers, and found that close to 80% of sex workers insisted on condom use during negotiations and just 22% did not. When the clients insisted on sex without a condom, 13% of the sex workers turned them away, while 68% continued to negotiate, demanding condom use. Just one in five eventually gave in to sex without a condom. While it is probable that people who are bombarded with messages urging condom use will somewhat overstate that use, these high levels of verified negotiations confirm that condom use has indeed become a new norm in this population.

Winners and losers: what explains the differences in condom use?

It is clear that condom use in commercial sex varies widely across Asia, and it cannot be taken for granted that all countries will follow the same course.

Figure 9 summarises trends in condom use reported by sex workers over time for those countries that have collected these data over several years. What explains such differing trends in condom use?

In a few places, sex workers and clients say they do not use condoms because they are simply not available (**East Timor** and the

Philippines) or affordable (**Iran**). Obviously, people cannot use condoms if they can not get hold of them when they need them. A number of countries have done very well at increasing access to condoms, but access is still highly uneven. In **India**, for example, 40% of street-based sex workers who did not use condoms said it was because condoms were not available, compared with 9% of sex workers in brothels. In **Indonesia**, where surveillance staff independently verified the availability of condoms at the place where they interviewed sex workers and clients, there was a clear relationship between the easy availability of condoms and the likelihood that they would be used, as **Figure 10** shows. This was true both for direct sex workers (women in brothels and on the streets who sell sex directly to clients) and for indirect sex workers (women who have other jobs, such as giving massages or bartending, but who may also sell sex to clients).

Of course, **Figure 10** begs other questions. What about the 40% of sex workers who did *not* use condoms that were easily available? Why did they not use them? The answers are predictable, and indeed are echoed all around the region. Yet their implications for HIV prevention programmes are often ignored.

The majority of the women who did not use condoms with their last client in places where condoms were easily available said it was

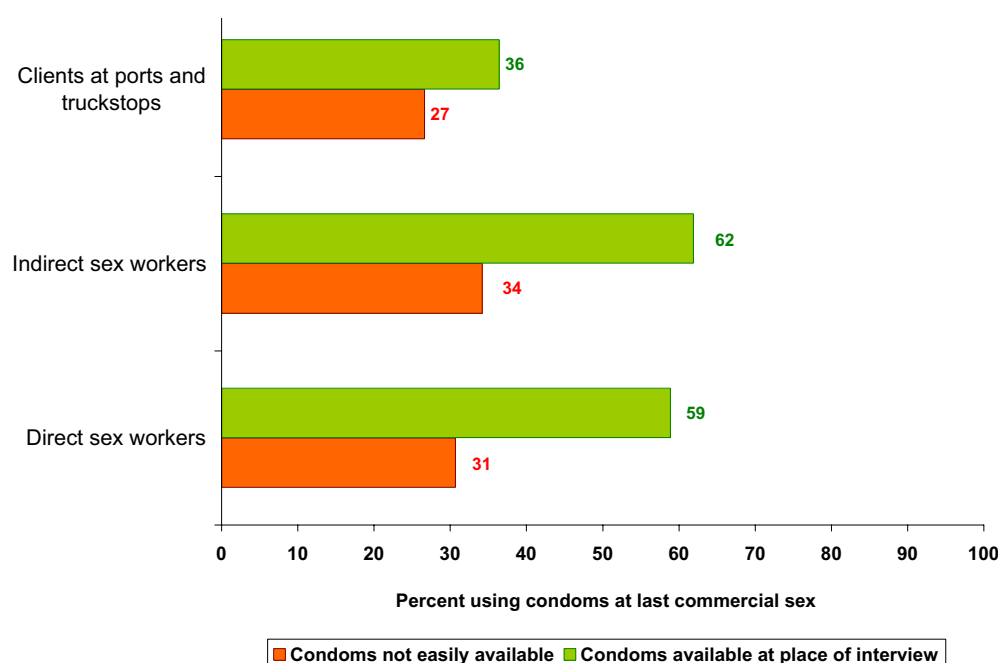


Figure 10: Percent of sex workers and clients reporting condom use at last commercial sex, by availability of condoms at place of interview, Indonesia, 13 provinces, 2002/2003

The easier condoms are to get, the more likely people are to use them

(Source: Indonesia Ministry of Health and Central Bureau of Statistics 2004)

because their clients refused to use them. In Sichuan, **China**, 62% of sex workers and 71% of their clients gave that reason. The rate was even higher in India's brothels (87%). In **Hong Kong**, nine out of 10 sex workers who did not use condoms said it was because their clients refused to do so.

The majority of the women who do not use condoms with their last client in places where condoms are easily available say it is because their clients refuse to use them.

Increasing use of condoms does have a measurable impact on STIs in sex work populations that are relatively stable. **Figure 11** shows data from a relatively rare study in which the same sex workers were seen every two months over an eight-month period. Even in this relatively short time, the prevention services provided helped women to increase consistent condom use dramatically, and the fall in new infections with curable STIs was very steep.

It should be noted that this study measured changes in the behaviour of those who returned for repeat visits (84% of nearly 1,000 women came back for the first visit but just over half returned for the second visit). Herein lies the challenge for prevention programmes. Services that rely on intensive, repeated contact with the same individuals will probably make a difference for those individuals. But such services are usually very resource-intensive, and they

do not work well where the turnover among sex workers is very high, because many women would have moved on before receiving the full benefit of the services.

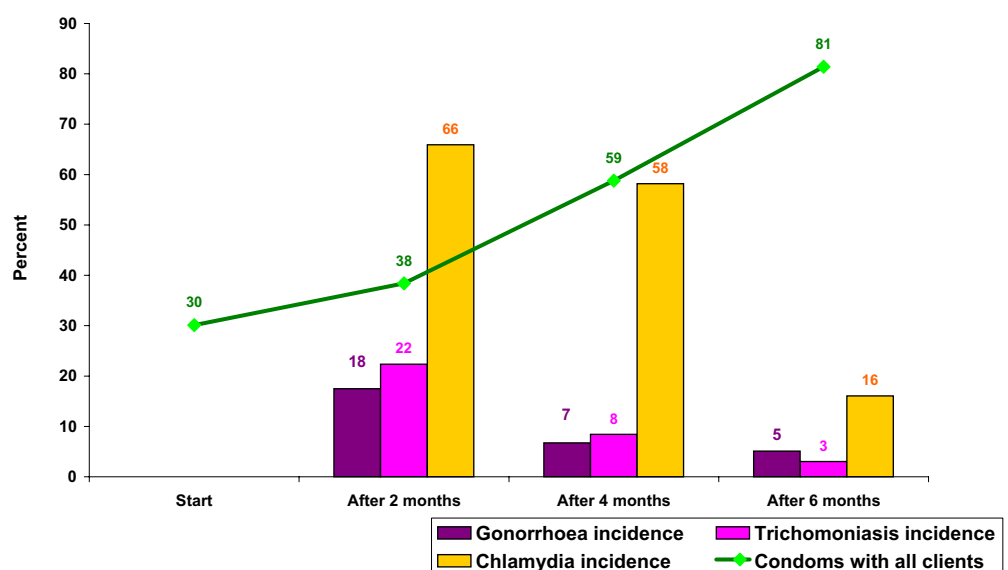
HIV prevention programmes have gone a long way to increasing sex workers' abilities to negotiate condom use in many settings. But the realities of anatomy dictate that the ultimate decision-makers about condom use are usually the men that must wear them. Countries that have focused most of their prevention efforts strictly on female sex workers (rather than including clients and the broader context in which sex takes place) are among the least successful in reducing unprotected commercial sex (see Figure 9).

Countries and regions that have taken a wider approach (including designing incentives for brothel-owners to protect the health of their staff and to encourage clients to use condoms) are among those that have done better. **Thailand, Cambodia** and the Indian state of West Bengal are examples. And yet, most other countries have been slow to replicate similar structural interventions, which require sensitive negotiations between public health and law enforcement authorities. Governments often prefer to pass the buck for HIV prevention in commercial sex settings to NGOs whose comparative advantage lies in small, community-level outreach efforts. One study of brothel managers and other "gatekeepers" in two provinces in China, for

Figure 11: Percent using condoms with all clients, and new STIs per 100 person years of exposure among sex workers in Guangzhou, China, 1998-1999

As condom use rises among sex workers, new sexual infections tend to fall dramatically

(Source: Ma, Dukers et al 2002)



example, showed that few establishments had policies on condom use and even fewer kept condoms on the premises, for fear of arrest. Only 12% of sex workers in those provinces said their establishment had a condom policy.

Structural interventions often require changes to laws or regulations, but even individual-level responses rely on a supportive policy and legislative environment. In some countries in Asia, including **Indonesia** and **Myanmar**, police still arrest women for being in possession of a condom, which they regard as proof of prostitution. The more supportive the environment is for safe behaviour, the less

likely it is that people will be pushed toward behaviours that carry the risk of contracting or passing on a fatal disease.

Target markets: are prevention programmes reaching clients of sex workers?

If HIV prevention programmes that aim to reduce risk in commercial sex are to become more effective, they need to do a better job of reaching clients, who are major decision-makers in commercial sex. But our understanding of who buys sex is still sketchy in many countries.

Money talks - the business of sex

Commercial sex is an industry, reputed to be one of the oldest in the world, and in some areas very lucrative. Recent estimates in **Indonesia** indicate the size of the industry. By combining the estimated number of direct and indirect sex workers with surveillance data on client turnover and price at last sex, public health authorities have estimated that sex workers in the capital city Jakarta alone generate 850 billion rupiah a year (about US\$ 100 million). That tallies just the cost of sex, and does not include income generated in the large entertainment and accommodation industries that support the sex industry. It is roughly 850 times the size of the city's HIV prevention budget.

It is often assumed that all sex workers join the industry under duress, because they lack other employment opportunities. This is doubtless the case in many areas, and is especially likely to be true for very young women from rural areas. But the data suggest that many women in the booming economies of East and South-East Asia choose sex work because it can pay comparatively well.

In qualitative research accompanying behavioural surveillance among sex workers in **China**, for example, researchers reported that young and ill-educated women from rural areas took up sex work because they could not find another job. However, many others were said to have chosen the profession because they “wanted a luxurious life but were unwilling to work hard at low-paying jobs” In general, women can earn more selling sex than in many other un- or semi-skilled jobs. In **Vietnam**, for example, sex workers reported earning up to seven times the average income of the general population in the areas where they worked. (Elmer 2001) In **Nepal**, sex workers reported a weekly income of around 2,200 rupees (US\$ 30). This amounted to an annualised income of over US\$ 1,500 — more than six times the average annual income nationwide. In Banteay Meanchay province in **Cambodia**, direct sex workers earned US\$ 122 a month on average, compared with a national per capita income of just US\$ 25 a month. (Neal, Sopheab et al 2004; World Bank Group 2004) In other words, many people sell sex for the same reasons as people perform other forms of work—to earn a living. This has implications for HIV prevention programmes. For example, because men will pay more for sex without a condom, women who want to maximise their income might find it especially difficult to negotiate condom use. In **India**, one-quarter of street-based sex workers said that if a client refused to use a condom they simply charged more money and went ahead with sex. Sex workers in Yunnan province, China, have reported that they earn on average RMB 247 (about US\$ 30) for sex without a condom, compared with RMB 145 (US\$ 18) if they insist on condom use. Indirect sex workers in **Indonesia** who did not use condoms charged around 20% more on average than those who did use condoms.

Reports, such as this one, often present graphs showing that very high proportions of men buy sex and have non-marital partners—rates of between 40% and 70% are not uncommon. But bear in mind that these groups of men are usually chosen for behavioural surveillance precisely *because* they are more likely than other men to report high-risk behaviour. Usually, they have jobs that provide them with disposable cash and cause them to spend nights away from home in social environments where it is acceptable to frequent bars and red-light districts. Truck drivers, sailors, soldiers and migrant workers are often included in the surveillance that shapes our ideas of sexual norms in Asia. These groups are sometimes referred to by HIV prevention workers as “mobile men with money”.

The few surveys available among men sampled in households or other general population surveys make one thing clear: surveillance groups do not represent all men. Indeed, buying sex from sex workers is very far from being a behavioural norm among men in Asia. In a survey of over 1,200 men in health facilities in the **Philippines**, just 6% of adult men said they had bought sex in the past six months (Wi, Sanie et al 2002), while in **Myanmar** 7% of over 3,500 men said they had paid for sex in the preceding year. In **Hong Kong**, 11% of men in households reported buying sex, while in central **Thailand** the proportion reached 16%. Data from a number of countries suggest

that younger men are more likely to buy sex than older men in most settings, in large part because men are less likely to buy sex after they get married.

Figure 12 makes it very clear that the men included as “high-risk” groups in surveillance systems are more likely to buy sex than men in the general population. Can we then conclude that the majority of clients of sex workers fall into these groups? It appears not. In **India**, exit interviews with clients established that nearly one-third were transport workers, but over one-quarter also worked as businessmen or in the service industry. In a study of close to 500 men in the **Vietnamese** capital Hanoi, businessmen were nearly twice as likely to buy sex, compared with factory workers. More educated men were more than twice as likely to buy sex than high school dropouts, perhaps because a better education led to jobs with more disposable income. But education led to more condom use, too—84% of high school graduates reported using condoms the last time they bought sex, compared to 63% of school dropouts. (Bianc, Thang et al 2004)

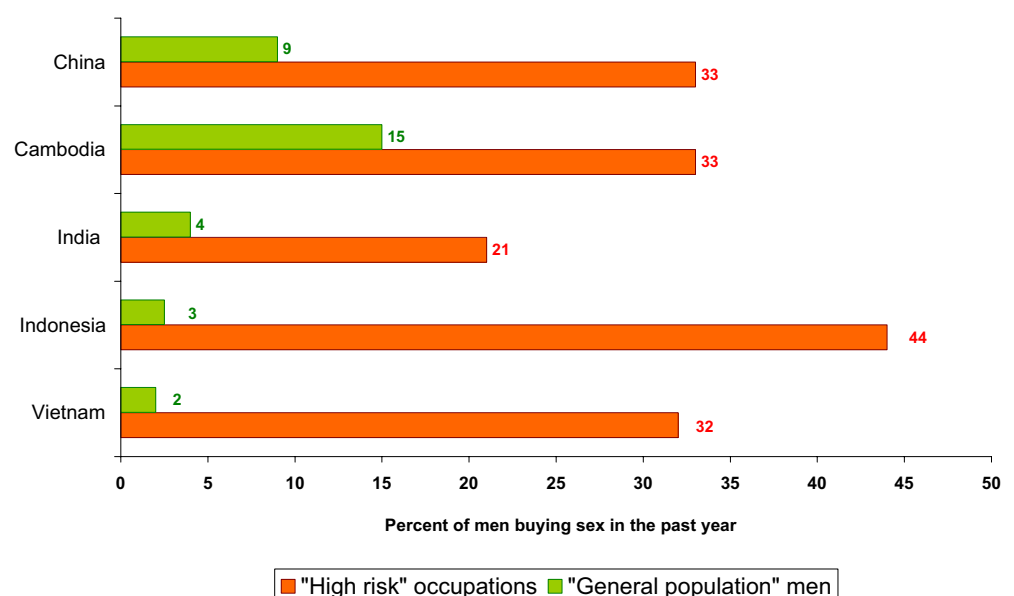
One way to get a better idea of who clients are is to ask sex workers. In southern Vietnam, sex workers reported that at least 37% of their clients were businessmen or white-collar workers, while over half in five northern provinces were said to be government officials. Women selling sex in **Indonesia**, **Laos** and **Pakistan** also said that civil servants and businessmen were

Figure 12: Percent of men buying sex in the previous 12 months among groups representing the general population and those chosen to reflect higher risk, various countries

Most men in Asia are not clients of sex workers, even among mobile men with money

(Source: National behavioural surveillance data, and (Bui, Pham et al 2001; Riono 2001; Wi, Sanie et al 2002; Parish, Laumann et al 2003)

Note: “High-risk” groups here refer to truck drivers (Indonesia, Vietnam and Tamil Nadu in India), police (Cambodia) and sailors (Indonesia). General population groups are from household surveys, except for India (Tamil Nadu) where male factory workers were surveyed.



among their most frequent clients. (Lao People's Democratic Republic National Committee for the Control of AIDS Bureau 2001; Pakistan National AIDS Control Program 2002; Indonesia Ministry of Health and Aksi Stop AIDS/Family Health International 2004)

These groups are very rarely included in surveillance systems. The likely consequence is that surveillance systems are failing to capture the clients of “higher-class” sex workers, who may be more likely to use condoms (as in the Vietnamese example cited above) but who are also more likely to be older and married. This might help explain the disparities between sex worker reports of condom use and client reports. If analysis of surveillance data in Indonesia is restricted just to “lower-class” direct sex workers, there is a very close match with client data in terms of reported frequency of condom use, as well as prices of transactions.

Passing it on: clients of sex workers are family men, or will be

Even with an incomplete client profile, we can learn something about the wider networks of risk. In most countries for which data are available, single men are more likely to report going to sex workers than married men. But because more adult men are married than unmarried, the overall proportion of men buying sex who are married is high. In **India**, when clients of sex workers were surveyed directly, over half of them said they were married, and, in some northern states (such as Punjab, and Jammu and Kashmir), seven out of 10 clients had wives.

In most countries for which data is available, single men are more likely to report going to sex workers than married men. But because more adult men are married than unmarried, the overall proportion of men buying sex who are married is high.

Men who have unprotected sex with sex workers are at risk not just of contracting HIV and STIs, but of passing them on to their wives and girlfriends. In a study in the southern **Chinese** city of Guangzhou, some 72% of women with STIs said they had only had sex with their husband or regular partner in the previous six months—a clear sign that they were put at risk by their partners’ behaviour rather

than their own.

Of course, it is not just clients who have regular partners. Sex workers do, too. And, partly to distinguish their private from their professional lives, sex workers are usually less likely to use condoms with their regular partners than with their clients, even if they know those partners are having sex with other people. In China, over 60% of sex workers have non-paying partners, and they are half as likely to use condoms with them as with clients.

Men, as well as women, distinguish partner types and thus condom use on the basis of emotional ties rather than an assessment of the risk that they might be exposed to. Half of the men in 13 provinces in **Indonesia** who reported having a “girlfriend” said they paid their girlfriend cash for sex. In **Vietnam**, most sexually-active migrant workers in seven cities reported sex with “lovers”, and, although consistent condom use with sex workers was between 55% and 75% in most sites, condom use with “lovers” was below 10% in all but one city.

Fanning the flames: the forgotten epidemic of STIs

HIV is just one of a number of sexually transmitted infections that can cause people pain or discomfort, undermine their health, and rob them of their chance to have children. Most of these infections are transmitted more easily than HIV; many are curable. These facts alone are reason enough to pay attention to preventing and treating other STIs. But there is the additional fact that all other STIs live in symbiosis with HIV. Infection with one of the “classic” STIs—such as syphilis, gonorrhoea, chlamydia, trichomoniasis and herpes—increases the chance that HIV will be transmitted during unprotected sex between an infected and an uninfected partner. So preventing and curing other STIs also reduces the risk of HIV transmission. This is especially true for populations who are most likely to have a high turnover of sex partners, such as male, transvestite and female sex workers, as well as the men who regularly buy sex from them.

A rapid rise in STI levels is a signal that unprotected sex with multiple partners may be increasing in a population; STIs provide an early warning of HIV spread, which follows more easily once lesions caused by STIs have opened

a pathway into the body. Surveillance systems for STIs tend to be poor compared with HIV surveillance, but high levels or rapid rises in reported STIs in a number of countries are a cause for alarm. In **China**, fewer than 25,000 STI cases were reported in 1986. By 2000, that number had rocketed to 860,000. Some of the rise may be due to a greater willingness to seek treatment and better reporting, but these factors cannot entirely account for a 36-fold increase. China also illustrates the fact that where STIs go, HIV can easily follow. Among STI patients, HIV prevalence increased 55-fold over a five-year period, reaching 1.1% by 2000. **Iran**, another country in transition, has also seen a significant rise in reported STIs over a five-year period to 2003. Reported cases of urethral discharge rose nearly five-fold to close to 13,000, while the number of genital ulcer disease cases leapt more than six-fold to top 51,000.

China illustrates the fact that where STIs go, HIV can easily follow.

STIs are most common among people likely to be exposed to multiple partners. Among female sex workers in six provinces in **Vietnam** in 2002, between one-quarter and one-third were infected with either or both gonorrhoea or chlamydia. (Vietnam National AIDS Committee 2002a) In seven cities in **Indonesia**, 42% of sex workers had at least one of these infections in 2003. (Indonesia Ministry of Health and Aksi Stop AIDS/Family Health International 2004) In **East Timor**, one-quarter of sex workers has at least one of these infections in 2003, a rate similar to that recorded in **Cambodia** two years earlier. While still high, the infection rate in Cambodia represented a considerable drop from 1996. Gonorrhoea dropped from 23% to 14% prevalence over the five years, while chlamydia almost halved from 23% to 12%. A more detailed study of sex workers in Banteay Meanchey province, Cambodia, in 2003 found that gonorrhoea was far lower among indirect sex workers than direct sex workers (2% compared to 9%). But rates of chlamydia, which men are perhaps less likely to treat than gonorrhoea, were roughly the same among the two groups (between 15% and 16%). (Neal, Sopheab et al 2004)

Sexual infections which can result in ulcers or open sores in the genital area (such as

syphilis and herpes) increase the likelihood of HIV transmission more than non-ulcerative STIs because they create an easy passage for HIV in and out of the body. A survey among STI patients in the **Indian** capital Delhi has illustrated this: 4.5% of clients with ulcerative STIs were infected with HIV, compared with 1.7% in non-ulcerative STIs (Kar, Jain et al 2001).

A separate study in India has stressed the importance of genital herpes as a co-factor for HIV transmission. Infection with sexually transmitted genital herpes (known by the acronym HSV2, for Herpes Simplex Virus Type 2) increased the likelihood of acquiring HIV two-fold. If the HSV2 infection was newly-acquired, the effect was greater. People with recent HSV2 infection were six times more likely to become infected with HIV than people without HSV2. Some 37% of male clients at the STI clinics where the study was conducted were infected with HSV2, while among sex workers at the clinics, an astonishing 89% tested positive for HSV2. (Reynolds, Risbud et al 2003) HSV2, which is incurable, is transmitted rather easily, and can thus reach high levels even in populations with relatively low partner turnover. In Dili, **East Timor**, where other STIs are relatively rare, 29% of taxi drivers and men who have sex with men were infected with HSV2, while among female sex workers the rate was 60%, according to a 2003 survey. (Pisani and Dili STI survey team 2004a)

A problem with a solution

Many of the challenges in preventing HIV and providing improved care for people who have been infected seem intractable. Improved screening and treatment of STIs in populations at high risk is, in comparison with many other necessary interventions, technically relatively easy to achieve. And it is an intervention that also brings benefits in its own right, independent of its effect on HIV transmission. Many of the people most affected are acutely aware of this. In behavioural surveillance in **China**, 62% of female sex workers said STIs were their major health concern—HIV trailed far behind at 21%.

If appropriate services are provided for these women, they will be used. In **East Timor**, most sex workers in a recent survey had never had any kind of sexual health check-up, but when given the chance to go to a private clinic

for confidential screening and treatment by a female doctor, over one-third sought out the services in a matter of weeks. In Tamil Nadu, **India**, where there has been an active programme to provide services for sex workers for some time, over 80% of sex workers reporting symptoms of STIs in BSS said they sought treatment from qualified doctors. The Tamil Nadu experience is a rarity, however. In most places, people are still not receiving quality STI screening and treatment services, even if they know they are in need of them, as **Figure 13** shows. Routine screening services to catch asymptomatic infections are even rarer.

In most countries, men reporting symptoms of STIs in behavioural surveillance are as likely or more likely than female sex workers to report self-treating. It is worth noting that a significant proportion of those who end up at health services seeking treatment for STIs may have tried self-treating first. In **Indonesia**, 53% of men and 58% of female sex workers reporting STI symptoms in the previous year said they sought medical treatment for those symptoms. But over one-third of the men and half of the women said they had tried treating themselves first, and only used medical services because the symptoms did not clear up. Overall, two-thirds of men and women with symptoms in Indonesia treated their own STIs. In **China**, almost all sex workers reporting symptoms in surveillance in Sichuan and Yunnan said they

sought treatment at medical services, but only half of them took all of the medicine they were prescribed. A large proportion said they stopped taking the medicine as soon as the symptoms disappeared.

This raises the spectre of drug-resistant strains of STIs. When a large proportion of the population uses medicine incorrectly—taking the wrong medicine, the wrong dosage, or not completing the treatment—the result is an incomplete cure. Eventually, the bacteria grow resistant to the medicine, and at that point the treatment no longer works, even for those who follow the instructions to the letter. This creates something of a vicious circle. If people who do go to a health facility are given a drug that does not rid them of their symptoms, they might be reluctant to return to that facility, and might opt to self-treat. This, in turn, increases the likelihood of improper or incomplete treatment.

Of course, seeking the correct treatment for symptoms of STIs depends on recognizing the symptoms. In fact, many people do not recognize that they are STI-infected at all. This might be because the infection has no symptoms (which is most commonly the case with STIs in women, as well as with rectal STIs in both sexes) or because they experience the symptoms so frequently that they do not think of them as abnormal. In one study in India, for example, 48% of female sex workers said they

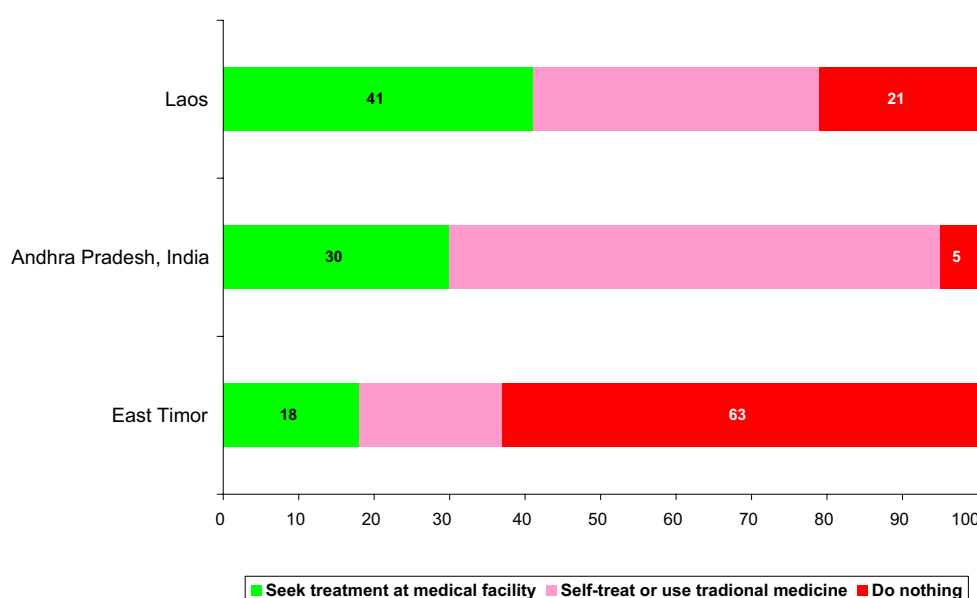


Figure 13: Percent of female sex workers reporting STI symptoms in the last year, by treatment-seeking behaviour

In many countries, the majority of sex workers who report symptoms of STIs are not seeking proper medical treatment

(Source: Lao People's Democratic Republic National Committee for the Control of AIDS Bureau 2001; CHANGES and Family Health International 2004; Pisani and Dili STI survey team 2004a)

were suffering from an abnormal vaginal discharge, but when they were examined clinically, 77% were found to have such discharge. (CHANGES and Family Health International 2004)

On the other hand, several studies have shown that people who report current symptoms are not necessarily infected. In Angeles City, in **the Philippines**, for example, no correlation was found between self reported symptoms of STIs and laboratory diagnosis among female sex workers. (Wi, Ramos et al 2003) The correlation between diagnosis of infections based on broad families of symptoms (known as syndromic diagnosis) and laboratory tests has also been found to be poor in many Asian settings, especially among women. In one study in the Indian state of Gujarat, a diagnosis based on vaginal discharge missed between 30 and 40% of chlamydia and gonorrhoea when compared with laboratory tests, while half of those who were not actually suffering any infection got treated. (Desai, Kosambiya et al 2003) A study in **Nepal** showed similarly poor results in that country. (New ERA and Service 2004)

Syndromic diagnosis and treatment have been promoted in many resource-poor settings—it is promoted for urethral discharge and genital ulcer disease almost everywhere as a way of increasing the overall number of people treated where laboratories and diagnostic equipment are scarce, especially in clinics serving the general population. However, in many Asian settings, STI services are more focused. In clinics providing services to large numbers of sex workers and other populations highly likely to be exposed to STIs in the Philippines, for example, investment in simple laboratory tests has improved diagnosis, reduced incorrect and unnecessary treatment, and ultimately contributed to a reduction in STIs. (Wi, Ramos et al 2003).

These services have the greatest impact where sex workers and others at high risk for STIs are screened for STIs (and, if necessary, treated), whether or not they have any symptoms. But regular check-ups remain a rarity in many countries. In China, for example, 40% of sex workers in surveillance in two provinces said they had not had any health check-up in the previous year. This could be because sex workers themselves may find it hard to access these services unless they have permission or

encouragement from the pimps or brothels they work for.

Recent programme data from the **Indonesian** island of Bali suggest the role of pimps and brothel bosses can be key. In the one Bali red-light district where brothel organisers provided transport for clinic visits and actively encouraged those visits, chlamydia prevalence was 24%, compared with between 42% and 52% among sex workers from five other areas. It is notable, too, that across all sites sex workers who visited the clinics most regularly had the lowest chlamydia infection rates—34% among those who visited six or more times during the survey period, compared with 45% among those who visited two-to-five times, and 56% among those who only visited once. Worryingly, the same associations are not seen for gonorrhoea infection. Programme managers interpret this as a sign that gonorrhoea in Bali may have become resistant to the medicines most commonly used to treat it. (Dewa Wirawan, personal communication)

HIV prevention at STI services: the missing link

While it has become fashionable to emphasise the link between treatment and prevention as access to antiretroviral drugs expands, the experience of STI services is salutary. STI clinics are an obvious entry point for prevention services, both for STIs and for HIV.

STI clinics are an obvious entry point for prevention services, both for STIs and for HIV.

Many clinics have protocols that stipulate that clients should be given counselling on how to avoid becoming re-infected with STIs and how to approach their partners for care. But few actually provide these services, and fewer still provide HIV counselling and testing. Indeed even the most basic prevention services are often missing. In STI clinics in four out of five districts surveyed in **Vietnam**, for example, between one-third and one-half did not have condoms available for clients. (Vietnam National Committee for Population Family and Children 2002) In **Bangladesh**, over one-third of truck drivers seeking care for STIs received no information about how to avoid

spreading infection or how to avoid re-infection themselves, while four out of five got no information on partner referral. (Gibney, Saquib et al 2003) Although several Asian countries include STI patients in their anonymous HIV surveillance systems and some are starting to record rather high rates of infection in those populations, very little data is available to indicate the extent to which staff at STI services are referring clients for HIV counselling and testing in any Asian country.

Shooting up: HIV infection among drug injectors across Asia

A needle that contains HIV-infected blood can introduce the virus directly into the bloodstream, so needle-sharing between infected and uninfected people is one of the most efficient ways of spreading HIV. In Asia, the people who most commonly share needles are the men and (more rarely) women who inject drugs for fun, to escape stressful lives, because they are addicted to drugs or for other non-medical purposes. It is no surprise, then, that HIV infection is higher among drug injectors than in any other group.

Needle-sharing between infected and uninfected people is one of the most efficient ways of spreading HIV. It is no surprise, then, that HIV infection is higher among drug injectors than in any other group.

Figure 14 compares HIV prevalence among injecting drug users and female sex workers in a number of cities in Asia. Except for Mumbai in **India**, where HIV rose to very high levels among sex workers early in the epidemic, the likelihood that a drug injector is infected with HIV is far higher than the likelihood that a sex worker is infected.

If HIV infection is highest among IDUs, why did we claim earlier that commercial sex is the main driver of HIV epidemics in Asia? The difference lies in the absolute numbers of people engaging in these behaviours. In general, IDUs are more likely to be infected with HIV than sex workers or their clients, but because the overall numbers of people buying and selling sex are much larger than the numbers of people injecting drugs in most settings, more HIV infections overall will be transmitted sexually than through drug injection.

It is worth noting, though, that even where the numbers of people injecting drugs are relatively small, their contribution to the overall HIV epidemic in a country can be considerable. This is because IDUs may also pass on HIV infection sexually, creating a “critical mass” of infections within sexual networks. From there, they can spread out more widely. This chain of events, critical to the understanding of HIV epidemics in Asia, is discussed in greater detail in Chapter 3 and is illustrated on page 97.

Even where the numbers of people injecting drugs are relatively small, their contribution to the overall HIV epidemic in a country can be considerable.

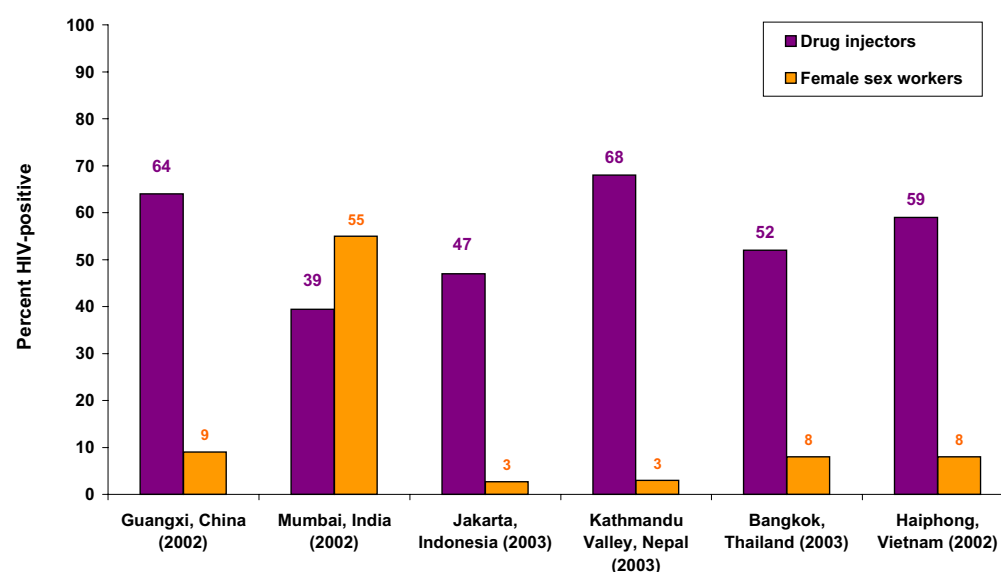


Figure 14: Percent of drug injectors and sex workers testing positive for HIV in routine surveillance, various Asian locations, 2002 or 2003

HIV prevalence among IDUs far outstrips sex worker prevalence in most places

(Source: National surveillance reports)

In many areas of Asia, a very high proportion of drug injectors have been found to be living with HIV. In **China**, for example, HIV prevalence among injectors was measured at between 18% and 56% in six cities in the southern provinces of Guangdong and Guangxi in 2002, while in the capital Beijing in the north, it was 6%. (China National Center for AIDS/STD Control and Prevention 2003; China National Center for AIDS/STD Control and Prevention 2004) In **Nepal**, HIV prevalence among male injectors ranged from 22% to 68% across the country in 2002. In the Kathmandu valley, the only place where female injectors were included in surveillance, male injectors were over four times more likely to be infected with HIV than female injectors, even though female injectors were more likely to report recent needle-sharing. This may be because the small minority of injectors who are female are more likely to inject only with their male partners and one or two others, rather than be exposed to large networks of injectors—only one female injector in 20 reported injecting with a syringe stored in a public place, for example, compared with one in five male injectors.

A number of places besides Beijing still have relatively low HIV prevalence among drug injectors. One is **Bangladesh**, where HIV prevalence was 4% among IDUs in 2002, although Hepatitis C (a virus which, like HIV, is spread by blood, and which can lead to cancer of the liver) had already infected between 60% and 80% of injectors. The Central Asian republic of **Kazakhstan** has also apparently not seen a rapid rise of HIV among drug injectors—surveillance among 10,000 IDUs in prison in 2001 and over 1,500 IDUs sampled elsewhere in 2002 recorded HIV prevalence of 3–4%. In behavioural surveys, close to two thirds of injectors in the Kazakhstan capital Almaty and in the city of Karaganda said they had not shared a syringe in the previous month. (MEASURE Evaluation 2004) This is more encouraging than in many other areas, but it still implies that one-third of injectors are sharing equipment. If that behaviour persists, HIV prevalence is bound to rise.

A lack of human capacity and resources, poor public health practice, political denial and other factors have limited the availability of regular surveillance data among drug injectors in some countries. But the fact that there are no formal data does not mean there is no problem.

In many other areas, a lack of human capacity and resources, poor public health practice, political denial or other factors have limited the availability of regular surveillance data among drug injectors in some countries. But the fact that there are no formal data does *not* mean there is no problem. In **Malaysia**, for example, there is virtually no formal sentinel surveillance among groups at high risk of HIV infection. HIV and AIDS case reports indicate that 55% of people detected with HIV between 1998 and 2001 were drug injectors, but this reflects the fact that drug injectors are more likely to get tested (when in detention or in rehabilitation services) than other parts of the population. A study carried out by a university in Penang found that 17% of IDUs who agreed to testing were HIV-positive. (Navaratnam, Vicknasingham et al 2003)

In **India**, surveillance sites for IDU are confined largely to the northern states where injecting is a common behaviour. However, recently-established sites in other cities show great cause for concern. Among IDUs in the southern city of Chennai, for example, 26% of injectors were already infected with HIV when a sentinel site was established in 2000, and by 2003 a horrific 64% of injectors were infected. In **Indonesia**, the only HIV surveillance site for drug injectors is in the capital, Jakarta, where one in two IDUs is already testing positive for the virus. But counselling and HIV testing services started by local NGOs in far-flung cities such as Pontianak, in West Kalimantan province on the island of Borneo, are finding alarmingly high rates of infection—above 70% of those who request testing are discovering that they are infected with HIV. This has led the local health department to estimate that there are already 3,000 people living with HIV in the province, 2,300 of them IDUs. (Isman Ramadi, West Kalimantan Health Department, personal communication) All these people will need services to help minimize the likelihood that they will pass the virus on to others, as well as to ensure that they receive the care and support they need.

Iran is now reporting a growing HIV problem, and it appears to be driven primarily by drug injection. Some 4% of drug injectors tested in sentinel surveillance in 2003 were HIV-positive. Among injectors tested beyond sentinel sites the rate was over three times higher.

In a few sentinel sites, one injector in five was already testing positive for HIV. Worryingly, over one-quarter of all HIV-positive cases since the start of the epidemic were identified in 2003 alone. This may reflect expanded surveillance, but it almost certainly also mirrors a recent escalation in the epidemic.

Iran is now reporting a growing HIV problem, and it appears to be driven primarily by drug injection.

Iran, like many other countries in Asia, may be faced with a double-challenge. It is not just that the percentage of injectors infected with HIV is growing, but the overall number of people injecting drugs is on the rise, too. Iran is among several nations in the region which, over the last few years, have begun to develop systematic methods for estimating the number of people with behaviours that carry the risk of HIV exposure. In an epidemiological survey of drug abuse published by the Ministry of Health in 2002, it was estimated that some 136,000 Iranians injected drugs, and the population of injectors might be growing at between 5% and 10% a year. (Iran National AIDS Program. Ministry of Health 2004)

Clean needles, clean lives: risk behaviour among drug users in Asia

HIV is actually a rather fragile virus. It does not survive long outside the body, and has difficulty passing through even the most rudimentary bodily barriers without the help of injuries

or sores that ease its entry into the blood stream. But needle-sharing gives HIV all the help it needs by allowing the virus to be injected directly into the blood where it can survive and multiply. This is one reason why HIV rises so quickly among drug injectors. But there is another reason, too. HIV is easiest to transmit when lots of the virus are present in the blood—a state known as high viraemia. This happens shortly after a person is initially infected, before the body manufactures the antibodies that can help bring the virus partially under control. And it happens again later, once the virus has successfully destroyed the body's immune system and the infected person begins to show signs of AIDS. It is at these stages of infection that unprotected sex or sharing of injecting equipment between an HIV-infected and an uninfected person is most likely to result in a new infection.

When people are already beginning to feel and look sick, sexual behaviour and, to a lesser extent, injecting may start to tail off. But soon after being infected, when there are no physical signs of infection and when even an HIV antibody test may show up negative because the body has not yet had time to marshal its defences, risk behaviour probably continues as normal. Because injectors who share needles tend to do so also with several other people in their network, there is a strong likelihood that a large number of people will be exposed simultaneously. And if that occurs shortly after infection, when a person's viraemia is high, it is highly likely that those exposures will result in new infections. (Hu, Subbarao et al 2002)

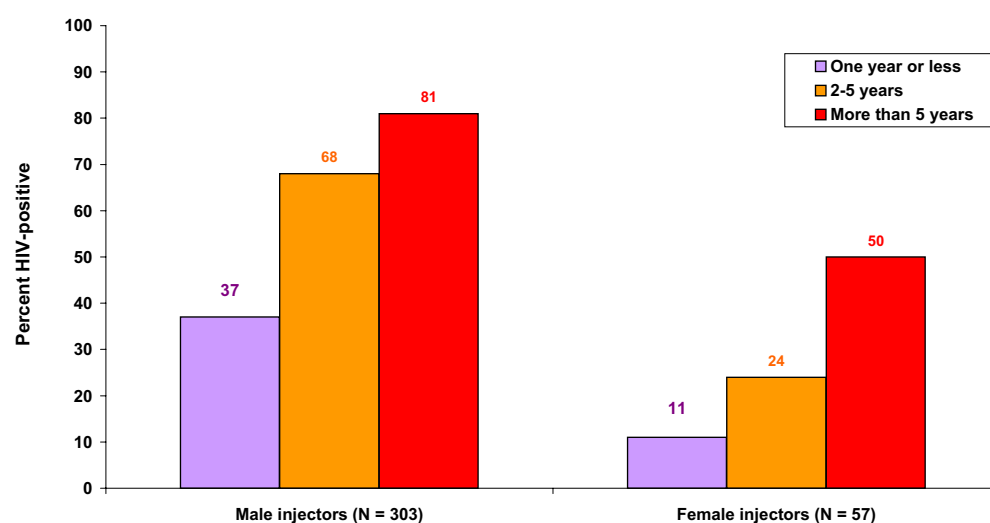


Figure 15: Percent infected with HIV by duration of injection and by sex, Kathmandu valley, Nepal, 2003

HIV prevalence is high even among people who have just started injecting

(Source: New ERA and STD/AIDS Counselling and Training Service 2002)

This means that where HIV prevalence among IDUs is already high, even a small amount of risky injecting is likely to translate quite quickly into new infections. **Figure 15** shows that in **Nepal**, the likelihood of being infected with HIV in fact rises the longer an injector has been using drugs intravenously. But most remarkable in **Figure 15** are the very high rates of infection among new injectors. By the time someone has been injecting for a year (and some of the IDUs, represented by the lilac-coloured bar, have injected much less than a year) there is a one-in-three chance that the person will have acquired HIV.

Risky behaviour, particularly needle-sharing, operates in a vicious circle. The more you share needles the more likely you are to become infected with HIV, and the more likely, too, to pass the virus on to others with whom you share risk. In the **Nepal** example, above, people who report the highest risk behaviours—such as using “public” needles stored in toilets or other public places—are significantly more likely to be infected than those who never use public equipment—83% of public syringe users are infected with HIV compared with 60% of those who do not use those syringes. Similarly in northern **Thailand**, 29% of those who do not share needles daily are HIV-infected, but among those who do put others at risk through daily sharing, 41% are infected. (Razak, Jittiwutikarn et al 2003)

This adds up to one conclusion: in high-prevalence settings, drug injectors have to adopt very high levels of safe injecting practices right from the start of their injecting careers if they are to be confident of avoiding infection.

In high-prevalence settings, drug injectors have to adopt very high levels of safe injecting practices right from the start if they are to avoid infection.

In a setting where one injector in two is infected with HIV and where the newly acquired, virtually invisible, infections are the most dangerous, injecting with “trusted friends” who have not been tested for HIV is not protection enough. Cutting needle-sharing from most of the time to only some of the time is not protection enough. Washing out needles with hot water instead of cold water is not protection enough. Taking methadone instead of injecting on the two or three

days a week you can make it to the treatment centre is not protection enough. What is needed in high-prevalence settings are consistently high levels of safe behaviour—and safe behaviour means not sharing injecting equipment with anyone of unknown HIV status, ever.

Needle-sharing practices vary widely throughout Asia. It is sometimes difficult to make direct comparisons, in part because the definitions of “sharing” differ. Injectors will generally not think they are “sharing” when they use a needle that has been hidden in a public place (a common practice in **Nepal** and **Indonesia**, and one that definitely fits the definition of sharing from the point of view of the HIV virus). The same is true if needles are used in “shooting galleries”. Experience has shown that survey questions based on sharing needles at last injection or sharing in a specific time frame may greatly understate the true levels of risky injection. In **Nepal**, for example, only 16% of male injectors said they had used a needle or syringe that had been used by others in the last three injections, but when asked specifically about public syringes, 22% said they had used them. Indeed, after home, public toilets were the second most commonly-mentioned injecting site. The definition of needle-sharing may seem to be splitting hairs, but it has important implications for HIV prevention programmes.

Despite the differences in questionnaires, the diversity in sharing behaviours reported in surveillance is striking. In **Sichuan province, China**, close to 60% of injectors said they had never shared a needle or syringe in the preceding six months; the rates were very similar in neighbouring **Yunnan**, and across the border in **Vietnam**. In eastern **Nepal**, two-thirds of injectors said they had not shared equipment at all in the previous week, and in **Pokhara**, three-quarters made the same claim. Two-thirds of injectors in three cities in **Kazakhstan** and **Kyrgyzstan** said they never shared needles or syringes in the previous month, and in **Tashkent, Uzbekistan**, fully 86% said they had not once shared during the same period. (MEASURE Evaluation 2004) Much higher rates of sharing have been reported elsewhere. In three cities in **Indonesia**, 88% of injectors said they shared needles or syringes in the preceding week in 2002. (Pisani, Dadun et al 2003) Again, there were differences between regions

in countries, and between injectors. And, as **Figure 16** shows, women are more likely to share needles than men in some countries.

It is interesting to note that the differences are biggest where the proportions of female injectors are smallest. This suggests that women might initially be introduced to injecting by male partners, with whom they share equipment. But as injecting takes off among women, they might then adopt behaviours similar to “mainstream” or male injectors.

The knowledge–behaviour disconnect

It is tempting to say that IDUs share needles because they are poorly informed about the risk of contracting HIV. Certainly, some major gaps in knowledge do exist. Just three years ago, fewer than half the drug users in three **Pakistan** cities had ever heard of HIV, and only a small proportion of those who had heard of the virus knew that it could be spread by sharing needles. (Ahmed, Zafar et al 2003) Among IDUs in a compulsory detoxification programme in Beijing, only 55% knew that they could contract this fatal virus by sharing syringes. (China National Center for AIDS/STD Control and Prevention 2003) Such low levels of knowledge are especially lamentable among people in “treatment” for their drug addiction, since those programmes ought to provide an opportunity to equip current or recovering drug users with information that will support them in making

safer choices.

However, knowledge gaps are comparatively rare among drug users in Asia. Among over 1,800 IDUs questioned in behavioural surveillance in the **Chinese** province of Sichuan, for example, nearly nine in 10 believed they could prevent HIV by not sharing needles, and 70% said a switch from injecting to inhaling would be effective in avoiding infection. Close to 100% of injectors in **India**, **Indonesia**, **Kazakhstan** **Malaysia** and **Nepal** knew that sharing equipment could spread HIV. But such knowledge is generally not translated into safe behaviour or even into a realistic assessment of personal risk. In Indonesia, under one-third of injectors said they felt at high risk of HIV infection, even though 88% had shared equipment in the last week. There is clearly a mismatch between people’s self-perception and their actual behaviour. Two-thirds of Indonesian IDUs who claimed in 2002 BSS that they were not at risk of infection because they never shared injecting equipment went on (in the same survey) to report that they had shared equipment in the previous week. In Tamil Nadu, in southern India, 55% of those who shared needles said they felt at no risk of acquiring HIV.

Routine surveillance systems and epidemiological studies are designed more to measure levels of behaviour than explain the behaviour. However, survey data can give us an idea of where to start looking for explanations.

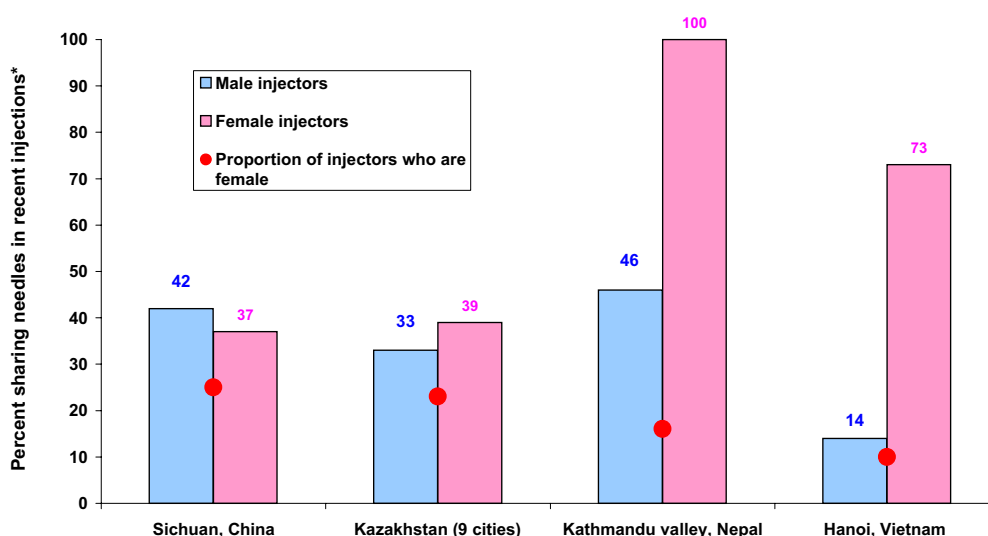


Figure 16: Percent of injectors reporting sharing needles and syringes in recent injections, by sex.

Women are more likely to share needles in some countries

(Sources: National surveillance data and Hien, Giang et al 2001; Kazakhstan National AIDS Control Programme and Ministry of Health, Center of Public Opinion Investigation et al 2002; New ERA and STD/AIDS Counselling and Training Service 2002)

Time period for needle sharing: Sichuan: past six months, Kazakhstan and Vietnam past month, Nepal past week

There is a common idea that people share needles because needles are hard to find. But this is not necessarily the case. In Indian surveillance, virtually all IDUs said it was easy to obtain new needles and syringes, but 55% of the same IDUs reported sharing needles in the previous month. In Penang, in Malaysia, 83% of IDUs reported they could easily buy new needles, and yet around 85% of them used “shooting galleries”—very high-risk environments where drug users gather to inject—and two-thirds reported injecting with other people’s needles. (Navaratnam, Vicknasingham et al 2003)

Certainly, people cannot ensure that they use sterile needles and injecting equipment if the equipment is not easily available. Evidence from nine cities in Kazakhstan (shown in **Figure 17**) suggests that people who have easy access to clean needles are much less likely to share than those who do not. But access to needles has to be consistent. Those who can only get hold of equipment some of the time are, not surprisingly, just as likely to share over the medium-term as those who never have easy access.

Competing risks—life in the danger zone

The box below presents data on syringe access which ought to encourage national and community leaders to increase efforts to make

injecting equipment more easily available. But such programmes are not a total solution. The data shows that even when knowledge is universal and needles are available, around one in six injectors still report recent sharing. In some other countries the rate is much higher. In such situations, one needs to look for other reasons why injectors are continuing to expose themselves or their injecting partners to the risk of HIV transmission. One way to find out is to ask.

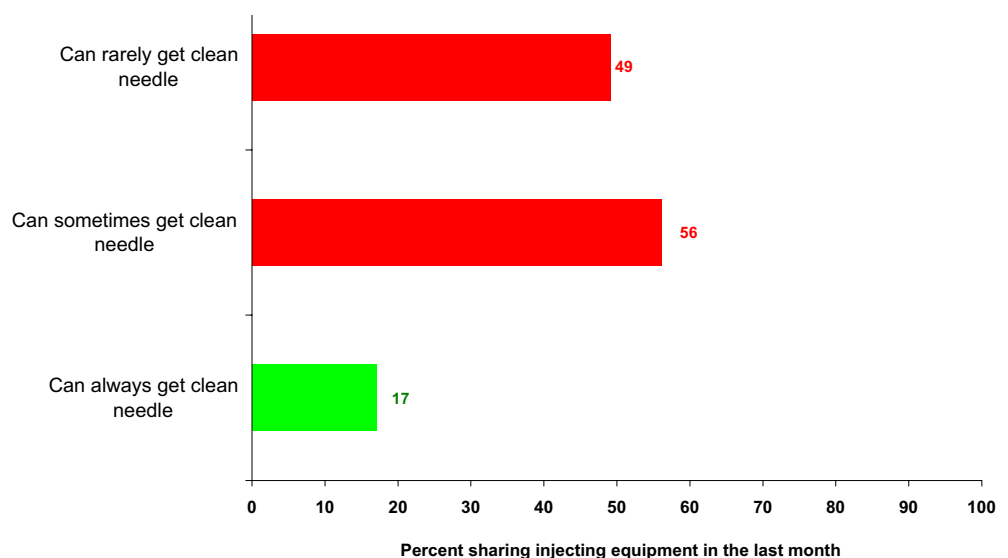
Some 43% of the **Kazakh** injectors who said they could not always get access to a clean syringe said they were hampered by fear of arrest. In **Indonesia**, most injectors knew where to get needles, but close to nine in ten still shared. Two-thirds of them said they did not want to carry clean needles with them on the streets because this could be used as a pretext to arrest them for the illegal behaviour of drug injection. In a detailed ethnographic study in **Nepal**, 77% of IDUs spontaneously mentioned arrest and beatings by the police as some of their biggest problems; HIV infection was barely mentioned as a life risk. (Centre for Research on Environment Health and Population Activities 2002)

These data have practical implications for HIV prevention programmes. The subculture of needle-sharing among drug users is unlikely to be abandoned if the culture among the police and other sections of the community of

Figure 17: Percent of respondents in nine cities in Kazakhstan who share needles, according to how easily needles are obtainable

Easily available needles do not guarantee safe injecting, but they certainly help!

(Source: Kazakhstan National AIDS Control Programme and Ministry of Health, Centre of Public Opinion Investigation et al 2002)



victimising drug users stays unchanged. The fact that injectors can buy needles in pharmacies is of little help to them if they risk arrest on walking out of a pharmacy with a needle—a reason commonly given by injectors in Indonesia and Nepal for not having clean equipment with them. This may require removing legislation that supports arrest and harassment, and it certainly requires training law enforcement officers in public health approaches to drug use, commercial sex and other risky activities. It means a far wider engagement with ministries of justice, security forces, prison systems and other partners who have not traditionally been part of a public health response to HIV.

The subculture of needle-sharing among drug users is unlikely to change if the police and other sections of the community continue to victimise drug users, making it harder for them to adopt safer behaviours.

But there is a wider implication, too. HIV is just one of many potential problems facing drug injectors, and it is by no means the most immediate. People can be infected with HIV for a decade or more without showing any symptoms, let alone dying. Drug overdose, on the other hand, is a daily risk for injectors, and it can lead to immediate death.

Very high proportions of injectors have experienced overdoses themselves, and an even higher proportion have friends or former injecting partners who have died from overdose. For example, in Penang, **Malaysia**, around one-quarter of IDUs had overdosed at some stage, and around one-half had witnessed someone else overdose. (Navaratnam,

Vicknasingham et al 2003) In Beijing, 86% of injectors said they knew someone who had died from an overdose, and 60% had been present when another injector lost consciousness because of an overdose. (China National Center for AIDS/STD Control and Prevention 2003) The situation was no rosier in Indonesia—77% of injectors knew someone who had died of an overdose, and 38% had themselves overdosed. (Yaysan Kita, personal communication) Add to that the 28% who had attempted suicide and the 10% who had been beaten up by community vigilante groups, and one emerges with a picture of a life in which more immediate threats overshadow the risks posed by an infection that causes disease at some comparatively distant point in the future.

Interestingly, the dangers mentioned above exist even for the high proportion of drug injectors who do not fit the stereotype of a socially disorganised “junkie”. A detailed assessment of drug use in the **Iranian** capital, Tehran, for example, found that most injectors lived at home with their families, and many held down jobs with decent incomes. (World Health Organization 2003) In **Indonesia**, too, a significant proportion of drug injectors come from middle-class backgrounds. About 84% of IDUs surveyed in three cities live with their parents or family members, and 81% have at least a high-school education. But those characteristics might change over time. Among the cities included in surveillance, the proportion of IDUs from higher socioeconomic backgrounds was smallest in Jakarta, where drug injection has been an established behaviour for longest.

The needle-exchange controversy: the evidence in Asia shows reduced risk

Of all HIV prevention programmes, the most politically controversial are those that seek to provide services that reduce the harm associated with drug injecting. These programmes often exist within a larger policy context which supports injectors to quit taking drugs or to substitute safer, non-injected drugs for injecting, as well as to reduce sexual risk and manage abscesses and other consequences of injecting.

The single, most controversial element of these programmes is the promotion of easy access to clean needles. Ironically these programmes are not scientifically controversial. Throughout the industrialized world and in many developing countries, the evidence shows that promoting easy, safe and consistent access to sterile injecting equipment for a high proportion of all injectors cuts the transmission of blood-borne viruses such as HIV.

Throughout the industrialised world and in many developing countries, the evidence shows that promoting easy, safe and consistent access to sterile injecting equipment for a high proportion of all injectors cuts the transmission of blood-borne viruses such as HIV.

Some of the political reluctance to provide prevention services that include clean needles for drug injectors is fuelled by the notion that people who have never injected before will start injecting simply because clean needles are available. It is therefore worth mentioning that in a review of over 400 surveillance reports and scientific papers undertaken for this report, no evidence was found that HIV prevention services for drug injectors—including the provision of clean needles—is associated with an increase in the number of people injecting drugs. However, the review did find that in Asia as in other continents, countries and regions that have had the courage to promote safer injecting practices (including needle access) are being rewarded with lower risk behaviour. In countries as diverse as **Bangladesh, China and Vietnam**, people who participate in programmes that provide such services are far more likely not to share their injecting equipment.

China and Vietnam began a co-ordinated programme to make needles more easily available to injectors in 2002, working in the Chinese province of Guangxi, as well as across the border in Vietnam's Lang Son province. Outreach workers collect used syringes from users for safe disposal, and provide vouchers which can be used to get new needles from participating pharmacies. The programme is based on a successful trial which showed that those who had participated in the programme were only half as likely to report any recent needle-sharing compared with those who did not take part. The programme is large enough to have an impact on the population level—overall, needle-sharing in the previous month fell from 61% to 30% among all injectors surveyed in Guangxi. (China National Centre for AIDS/STD Control and Prevention 2004) After the trial, the programme was expanded rapidly; it now makes available around 12,000 needles a month on both sides of the border. (Don DeJarlais, personal communication)

Elsewhere in China, the availability of needle accessibility programmes and other prevention services have contributed to a dramatic fall in reported needle-sharing among injectors questioned in behavioural surveillance in Sichuan province. Reported needle-sharing at last injection fell from 30% to 17% among male injectors in 2002-2003, while in the same year it fell from 24% to 15% among female IDUs. Nearly one-quarter of surveyed IDUs said they had recently accessed a needle-exchange programme.

China's "social marketing" approach has a parallel in **Iran**, where needles were recently made freely available over the counter at pharmacies. Some urban pharmacies say they now sell between 1,000 and 1,500 needles a month, and it is estimated that up to 70% are being used by drug injectors. A detailed assessment in Tehran reports that the initiative has contributed to cutting needle-sharing by around half. (World Health Organization 2003)

The clearest evidence that large-scale needle-exchange programmes can make life safer for injectors comes from **Bangladesh**, and is shown in Figure 18.

Figure 18 shows a striking association between participation in needle-exchange programmes and lower rates of sharing at injection. It also suggests another, perhaps more surprising, effect of this needle-exchange programme. Injectors who used the needle-exchange were far less likely to report symptoms of a sexual infection in the previous 12 months than people who did not access the exchange, and were far more likely to seek adequate medical treatment if they did have symptoms. By 2002, 88% of injectors included in behavioural surveillance said they used the needle-exchange services in that city. In three rounds of serological surveillance conducted at the needle-exchange site between 1999 and 2000, not one of over 400 injectors tested at each round was found to be infected with HIV. Meanwhile, active syphilis fell from 4.1% to 1.7%. (Azim, Alam et al 2004a)

This provides strong evidence that safe-injecting programmes which reach large numbers of injectors can bring people into contact with a range of HIV prevention services that can effectively reduce their sexual as well as their injecting risk. Interestingly, a similar

programme in another city with services that reached between 45% and 46% of injectors had less of an impact. Some 52% of people who accessed the programme with lower coverage shared a needle at last injection, compared with 22% of those who accessed the higher-coverage programme. In a detailed evaluation of the programme, several of the clients who continued to share needles while in contact with the needle-exchange programme said they shared because outreach workers were not around with needles at the right time—as a result the prevention programme has expanded its outreach workforce by 60%, and coverage has recently risen from 2,500 to 3,000 IDUs per month. (Faruque, Azim et al 2004) The potential for using needle accessibility programmes as a platform for other prevention services was also illustrated in the China-Vietnam cross-border programme, which showed that 87% of injectors with access to the services knew that condoms could prevent HIV, compared with just 39% of those with no access. (China National Centre for AIDS/STD Control and Prevention 2004)

The data suggests that comprehensive programmes that promote safe and consistent access to cleaner equipment while also providing other prevention services are the most effective way to cut down risk.

The data suggest that comprehensive programmes that promote safe and consistent access to cleaner equipment while also providing other prevention services are the most effective way to cut down risk. But there is evidence that intensive counselling can have an effect even without a direct link to needle provision. In **Thailand**, a well-funded vaccine trial that followed injectors over time and provided repeated intensive counselling reported a significant reduction in needle-sharing among participants, from one-third to 16% over six months. (Choopanya, Tappero et al 2004) In **Pakistan**, an outreach programme for street-based drug users was set up in early 2003, aiming to provide services to 1,000 drug users in five cities. According to programme reports, the demand was so great that outreach workers reached over 2,400 street-based drug users in the first six months of operation, of whom one-quarter were injectors. (Nai Zindagi 2003) The programmes were started early on, before HIV entered the population in any significant way, and they have reportedly contributed to a significant decrease in HIV-related risk among injectors. HIV testing of 331 injectors in Lahore and Quetta, areas covered by the programme, found no HIV infection. (Steffanie Strathdee, personal communication) This compares with 15% HIV prevalence in at least one smaller city not yet covered by outreach and prevention programmes according to NGO Nai Zindagi.

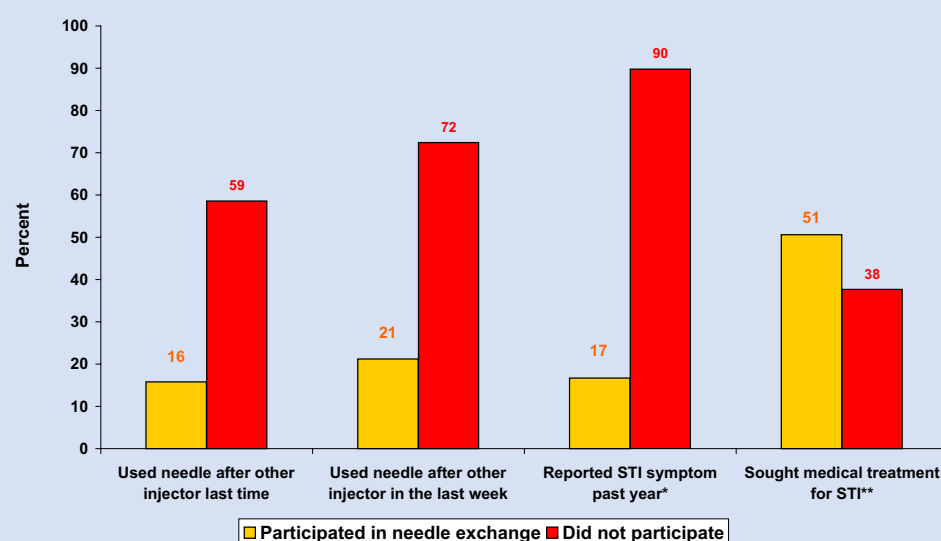


Figure 18: Percent of male IDUs in Bangladesh Northwest-A who share needles, report STIs, and seek treatment for STIs, by participation in needle-exchange programme in the last year.

Needle-exchange programmes promote healthy sexual behaviour as well as safe injection

(Source: Bangladesh National AIDS/STD programme, Ministry of Health and Family Welfare, 2003)

* of sexually active respondents

** of respondents reporting STIs

Missed opportunities on the road to an ideal solution

The safest way to avoid becoming infected with HIV through drug injection is to avoid injecting drugs. Programmes that offer young people socially acceptable alternatives to drug use which are also fun and a badge of “cool” may make a substantial contribution to reducing the proportion of people who start using or injecting drugs. However, we found no specific evidence of effective programmes of that type when we researched this report. In addition, treatment and support programmes which help people to reduce and eventually eliminate their dependence on drugs are necessary and desirable. But it is important to be realistic about the potential success of these programmes.

In **India**, 29% of IDUs surveyed in five cities in 2002 reported that they had undergone detoxification treatment, and another 6% had tried drug substitution, but all of them were active injectors at the time of the survey. In **Vietnam**, three-quarters of sex workers who were injecting drugs at the time of surveillance had been through drug rehabilitation and many had been educated in skills such as tailoring, part of an effort to enable them to earn money without resorting to sex work. (Vietnam Ministry of Labour Invalids and Social Affairs 2001) In **Nepal**, between 20% and 40% of active injectors in three areas had been in treatment at some stage. Yet around half of them were injecting again within a year of coming out of treatment. In Sichuan province, **China**, nine out of 10 IDUs in BSS said they had been through detoxification treatment, mostly voluntarily, but all were still injecting at the time of the interviews.

Of course, this data does not tell the whole story. People are chosen to be in surveillance precisely because they are currently injecting drugs, so treatment successes would not show up in these surveys. But a sense of common relapse rates may also be garnered from information on repeated treatment: in **Indonesia**,

two-thirds of drug users who had ever sought treatment had relapsed at least once. In a well-regarded treatment centre in West Java, four out of five residents had been in treatment before, and 70% of those had relapsed within six months or less. (Yayasan Kita, personal communication)

This evidence suggests that helping people to stop injecting drugs is a long-term commitment. One must be realistic that the “ideal solution” will not be reached immediately, even for those people lucky enough to have access to quality treatment services. It is important, therefore, to also use other strategies that can reduce the likelihood that a person will have been infected with HIV by the time he or she does manage to stop injecting drugs.

Some “low-tech” approaches are still badly underutilised. Cleaning a needle with bleach, for example, may not eliminate the risk of passing on an HIV infection, but it can reduce the risk substantially enough to make a difference, especially if it is very widely used. Bleach is widely and cheaply available in virtually all Asian settings. Yet even in IDU communities where needle-sharing is the norm, very few people use bleach to clean needles. Under 5% of injectors who shared needles used bleach to clean between users in India, Indonesia, or in China’s Sichuan province. In Nepal, one injector in 11 used bleach, and around the same proportion reported using alcohol to clean needles in China’s Yunnan.

Treatment and detoxification programmes that are realistic about levels of relapse could devote more time educating people about basic risk reduction techniques such as the use of bleach. But they also offer opportunities for providing other essential prevention and care services, including medical care. In **Malaysia**, over 90% of drug users who were attending a drug rehabilitation programme at the time reported that they had not received medical care in two years. One-quarter reported encountering difficulties accessing medical care when they needed it, in large part because there simply were no services that met their needs or because they were afraid of being reported to the authorities. (Navaratnam, Vicknasingham et al 2003) It is worth noting, too, that 23% of male IDUs or former injectors in treatment in the Malaysian survey knew that

Helping people to stop injecting drugs is a long-term commitment. The “ideal outcome” will not be reached immediately, so it is important to use other strategies that can reduce the likelihood that a person will have been infected with HIV by the time he or she stops injecting drugs.

they were HIV-positive. Despite the fact that Malaysia has among the highest per capita incomes in Asia, not one of the men was on antiretroviral therapy. In a recent study of HIV-infected people being prescribed antiretroviral treatment at two clinics in Kuala Lumpur, just 2% of those prescribed antiretrovirals were IDUs, even though they made up 10% of those presenting at the clinics, and 55% of reported HIV cases. (Kamarulzaman, Petoumenos et al 2003).

Asian governments and international organisations are increasingly pledging to ensure access to antiretrovirals, as well as to

improve access to other types of care and support. Since a large proportion of the Asians living with HIV are drug injectors, drug treatment centres seem to provide an obvious opportunity for accessing some of those who most need care.

Many drug injectors are also sexually active, which increases their own risk of contracting HIV but, importantly, offers another avenue through which the virus can pass to non-injecting populations. The interaction between sex and drugs is discussed in Chapter 3.

A captive audience: HIV transmission continues in Asia's jails

Injecting drug users are often referred to as a "hard-to-reach population". Yet data from many countries suggests that there is one place drug injectors can be found in significant numbers: prison. A comprehensive assessment of drug use in the Iranian capital Tehran showed that two-thirds of injectors have been in jail, and one-quarter of those said they had injected drugs while in prison. Almost all shared scarce injecting equipment, which was usually made in jail out of disposable pen tubes and smuggled needles. (World Health Organization 2003) In northern Thailand, 27% of IDUs said they had been in jail, even before the ongoing crackdown on drug dealers and users.

In Indonesia, 12% of injectors reported in behavioural surveillance that they had been jailed, and in the capital, Jakarta, one-quarter had been incarcerated. Between 1997 and 2001, the number of drug-related cases in jail rose five-fold. During that time, HIV prevalence among drug injectors in sentinel surveillance in Jakarta rose from zero to 47%. Tellingly, in the capital's overcrowded jails, HIV prevalence started to rise two years later, from zero in 1999 to 25% in 2002.

Some of this rise in prevalence probably occurred because people were more likely to have been infected by the time they entered prison. But there is evidence that some of the rise in HIV is the result of risk behaviour that is occurring inside jails. Consider Figure 19, which shows surveillance data from a West Java prison where male prisoners are randomly selected for anonymous HIV testing, according to national surveillance protocols. Mirroring

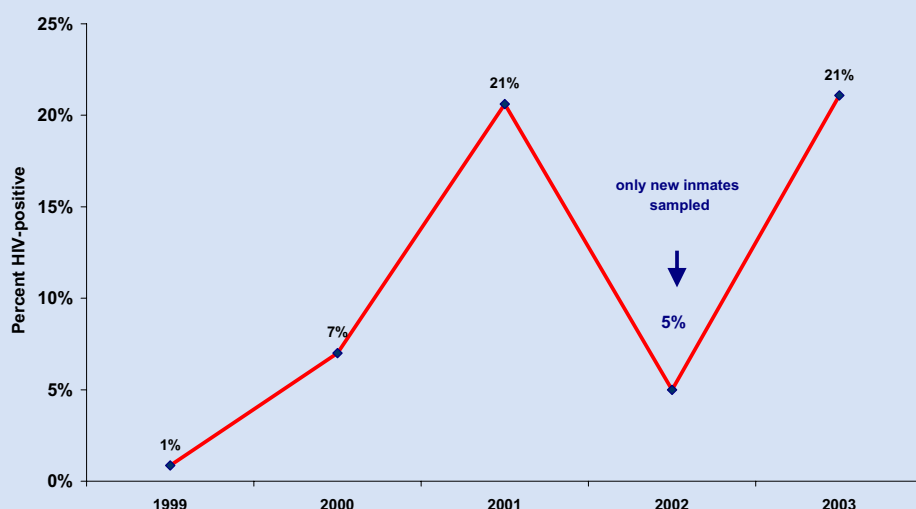


Figure 19: Percent of prisoners testing HIV-positive at a West Java jail. 1999-2001 and 2003 are a random sample of all inmates, 2002 is new inmates only

The difference between new arrivals and all inmates suggests HIV is being transmitted within Indonesia's jails

(Source: Indonesian national surveillance data)

other prisons in Java, HIV prevalence rose very sharply 1999 and 2001. The sharp drop in 2002 was due not to low HIV infection rates in the prison, but to a change in sampling. In that year, only newly-registered inmates were included in surveillance. In 2003, the prison reverted to testing a random sample of all prisoners. In other words, 5% of people coming in to jail in 2002 were infected with HIV, while a year later, 21% of all prisoners were infected.

The clear implication of these data is that HIV was being transmitted inside the prison, either through drug injection or through unprotected anal sex between prisoners.

In **Thailand**, too, studies suggest a link between incarceration and HIV infection. Among drug injectors in northern Thailand who had never been to jail, HIV prevalence was 20%. Among those who had been in jail but did not report injecting drugs while in jail, 38% were HIV-positive after release. Among those who said they injected in jail, HIV prevalence was higher, at 49%. This does not prove that people contracted HIV in jail, but it is strongly suggestive.

Even more suggestive was a rare HIV incidence study conducted during the trial of a potential vaccine in Bangkok, which was able to track people who both went to jail and became HIV-infected during the time they were enrolled in the study. Those who went to jail but said they did not inject drugs in jail were twice as likely to have become infected with HIV during the study compared with those who did not go to jail, while those who injected drugs in jail were seven times more likely to have acquired HIV. (Choopanya, Des Jarlais et al 2002) A related study looked in greater detail at factors associated with HIV infection in this population; it found that sharing needles in police holding cells before going to jail increased the likelihood of HIV infection two-fold. (Buavirat, Page-Shafer et al 2003) New infections in jail are doubly dangerous in countries such as Indonesia where the average jail sentence is a year or less—frequently three months for drug users. As explained on page 45, newly-acquired infections are likely to be highly transmissible. If prisoners have sex soon after their release, there is a higher than usual likelihood that the HIV infection will be passed on.

It is not clear what effect arresting drug injectors has on drug use or on public order, but, in several countries, jailing injectors clearly increases the likelihood that they will be infected with HIV. This is worrisome for countries such as Thailand, whose jails held more than 100,000 people on drug-related charges at the start of 2004—up from fewer than 13,000 in 1992. (Beyrer, Jittiwutikarn et al 2003; Thailand Department of Corrections 2004)

It is not clear what effect arresting drug injectors has on drug use or on public order, but, in several countries, jailing injectors clearly increases the likelihood that they will be infected with HIV.

There is no excuse for allowing this situation to continue. If there is one thing that distinguishes drug injectors in prison from those outside, it is that they are no longer a “hard-to-reach population”. At the very least, widespread incarceration of drug users should provide an opportunity for active HIV prevention programmes, both within prisons and as a preparation for release, when people who might have been newly exposed to the virus in jail are at very high risk for passing it on.

Jails also provide an obvious entry point for care in Asia. Governments and international agencies wishing to increase the availability of antiretroviral treatments for HIV would do well to look to their prison systems. Countries where tuberculosis (TB) is also common may find high rates of HIV and TB co-infection in jail, and may wish to step up TB treatment and prophylaxis programmes in these settings. Referral systems between jail and services outside can help introduce essential health, prevention and care services to people who might otherwise potentially be hard to track down in the community.

Closing our eyes: Male-male sex is an ignored engine for HIV in Asia

In most countries in Asia, the very first cases of AIDS and of HIV were identified in men who have sex with other men, and not infrequently they were foreigners or the sex partners of foreigners. It was not long, however, before drug injection and men buying sex from women emerged as prominent risk factors in the region, and the uncomfortable issue of male-male sex was swept into the closet, even in countries such as **Thailand**, which took a generally pragmatic and nonjudgmental approach to the epidemic. The generalised discomfort with male-male sex has meant that very little data has been collected among men who have sex with men. This has helped generate a by-now familiar vicious circle: no data equals no problem, no problem equals no prevention programmes, and no prevention programmes equals no need to collect data. Inside that circle, HIV can spread undetected.

One reason that so little is known is that male-male sex is poorly understood in Asia. Some countries have culturally sanctioned transgendered communities (*hijra* in **Bangladesh**, *waria* in **Indonesia**, *katoey* in **Thailand**, among others). While it is widely recognized that members of these communities often work as sex workers, very little thought is given to their clients—male-identified men who want to buy anal sex. In qualitative studies, clients of transgendered sex workers often say that they do not consider sex with *waria* as homosexual behaviour, but rather as a

variation on sex with female sex workers. (Pisani, Girault et al 2004b) Besides sex between men and transgenders, other forms of male-male sex are also common. While a “gay” social identity is beginning to emerge in some Asian cities, a high proportion of men who have sex with other men do not consider themselves homosexual, and continue to have sex with women. This plethora of identities and behaviours (discussed at greater length in Chapter 3) illustrates the difficulty of even finding an appropriate term for the risk of anal sex between biological males in Asia. For the sake of brevity, this report will refer to people who engage in male-male sex as MSM (men who have sex with men, excluding transgenders) or transgenders, as appropriate.

In recent years, a few countries have started to collect information on male-male sex. After years of programming neglect, this has yielded some unpleasant surprises, as **Table 2** illustrates.

HIV has reached very high levels among some sub-sections of the population. It is notably higher among transgenders, who often have a high turnover of commercial anal sex partners. But HIV prevalence has reached 17% in a very large sample of Thai men frequenting Bangkok’s growing number of gay venues, and it was at the same level in a surveillance site at a sexual health clinic for MSM in Mumbai, **India**. HIV infection is high among MSM in the **Cambodian** capital Phnom Penh, and is beginning to emerge in some of the continent’s largest cities, including Beijing and Jakarta.

Table 2: Wake up call: Percent of MSM and transgenders infected with HIV, various countries

Surveillance/study location	Percent HIV-positive	
	MSM	(Number tested) Transgender
Bangladesh, Central A, 2002	0.2% (406)	0.8% (393)
Phnom Penh, Cambodia, 2000	12.8% (166)	36.7% (40)
Beijing, China	3.1% (481)	
Dili, East Timor, 2003	0.9% (110)	
Mumbai, India, 2002	16.8% (NA)	
Jakarta, Indonesia, 2002*	3.2% (529)	21.8% (250)
Bangkok, Thailand, 2003	17.3% (1,121)	
Thailand, 4 provinces, 2003*	7.9% (633)	
Ho Chi Minh City, Vietnam, 2000/2002**	5.7% (280)	

(Sources; National surveillance data and(Choi, Liu et al 2003; Colby, Cao et al 2004; Girault, Saidel et al 2004; van Griensven, Thanprasertsuk et al 2004; Pisani and Dili STI survey team 2004a; Pisani, Girault et al 2004b)

* Sample design includes male sex workers

** MSM presenting for voluntary testing services

It should be noted that most of the data shown in Table 2 represent HIV prevalence in samples chosen at sites where men go to meet one another, often looking for new sex partners. These prevalence figures are unlikely to represent HIV infection in the whole population of MSM. Still, they should act as a wake-up call to public health authorities, including those in countries that have not recorded any HIV epidemic among MSM simply because they have not bothered to look for it.

The question of how many men engage in high-risk anal sex is much debated. In a household survey in rural Bangladesh, for example, 8% of men said they had had sex with another man, most of it before they got married. (Hawkes, Morison et al 2002) Among truck drivers in the same country, 20% said they had sex with men, but almost all said they also had sex with women. (Gibney, Saquib et al 2003) In a survey of truck drivers in Pakistan, men were more likely to report sex with other men than with female sex workers. Almost half the surveyed truck drivers reported ever having had sex with a man for no payment, and another 11% said they had bought sex from a man, while only one-third said they had ever bought sex from a woman. (Agha 2002)

There are very few studies that record male-male sex in the general population; those that exist suggest that between 3% and 5% of men in Asia have sex with other men on a regular basis.

In considering what drives the HIV epidemic in Asia, we are more interested in current sexual behaviour than in what might have happened over a person's entire life. There are very few studies that record male-male sex in the general population; those that exist suggest that between 3% and 5% of men have sex with other men on a regular basis. In a household telephone survey using an automated questionnaire in **Hong Kong**, 5% of Hong Kong men aged 18-60 reported ever having had sex with a man; but barely half of them reported a male partner in the previous six months. (Lau, Siah et al 2002) In a variety of surveys in Thailand, between 3% and 4% of men have reported recent sex with men (Asian Institute Mahidol University and Bangkok Metropolitan Administration AIDS Control Division 2003; Lertpiriyasuwat, Plipat et al 2003) Similarly, in the **Philippines**, 3% of over 1 200 men recruited at blood banks and medical facilities said they

had had anal sex in the preceding six months. (Wi, Sanie et al 2002) In a household-based survey in a low-income area of Chennai, India, 6% of men reported sex with other men. These men were over eight times more likely to be infected with HIV than other men in that population, and 60% more likely to be infected with other sexually transmitted infections. (Go, Srikrishnan et al 2004)

Like HIV surveillance, behavioural surveillance among MSM is likely to capture the high end of the risk spectrum—in most cases, men are recruited for inclusion in surveillance from locations where social and sexual activity is common. In these more sexually active sectors of the MSM community, high-risk behaviour is the norm in most Asian countries. HIV is more likely to be transmitted during anal sex than during vaginal sex, because the anus is not naturally lubricated, and small tears and lesions that allow HIV to pass from one partner to another can easily occur. This is especially true for the receptive partner, because sperm and other body fluids will remain in the anus after the insertive partner has withdrawn. Anal sex (both insertive and receptive) is also vastly more risky than oral sex. Anal sex is by far the most common sexual practice between men—95% of the Bangladesh truckers who had ever had sex with a man reported anal sex, for example, while in China, 84% of MSM reported anal sex. (Gibney, Saquib et al 2003) Surveillance in three Indonesian cities found that some 89% of MSM who did not sell sex reported recent anal sex.

Anal sex per se is not a risk factor for HIV infection, any more than vaginal sex is. For an HIV infection to occur in anal sex, there must be an infected partner and an uninfected partner—sex between faithful partners of the same HIV status cannot result in a new infection. However, the evidence indicates that mutually monogamous relationships are not the norm among MSM in Asian countries. In **Hong Kong**, 57% of MSM in a telephone survey believed that their own male partner currently had other partners. (Lau, Siah et al 2002) In **Vietnam's** Ho Chi Minh City, MSM were even less likely to think their regular partnership was exclusive—just 16% of men with a regular partner said they believed their partner did not also have sex with other men. (Colby 2003) These expectations are confirmed by people's reports

about their own behaviour—82% of MSM in Ho Chi Minh City reported multiple partners in the last month, and close to 40% reported five or more partners. In **China's** Sichuan province, 62% of those who engaged in anal sex reported three or more partners in the last six months. In Indonesia one-third of MSM who practised anal sex reported two or more non-commercial partners in the preceding month, while in **East Timor** half of MSM had multiple partners in the same period of time. (Pisani and Dili STI survey team 2004a) In five Indian cities where behavioural surveillance was conducted among MSM, the mean number of non-commercial partners in the preceding month ranged from four in Delhi and Mumbai to six in Chennai.

Multiple partnerships greatly increase the chance that an infected person will encounter an uninfected person. But the likelihood of exposure to HIV is also affected by condom use, since it is only in unprotected sex that HIV transmission is likely to take place. Condom use in anal sex between men varies very widely across Asia. As Figure 20 shows, condom use is generally higher in commercial sex between males than it is in non-commercial partnerships. There is other evidence, too, that condom use tends to be highest in higher-risk settings. In Hong Kong, for example, 68% of men who meet other men for sex in saunas say they always use condoms in these encounters. (Smith, Chung et al 2003) In general, however, consistent condom use is far lower. In Bangladesh, for instance, only 3% to 8% of MSM reported always using condoms with their non-

commercial partners, while in Indonesia, the proportion ranged from 12% to 24% across various cities.

Turning a blind eye to male-male sex has skewed risk perceptions

Figure 20 underscores an interesting reality: almost everywhere it has been measured, condom use in commercial sex between men and women is consistently higher than condom use in commercial sex between men, even though sex between men carries a far higher risk of HIV transmission. This is probably in part because HIV prevention programmes throughout Asia have focused attention on the dangers of unprotected sex between men and women, while maintaining a deathly silence on the subject of sex between men. As a result, men are far more aware of the risks of sex with women than they are of the risks of sex with men.

In **Vietnam's** Ho Chi Minh City, for example, fewer than one-third of MSM questioned in a 2001 survey said they thought MSM were at higher risk of HIV infection than other people (this still low rate had risen from just 22% in 1997). (Colby, Cao et al 2004) Just 6% said they felt at risk of HIV infection, despite very high levels of multiple partnerships and unprotected sex—a pattern repeated in **China** and **Pakistan**. This skewed risk perception translates into ongoing risk behaviour. While 70% of Vietnamese MSM who had casual female partners used a condom at last sex with a woman, only 55% used a condom at last casual sex with a man.

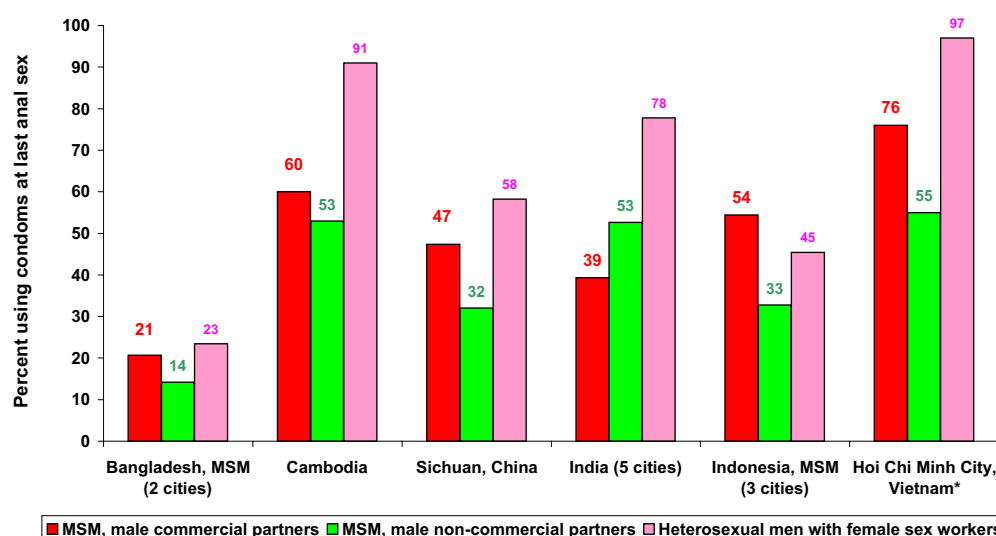


Figure 20: Percent of MSM using condoms at last sex with commercial and non-commercial partners, and comparison with condom use reported by clients of female sex workers in the same locations

MSM are more likely to use condoms in commercial than in casual sex, but condom use in male-male sex is still lower than with female sex workers

(Source: BSS data from various countries and Colby 2003; Girault, Saidel et al 2004)

*Always or frequent condom use in commercial sex over last month

A similar pattern was seen in **Cambodia**, where 79% of MSM reported always using a condom if they had casual sex with women, while only 33% always used condom in casual anal sex with a man. In a **Hong Kong** survey, men who had sex with men were half as likely to feel at risk of being infected with HIV compared with men who had sex with female sex workers—even though MSM were eight times more likely to report a recent STI. (Lau, Siah et al 2002)

Start with the basics

Throughout Asia, men who have sex with men need more information about the risks involved in anal sex. But information alone is never enough. Men who have sex with men are not very different from men who have sex with women in their reluctance to use condoms; most say they do not use them because they believe sex is more fun without condoms. But MSM are far more likely than heterosexual men to cite limited access to condoms as a reason for not using them. Being embarrassed to buy condoms is mentioned particularly frequently by MSM in a number of countries, including **Cambodia, East Timor, India, Indonesia** and **Iran**. This may be associated with a fear that buying condoms will identify a person as “gay”, a somewhat irrational fear in countries where condoms are heavily promoted for use between men and women. Whatever the reason, efforts to reach out to MSM and provide them with easier access to condoms are an important step

toward promoting greater use. The experience of India, illustrated in **Figure 21**, is instructive in this regard. In cities that have active peer distribution networks supporting safer sex for men who have sex with men, overall levels of condom use are far higher than in cities that rely largely on pharmacies and other traditional outlets.

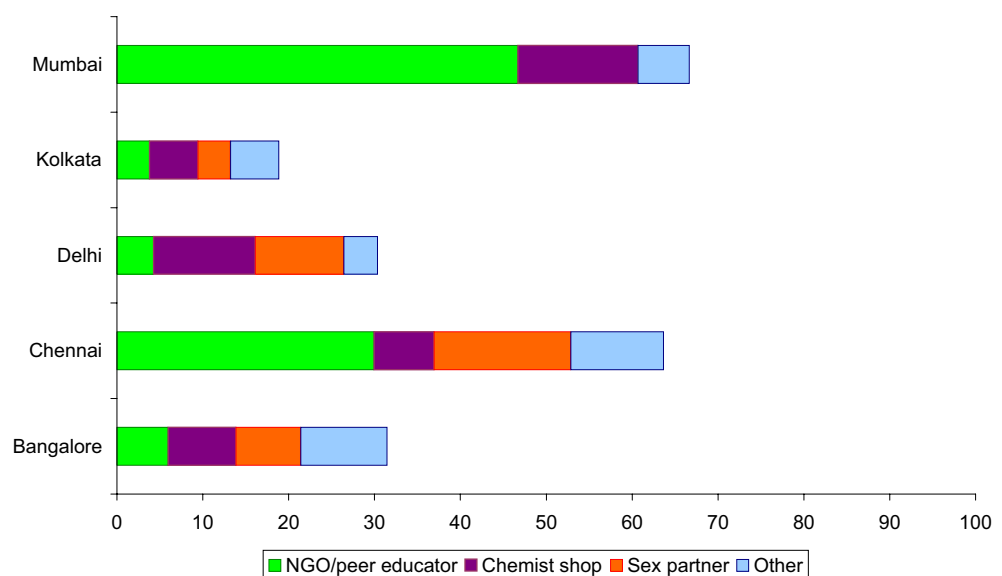
Men who have sex with men are far more likely than heterosexual men to cite limited access to condoms as a reason for not using them.

Lubricants are another basic prevention technology that can help cut HIV transmission in anal sex. The anus, unlike the vagina, does not produce natural lubricants, so abrasive anal sex easily produces rectal trauma, and that in turn makes it easier for HIV to pass from an infected to an uninfected person. Condoms are generally lubricated, but many men prefer to use additional lubricant even when using a condom. The problem is that many of the creams and lotions which are often used in anal sex are oil-based, and can damage the latex from which condoms are made. The safest lubricants are water-based lubricants (such as the well-known brand KY™). However, data from around Asia show that water-based lubricants are rarely used, and many MSM have never even heard of them. Where they are known, water-based lubricants are considered expensive and inconvenient (they are often

Figure 21: Percent of men using condom at last commercial sex, according to source of condom used at last sex, five cities, India

More peer distribution turns into more condom use

(Source: India National AIDS Control Organisation 2002)



packaged in large tubes like toothpaste containers, which do not fit easily into a pocket during a night's cruising). In **Vietnam**, 75% of respondents had never heard of water-based lubricants; 41% mentioned saliva as an appropriate lubricant. (Colby 2003) In **East Timor** only one MSM in 10 had ever used water-based lubricant, and in **Cambodia** only one in 100 had used it. (Girault, Saidel et al 2004; Pisani and Dili STI survey team 2004a)

These problems should not be difficult to overcome. **Indonesia**, for example, found that only 14% of MSM and male sex workers and 15% of transgender sex workers (*waria*) had ever used water-based lubricant. What's more, 68% of those who did not always use condoms in both groups said it was because they were embarrassed to buy condoms, or condoms were just too inconvenient to access. In response, an HIV prevention programme began producing "safe sex packs". These slickly designed little packs—picturing a gay man on one and a *waria* on the other—contained a condom, a sachet of lubricant, and instructions on their correct use in anal sex. Close to 70,000 of the packs were handed out in four cities in just two months. The result? Lubricant use doubled among MSM and rose nearly two and half times among *waria*. Around 90% of both groups said they would be willing to buy the packs, and plans to make a socially-marketed version available are now underway. (Kharisma Nugroho, personal communication)

The unseen problem: rectal STIs

It is widely known that sexually transmitted infections other than HIV increase the likelihood that HIV will be transmitted in sex between an infected and an uninfected person. The importance of STIs as a cofactor in Asia have already been discussed (see page 39). STIs constitute a neglected epidemic even among heterosexual men, where they are more likely to be symptomatic, and more particularly among women, among whom asymptomatic infections are common. But infections that are transmitted in anal sex are not just overlooked, they are almost completely invisible. So much so, that there is very little data available to help gauge the magnitude of the problem, and even less information on what can effectively be done about it.

Appropriate sexual health services for men who have sex with men should be an important component of HIV prevention services for men in the Asian region, but they are currently badly overlooked.

The information that does exist, is not encouraging. In **East Timor**, 14% of MSM were infected with gonorrhoea compared with just 0.5% of soldiers and taxi drivers. All but one of the infections was rectal. Chlamydia infection among MSM was similarly high, and all of the infections detected were rectal. In **Cambodia**, urethral infections among MSM were much higher than rectal infections, but overall 27% of MSM were currently infected with at least one sexual infection. (Girault, Saidel et al 2004) Infected men in both settings shared one important characteristic: many did not recognise that they might be infected with an STI. Two-thirds of men with a current, laboratory-confirmed STI reported no symptoms at all in the previous year. People who do not recognise that they have symptoms of an infection do not seek treatment for that infection. But it is not necessarily true that if people do recognise symptoms, they will automatically seek treatment. Many of the MSM who reported symptoms of STIs did nothing about it—in the case of MSM in East Timor, just 16% of those reporting symptoms in the last year went to a medical facility for care. In **China**, 60% of MSM reporting STI symptoms either did nothing at all or self-medicated. It appears that appropriate sexual health services for MSM should be an important component of HIV prevention services for men in the Asian region, but they are currently badly overlooked.

The other sex workers

When sex workers are discussed in Asia, people usually think of women who sell sex to men. But Asian men also buy sex from male and from transgender sex workers. For example, 48% of MSM in Lahore, **Pakistan** and 20% of MSM in Sichuan, **China**, said they bought sex from another man in last six months. (Naz Foundation International and Vision 2002; China-UK HIV/AIDS Prevention and Care Project 2003a) In **Vietnam**, 22% of MSM in surveillance bought sex from a man in the preceding year and 31% sold sex. (Colby 2003) Over one-third of MSM in five cities in India bought or sold sex in the month before surveillance in 2002, and, in the

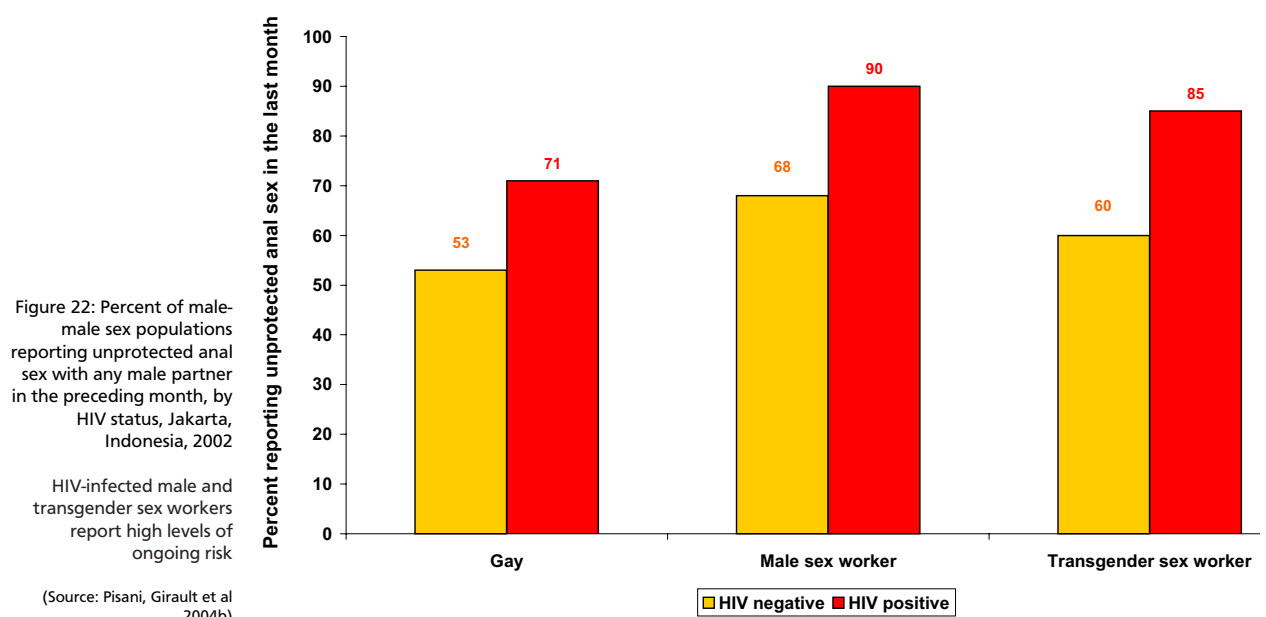
cities of Chennai and Delhi, more than one MSM in two was involved in a commercial sex transaction with another man. Close to three-quarters of the **Cambodian** MSM approached for surveillance in public meeting areas in the capital Phnom Penh said they had sold sex to another man in the previous six months, while surveillance staff in Jakarta, **Indonesia**, easily identified over 70 massage parlours whose primary purpose was to provide male sexual services for men. The high rates of commercial sex between men reported in surveys do not represent the habits of all MSM. Those included in surveillance are generally approached at sites known to be “hot spots” for seeking new sex partners, including commercial partners. But those rates serve to draw attention to the forgotten population of male sex workers.

Not surprisingly, sex workers report higher numbers of partners than other MSM, and the consequence is often higher rates of HIV infection. In **Thailand**’s capital, Bangkok, 32% of MSM who reported selling sex were infected with HIV, nearly twice the level of those who did not sell sex. In Jakarta, 4% of male sex workers tested HIV-positive compared with 2.5% of other MSM, a difference that was not statistically significant. HIV infection among transgender sex workers, however, was dramatically higher, at 22%. This level, which represents a tripling since HIV was last measured in this group in the mid-1990s, places

transgender sex workers second only to drug injectors in terms of HIV prevalence in Indonesia. Because the number of transgender sex workers is relatively small, their impact on the epidemic will not be as great as that of injectors. But transgender sex workers sell sex to heterosexual men, many of who, in qualitative studies, also report being regular clients of female sex workers. So the “booster effect” seen among IDUs also applies here. It is important not to overlook this population in planning an HIV/AIDS response.

If risk behaviour remains unchanged from that recorded in surveillance in Indonesia in 2002, HIV infection will inevitably rise further among transgender sex workers, among the heterosexually-identified men who make up most of their client base, as well as among other MSM. As **Figure 22** shows, between 85% and 90 % of HIV-positive male sex workers in Jakarta have reported recent unprotected anal sex. Only a relatively small proportion of respondents had ever received the results of an HIV test at the time of this survey, so they may not have been aware of the risks they were posing to their clients and other partners.

Some 40% of transgender sex workers in Jakarta who were infected with HIV were also infected with current, active syphilis. This is further confirmation that they are continuing to have unprotected sex, but it is also worrisome since syphilis infection will speed up



HIV transmission to clients and other sex partners. It is also worth noting that, while 79% of transgender sex workers had provided both oral and anal sex services to clients in the past week in three cities in **Indonesia**, 12% had provided oral sex services only. In qualitative research, transgender sex workers reported getting paid the same or more for oral sex as for anal sex. While oral sex may not be entirely without risk, unprotected oral sex is much, much safer than unprotected anal sex. A shift from anal to oral sex services in commercial sex may therefore be considered as one risk reduction strategy for male and transgender sex workers who cannot negotiate condom use in anal sex.

In some settings, it is commonly assumed that male sex workers serve only or mainly foreign clients. That assumption has been upended in **East Timor**, for example, where the presence of international peacekeepers and United Nations staff coincided with social liberalisation that led to more openness about homosexual activity. One survey found that only one-third of men who had sold sex in the previous month had foreign partners—the rest of the demand came from locals. One in ten of the all-Timorese survey sample had bought sex from another Timorese man in the preceding month. Qualitative research in Hanoi, Vietnam, mirrors these findings. While men selling sex in the increasingly active commercial sex scene there do provide services to foreign partners, they report that the majority of their clients are Vietnamese. (Doussantousse, Anh et al 2002.

recent partner, and 80% had *never* used a condom. HIV had not yet been introduced to this population at the time, but 37% of the sex workers were already infected with syphilis. (Naz Foundation International and Vision 2002) In a separate study of MSM in Lahore, Pakistan, not one of the 57% of sample who reported accepting money for sex in the preceding month said he always used condoms.

It is commonly assumed that male sex workers serve only or mainly foreign clients. That assumption has been upended

Interestingly, both the Hanoi and the East Timor studies reported that overseas clients were more likely to use condoms than local clients. Figure 20 showed that MSM are generally more likely to use condoms in commercial sex than in unpaid sex, but consistent condom use in commercial sex is low, even in places where prevention programmes exist. Where programmes are absent, condom use is dismally low. At the beginning of this decade, in the Pakistan city of Karachi, 93% of transgender sex workers reported receptive anal sex in the previous year— but nine out of 10 did not use a condom with their most

Chapter 3

Chapter highlights

- The three major sets of behaviours that carry a high risk for HIV transmission in Asia are injecting drugs, sex between males, and commercial sex between men and women. The evidence shows that people who have any of these risk behaviours often practice more than one.
- Because sex workers usually have more partners than other people, the most dangerous combination of risk behaviours (in epidemiological terms) is found among female and male sex workers who inject drugs. Male injectors also contribute to increased HIV prevalence among sex workers from whom they buy sex.
- In Asia, sexual identities are not always clearly defined. People's sexual behaviours—occasional sex with male or transgender sex workers, for example—may not match their overt social identities. This means that a high proportion of men who have sex with men also have sex with women.
- Being a migrant does not in itself put a person at risk of HIV infection. But there is plenty of evidence that lots of men on the move do use their disposable income to buy sex when they are away from home. Among female migrants, those at highest risk are those who migrate specifically to sell sex in large cities where demand is high.



**Chapter 3:
People are
not square!
Although
prevention
programmes
sometimes
think in
boxes, people
often live
in circles of
interconnected
risks**

So far, this document has described three separate sets of behaviours that carry a high risk for HIV transmission: injecting drugs, sex between males, and commercial sex between men and women. But people, of course, can adopt more than one of these behaviours.

Data systems in Asia are beginning to reveal two important facts. The first is that the majority of men and women in Asia do not engage in any of these high-risk behaviours. The second is that those who do practise such behaviour very often engage in more than one of them. This has very important implications for the developing epidemics and the efforts to control it. If each of the sub-epidemics developed in isolation, in its own box, the epidemic as a whole would be easier to manage. But—in Asia, at any rate—they do not develop separately. Drug injectors buy and sell sex from both men and women, men sell sex to men and buy it from women, women sell sex to clients and buy drugs for their husbands. The permutations are many.

The majority of men and women in Asia do not engage in behaviours that carry a high risk for HIV transmission. But those who do very often engage in more than one risky practice.

It adds up to an illustration of the adage that “the sum is greater than the parts”. The next chapter examines these realities in more detail. In this section we quantify the extent to which various, simultaneous risk behaviours put some people at risk of contracting or passing on HIV infection.

Sex and drugs: a classic combination

For some time, it was believed that people who inject drugs are unlikely to be very sexually active. This belief, apparently based on evidence from countries with long-established populations of injectors, made authorities in Asia feel relieved, because the only way an IDU-driven epidemic is likely to spread to non-injectors is through the sexual activity of injectors. If injectors are not having sex, then the problem remains confined among those who share needles, a small part of the population and not one politicians tend to worry much about.

In a few Asian countries, there is indeed

evidence that years of drug injection dampens sexual activity. In central **Bangladesh**, for example, half of the men who had been injecting for five years or more reported buying sex in the last year, compared with 63% of those who were more recent injectors. But the fact that one in two long-term injectors is still buying sex is hardly evidence of a badly dented libido, particularly since over one-third also reported sex with a regular female partner in the previous year.

To make matters worse, long-term injectors are something of a rarity in many Asian countries, since widespread drug injection is a relatively new phenomenon. Indeed, in every Asian country where data is collected, drug injectors report more sexual activity than other population groups, and much of that sex is commercial, both bought and sold.

Selling sex to buy drugs: a lethal combination

The more non-injecting sex partners drug injectors have, the more likely it is that an HIV infection acquired as a result of needle-sharing will be spread to non-injectors. Because sex workers usually have more partners than other people, the most dangerous combination of risk behaviours (in epidemiological terms) is found among sex workers who inject drugs.

HIV is transmitted more easily through shared needles than through sex. This explains why in Ho Chi Minh City, **Vietnam**, 49% of injecting sex workers are infected with HIV, compared with 19% of those who use drugs without injecting them, and 8% of those who do not use drugs at all. (Giang 2002) It is deeply troubling, then, to find that 38% of almost 1 000 sex workers included in the survey that yielded those results were drug injectors. Other studies in Vietnam report lower rates of injection among Ho Chi Minh City sex workers, but they have also found that drug injectors were far more likely than other sex workers to work on the street, which is among the riskiest of locations. Drug-using sex workers were about half as likely to use condoms as those who did not use drugs, according to one large study (Vietnam Ministry of Labour Invalids and Social Affairs 2001), while behavioural surveillance found that street-based sex workers who did not inject drugs were six times more likely to

use condoms than those who injected drugs and shared their injecting equipment with other users – in other words, the sex workers most likely to be exposed to HIV. That's a high proportion of sex workers. Between 64% and 73% of drug-injecting, street-based sex workers said they shared injecting equipment, which amounts to three to five times more than the sharing reported by male IDUs in the same cities.

As **Figure 23** shows, injection among sex workers seems to be particularly well-established in Vietnam. The fact that one sex worker in six was an injector in the capital Hanoi probably explains a large part of the steep rise in HIV prevalence among sex workers in the city shown in **Figure 2**. In the northern port city of Haiphong, nearly 40% of all sex workers said in behavioural surveillance that they injected drugs.

Of the places that have measured drug injection among sex workers in Asia, only Manipur has recorded levels similar to those in Vietnam. In this northern state of **India**, which has a well-established IDU-driven HIV epidemic, 20% of female sex workers said they injected drugs, according to behavioural surveillance in 2001. In other north-eastern Indian states, about half as many sex workers have reported injecting drugs.

In other parts of India and Asia, far fewer sex workers report injecting drugs, but the level is high enough to be a cause for concern. In Sichuan province in **China**, 2.5% of sex workers said they injected drugs, but among street-based sex workers the proportion injecting was

twice as high, at one in 20. Women selling sex on the streets reported the highest turnover of clients of any subset of sex worker, as well as the lowest levels of condom use. In both **Iran** and **Indonesia**, up to 3% of sex workers in some provinces reported injecting drugs, (though in Indonesia fewer admitted to being current injectors). A large qualitative study in Iran has reported that a rising proportion of IDUs are women, with about half of female sex workers using drugs, many of them injecting. (World Health Organization 2003) In Bangladesh, fewer than 4% of female sex workers in any site reported injecting drugs, but up to one in five believe some of their clients were drug injectors, and between five and 10% reported regular partners who injected drugs.

Almost everywhere, the population of female sex workers is much larger than the population of female drug injectors. Indeed female drug injectors are often so hard to find in sizeable numbers that they are frequently excluded from surveillance. But whenever female IDUs are questioned, there is one constant finding: even when the overall proportion of sex workers injecting drugs is low, the overall proportion of female drug users who sell sex is usually very high.

The survey shown in **Figure 24** recorded very high rates of sex work among self-reported IDUs encountered in "hot-spots" for risk activity, including commercial sex. In a larger survey in nine **Kazakh** cities focusing only on IDUs, rates of commercial sex among female IDUs were somewhat lower (42% in Almaty

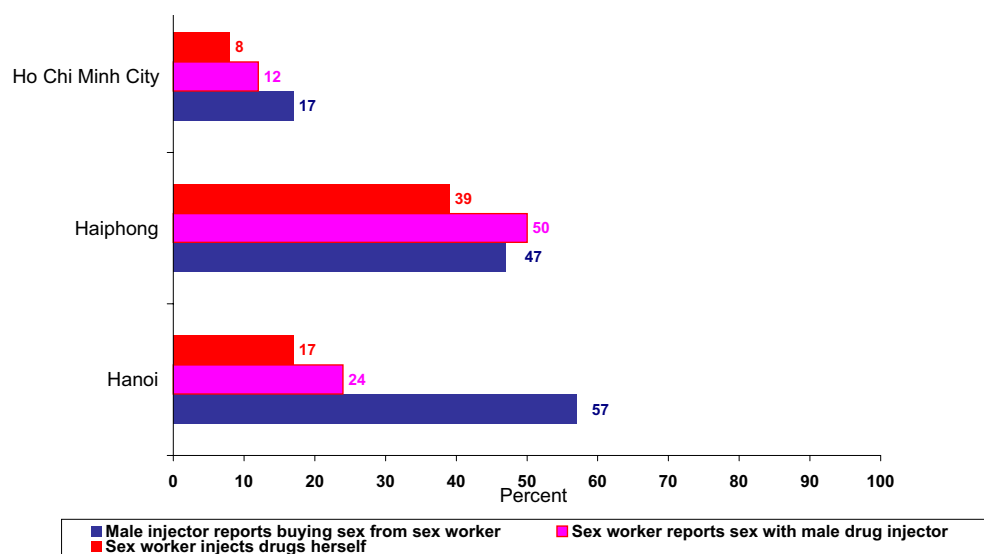


Figure 23: Percent of sex workers who inject drugs and have sex with injectors, and percent of male injectors who report buying sex, three cities, Vietnam, 2000

Sex workers inject drugs, and they also have sex with other injectors

(Source: Vietnam National AIDS Standing Bureau and National Institute of Hygiene and Epidemiology 2001)

and 33% in Karaganda). But the proportion of female IDUs selling sex was still very high—20 times higher than the proportion of male injectors who said they sold sex for cash or drugs. Over 40% of sex sold by IDUs was performed without a condom. (Kazakhstan National AIDS Control Programme and Ministry of Health, Center of Public Opinion Investigation et al 2002)

In China's Sichuan province, 47% of the 452 females included in behavioural surveillance for IDUs said they had sold sex for money or drugs in the previous month. Condom use was reportedly quite high in commercial sex, although at 60% it was considerably below the norm reported by sex workers in the province. Condom use with regular partners was, however, far lower at 17%. In neighbouring Yunnan, which has a long-established HIV epidemic among drug injectors, 21% of female IDUs sold sex. They reported very high rates of condom use: 88% said they used a condom with their last client.

The other side of the coin: drug injectors who buy sex

The fastest way to ignite a heterosexual epidemic in countries where commercial sex is common is rapidly to boost HIV prevalence among sex workers. This can happen when sex workers inject drugs. The next fastest way is to rapidly boost HIV prevalence among clients. If a substantial proportion of injectors buy sex,

HIV prevalence will inevitably increase in the client population. If a drug-injecting client passes an HIV infection on to a sex worker, she or he may then pass it on to a substantial number of other clients.

The variation in consumption of commercial sex among male IDUs is captured in **Figure 25**. The similarity between all but two of the sites is the dominant colour, red, representing unprotected sex. Only in **Thailand** is condom use reported to be a norm among drug injectors when they buy sex, while in Nepal roughly half of injecting clients use condoms.

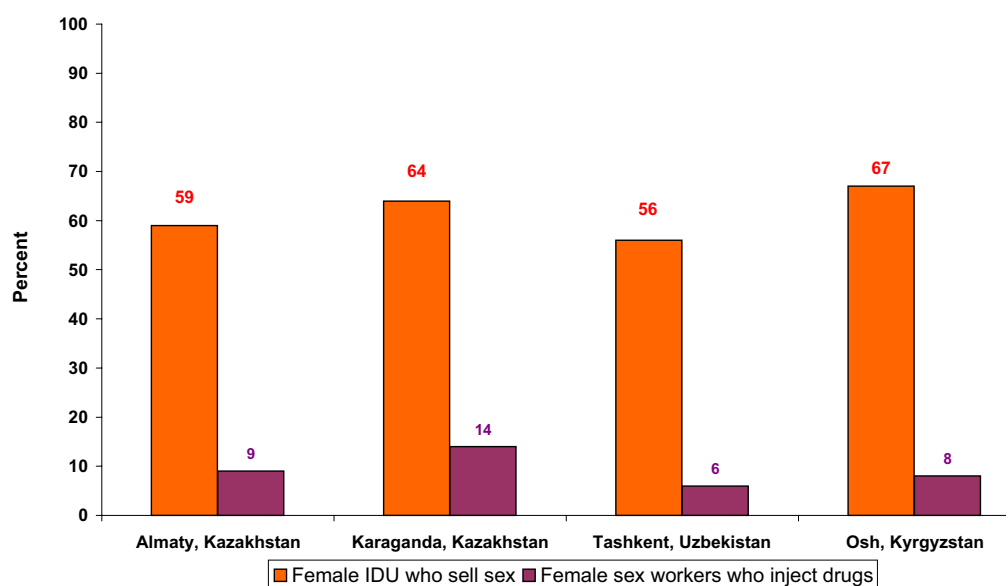
In many of these locations, drug injectors reported even higher levels of regular and casual partnerships, and as a rule, condom use in these partnerships was even lower than in commercial sex. In most cities included by **India** in behavioural surveillance for IDUs, around one-quarter of injectors said they lived with a wife or regular sex partner. In one of the cities, Chennai, as many as 46% of injectors were married or had live-in partners. This has probably contributed to the fact that Chennai also has among the highest HIV prevalence rates among pregnant women in the country. In some areas of **Bangladesh**, notably the northwest, between 50% and 90% of injectors are married.

Few surveillance systems report whether the sex partners of IDUs also inject. Many women are initiated into drug injection by their male sex partners, so women are more likely than men to have regular partners that inject.

Figure 24: Percent of female IDUs selling sex and female sex workers injecting drugs, four Central Asian cities

Only a few sex workers inject drugs, but the majority of female IDUs sell sex

(Source: MEASURE Evaluation 2004)



In Sichuan, **China**, 62% of women who inject drugs said they injected with their regular sex partners, but only 28% of men reported injecting with female partners. Because of the overwhelming imbalance in the sex ratio of injectors in most Asian countries, it is common sense that many male injectors have sex partners who do not inject. Among male IDUs with regular partners in Indonesia, close to nine out of 10 reported that their wives or girlfriends did not inject, and over two-thirds believed that their wives or girlfriends were unaware that their partner injected drugs.

It is clear that many drug injectors are putting non-injecting sex partners at risk of HIV infection. Most seropositive drug users surveyed in one study in Bangladesh, for example, reported non-injecting risk behaviour—87% reported multiple sex partners, 76% said they had unprotected sex, and 64% described recent symptoms of STIs. Another study in Bangladesh recorded rather lower rates of sexual activity among injectors overall. While HIV-infected IDUs reported less sex than those who were not infected, the difference was not statistically significant. (Islam, Hossain et al 2003; Azim, Alam et al 2004a)

This section has focused on the relationship between drug injection and sex between men and women. But the epidemics driven by drug injection and by male-male sex also overlap. In **Indonesia**, rates of drug injection among male sex workers were higher than among other population groups. In all likelihood, these

men were selling sex to finance an addiction. **Cambodia** is a country generally thought to have escaped the burdens of drug injection, but as early as 2000 in a survey of MSM (mostly male sex workers) 3% had injected drugs in the preceding 12 months. (Girault, Saidel et al 2004)

In Tehran, one-third of male IDUs were reported to have sex with men, and in surveys of MSM in China, **Pakistan** and India, between 2% and 4% of MSM also use drugs.

Drugs without needles are not without danger

A great deal of attention is paid to drug injection in the context of HIV—and quite rightly so. In northern **Thailand**, for example, 30% of drug injectors are infected with HIV, compared with 2.8% of people who use drugs but do not inject them. (Razak, Jittiwutikarn et al 2003) But the fact is that majority of drugs consumed in Asia are not injected — they are smoked, inhaled or swallowed. Does that mean HIV prevention programmes should ignore non-injecting drug use? Probably not. Recreational drugs affect people's libido, decision-making power and coordination, all of which can affect whether people have sex and, if they do, whether they use condoms correctly or at all.

In northern Thailand, amphetamine-type stimulants are currently the drugs of choice; indeed, 41% of male students and 19% of females have reported using these drugs. People who take these drugs are four times more likely

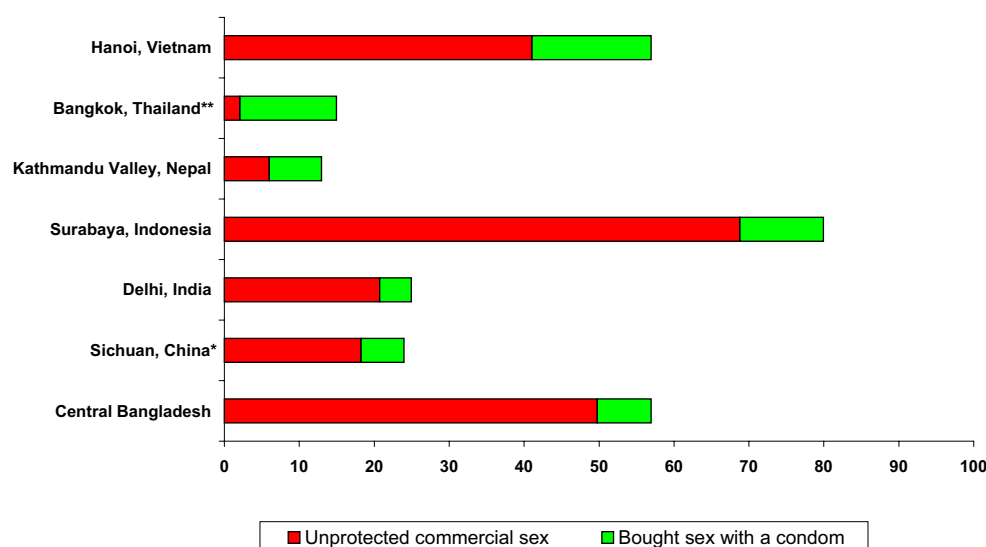


Figure 25: Percent of male IDU buying sex in various cities, by consistent condom use in commercial sex

Throughout Asia drug injectors buy sex. Except for Thailand, most of it is unprotected

(Source: Behavioural surveillance data, see Appendix 2)

*Sichuan: condom use at last commercial sex.

** Bangkok: includes non-injecting drug users

than those who do not to report sexual intercourse, and three times more likely to report four or more recent casual partners. (Sattah, Supawitkul et al 2002) In **China, East Timor** and **Pakistan**, people who took drugs reported more sexual risk than those who did not. In **Bangladesh**, truck drivers who took drugs were more than twice as likely to buy sex, compared with counterparts who did not use drugs. (Gibney, Saquib et al 2003) In **Indonesia**, both sex workers and clients were significantly less likely to use condoms if they used drugs.

Drugs, and particularly amphetamines, may also increase the risk of transmission during unprotected anal sex. Anecdotal reports among MSM suggest that crystal meth delays ejaculation and dampens discomfort or pain for the receptive partner. Both those factors may contribute to sexual practices that increase rectal trauma. Some 47% of male sex workers in Indonesia reported taking drugs in the previous year, compared with 27% of MSM who did not sell sex. Data on specific drugs are not available, but amphetamines are the most commonly-seized drugs in all three Indonesian cities where surveillance took place, according to police reports.

The most common intoxicant of all—alcohol—is also associated with risky sex, and especially commercial sex, throughout Asia. In Bangladesh, men who used alcohol are three times as likely to buy sex as non-drinkers. In **Cambodia, India** and **Vietnam**, high propor-

tions of clients of sex workers report going on a drinking spree before they buy sex. In Indonesia's eastern-most province of Papua (formerly Irian Jaya), men who get drunk were twice as likely to report recent unprotected commercial sex, compared with non-drinkers, and heavy-drinking sex workers also reported less condom use than those who did not get drunk.

Gender balance: Men who have sex with men and women

In many industrialised countries, a majority of people classify themselves relatively easily into one of three categories: homosexual, heterosexual or bisexual. In Asia, as Chapter 2 discussed, sexual identities are more fluid. People's sexual behaviours—occasional sex with male or transgender sex workers, for example—may not match their overt social identities (as heterosexual family men, for example).

The proportion of men reporting same-sex behaviour in household samples was discussed on page 55. A high proportion of these men also reported sex with women. For example, in a household study in **India**, 57% of men reporting sex with other males were married. (Go, Srikrishnan et al 2004) In a similar survey in central **Thailand**, one in three of the men who reported sex with other men also bought sex from women, and almost half had non-

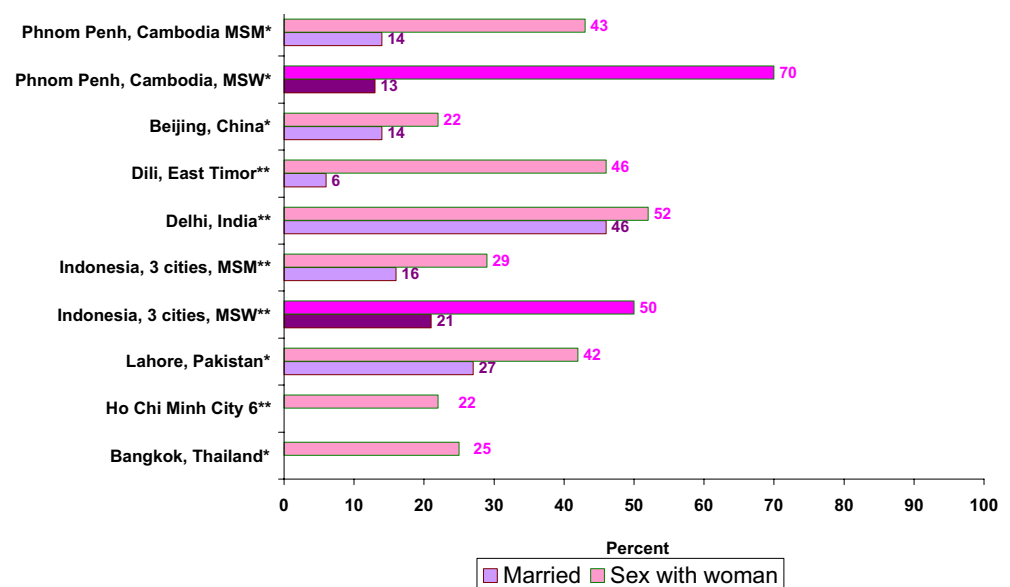
Figure 26: Percent of active MSM who are married or report recent sex with women, various countries

At least one MSM in five reports sex with women; among male sex workers (the darker bars), the rate is much higher

(Source: Data from national behavioural surveillance and Naz Foundation International and Vision 2002; Choi, Liu et al 2003; Colby 2003; Girault, Saidel et al 2004; van Griensven, Thanprasertsuk et al 2004; Pisani and Dili STI survey team 2004a)

Notes: *Last six months

** Last 12 months. China: unprotected sex with woman. MSM refers to men who have sex with men. MSW refers to male sex workers.



regular female partners. (Lertpiriyasuwat, Plipat et al 2003) Among men included in surveillance because they were thought to be likely to have risky sex with women, sex with men was also surprisingly common. One in five of the respondents in a survey of truck drivers in **Bangladesh** reported sex with both men and women, for example. Interestingly, men who had recent sex with men were four times more likely to report recent sex with female sex workers. (Gibney, Saquib et al 2003) This suggests that the availability of sex outweighs many people's sexual identities or preferences. In surveillance among clients of female sex workers in India, 11% said they had ever had sex with a male, and 3% had done so in the previous year. These behaviourally bisexual men were far less likely to use condoms with men than with female sex workers—only 15% of the men said they always used condoms with male partners, compared with 57% with female sex workers.

So in many places, men who are generally assumed to belong to the heterosexual mainstream report high levels of bisexual behaviour. But what about men who are approached for inclusion in surveys because they are associated with venues or services that cater to people who are more openly identified with homosexual behaviour—men sampled at gay bars, cruising areas and in internet chat rooms aimed at gay men, for example?

As **Figure 26** shows, at least one in five men included in surveys across the region because they reported sex with other men also reported recent sex with women. Particularly noteworthy were the high rates of bisexual behaviour among men who sold sex (the darker sets of bars in Figure 26). In Indonesia, high proportions of male sex workers had sex with other men chiefly to earn money; all their unpaid sexual partnerships were with women.

Missing from Figure 26 is an important subset of men with bisexual behaviour: the clients of transgender sex workers. No quantitative data on this group exists, to our knowledge. However, qualitative research in **Indonesia** shows that almost all men who buy sex from transgender sex workers consider themselves heterosexual. Most are active clients of female sex workers, and have sex with transgender sex workers for an occasional “change of scene”. Transgender sex workers, for their part, are proud of the “macho” qualities of their

clients, and dislike providing sex to effeminate or gay-identified men. The Indonesian health ministry estimates that one-quarter of a million Indonesian men buy sex from transgender sex workers each year. One in five transgender sex workers are living with HIV in some parts of the country, so their clients clearly risk being exposed to the virus. If clients become infected in anal sex with transvestite sex workers, they may in turn expose female sex workers and other female partners to HIV. Prevention programmes for heterosexually-identified men may need to include specific information on safe anal sex with transgender sex workers.

The relationship between bisexual behaviour and HIV infection in Asia is interesting. In countries and regions where HIV spread initially in the commercial sex industry, bisexual MSM may be more likely to acquire HIV infection from female sex workers than from their male partners. In the **Cambodian** capital, Phnom Penh, for example, MSM who reported unprotected sex with female sex workers were over three times more likely to be infected with HIV as men without high-risk heterosexual exposure. In that instance, their bisexual behaviour actually appears to be acting as a conduit for HIV to get from the higher-prevalence heterosexual risk networks into the network of MSM.

Changing with the times: will bisexual behaviour diminish in Asia?

Many people believe that high levels of bisexual behaviour in Asia are rooted in two social phenomena. The first, especially visible on the **Indian** sub-continent, is the double standard that is applied to virginity. Women are expected to remain virgins until marriage and then to be monogamous within marriage. For men, on the other hand, sexually activity is generally socially tolerated, whether or not they are married. So, men who prefer sex with women might have sex with men mainly because male partners are more sexually available than women. The second phenomenon concerns the social taboos that apply to same-sex behaviour. Because openly homosexual identities are not socially acceptable, many men who prefer sex with men may force themselves to have sex with women for the sake of social respectability.

Both these factors contribute to the

“invisibility” of male-male sex, reducing the likelihood that people who engage in the behaviour will get the information and services they need to stay safe. Where stigma and denial contribute simultaneously to risky male-male sex and to bisexual behaviour, they threaten to push the virus further into heterosexual populations.

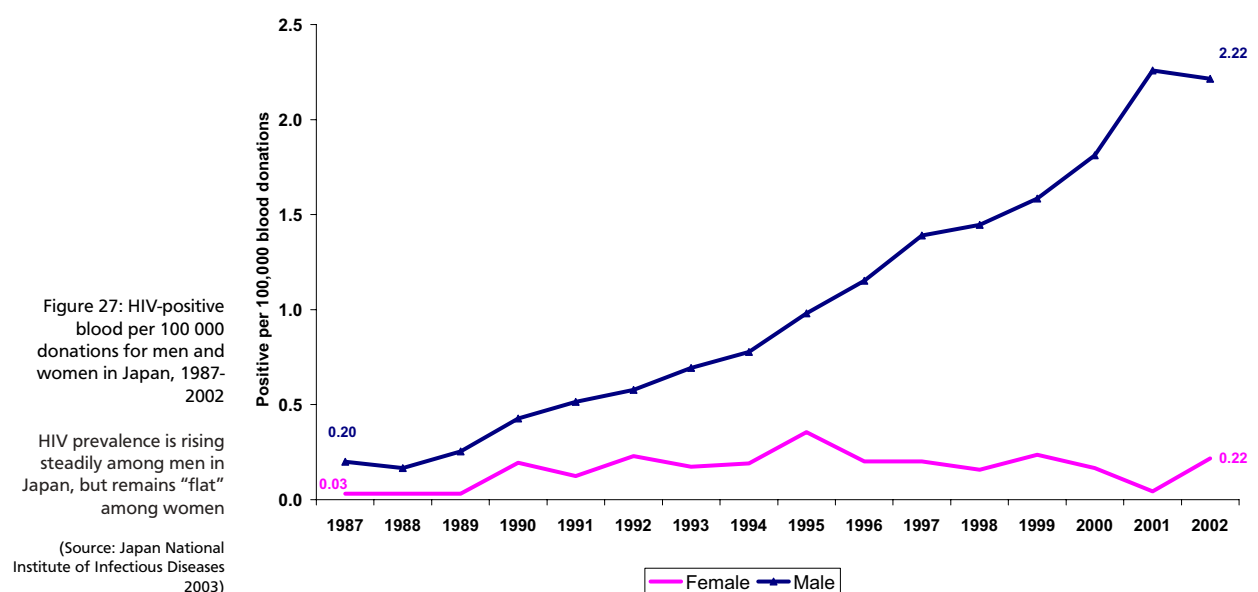
Both these factors may be changing. In some places, young women are becoming more sexually active before marriage (see page 82). This may afford men who would rather have sex with women greater access to female partners. And in some places, especially large urban areas, openly homosexual sub-cultures are emerging. This may reduce the pressure on men who would rather have sex with men also to have female partners.

Some evidence of this trend may be gleaned from data in **China**. Older MSM are far more likely to report bisexual behaviour than younger MSM in all cities where the behaviour has been tracked. In Sichuan, one in 10 MSM younger than 25 had sex with both men and women, compared to almost one in four 25-29-year-olds and almost one in two MSM older than 40. In part, this may be because as men get older they are under increasing pressure to marry. But an interesting contrast between sites also points to real social change. In the trendy urban centre of Chengdu, 18%

of MSM reported both male and female partners, while in more rural Nanchong, where “traditional values” remain stronger, the rate of bisexuality was twice as high.

In an epidemic in which sex between men is a driving force, the less bisexual behaviour there is, the less likely it is that infections acquired during unprotected anal sex between men will be passed on to women and thus into the heterosexual population. Data from **Japan**, Asia’s most industrialised nation and the one with the most firmly established “gay” scene, shows that HIV prevalence has risen steadily among male blood donors, while it remains relatively steady among women. (see **Figure 27**)

This is strong evidence that in Japan—as in many Western countries—HIV transmission is occurring mainly among men who have sex with men, with minimal onward transmission into heterosexual networks. In 2003, there were some 340 newly-reported HIV cases among Japanese men who had contracted their infection through sex with other men, just over three times the number of reported infections among men who acquired the virus heterosexually. Indeed, since 1999 there has been a rapid increase in the annual number of HIV infections that occurred in male-to-male sex. (Japan National Institute of Infectious Diseases 2003)



HIV on the move

A behaviour only poses the risk of HIV infection if there is a possibility that the person with whom one shares that behaviour is infected with the virus. HIV lives inside human beings, and it is transferred into new populations and geographical areas by human beings as they move from an area where the virus is already established to an area where it has yet to appear. The more people move around and engage in risky behaviour (in both high and low HIV prevalence areas), the more quickly HIV will spread to new areas.

Rapid but uneven economic growth has spurred mobility hugely in Asia. Most of the movement is from the countryside to the continent's ever-growing cities, and a significant amount of it crosses national boundaries. As far as HIV transmission is concerned, such mobility would be inconsequential if migrants were not injecting drugs or having unprotected sex with multiple partners at their destination, or when they return home.

It would be a mistake, however, to assume that people will engage in risky behaviour simply because they are away from home. In several countries, male and female factory workers have been included in behavioural surveillance as a proxy for migrants, because high proportions of factory workers are drawn to industrial areas from rural areas. Yet those populations often do not report high levels of risk. In **Nepal**, abstinence was the norm for young people who had migrated to work in factories far from their familiar social environments: just 20% of the unmarried young men and 12% of the young women reported any sexual activity. (Puri and Busza 2004) In Tamil Nadu, **India**, just 12% of male factory workers reported sex with a non-marital partner in the last year, and among female factory workers the rate was as low as 3%. In **Laos**, 90% of female factory workers in surveillance were working outside their home province. Yet, just 8% of them reported sex with a non-regular or commercial partner in the previous year. In **Indonesia**, risk behaviour among factory workers was so low that they were dropped from the surveillance system after the first few years.

Migration itself is not a risk factor for HIV

Being a migrant does not in itself put a person at risk of HIV infection. But there is plenty of evidence that plenty of men on the move *do* use their disposable income to buy sex when they are away from home.

Being a migrant does not in itself put a person at risk of HIV infection. But there is plenty of evidence that plenty of men on the move do use their disposable income to buy sex when they are away from home.

Among **Hong Kong** entrepreneurs doing business in neighbouring **China**, around one in 10 reported buying sex when they were in China and a slightly higher proportion had a non-regular partner across the border. Businessmen who made five or more trips into China in the previous six months were seven times more likely to report sex during their visits than those who travelled only occasionally. (Lau and Tsui 2003b) Among men resident in China, meanwhile, 18% of those who travelled frequently bought sex, compared with 5% of those who did not travel. And the clients who travelled were three times more likely to be infected with chlamydia compared to those who did not. (Parish, Laumann et al 2003) In Kailali district in western Nepal, 20% of men who had migrated to **India** for work had had sex with a sex worker, compared with 4% of those who had never been to India. In Nepal's Achham district, also in the west, the discrepancy was even greater—27% compared to 5%. Interestingly, in that area, men who had migrated within Nepal were also much more likely to report commercial sex than those who had never worked outside their native district (14% of the mobile men reported even buying sex).

The women at highest risk are those who migrate specifically to sell sex in large cities where demand is high. This migration is often voluntary, but sometimes not. Sex workers also move around, since their earnings tend to be better when they are new to an area and drop as they become familiar and no longer satisfy clients' preference for variety and novelty. In **India**, one-quarter of sex workers said they had sold sex in more than one area, and one-third said they sometimes travelled to other towns to sell sex.

The women at highest risk are those who migrate specifically to sell sex in large cities where demand is high.

Some cities seem to act as magnets for sex workers. Recent "mapping" of the sex industry in India's commercial centre Mumbai found that over half of the brothels reported having women from the southern state of Karnataka, and 19% of the brothels reported having Nepali women as sex workers. (Blackstone Market Facts and Family Health International 2001) Over 9 out of 10 sex workers in the **Indonesian** capital Jakarta, and in the tourist areas of Bali and Riau islands, were not native to the area they were working in, and around one-third had also sold sex in other provinces. Among women selling sex in karaoke bars in the **Vietnamese** port city of Haiphong, one in five said in surveillance in 2002 that she had sold sex elsewhere.

Drug injectors are mobile, too, and tend to inject drugs wherever they are. One in five male injectors in the city with the highest HIV prevalence in **Bangladesh** said he had injected in another city in the previous year, while in isolated areas of Nepal, an even higher proportion had done likewise—43% in the Pokhara valley and 85% in the east of the country. In Haiphong, 17% and in Jakarta 43% of IDUs said they had injected in another city. Injectors in Jakarta named around 25 other cities in which they had injected in the previous year.

Highs and lows: carrying HIV into new populations

The links between HIV infection and mobility are particularly visible among people who have returned to lower-prevalence areas from areas where HIV prevalence is higher. In **Nepal**, IDUs from cities with relatively low prevalence, but who had injected drugs elsewhere, were between two and four times as likely to be infected with HIV as those who had not moved from their home cities. Half of the sex workers surveyed in central Nepal and who said they had worked in Mumbai were HIV-infected, compared with 1.2% of those who had never been to **India**. A similar pattern has been seen among men. Among the men from Nepal's Achham district who had never migrated, under 1% were infected with HIV, but prevalence was 3% among internal migrants and 8% among men who had returned from Mumbai. A study of sex workers in Ho Chi Minh city in 2000 showed that close to nine in 10 of those returning from high-prevalence **Cambodia** were HIV-positive, and their infection rates were more than four times higher than those who had remained in **Vietnam**. (Giang 2002) Another example is low-prevalence **Pakistan**, where close to three-quarters of reported HIV cases are among migrant workers returning from the **Gulf States**. (Shah, Khan et al 1999) The latter two examples probably reflect the fact that people who are HIV-positive are more likely to be sent home, but the examples nonetheless illustrate the important role of movement from higher-prevalence to lower-prevalence areas in an HIV epidemic.

Clearly, people who return from high-prevalence areas carrying infection may then pass it on at home. At one voluntary testing centre in **Bangladesh**, 29 out of 34 adult men testing positive for HIV were migrants returning from overseas, and seven of the nine women who tested positive were wives of these men. (Zaidi, Zahiruddin et al 2004)

The other side of the coin is when people in lower-prevalence areas have sex or share needles with people who have come from higher-prevalence areas. One of the catalysing factors in Cambodia's epidemic might have been the HIV infections that were "imported" with international troops who were helping to safeguard the country's return to democracy after years of conflict. A similar dynamic has recently been recorded in **East Timor**. A survey of sex workers, MSM and high-risk male groups in the world's newest independent nation found very low rates of STIs and HIV. Out of a total of 670 people tested, just four were HIV-positive. All four reported sex with a foreign partner in the past. Analysis of the HIV subtypes these respondents had acquired revealed that their infections probably had originated in Africa or South Asia, and this matched with the details they provided about their sex partners. Does that mean East Timor will follow Cambodia's course towards high HIV prevalence? It is unlikely, since non-marital and commercial sex are far rarer in East Timor than they were in Cambodia when the virus was introduced there. But the fact that condom use in commercial sex (as well as during anal sex) in East Timor is extremely low should be a cause for concern now that HIV has been introduced into the country. (Pisani and Dili STI survey team 2004a)

Prevention efforts in "magnet cities" can have benefits in rural areas

Migrants originate from locations scattered all over countries and regions. Many come from areas where they have had little or no exposure to HIV prevention skills. Among **Afghan** refugees in the **Pakistan** border town of Quetta, for example, fewer than one 20 people had ever heard of AIDS and none had ever used a condom, according to one study. (Ahmed, Zafar et al 2003) In many cases, migrants (and occasionally refugees) congregate temporarily in cities where risk behaviour is common, and then return to their places of origin. Some might be carrying HIV with them; most will be bringing newly-acquired information and skills.

Many migrants come from areas where they have had little or no exposure to HIV prevention skills. Among Afghan refugees in the Pakistan border town of Quetta, for example, fewer than one 20 people had ever heard of AIDS and none had ever used a condom, according to one study.

For HIV prevention workers, this represents an opportunity. If we can reach migrants with information, skills and services that can keep them safe while they are in "magnet" cities, HIV infections can be prevented. It is possible, too, that these migrants will carry the information and safer behavioural norms they have learned in the cities back to diverse and sometimes remote areas when they go home. But that means providing services in languages and settings that reach non-native populations, who are rarely the first priority for local governments allocating money for social programmes.

Chapter 4

Chapter highlights

- Molecular epidemiology shows clearly that national borders do not act as barriers to HIV spread.
- Recent molecular research from Thailand and China provides firm evidence that HIV epidemics among drug injectors interact with heterosexual epidemics.



Chapter 4: The laboratory provides yet another window on diversity

The ability to identify distinctive subtypes of HIV using the tools of molecular epidemiology offers a unique window on the spread of HIV in Asia. Subtyping allows us to see shades of “colour” in an otherwise “black and white”, apparently clear-cut, epidemic. Molecular epidemiology studies in the region have explored many of the issues raised in this report: how epidemics evolve, the linkages between at-risk populations, the relationships between epidemics in the different countries of Asia, and the factors that influence HIV transmission in specific areas. This section examines some of the findings from these studies in Asia. It must be borne in mind, though, that molecular epidemiology studies often both involve relatively small samples and depend on convenience samples. The studies, therefore, offer tantalising hints of issues that require further examination. Generalisations should be guarded against and should be risked only when other epidemiological and behavioural data on HIV and associated risks offer strong supporting evidence.

Three key subtypes of HIV-1 dominate in Asia: B, C and CRF01_AE (known as a circulating recombinant form, or CRF). (Osmanov, Pattou et al 2002; Oelrichs 2004) CRFs are generated by genetic mixing of two or more HIV subtypes in individuals who are simultaneously infected with the different subtypes. C is by far the predominant subtype in South Asia (96% of samples in 2000), while B dominates in East Asia (80%), and CRF01_AE is the most common in South-East Asia (63%). (Osmanov, Pattou et al 2002) But the situation is fluid. New subtypes are being introduced from other countries and regions of the world, the ratios in which these subtypes occur are changing, and new recombinants are developing. Each of these changes reveals something about the epidemics in the countries of Asia.

Molecular epidemiology studies often provide important information on the source of new infections in a country. Subtyping of almost half the detected HIV infections in **Taiwan** has shown that the proportion of CRF01_AE grew from 20% in the late 1980s to 37% in the late 1990s. Over two-thirds of males with CRF01_AE reported sexual contact with female sex workers, primarily in South-East Asia (where CRF01_AE is dominant), indicating importation of HIV from abroad. At the same time, the fact

that the remaining one-third of the males reported sex worker contact only in Taiwan pointed to growing heterosexual transmission of this subtype within Taiwan. Meanwhile, IDUs infected with subtype CRF01_AE were much more likely to have visited female sex workers than were IDUs with the more prevalent subtype B, which indicated a possible link between the sexual and the injecting drug use epidemics.

Molecular epidemiology shows clearly that national borders do not act as barriers to HIV spread. Epidemics among injectors in Guangxi, **China**, and in Quang Ninh and Langson in northern **Vietnam** have been linked clearly by a unique variant of HIV-1 subtype CRF01_AE found in both countries. (Yu, Chen et al 1999; Kato, Kusagawa et al 2001) These areas lie along one of the drug trafficking routes through the Golden Triangle, which accounts for the link between the two epidemics. (Beyrer, Razak et al 2000) **Myanmar** cities bordering **Thailand**, such as Tachelaik and Kawthaung, show subtype continuity with their neighbours—virtually all the heterosexual infections are CRF01_AE. (Kusagawa, Sato et al 1998) But, while natural borders have limited influence on HIV, epidemiologically distinct subregions are often seen within countries. Myanmar presents a good example. In Yangon, B’ is dominant in all groups: IDUs, female sex workers and heterosexuals. But in central Myanmar, around Mandalay, mixing of subtypes is occurring with no single subtype being dominant in any population, and several recent reports have identified new recombinant forms that are developing rapidly in the complex transmission networks in this area. (Motomura, Kusagawa et al 2000; Motomura, Kusagawa et al 2003; Takebe, Motomura et al 2003)

Molecular epidemiology shows clearly that national borders do not act as barriers to HIV spread.

The rapid development of recombinants in Asia seems to be occurring largely in those areas with heavy levels of injecting drug use, although heterosexuals with large numbers of partners may also be contributing. It is increasingly evident in the literature that a person already infected with one subtype of HIV can be re-infected with another, and needle use is a

particularly efficient means of merging subtypes. (Allen and Altfeld 2003) Such recombination events are occurring not only in central Myanmar, but around the region. In Ho Chi Minh City, another area with a serious IDU epidemic, two out of 25 isolates were combinations of two or more different subtypes. (Caumont, Lan et al 2001) In Yunnan, China, even recombinants of two different recombinants were found recently, and they already constitute 9% of the circulating strains in an IDU population. (Yang, Kusagawa et al 2003)

Meanwhile, in Thailand, a recombinant of B and CRF01_AE has been reported to be circulating widely. (Tovanabutra, Watanaveeradej et al 2003) Recombinant forms occur when a person has been infected with more than one type of the virus, different parts of which then “recombine” into a new form within the person’s body, and potentially can then be passed on to other people. The existence of recombinants underlines the fact that many people continue with high levels of risk behaviour and experience multiple exposures to HIV after initially being infected.

In Thailand in the early 1990s, almost three-quarters of infections among IDUs were of a type designated B’, and almost 90% of heterosexual infections were of a type called Thai-A at the time (today known as CRF01_AE). (Weniger, Takebe et al 1994) In many Asian

countries, most early HIV infections among MSM were primarily subtype B.

This led observers to propose that HIV subtypes segregated according to the type of risk behaviour involved and that this segregation indicated that the HIV sub-epidemics in different populations were largely independent and did not influence one another. But the large number of studies showing strong behavioural linkages between at-risk populations around Asia has called this hypothesis into question, and the continuing diversification of subtypes in many places has made it increasingly untenable. As **Figure 28** shows, while subtype B’ was dominant among Bangkok IDUs in the early years of the epidemic, it has been overtaken by CRF01_AE, which is now the primary subtype in both IDUs and heterosexuals in Thailand. (Wasi, Herring et al 1995; Limpakarnjanarat, Ungchusak et al 1998; Vanichseni, Kitayaporn et al 2001) The most likely explanation was that once a few IDUs became infected sexually, CRF01_AE would then spread among other IDUs through the sharing of needles, which is a much more efficient mode of transmission.

Recent molecular evidence from Thailand has confirmed that there are links between the IDU and heterosexual epidemics. A new circulating recombinant form, CRF15_01B, built from the envelope of subtype B and the

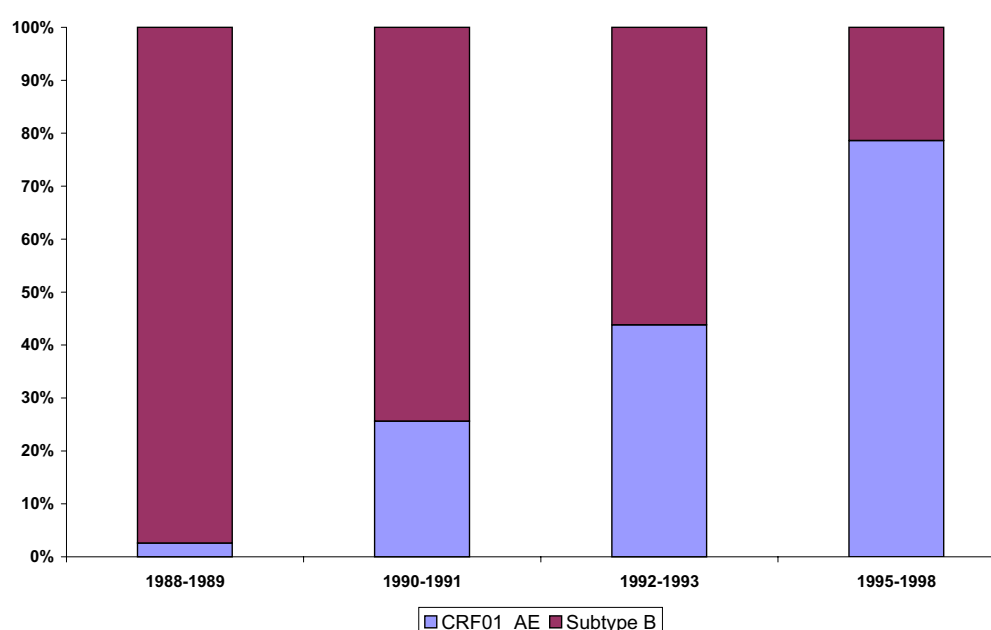


Figure 28: Evolution of the subtypes of new infections among injecting drug users in Bangkok, 1988-1999

Gradually shifting: most drug users are now infected with the strain of HIV common among heterosexuals in Thailand

(Source: Tovanabutra, Watanaveeradej et al 2003)

non-envelope genome of CRF01_AE, has been found in both IDUs and heterosexuals. (Tovanabutra, Watanaveeradej et al 2003) The samples were drawn from diverse geographic locations around the country and the samples from heterosexuals showed substantial sequence divergence, which implies that CRF15_01B has been circulating widely for several years. This constitutes clear biological proof that bridging occurred between the IDU and heterosexual epidemics in Thailand before 1997.

Recent molecular evidence from Thailand has confirmed that there are links between the IDU and heterosexual epidemics.

There is other biological evidence of links between IDU and heterosexual epidemics. In Yunnan, China, similar diversity was evident in the subtypes found among sex workers, or partners infected heterosexually, and among IDUs. (Yu, Wang et al 2003) In phylogenetic analysis, there was no clustering visible of those infected heterosexually or by injection, which suggests that transmission of these different subtypes is occurring from IDUs to sex partners, and vice-versa. In one specific case, unique closely-related strains (CRF08) were detected in a heroin user and in a sex worker with whom he had had a sexual relationship.

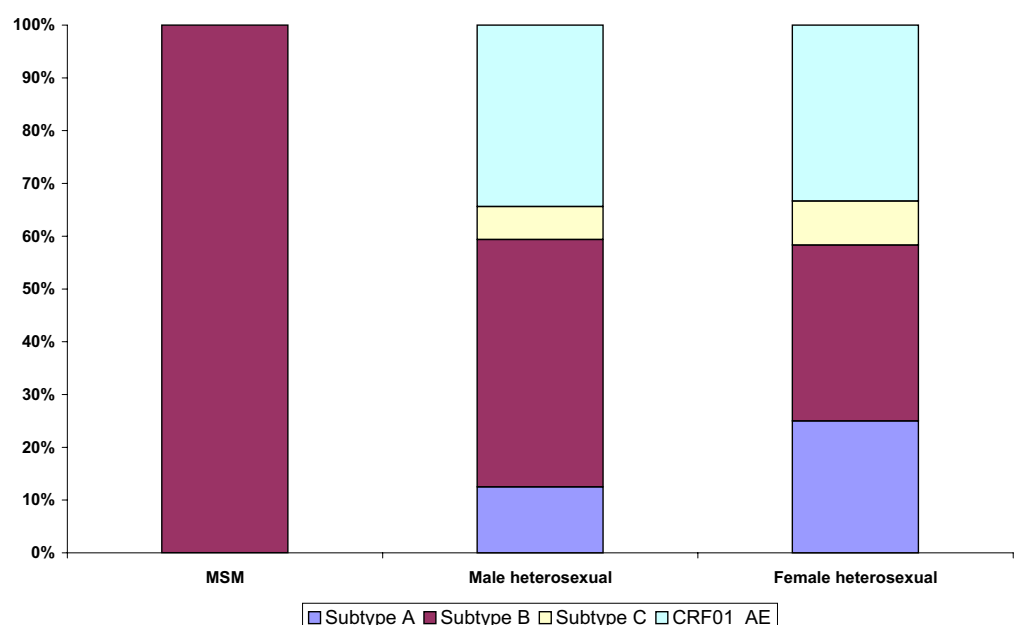
Asia, however, is not a homogenous region. In some places the behavioural links between various populations may be weak enough for the distribution of HIV subtypes to remain comparatively stable for some populations. For example, in Tokyo subtype segregation is still strong among MSM. While CRF01_AE has been found in almost one-third of heterosexually-infected men and women, only subtype B has been found among MSM (see **Figure 29**). (Kato, Saito et al 2003) In **Taiwan**, both B and CRF01_AE have been seen in homosexual and bisexual men over the years, with the relative proportions staying roughly stable in homosexual men, but slowly increasing over time in bisexual men. (Chen, Huang et al 2001b)

A number of molecular epidemiology studies have provided a fascinating, though hardly conclusive, hint of one factor that might be influencing the dynamics of HIV spread in Asia. There is a possibility that CRF01_AE is more easily transmitted through sexual intercourse than subtype B. This might help explain why the B subtypes, so common in MSM and IDU populations, do not seem to have contributed to large-scale heterosexual spread in many places. As a result, CRF01_AE has maintained its premier position in South-East Asia. If correct, this explanation also raises concerns for the future—since the proliferation of CRF01_AE

Figure 29: HIV subtypes among MSM, and heterosexual men and women in Tokyo, Japan, 1998-2002

Less mixing: The distribution of HIV subtypes has stayed stable in some places

(Source: Japan National Institute of Infectious Diseases 2003)



among injectors may induce wider heterosexual transmission in places where a large share of IDUs are also clients of sex workers. Two studies have explored this possibility. One was conducted in Bangkok among the partners of IDUs and among people attending clinics for immune-system disorders (who are primarily heterosexually-infected with HIV). (Kunanusont, Foy et al 1995) The other, in Taiwan, surveyed husbands with different subtypes who had transmitted the virus their wives. (Chen, Huang et al 2001b) Each of these found that men with CRF01_AE were more likely to have transmitted HIV to their wives. These studies do not prove conclusively that this subtype will spread rapidly through heterosexual populations, but they do give cause for concern.

Chapter 5

Chapter highlights

- The changing economic and social landscape in Asia means that many young people, especially in urban areas, grow up in environments that are very different to those that shaped their parents.
- The Thai experience suggests that, at a population level, increasing levels of premarital sex are not necessarily a cause for great alarm—as long as people who choose to have sex also have the information and access to condoms and other services that they need to ensure the sex is safe.
- The rapid spread of new technologies, however, opens new pathways to risk behaviour among young people in Asia. In some countries, people are reporting that they find sexual partners over the internet.
- Institutions and community groups concerned about protecting young people from HIV have tended to focus on the sexual behaviour of young people. In parts of Asia, this focus may be obscuring a far greater threat—drug use.
- In Asian surveys, most young people do not report any risk behaviour for HIV. However most of the people who **do** report risk behaviour – including male and female sex workers and drug users – are teenagers or young adults.



Chapter 5: The generation game: How HIV affects young people in Asia

HIV is essentially a young adult's disease. Quite justifiably, there has been a great deal of attention paid to the behaviours and prevention needs of young people. Thanks, in part, to extraordinary economic and technological development, Asia is being transformed more rapidly than any other continent. And yet, some aspects of culture run very deep. This chapter looks at risk behaviours among young people, and tries to draw lessons for future prevention efforts in Asia.

New threats, new hopes

The changing economic and social landscape in Asia means that many young people, especially in urban areas, grow up in environments that are very different to those that shaped their parents' lives. Smaller families, more free time, greater mobility, and more disposable income expose young people to a host of new influences. Television, DVD movies and internet cafés, for example, are becoming commonplace features in the lives of millions of people in the continent's burgeoning middle classes.

There is strong concern that these new factors will also influence the conservative social norms that are believed to have protected the majority of young people in Asia from HIV throughout the 1990s. It is difficult to be certain whether extramarital sexual behaviour really is becoming more common among young people, because risk behaviour among young people has not been measured consistently over time. This was partially because, until recently, premarital sex (especially for women) was considered to be so rare and so much frowned upon that it was not worth asking about. It was assumed that the few people who engaged in it would not admit to it anyway.

In the past few years, surveys examining the risk behaviour of young people have found very variable rates of reported sexual activity. In a large survey among students in northern **Thailand**, 43% of women and nearly 50% men aged 15-21 reported that they had had sexual intercourse, and most of the sex had been unprotected. Over one-quarter of the girls who had had sex said they had become pregnant, and over four out of five of them terminated those pregnancies. HIV rates were below 0.5% in both men and women, and rates of curable sexually transmitted infections also low. (van

Griensven, Supawitkul et al 2001) The authors of this study concluded that people were willing to report sexual behaviour because they filled in questionnaires on computers, and did not have to face an interviewer. But even with this level of privacy (and even with the high reported levels of sexual activity) it seems sex was probably underreported. A small number of students who said they had never engaged in penetrative sex were infected with chlamydia or gonorrhoea.

The Thai experience suggests that, at a population level, increasing levels of premarital sex are not necessarily a cause for great alarm—as long as people who choose to have sex also have the information and access to condoms and other services that they need to ensure the sex is safe.

More worrying than the relatively high rates of sexual activity reported in the Thai study were the relatively low rates of condom use among those who do report sex. Just 16% of men and 11% of women reported using condoms consistently with their regular partners, although condom use with casual and commercial partners was much higher. Another study among students aged 18-22 in the Thai capital, Bangkok, found similar levels of sexual activity (two-thirds of men and one-third of women reported being sexually active), but condom use was even lower, at just 6%. (Thato, Charron-Prochownik et al 2003) If young people do become more sexually active, it is important that they adopt behaviours that minimise their risks for STI and HIV infection and for unwanted pregnancies as soon as they become sexually active.

Happily, there is some evidence that the young are more willing than older people to adopt safe behaviours when provided with appropriate services. A 2003 survey of men aged 15-25 in a low income area of the **Cambodian** capital, Phnom Penh, found that only 8% of all men surveyed had ever bought sex from a sex worker, and 2% had done so from a beer promoter or karaoke girl. By comparison, when questioned in 2000, 19% of adult men of all ages in that same city said they had paid for sex in the previous year. Both the 2000 surveillance and the 2003 survey found that men in their teens were significantly more likely to use condoms than older men. In the latter survey,

men younger than 20 were nine times more likely than men aged 20-25 years to use condoms. Interestingly, men were also vastly more likely to use condoms if they went to sex workers in groups, suggesting that after several years of active HIV prevention campaigns in Cambodia men who continue to buy sex might now be subject to positive peer pressure. (Douthwaite 2003)

The rapid spread of new technologies, however, open new pathways to risk behaviour among young people in Asia. One example comes from **Hong Kong**, where 18% of men who reported sex with other men in the previous six months said they had found a partner over the internet. Men younger than 25 were over three times more likely to cruise on the net than older men.

More sex equals more HIV? In the Asian context ... not necessarily!

If the rates of sexual activity reported by young men and women in northern Thailand really do reflect new social phenomena (rather than merely a greater willingness to be candid about sexual behaviour), it might imply a massively increased risk for the spread of HIV at the national level. Or it might not.

It is commonly assumed that more sexual activity translates directly into a greater risk for HIV transmission. But this is not necessarily true. As long as neither partner is infected with HIV, there is no risk of HIV transmission during sex. The danger emerges when uninfected partners have sex with infected partners. In northern **Thailand**, this is much more likely in commercial sex than in non-commercial sex. At the end of 1999, when the behavioural survey cited above took place, HIV prevalence among female sex workers in Thailand's Chiang Rai province was 44%. That is 55 times the rate recorded among sexually active female students in the province. In such circumstances, if nine out of 10 men use condoms with sex workers and one out of 10 use condoms with female students, the chances of having unsafe sex with an HIV-positive woman are still over six times higher in commercial sex than in sex with a fellow student.

It is interesting to note that the high levels of sexual activity reported by female students in the northern Thailand study are accompanied by relatively low levels of commercial sex reported by male students. Just 7% of the male students said they had ever paid for sex. This is far below the levels of commercial sex reported by young men chosen at random for military service in northern Thailand just a few years earlier. In 1995, 24% of conscripts reported buying sex in the previous 12 months alone, while in 1991 the rate reached as high as 57%.

In many Asian countries, a tolerance for premarital and extramarital sex for men has combined with a strict prohibition on the same behaviour for women, and has created a large market for commercial sex. Where a few women supply the demands of a large number of men who frequently use the sexual services provided by that small pool of women, the conditions for a rapid spread of disease are created. To avoid such a situation, either the social restrictions on men must be increased (to deter them from seeking non-marital partners), or the social restrictions on women must be relaxed (so that men and women with a low risk of exposure to HIV can have sex with one another). The latter situation prevails in most industrialised countries, none of which have major heterosexually-transmitted HIV epidemics.

This does not mean that HIV prevention programmes should promote premarital sex for women. Clearly, at a personal level, not having sex at all is still by far the safest way to avoid pregnancy and STIs, including HIV. But as marriage ages rise (as they are for both men and women across Asia), it is likely that premarital sex will continue to increase, especially for women. The Thai experience suggests that at a population level, increasing levels of premarital sex are not necessarily a cause for great alarm—as long as people who choose to have sex also have the information and access to condoms and other services that they need to ensure the sex is safe.

Given the high levels of risk reported by the (mainly young) men who found sex partners on the internet, it is no surprise to find that they were over three times more likely to report having contracted an STI in the preceding six months, compared with men who did not cruise on-line.

New generations, old risks

The vast majority of adults in Asia do not engage in behaviours that put them at especially high risk for HIV infection. This is as true of adolescents and young adults as it is of older adults.

The data reported in **Thailand** (and referred to on page 82) appear to be exceptional. In most countries, a large majority of young women are not sexually active before marriage. This is partially because the age at marriage, though rising, is still quite low in many areas. The opportunities for premarital sex therefore are still limited for most young women.

Only a minority of young people in Asia engage in risk behaviours, just as a minority of their parents did. But very large proportions of people at high risk of HIV infection in Asia—drug injectors, sex workers and their clients, and men who have sex with men—are in their teens or early 20s.

Young men generally are more likely to report sex before marriage, but in most places those who do so are still not the majority. In

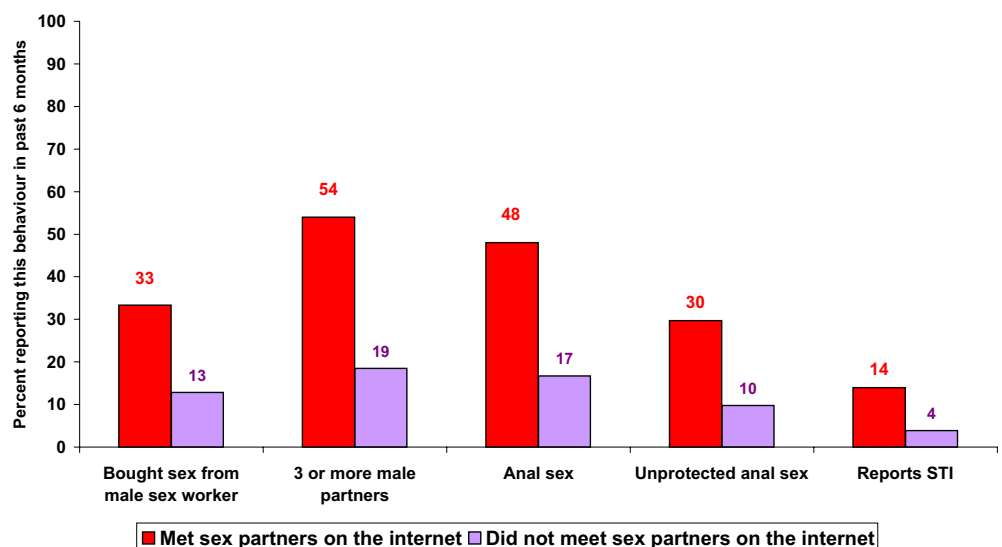
East Timor, for example, nearly three-quarters of male university students and 97% of female students were not sexually active, even though this group constitutes the new urban elite and is most likely to adopt new social norms. (Pisani and Dili STI survey team 2004a) In Tamil Nadu, **India**, 88% of unmarried male students and 97% of unmarried female students reported no sex in the last year. Similarly in **Nepal**, even young people who had migrated to factories far from their customary social environments were unlikely to report having had sex. Some 80% of unmarried young men and 88% of young women reported no sexual activity in this context. (Puri and Busza 2004) In a household survey in northern **Vietnam**, up to 16% of unmarried men in urban areas reported sexual activity, and in rural areas only half as many reported having had sex. Virtually no unmarried women reported having sex, and only 7% of urban women who were already married said they had had sex before marriage. (Bui, Pham et al 2001)

In fact, for all the economic and social change in Asia in recent years, it seems that those young people who are at high risk of HIV infection are at risk not because they behave differently from their parents' generation, but rather because they behave more or less the same way. The young Asians most at risk of being infected with HIV are those who are taking up the behaviours that have always been at the core of the epidemic in this region.

Figure 30: Percent of MSM in a household study in Hong Kong who reported various risks in the previous six months, according to whether they met sex partners on the internet

New technologies can lead to more high-risk behaviour among young people

(Source: Lau, Kim et al 2003a)



Young people are buying sex and selling it, they are using drugs and injecting them, and young men are discovering and pursuing their preference for sex with other men. Only a minority of young people in Asia engage in these risk behaviours, just as a minority of their parents did. But very large proportions of the minority of people at very high risk of HIV infection in Asia—drug injectors, sex workers and their clients, and men who have sex with men—are in their teens or early 20s. This is especially worrisome because, in some cases, young people who do engage in risky behaviour are less able than older people to control or limit that risk (for example by successfully negotiating condom use).

Getting high: the proportion of young people taking drugs should ring alarm bells

Institutions and community groups concerned about protecting young people from HIV have tended to focus on the sexual behaviour of young people. In parts of Asia, this focus may be obscuring a far greater threat—drug use.

Consider **Figure 31**, drawn from surveillance studies that used self-completed questionnaires among a random selection of high school students in Jakarta, **Indonesia**. Young people were far more likely to report taking drugs than having sex, and this was especially true for boys. Thirteen times as many boys reported injecting drugs compared to those who reported

having had sex with more than one partner. In Indonesia, drug injection only emerged on a substantial scale in the 1990s. In the capital, Jakarta, where the behaviour first became evident, male IDUs included in surveillance on average have been injecting drugs for less than five years, and 70% of IDUs are younger than 25. These data indicate that education and life skills programmes need to focus a great deal more attention on establishing new norms in which drugs are considered “uncool”, and on equipping young people with the skills to resist peer pressure to take drugs.

The data indicates that education and life skills programmes need to focus a great deal more attention on establishing new norms in which drugs are considered “uncool”, and on equipping young people with the skills to resist peer pressure to take drugs.

Throughout Asia, the high-risk behaviour most heavily concentrated among the young is drug injection. Even in places with much older traditions of drug injecting, many injectors are teenagers or young adults. In the **Indian** state of Manipur, for example, over 40% of male injectors included in surveillance in 2002 were younger than 25—a clear indication that young people are continuously being recruited into these high-risk behaviours. In **Nepal**, 68% of injectors were aged under 25 in areas where injection has been relatively recently introduced, but even in the Kathmandu valley, where injecting is well-established, 44% of new

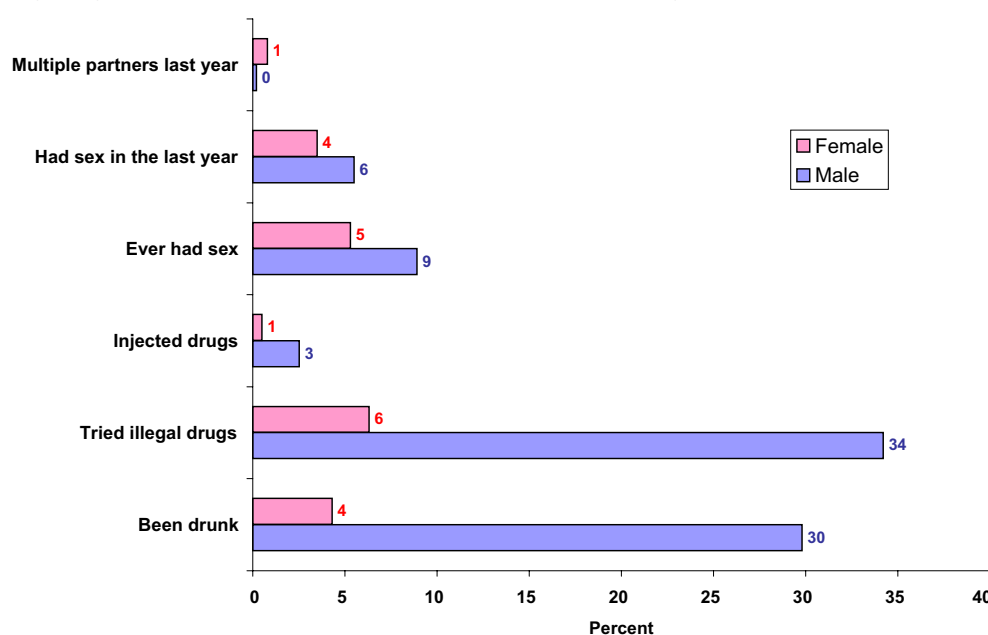


Figure 31: Percent of high school students aged 16-18 reporting different risk behaviours, Jakarta, 2003

In Jakarta, young people are more likely to take drugs than to have sex

(Source: Indonesia Ministry of Health and Central Bureau of Statistics 2004)

injectors had not yet turned 25. Worryingly, younger injectors were more likely to report risky practices in some sites. In eastern Nepal, for example, injectors under 25 were three times as likely to report sharing equipment at last injection compared with older injectors.

Drug injection may be pushing young people into multiple risks. Among sex workers in **Vietnam**, those who injected drugs were on average seven years younger than those who did not inject. (Tuan, Hien et al 2004) It is likely, too, that drug injection is pushing HIV into younger and younger populations. In Vietnam, just 2% of reported HIV cases were among 15-24 year-olds in 1993, but by 2001 that had risen five-fold to over 10%. It should be borne in mind that HIV case-reporting provides an incomplete picture of the epidemic; unlike sentinel surveillance, the profiles of cases it identifies depend largely on the profiles of people being tested. Nevertheless, the figures cited here are a cause for concern for those focusing on protecting the health and well-being of young people.

Selling the future: young sex workers need better skills

The comparatively old age of non-injecting sex workers in **Vietnam** is something of an anomaly in Asia. Data from across the region suggest that, in most countries, high proportions of sex workers are young women.

Figure 32 includes data from the national and sub-national level for two countries: **India** and **Indonesia**. The state with the highest proportion of very young sex workers in India is Orissa, which is also one of the poorest states in the country. In its case, the data suggest that poverty may be driving girls to sex work at very young ages. It is encouraging to find that in areas with strong HIV prevention programmes, such as India's Tamil Nadu, fewer young sex workers appear to be recruited into the profession than was the case before prevention programmes began. The proportion of female sex workers who were teenagers fell from 5% to 1% over seven years from 1996, and the proportion under 25 fell from 22% to 15%.

But the equation between an area's poverty and the age of women in the sex trade is by no means fixed. In the Indonesian case, it is a region's wealth which draws in young sex workers, often from poorer areas of the country. In Indonesia, 13 of 32 provinces are currently included in the national behavioural surveillance system. The province reporting the highest proportion of sex workers under 25 is Riau Islands, one of the richest in the country. Riau supports a booming entertainment industry, much of it serving clients from nearby Singapore. Sex workers younger than 25 on average earn around 50% more than older sex workers in Riau. So in this case it may be the prospect of better earnings that are drawing young sex workers to the province. Over

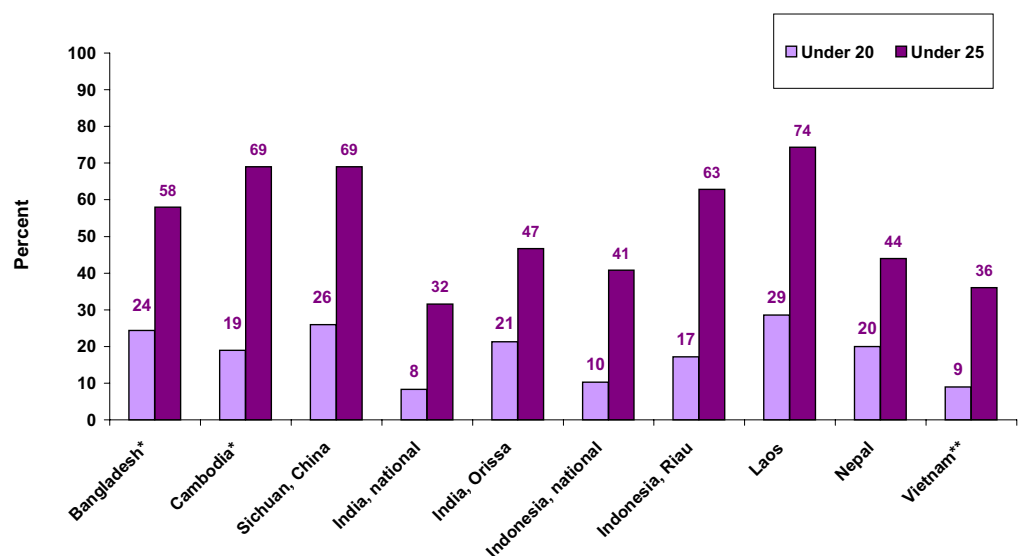
Figure 32: Percent of female sex workers who are teenagers or are aged under 25, various countries

Many sex workers across Asia are young women, including teenagers

(Source: National behavioural surveillance data. See Appendix 2)

* Brothel-based only.

** Street-based only)



three-quarters of the sex workers in Riau Islands came from other provinces, which amounted to one of the highest rates of non-resident sex workers in the country (not dissimilar to the rates of immigration in other industries).

It is often assumed that younger sex workers are less able to negotiate condom use than older sex workers. In fact, most countries offer little evidence that younger sex workers are less likely to use condoms than their older counterparts. In **Cambodia, Laos, Nepal and Vietnam**, younger sex workers were just as likely to use condoms as older sex workers overall. However, **Iranian** researchers report that, in qualitative studies, older sex workers tend to use condoms consistently but younger sex workers very rarely do (no data is available to measure the extent of the difference). (Iran National AIDS Program. Ministry of Health 2004) In Indonesia, younger sex workers do report less condom use on a national level than older sex workers—among over 6 000 sex workers in 13 provinces, 19% of those under 25 always used condoms with their clients, compared with 26% of those who were 25 and older. In a smaller survey of over 1,700 sex workers in seven cities, similar disparities have been reported, and the lower condom use seems to have translated into more STIs, as **Figure 33** shows.

The infection rates shown in **Figure 33** reflect risk in the recent past. Unlike the STIs listed in the graph (which are all curable), HIV stays

in the body from infection until death, and it usually creates a different age distribution in populations with high-risk behaviours. In general, more people are infected over time since they have had more years of exposure to HIV. Few countries in Asia routinely report HIV prevalence among high-risk groups by age. But in **Myanmar**, which has a relatively comprehensive serological surveillance system for HIV, recent data shows that HIV prevalence is very high among very young sex workers, as well as among young drug injectors, as shown in **Figure 34**. Indeed, teenage sex workers are more likely to be infected with HIV than any other age group. It should be noted that the steep fall in prevalence among older IDUs might be related not to less risk in that group, but to the possibility that most of the IDUs who had engaged in unsafe injecting practices when they were younger have already died.

In some settings, including parts of Indonesia and **China**, younger sex workers are more likely to be concentrated in high-risk settings such as working on the street. Evidence from **Bangladesh** suggests younger sex workers are more likely to encounter violence and other dangers than older women, wherever they work. **Figure 35** illustrates the dangers facing younger sex workers in various work situations in Bangladesh. On the streets, seven in 10 younger female sex workers said they had been raped or beaten in the past year, twice the rate of violence reported by older female sex workers.

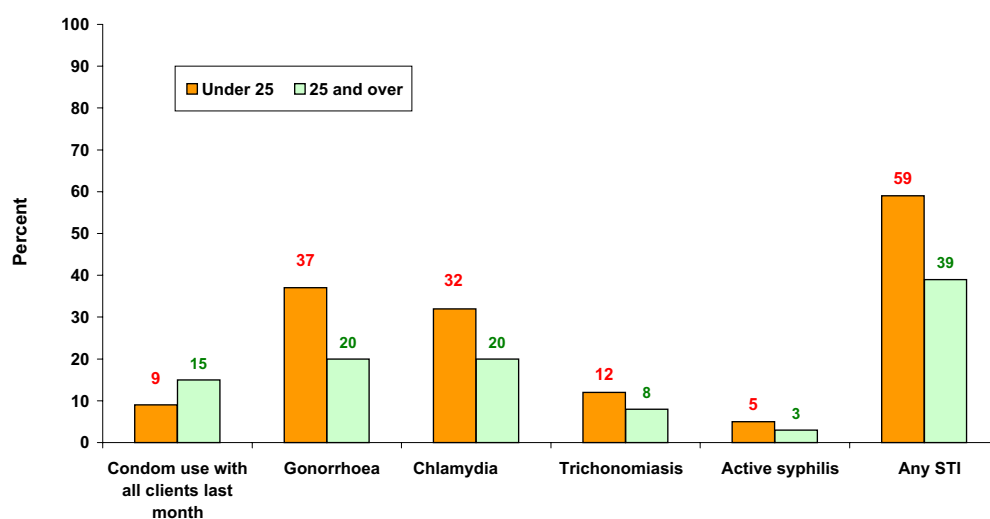


Figure 33: Percent of sex workers infected with STIs, and condom use by age, Indonesia, seven cities, 2003

Younger sex workers more likely to be infected with STI in Indonesia

(Source: Indonesia Ministry of Health and Aksi Stop AIDS/Family Health International 2004)

Male and transgender sex workers were also at higher risk if they were younger.³

As Figure 35 underlines, it is not just young female sex workers who face the prospect of violence; young male and transgender sex workers may also be at higher risk than their older colleagues. And male sex workers and other men who have sex with men generally tend to be young. In Lahore, **Pakistan**, clients

of male sex workers reported that 40% of the men they bought from were aged under 22. In five Indian cities conducting behavioural surveillance among men who have sex with men, 47% of respondents were aged 25 or less, and over one-third reported that they had their first male partner when they were younger than 19.

³ Because violence in brothels is low, the difference in violence experienced by older and younger sex workers in brothel settings is not statistically significant. In all other settings, the difference is significant.

Figure 34: Percent of IDU and female sex workers testing positive for HIV in surveillance, by age group, nationally aggregated data, Myanmar, 2003

In Myanmar, younger sex workers and drug users are more likely to be infected with HIV

(Source: Myanmar national surveillance reports)

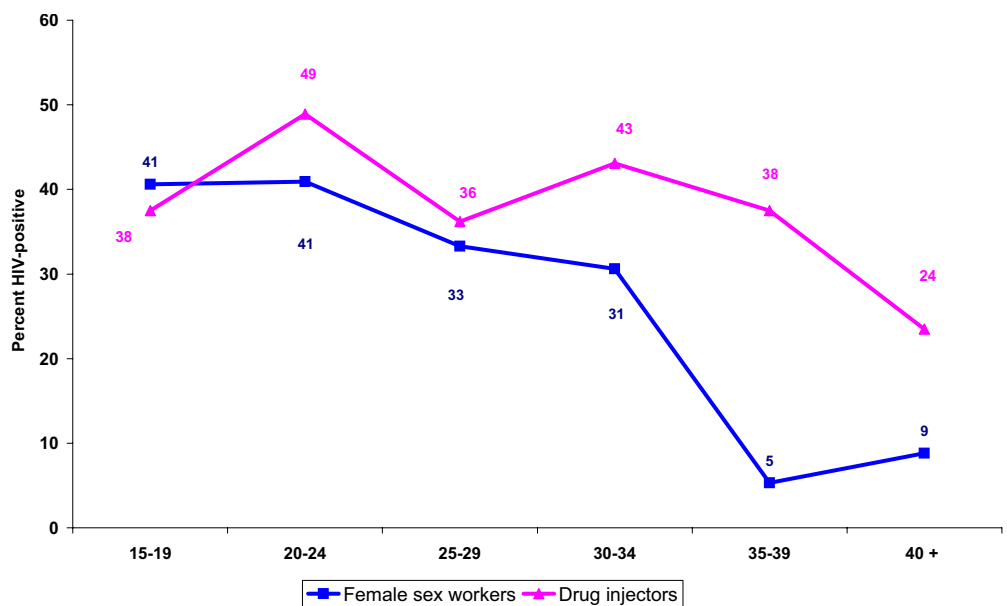
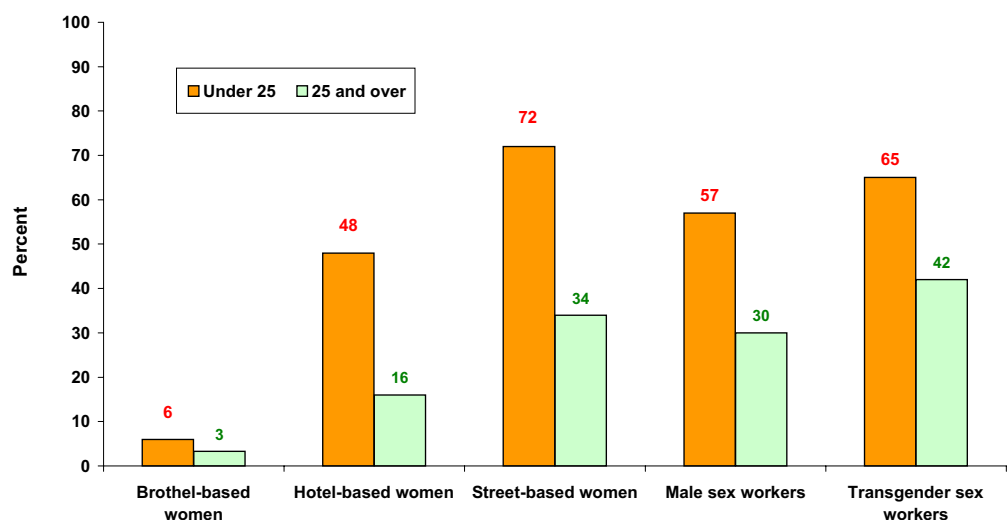


Figure 35: Percent of sex workers who have been beaten or raped in the last year, by place of employment, Bangladesh, 2002

Younger sex workers are more likely to be raped or beaten, wherever they work

(Source: Bangladesh National AIDS/STD programme, Ministry of Health and Family Welfare, 2003).



It is not clear what factors increase the likelihood that young people will adopt high-risk behaviours, but there is some evidence that young people who have experienced sexual abuse or other trauma in childhood may be more likely to set off on paths that can lead to drug injecting and to commercial sex.

Among sex workers in Vietnam, for example, 61% of those who were not addicted to drugs reported sexual abuse as a child, compared to 40% of those who were addicts. (Vietnam Ministry of Labour Invalids and Social Affairs 2001) In an **Iranian** study among homeless youth, half of the girls aged between 11 and 20 years, and who had run away from home, reported selling sex. Only half of them knew that condoms could prevent HIV. (Iran National AIDS Program. Ministry of Health 2004) In **Nepal**, more than one-third of female sex workers were married before they turned 15. One in seven was no longer living with her husband.

In an Iranian study among homeless youth, half of the girls aged between 11 and 20 years, and who had run away from home, reported selling sex. Only half of them knew that condoms could prevent HIV.

Being young is not in itself a risk factor for HIV infection. Yet, as the discussion above shows, a significant proportion of those who do have high-risk behaviours for HIV are young. And in some cases, those who are young (and are new to drug injecting, the sex industry or other risky activities) may face greater risks than those with more experience. HIV prevention programmes for these populations, which must remain at the core of the response to HIV in Asia, should take heed of the special needs of young people within the populations they seek to serve, and should provide services that meet those needs. The experience of young men in Cambodia described on page 82 shows that young people can be at the forefront of establishing new and safer norms of behaviour in Asian societies.

Chapter 6

Chapter highlights

- Factors fueling epidemic growth vary widely from one Asian country to the next, as they often do even within a single country (especially in the cases of large countries such as China and India).
- One of the key factors that determines the start of a heterosexual HIV epidemic in all Asian countries—but especially in those where client turnover in commercial sex is relatively low—is an external “booster”. Most commonly, this “kick-start” is provided by IDUs.
- It is important to provide prevention services to a large proportion of IDUs *before* HIV prevalence rises. Expanded prevention efforts that delay HIV epidemics among IDUs can also buy valuable time to put in place prevention programmes for clients and sex workers.
- While factors such as drug injecting may be key in “kick-starting” an epidemic, the rate of growth and ultimate severity of HIV epidemics in the Asian context is determined by the buying and selling of sex. In Thailand and Cambodia, both increases in condom use during commercial sex and reductions in the proportion of men who buy sex have reduced HIV transmission.
- Where HIV prevalence and the risk of transmission are relatively low, programmes do not need to aim for “zero risk”. An epidemic will stop growing if the risk of exposure in a specific sub-population is brought down below a certain “threshold” needed to sustain the ongoing spread of the virus.



Chapter 6: What next? Epidemic dynamics in the Asian context

Chapter 1 outlined the typical progression of Asian epidemics: rapid growth of HIV infection among IDUs, followed by epidemic growth among women, men and transgenders who sell sex and the people (usually men) who buy it. Men infected in these higher-risk activities often pass the infection on to their lower-risk female partners. Those women, as well as women infected in higher-risk activities, may then pass the virus on to their children.

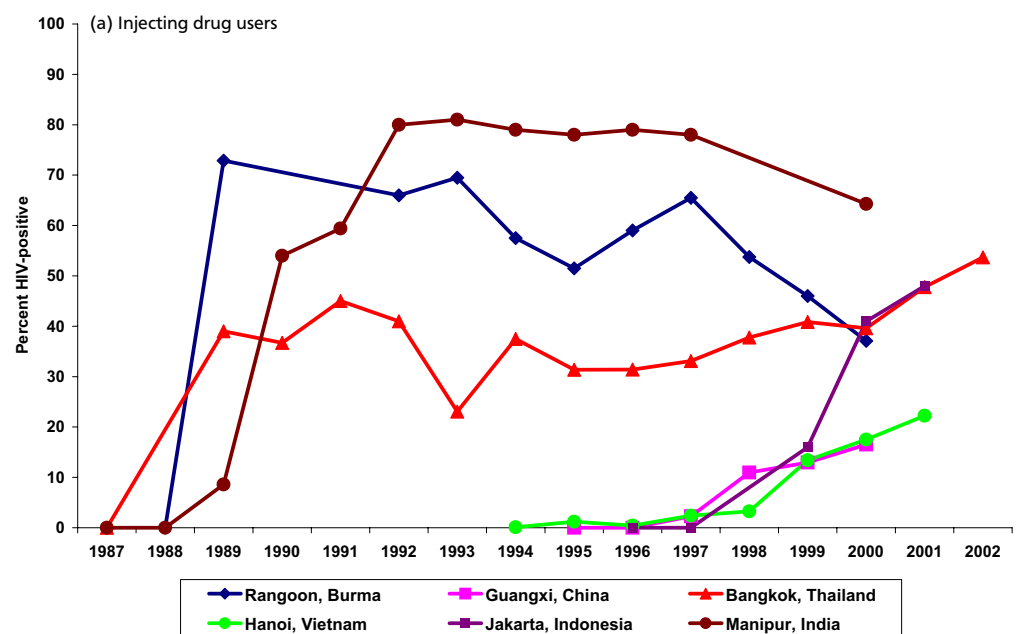
The size of the various populations involved in the epidemic varies widely across Asia. In a handful of countries and regions, drug injectors may outnumber sex workers. But by far the largest group of people drawn into the epidemic are the male clients of sex workers and their regular female sexual partners (in particular their current or future wives). In a rare survey of the general population in Thailand, up to 22% of young men reported buying sex regularly before vigorous HIV prevention programmes began. (Sittitrai, Phanuphak et al 1994) In other Asian settings where this has been measured, between 2% and 15% of men in groups representing the general population report being clients of sex workers, as shown in Figure 12 (on page 38).

The speed and severity with which the pattern described in Chapter 1 is playing itself out varies widely across the region. Some countries were hit early and hard—for example,

Cambodia, Myanmar and Thailand, along with some **Indian** states (such as Manipur, Maharashtra, and Tamil Nadu,) and Yunnan, in **China**. Others are only now starting to experience more rapidly expanding epidemics, many of them literally taking off in only the past five years or so. They include **Indonesia, Nepal, Vietnam**, and many other provinces in China. **Figure 36** illustrates this wide variation in the timing of rapid epidemic growth in IDUs and sex workers around the region. Some countries, even today, remain at extremely low levels of HIV prevalence—including **Bangladesh, East Timor, Japan, Laos, Pakistan, the Philippines** and **South Korea**.

In general, those countries where IDU epidemics exploded in the late 1980s or early 1990s are the same countries where the epidemic among sex workers and clients grew earlier and more rapidly. In countries where IDU epidemics only took off in the mid-or late 1990s, the sex worker epidemics seem to be growing more gradually. This raises two questions. Firstly, why do these wide variations in the timing and rapidity of HIV epidemics around the region occur. And secondly, what is the future of HIV epidemics in the countries of Asia?

Besides the customary claims that traditional values and religion act as “shields” against the epidemic, a number of epidemiological explanations have been proposed:



- variations in the levels and intensity of risk behaviours (including commercial sex, premarital and extramarital sex, needle-sharing, anal sex, etc.);
- differences in the strength of linkages among various at-risk populations (for example, the fraction and frequency of IDUs who visit sex workers, sex workers who inject, MSM who visit female sex workers, the size of networks of at-risk individuals, etc.);
- varying adoption of preventive behaviours (condom use with different partner types, safe injecting practices, etc.); and
- the timing of the introduction of HIV in at-risk populations; and other biological factors (levels of other STIs that facilitate HIV transmission, different transmission probabilities by HIV subtype, circumcision, etc.).

These factors vary widely from one Asian country to the next, as they often do even within a single country (especially in the cases of large countries such as China and India).

One careful analysis in 1998 (Chin, Bennett et al 1998) proposed that while any of these factors could be important, a smaller subset was more critical, namely:

- the general pattern of heterosexual risk behaviours (i.e., the ratios of commercial sex and non-commercial casual sex);
- the average number of clients sex workers service per night; and
- the size of the client population (i.e., the percentage of adult males who visit sex workers).

The other factors were seen to have a modifying effect on the epidemic, but the ultimate severity of the epidemic was determined by the extent of heterosexual risk.

An ecological analysis of those countries with more severe epidemics at the time supported this selection of factors. In both **Thailand** and **Cambodia**—two of the hardest-hit Asian countries—it was estimated that one-fifth or more of adult males were visiting sex workers each year and sex workers had many clients per night. To test the hypothesis, a model incorporating the major factors outlined above was developed. (Saidel, Des Jarlais et al 2003) Known as the Asian Epidemic Model, it was able accurately to reproduce over ten years of epidemiological trends in IDUs, sex workers, and the general population, based on observed trends in behaviours in both Cambodia and Thailand. The model

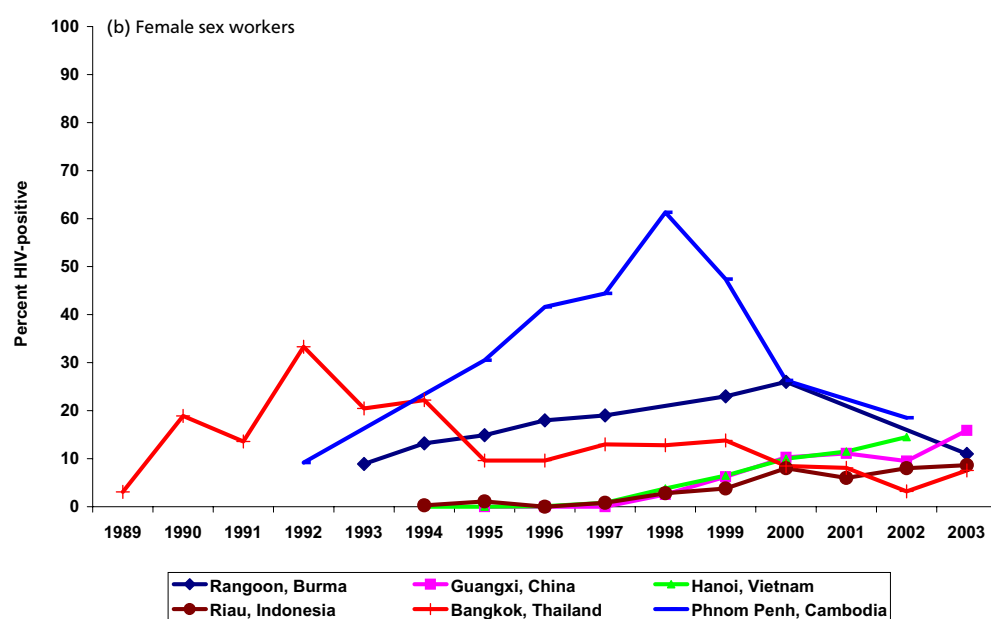


Figure 36. Extreme variability is seen in the timing and the rate of growth of epidemics among injecting drug users and female sex workers in different places in Asia (a) Injecting drug users (b) Female sex workers

The timeframes and pace of epidemics vary widely

(Source: National surveillance reports)

has since been fitted to other regions, as well. (Cambodian Working Group on HIV/AIDS Projection 2002) In general, this work validates the assumption that while other factors such as drug injecting may be key in kick-starting an epidemic, the rate of growth and ultimate severity of HIV epidemics in the Asian context is determined by the buying and selling of sex.

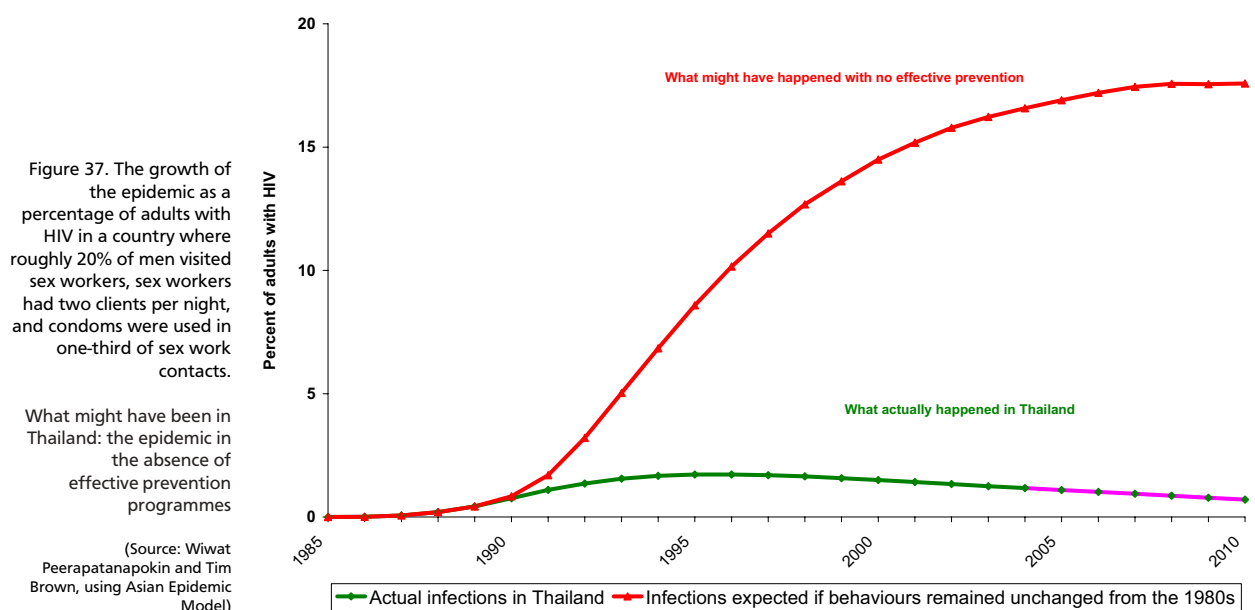
While factors such as drug injecting may be key in “kick-starting” an epidemic, the rate of growth and ultimate severity of HIV epidemics in the Asian context is determined by the buying and selling of sex.

The model therefore can be used to explore how the epidemic might develop in the different countries of Asia. In a country such as Thailand, where HIV was introduced in 1985 and where there was a significant population of IDUs, the epidemic takes off rapidly. (Thai Working Group on HIV/AIDS Projection 2001) **Figure 37** shows that if behaviours in Thailand had remained as they were in the early 1990s (with condoms used in only one-third of commercial sex contacts and by one-fifth of men visiting sex workers), a severe epidemic would have developed very quickly, with approximately 15% of the adult population living with HIV. Why did this not happen? A glance at **Figure 9** (on page 34) offers a clue. Following vigorous, nation-wide prevention efforts, condom use in commercial sex quickly shot up to around 90%. On top of that, the proportion of men visiting sex workers plummeted to half

its former levels. So, instead of fitting the frighteningly high red curve shown in **Figure 37**, Thailand’s epidemic has followed the green curve.

The situation in Cambodia was similar, but the start of the epidemic was delayed a few years because injecting drug use was not a significant factor. (Cambodian Working Group on HIV/AIDS Projection 2002) In Cambodia, the presence in the early 1990s of United Nations peacekeepers from high-prevalence countries, as well as refugees returning from high-prevalence areas of northern Thailand may have provided the “kick-start” to the country’s mainly heterosexual epidemic. (In Thailand, a similar “kick-start” had been provided by IDUs.)

In Thailand and Cambodia an exceptionally large proportion of men appear to buy sex. What about countries, such as **China**, **Indonesia** or **Vietnam**, where a smaller percentage of men visit sex workers? How might their epidemics evolve? **Figure 38** shows the possible growth patterns of the epidemic in a scenario where the size of the client population (men buying sex from) is reduced to approximately 10% of adult males and an epidemic among IDUs took hold in the mid-1990s. In this scenario, while explosive growth still occurs among the IDUs (due to the efficiency of needle-borne HIV transmission), the epidemic in sex workers and the wider population grows much more slowly. By 2004 approximately 4% of the sex workers would have HIV, while HIV



prevalence in the wider population would be roughly 0.2%. This scenario produces curves that closely resemble observed trends in Indonesia, Vietnam and in parts of China. At first glance, the trends do not appear to be particularly frightening.

But what happens over a longer period, beyond 2004? **Figure 39** reproduces the trends shown in Figure 38, up to the red line. It then leaves behaviours unchanged, and draws the trends further into the future. Now, the epidemic doesn't seem so "minor". By 2010, prevalence among sex workers would have reached 10%, almost 1% of the adult male population would be living with HIV (most of them current or former clients of sex workers), and prevalence in women would be growing gradually.

Such slow, steady growth may prove particularly insidious. Even six years hence, when prevalence among males is approaching 1%, prevalence among sex workers would be only 10% and roughly 0.2% of pregnant women would be testing positive. This would not necessarily ring alarm bells in the minds of many decision-makers, but it would result in a substantial care burden a decade later. In a country of 70 million people this would translate into about 37,000 clients and 10,000 wives being infected with HIV in the year 2010 alone, and almost 15,000 people would develop serious illness and die that year unless treated. In addition, the annual numbers of new infections

and deaths would accelerate quickly. If the epidemic is allowed to grow unchecked, by 2030 approximately 5% of adult males and 2% of adult females would be living with HIV.

It is important to stress that these are not deliberately alarmist scenarios. The model used to generate these scenarios draws on data that describes actual levels of risk behaviour currently being observed in many parts of Asia. For that very reason, however, we should regard them as "worst case" scenarios. Why? Because there is no reason to allow current levels of risk behaviour to stay unchanged. Asian countries that have put their minds, their money and their workforces to the task have managed to make serious dents in risk behaviour, turning epidemics around. Instead of rising to 15% prevalence as they might have in the absence of national prevention efforts, Thailand's epidemic peaked below 2% in 1996 and Cambodia at 3.3% in 1998.

Learning from one another: averting IDU epidemics early on

One of the key factors that determines the start of a heterosexual HIV epidemic in all Asian countries—but especially in those where client turnover in commercial sex is relatively low—is an external "booster". This booster is occasionally provided when heterosexuals from higher HIV prevalence areas move into settings

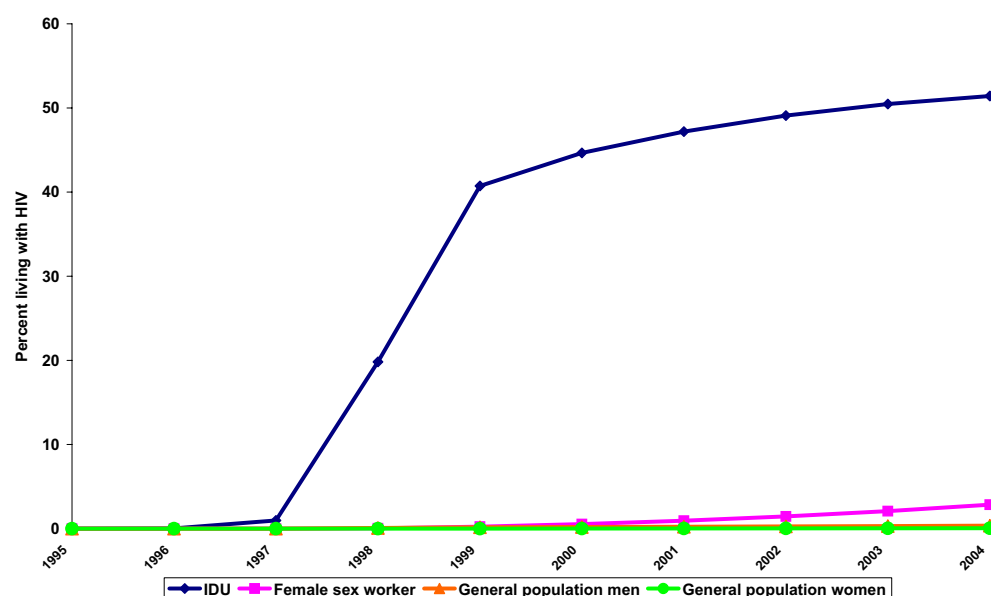


Figure 38. The growth of the different components of the epidemic in a country, such as China or Vietnam, where one-tenth of men visit sex workers, sex workers have one client per night, condom use stays at about 30% of commercial sex acts, and it is assumed that an IDU epidemic started in 1995.

In the short term, HIV epidemics in Asia may barely be visible in the population as a whole

(Source: Wiwat Peerapatanapokin and Tim Brown, using Asian Epidemic Model)

where HIV prevalence is lower (as happened, for example, with foreign peacekeepers in **Cambodia** and **East Timor**, and **Thai** fishermen in the Indonesian province of Papua). More commonly, however, the “kick-start” is provided by injecting drug users. Because injecting drug users have sex (and many buy and sell it, as described in Chapter 3), they can introduce the virus into a heterosexual population, creating a “critical mass” of infection which then becomes self-sustaining within commercial sex networks.

Figure 40 looks at the HIV epidemic in the Indonesian capital Jakarta, a city of some eight million people. The blue line on the graph follows the actual course of the epidemic in the city until 2003. Beyond that point, HIV infection rates are projected into the future on the assumption that risk behaviours among drug injectors, among male, female and transgender sex workers, and among clients of sex workers do not change from the levels observed in surveillance in 2003.

The first thing this model shows is that we can expect a very rapid expansion of the epidemic in Jakarta in this decade. The second thing it shows is that, by the end of the decade, around one-third of all HIV infections in the city will be among drug injectors. But the most important finding of the model shown in Figure 40 is shown by the purple line at the bottom. That represents the development of the epidemic in Jakarta if there had been no

HIV infections among drug injectors: *there would have been virtually no epidemic.*

The entire area shaded in yellow in Figure 40 represents sexually transmitted HIV infections which originated at some point in the sharing of unsafe drug-injecting equipment. The virus might have been passed on to non-injecting woman by her injecting boyfriend, or to a client who contracted the virus from a sex worker who was infected by an earlier client who used drugs. If that client had always used a clean needle when injecting drugs, the entire chain of transmission could have been avoided. If effective HIV prevention services had been available for a large proportion of IDUs in Jakarta from the early 1990s, when drug injecting began to become common, the HIV epidemic in the city would probably have remained at almost unmeasurably low levels for many years.

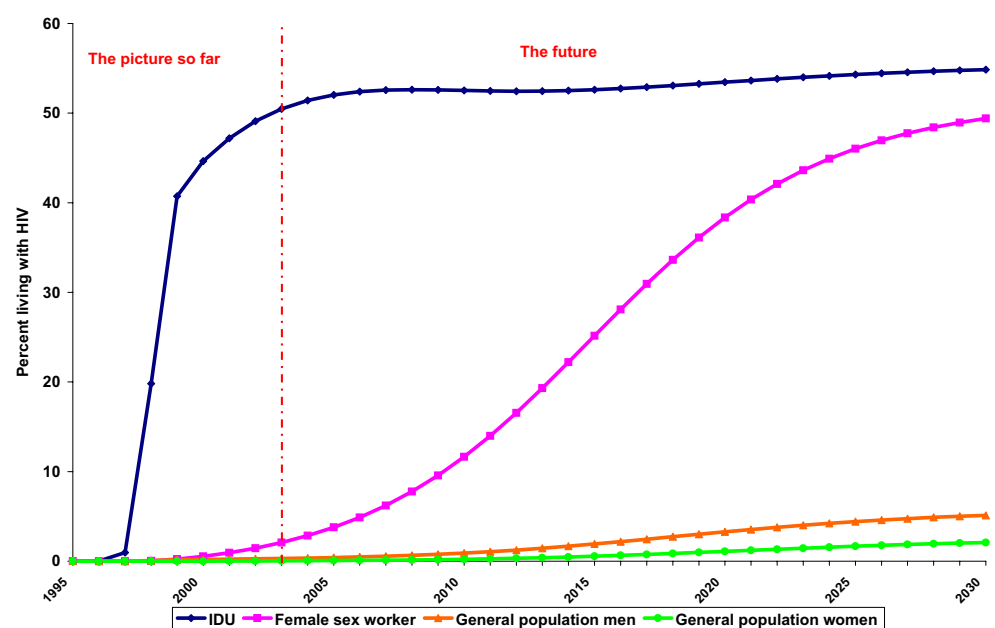
If effective HIV prevention services had been available for a large proportion of IDUs in Jakarta from the early 1990s, when drug injecting began to become common, the HIV epidemic in the city would probably have remained at very low levels for many years.

This illustrates the importance of providing prevention services to a large proportion of IDUs before HIV prevalence rises, as **Bangladesh** and **Pakistan** are trying to do. Expanded prevention

Figure 39. If behaviours do not change, apparently “mild” epidemics become more severe in a couple of decades

Over the longer term, the picture can change dramatically

(Source: Wiwat Peerapatanapokin and Tim Brown, using Asian Epidemic Model)



efforts that delay epidemics among IDUs can also buy valuable time to put in place prevention programmes for clients and sex workers. Much of the “booster effect” depends on onward sexual transmission of HIV through commercial sex and other sexual networks. If condom use in those encounters is already high by the time HIV takes off among IDUs, then the virus is denied the conditions that favour onward spread through sexual networks. It is worth noting that the sexual epidemic in Thailand remains relatively contained despite ongoing high incidence among IDUs. This is because condoms are used most of the time by IDUs in their casual encounters, as well as throughout heterosexual networks.

How much is enough? “Threshold” levels of condom use

The fact that high levels of condom use can break the link between an IDU-driven epidemic and a sexually driven epidemic raises an interesting issue: how much condom use is “high enough”? Most prevention programmes focusing on sexual transmission aim to get everyone to use condoms in all non-marital sex. At the individual level, consistent condom use is certainly the safest way of protecting a person against HIV and STIs if that person has sex (particularly with partners who are likely to have other partners, such as sex workers and

their clients). However, from a population point-of-view, the same does not necessarily hold.

The two most important variables that dictate the likelihood of HIV transmission through sex are firstly, the likelihood that an infected and an uninfected person will have sex, and, secondly, the likelihood that HIV will be transmitted from the infected to the uninfected person during sex.

It is important to provide prevention services to a large proportion of IDUs before HIV prevalence rises, as Bangladesh and Pakistan are trying to do. Expanded prevention efforts that delay HIV epidemics among IDUs can also buy valuable time to put in place prevention programmes for clients and sex workers.

The first variable is determined by HIV prevalence in the population, as well as by patterns of sexual mixing. The second is determined by the type of sex (anal sex is more risky than vaginal sex, for example), by condom use, and by physical factors, such as the presence of other STIs (which make it easier for HIV to pass from one body into another) or male circumcision (which makes it more difficult).

An epidemic will stop growing if the risk of exposure in a specific sub-population is brought down below a certain “threshold” needed to sustain the ongoing spread of the virus. Where background HIV prevalence is low, the likelihood of an infected person encountering an uninfected person is already low. Altering the second variable—by increasing condom use and

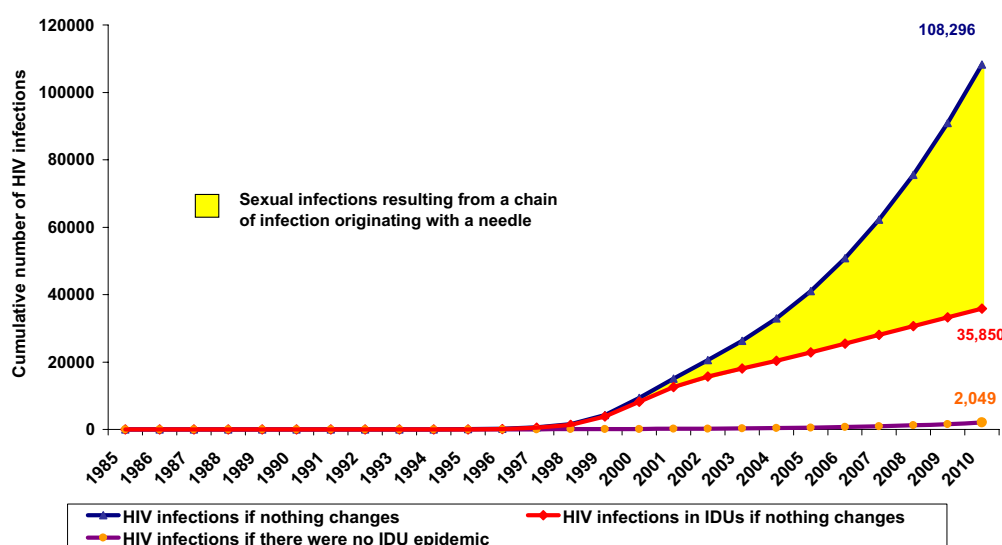


Figure 40: HIV prevalence in Jakarta, Indonesia, with and without IDUs. Actual data to 2003, and projections with behaviour unchanged from 2003 levels

Most sexual infections in Jakarta would never have occurred if there had not been a “seed” infection transmitted through drug injection

(Source: Elizabeth Pisani, using Asian Epidemic Model)

by treating other STIs effectively—will further reduce the likelihood of transmission. If prevention interventions get going before HIV prevalence rises to high levels in a population, then those interventions do not need to reach 100% consistent condom use in order to keep a lid on the epidemic. The higher the HIV prevalence is in any group of sex workers and clients, the higher the levels of condom use must be to contain and, eventually, to reverse the epidemic.

Where HIV prevalence and the risk of transmission are relatively low, programmes do not need to aim for “zero risk”.

In situations where HIV prevalence and the risk of HIV transmission per exposure are both high, such as among IDUs in many Asian countries, the likelihood that a person will contract or pass on the infection in any risky act is very high. This means programmes for IDUs in these areas have to be implemented on a scale and with a consistency that enables them to never share needles, and to use condoms each time they have sex. But where HIV prevalence and the risk of transmission are both lower, programmes do not need to aim for “zero risk”.

Figure 41 shows how even modest increases in condom use from a average baseline of 30% (a level currently witnessed in some of the countries that are in the growth phase of their epidemics) can result in significant reductions in HIV infections.

Under the conditions used for this modelling, if condom use reaches just 50%, it can

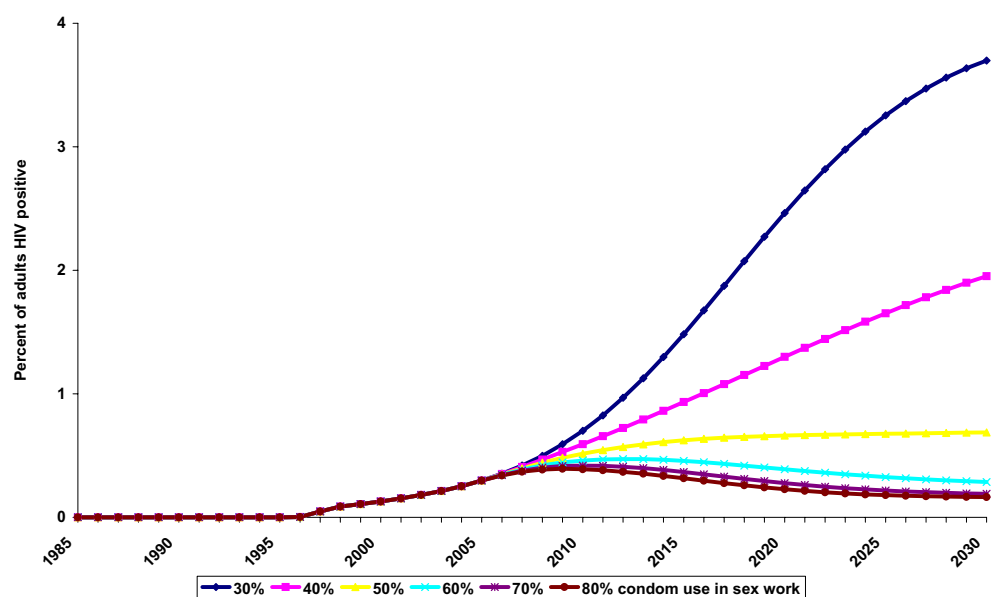
stabilise the growth of the epidemic. And if it rises higher, it can turn the epidemic around. Note that 50% condom use means 50% of all acts of commercial sex are protected by condoms. It does *not* mean that 50% of all sex workers and clients must use condoms every time they buy or sell sex. Neither does it mean that there should be 50% condom use at last sex among some limited number of sex workers who have been reached by prevention programmes in one or two cities. It means that one in two of every act of commercial sex undertaken in every corner of the country on every day of the year must be protected by condoms. Of course, models are not reality. The crucial test will be the actual HIV programmes that are mounted. But models can help illustrate where prevention efforts should be concentrated for maximum impact.

To some, this discussion might seem heretical. The suggestion that prevention programmes should settle for anything less than 100% condom use might be construed as sending “mixed signals” that could undermine prevention efforts. There is no doubt that individuals need to understand that only consistently safe behaviour can protect them from infection with HIV and other STIs. But from a public health point of view, it is also important to understand the underlying dynamics of HIV epidemics, because it affects the distribution of resources and the effectiveness of a response.

Figure 41. Effect of increasing condom use on overall adult HIV prevalence in a country where 10% of men buy sex

In certain circumstances, even modest increases in condom use can lead to significantly fewer HIV infections

(Source: Wiwat Peerapatnapokin and Tim Brown, using Asian Epidemic Model)



Chapter 7

Chapter highlights

- The evolution of an HIV epidemic in a country is essentially a matter of choice.
 - Prevention and care efforts have to concentrate on providing services for the people who need them most.
 - HIV epidemics are not static. Countries need to constantly evaluate trends in risk behaviour and in potential exposure to the virus. Prevention efforts may need to expand their focus beyond commercial sex to add services for other, perhaps politically-challenging, risk behaviours such as drug injection and sex between males.
- HIV prevention services remain the overwhelming need in much of Asia. Paying for treatment at the expense of prevention will simply increase the need for antiretroviral treatment in years to come.
 - Many prevention programmes in Asia still fail to provide people with services that can directly reduce exposure to HIV, including condoms, clean needles and effective STI treatment.
 - Because of the high levels of mobility and turnover in risk populations and the constant interaction of risk behaviours, small scale prevention projects are highly unlikely to make a major dent in the HIV epidemic.



Chapter 7: Learning from the past to shape the future

What can we conclude from all of the data reviewed in this report? The most important lesson learned over the past two decades is that there is nothing inevitable about HIV epidemics. Those individuals, communities, regions and nations that have had the wisdom to recognize the threats posed by HIV and that have mustered the courage to confront those threats have greatly reduced risk behaviours, HIV infections, and the trauma and hardship the epidemic generates. They have shown that the evolution of an HIV epidemic in a country is essentially a matter of choice. And choices made at the regional and national level can shape the future for a whole society.

The most important lesson learned over the past two decades is that there is nothing inevitable about HIV epidemics.

This report has sketched the immense diversity of HIV epidemics across the Asian region. Chapters 2 and 3 presented numerous examples of prevention services that have helped Asians adopt or sustain safe behaviours, thus reducing the risks of HIV transmission. Given such diversity, no single, “blueprint” prevention programme can fit all circumstances. And yet, there are some common guidelines that are most likely to lead to success in cutting new HIV infections and reducing the epidemic’s impact on those affected.

Maintaining focus: prevention and care efforts have to concentrate on providing services for the people who need them most

The funding available for HIV prevention (and, increasingly, treatment and care) has grown astronomically in recent years. But the growth in the number of people with the expertise, the will and the opportunity to use that money effectively has been very limited. And those flows of funding are not unlimited. Each country therefore still has to make choices about how to use the resources at its disposal—how to use the available money and the time and energy of its people in preventing HIV infections and increasing care for those infected.

Targeting the behaviours that are causing most new infections

Technically, these choices are easier in settings (such as those in most of Asia) where HIV remains concentrated largely among people with identifiable risky behaviours and among their immediate sex partners. But politically, this concentration of risk may actually undermine decisions that are sensible from a prevention and care point-of-view.

For one thing, it tends to focus attention on groups of people who engage in risky behaviour, rather than on the social, economic and structural factors that foster and reinforce risky behaviour, or that could enable and support people to reduce such behaviour. As discussed earlier in this report, **Thailand** has done a remarkable job of reducing the risk of heterosexually-transmitted HIV infections, especially in the context of commercial sex. And it achieved this largely through structural and societal-level changes, rather than just targeting individuals. Thailand has turned the tide of its epidemic, and the impact of its effective prevention efforts is vividly apparent in Figure 37. But, as the tide of heterosexual infections has receded, the ongoing risk behaviours which continue to transmit HIV have become exposed. HIV prevalence among IDUs in the Thai capital, Bangkok, have stabilised at above 52%, for example. Note that “stable” does not mean no new infections; it means as many people are being newly infected as are dying or dropping out of the tested population for other reasons (for example because they have stopped injecting drugs). Indeed, new infections in this population are running at around 3% a year. (Choopanya, Tappero et al 2004)

Also in Bangkok, HIV prevalence of 17% was recently recorded among men who have sex with men. HIV transmission continues to occur in Thai jails, probably through both drug injection and male-male sex. In terms of sheer numbers, more people in Thailand still have commercial or extramarital sex with someone of the opposite sex than engage in drug injection or male-male sex. This means that maintaining high levels of condom use in these heterosexual encounters should remain the country’s number one HIV prevention priority. But precisely because of the success so far, other risks now account for a substantial proportion

of new infections. The country's prevention efforts need to be expanded to add services for these other, perhaps politically-challenging, risk behaviours. This means not just focusing on IDUs and MSM at the individual level, but addressing the societal factors that foster drug use or needle-sharing, and reducing stigmatisation of male-male sex, so that prevention programmes can work more effectively.

Don't spread it too thin: focus efforts where they will have most impact

Sometimes the impetus for a generalised approach emerges from a concern for equity. The newly-independent nation of **East Timor** is justifiably concerned that it should provide services to all of its citizens, without discrimination. Such concern is evident in the extensive programme to train midwives and health centre staff nationwide in the syndromic treatment of sexual transmitted infections. But sketchy data from health services show that public services see at most one or two potential cases a month, and most of these are vaginal discharges that were not caused by STIs. (Pisani 2002) New data confirm that STI infection rates are probably very low in the general population. Even among men who reported recent visits to sex workers, just 3% were infected with gonorrhoea or chlamydia, and only one of those men was married and therefore likely to put his wife at risk.

While STI levels in the wider population are low, among sex workers, for example, 28%

were infected with an STI (and only a small fraction had ever had any screening or treatment for sexual infections). In such a situation, where infection rates and risk behaviour in the general population are low, the most effective way to prevent STIs in the wider population is to provide strong screening, treatment and prevention services for those most likely to be infected—in this case, sex workers and their clients. It is important that these services are provided in ways that do not stigmatize the populations they are meant to benefit. The fear of stigmatization should not, however, be used as an excuse to deprive people who share a risky behaviour of the services they need.

Where STI infection rates and risk behaviour in the general population are low, the most effective way to prevent STIs in the wider population is to provide strong screening, treatment and prevention services for those most likely to be infected— sex workers and their clients.

Even among sub-sectors of the population, prevention and care efforts should be focused on those who need them most. As is evident from Chapter 5, the majority of young people in Asia are not at risk for HIV. It is of course important to provide information, services and skills training that could help all young people maintain safe behaviours. But, in terms of preventing new infections among young people in the short- and medium-terms, prevention programmes would do well to focus not just on young people in general, but on those young people who are most likely to be exposed to high-risk behaviours.

The ugly question: who should have access to care?

The concept of focusing services where they will have most impact is especially important in an era of growing access to care. Providing care to those most in need in Asia may be even more difficult than providing prevention services to those in need. Access to antiretroviral drugs has become highly politicized, both at the national and the international levels. On the one hand, it seems more acceptable to give people medication than it is to provide drug injectors with clean needles. On the other hand, decisions about who should get access to a limited supply of expensive, life-prolonging drugs are bound to expose prejudices that underpin people's reactions to HIV.

In some places, it may be difficult to advocate the provision of these drugs to people who engage in illegal or socially unacceptable behaviours such as drug injection, anal sex and commercial sex. By reducing the amount of HIV circulating in body fluids, antiretroviral drugs can reduce the probability that a person living with HIV will pass the virus on in unprotected sex or when sharing needles. From a prevention point-of-view, giving antiretrovirals to those with the highest risk behaviour is likely to have the most impact on

reducing new infections, with some limitations. But that would depend on several factors. Firstly, the effect would only be seen if people were continuing their risky behaviours when they started taking antiretrovirals (typically many years after they became infected). Secondly, the effect would be undermined if people increased their risky behaviour partly because the drugs were available.

From a practical point of view, identifying people in need of treatment may be easier in sub-populations that are at high risk of infection. This is because, where prevalence is higher, fewer HIV-negative people would be counselled and tested for HIV for every HIV-positive person who is identified (as **Figure 42** shows). In Tamil Nadu, India, one of the highest HIV prevalence areas in Asia, one would have needed to test around 150 IDUs in order to identify 50 HIV positive people in need of care and support in 2002. If women in need of care and support are identified through antenatal screening, close to 5,700 pregnant women would have to be counselled for HIV and tested in order to identify the same number of people living with HIV.

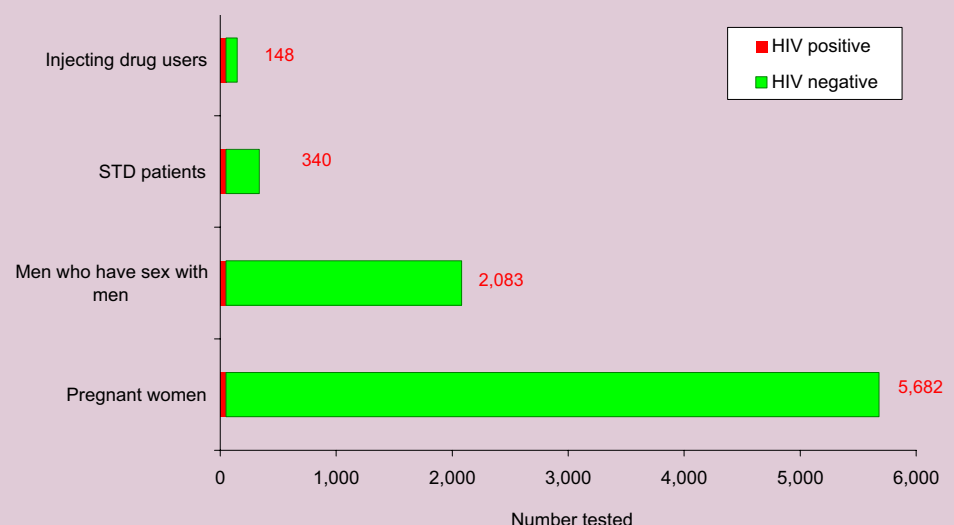
Of course, these data do not tell the whole story. Firstly, not all HIV-positive people need antiretroviral drugs. While they may all need some form of care and support, antiretroviral treatment will only be necessary for those whose immune systems are most severely compromised. Secondly, providing care, especially antiretroviral therapy, to populations with high-risk behaviours carries its own set of challenges. Once people start taking antiretroviral drugs, it is important that they take them regularly. Forgetting to take them or not having a constant supply of the drugs available may result in resistant strains of this highly mutable virus developing. Eventually, this would render the drugs ineffective, whether people are taking them sporadically or as prescribed.

Getting anyone to take drugs consistently can be difficult—all the more so with antiretrovirals, which frequently cause nausea and other side-effects. But it may be more challenging than usual among populations with high-risk behaviours, such as drug injectors and sex workers (of all genders), since they are often highly mobile and tend to live somewhat irregular lifestyles. It is also possible that the provision of antiretrovirals to those most at risk could reduce the incentive for people who are not yet infected to adopt safe behaviours, or that people who are already infected might continue to practise risky behaviour and perhaps do so more frequently.

Figure 42: Numbers of people who would have to be counselled and tested for HIV to identify 50 HIV-positive people, at 2002 prevalence rates, Tamil Nadu, India

People in need of care and treatment are more easily found among groups with high-risk behaviours

(Source: calculated using India National AIDS Control Organisation surveillance data)



These concerns are mere suppositions at the moment, since there is little experience in Asia with the provision of antiretroviral drugs to any population with high-risk behaviour. It is clear that communities of people living with or threatened by HIV have a key role to play in advocating for drugs to be provided to those who most need them. Men and women with HIV are central, too, to ensuring that access to antiretroviral drugs provide a net benefit to those who most need them, as well as to society as a whole.

Keeping an eye on the ball: HIV programmes need to change with the epidemic

HIV epidemics are not static. They change constantly, sometimes because new behaviours emerge (as with the recent surge of injecting drug use in Indonesia), sometimes because they have been modified by prevention efforts (as is the case in **Thailand** and **Cambodia**), and most often because they are following the natural course of an epidemic that exploits complex mixtures of risk behaviours and spreads from one part of the population to another.

Dynamic epidemics require dynamic prevention efforts. Cambodia has successfully reduced the number of new infections quite dramatically in recent years. But that achievement has created new prevention challenges.

Figure 43, which reconstructs trends in new infections from changes in HIV prevalence levels over time, shows how the epidemic has been evolving. Until the mid-1990s, infections among sex workers and clients dominated new HIV infections in Cambodia, and the number of new infections grew quickly each year. But by 1995 behaviours were changing. Condom use was rising and fewer men were buying sex. As a result, the number of new infections fell.

Fewer new infections were now occurring through sex work. But the men who were infected when buying sex (many of who were still single at the time) began to pass infections on to their wives. And former sex workers were also getting married and infecting their husbands. By the early 2000s, spousal transmission of HIV became dominant, although it is worth noting that because of the overall fall in new HIV infections, the actual number of people being infected by their husbands or wives was much smaller in the early 2000s than it had been in the mid-1990s. With more spousal transmission came an increasing proportion of new infections among newborns. (Cambodian Working Group on HIV/AIDS Projection 2002) Like Thailand, Cambodia's first priority is to maintain the success of efforts to make commercial sex safer. But the country now also needs to help discordant couples to protect each another from HIV, while expanding programmes to reduce transmission from mothers to their infants.

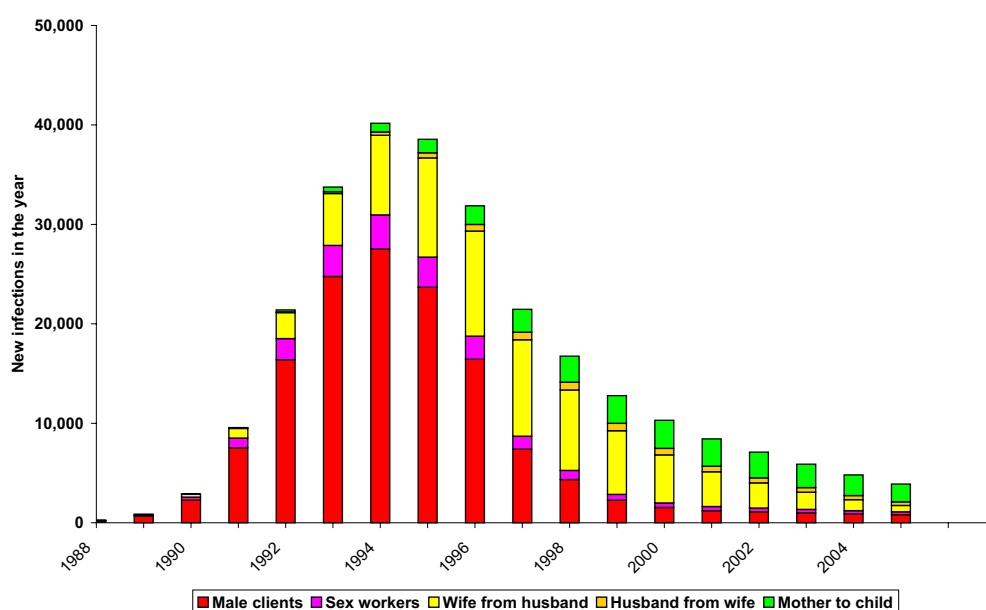


Figure 43. Percent of new infections attributable to different behaviours, Cambodia 1898-2004, generated by EPP-Multi software and based on trends in prevalence

Changing routes of new infections over time in Cambodia.

(Source: Cambodian Working Group on HIV/AIDS Projection. 2002)

It is also important to keep an eye out for early warnings of risk behaviours which are not now thought to be widespread. Notice that Figure 43 contains no measurable levels of transmission between men or through drug injection. These behaviours are thought not to have made a significant contribution to the epidemic in Cambodia to date. But, with HIV prevention programmes so closely focused on commercial sex between men and women, that may change over time.

It is also important to keep an eye out for early warnings of risk behaviours which are not now thought to be widespread.

By 2000, 15% of MSM in Phnom Penh were infected with HIV, according to one study. (Girault, Saidel et al 2004) There is evidence, discussed earlier, that many of them probably got infected in sex with female sex workers. But once infected, they are at risk of passing HIV on to their male partners, many of who buy or sell sex. There are further grounds for concern. Around 3% of MSM said they had injected drugs in the previous 12 months. Cambodia has always been thought to be relatively free of drug injection, but it is known to be on drug trading routes (providing an alternative pathway for drugs produced in the "Golden Triangle" of northern Thailand, Myanmar and Laos). Where drug dealers go, drug users usually follow. In secondary schools in urban areas of Cambodia, 33% of children had taken illegal drugs, according to one survey. (Yuthea 2004) Among street children in Phnom Penh, surveys report quite high levels of drug injection, rising to 9% in 2001 from 3% a year earlier. Some of the children were reportedly also selling drugs. (Samlanh/Friends 2001) If Cambodia is to avoid a resurgent sexual epidemic, it might need to look more closely at drug-related behaviours.

Keeping it up: the need to maintain prevention efforts over time

Thailand and Tamil Nadu illustrate another, important aspect of adapting to changing epidemics. New programme efforts have to expand on, rather than replace, existing efforts. There is no questioning the success of either Thailand or Tamil Nadu (in **India**) in increasing

condom use in commercial sex through the early- and late-1990s, respectively. Tamil Nadu is in a better position than Thailand to track whether those successes are being maintained, because it has a much stronger behavioural surveillance system.

Tamil Nadu's surveillance system shows a rise in casual sex among high-risk male populations, a slight drop in condom use with commercial partners, and a more substantial drop in condom use with casual partners (from 46% in 2001 to 37% in 2002). HIV prevalence, which had halved among STI patients in the state capital Chennai from 8% in 1998 to 4% in 2001, rose back to its earlier peak within a year.

The surveillance system has a qualitative wing which seeks to investigate the causes of unexpected changes seen in the quantitative data. In late 2002, fewer than one-half of sex workers who had unprotected sex in Tamil Nadu said they were at risk of acquiring HIV, compared with 60% two years earlier. Qualitative investigations attributed falling risk perception and rising risk behaviour to two main factors: a flurry of advertising for "miracle cures" for AIDS on private TV stations, and a heightened focus on antiretroviral therapy which seemed to create the misperception that AIDS is curable. The first issue was quickly dealt with by imposing a ban on advertisements for such products. The second has proved harder to confront. People living with HIV and taking antiretrovirals could act as important messengers in stressing that prevention remains a better option (for those who still have the choice) than long-term therapy.

Thailand has a rather weak behavioural surveillance system, which makes it hard to verify to what extent the country's success in cutting risk in commercial sex is being maintained. There are early indications, however, that it may be slipping. Just 55% of men in northern Thailand who, in a 2001 household survey, said they bought sex reported using condoms with all sex workers. (Lertpiriyasuwat, Plipat et al 2003) In a youth survey in the same region, the rates were even lower, with fewer than one-third of young men who paid for sex saying they always used condoms. Some 61% of male factory workers in Bangkok who bought sex in 2003 reported consistent condom use when doing so. In the same year, HIV prevalence among direct sex workers in the city more

than doubled to 7.5% (up from 3.2% in 2002).

Countries with strong prevention programmes need to watch for subtle shifts of behaviour which may point to the need to adjust (as opposed to radically alter) prevention efforts. One, obvious example is the shift from openly commercial sex transactions in brothels or on streets to a more discreet form which occurs in restaurants, bars or night clubs. Between 1997 and 2001, there was virtually no change in the proportion of women promoting brands of beer in restaurants in **Cambodia** who reported having a boyfriend—it fluctuated between 42%

and 45% over the five years. But there was a dramatic linear trend in the proportion who said they had sex with their boyfriends—from fewer than half in 1997 to 99% five years later. The proportion of beer promoters who said that they sold sex outright also shot up over the same period, rising to 31% (a 158% increase). These relationships may be ambiguous for both partners, with one side describing them as commercial and the other not. What is clear is that men are only around one-third as likely to always use condoms with women they regard as “girlfriends”, whether

HIV prevention services remain the overwhelming need in much of Asia

The necessary emphasis on increasing access to care and support services, and in particular antiretroviral treatment, for people living with HIV should not come at the expense of maintaining prevention efforts. This is especially true in countries where HIV transmission occurs mainly through risky behaviours that can be addressed relatively easily, and where it remains low in the wider population.

The push for greater treatment has been accompanied by the availability of new resources at a global level. But resources at local levels often remain strained. This is particularly true of human resources.

Figure 44 shows the number of people in need of various prevention services and the number in need of antiretroviral treatment in **Indonesia**, the world’s fourth most populous nation. Close to half a million people are in need of regular HIV prevention services, and that number would be much larger if clients of male, female and transgender sex workers were included. In other words, for every person needing antiretroviral treatment, there are 57 times as many Indonesians who are in urgent need of specific prevention services. It is encouraging that the number needing antiretrovirals is relatively small, so that high coverage should be feasible. But Indonesia, and the many Asian countries that find themselves in similar situations, should not allow achieving such coverage to come at the price of neglecting prevention efforts. Such neglect will simply increase the need for antiretroviral treatment in years to come.

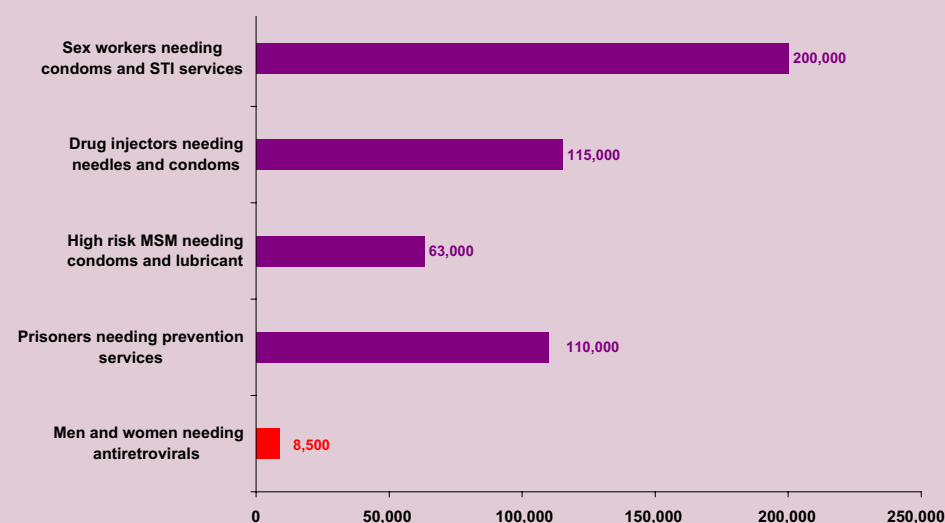


Figure 44: Number of people engaging in various behaviours carrying a risk of HIV infection in 2004, and number in need of antiretroviral therapy

In Indonesia, over 50 times as many people need prevention services as need antiretrovirals

(Source: calculated from Indonesia Directorate General of Communicable Disease Control and Environmental Health 2003 and the Asian Epidemic Model)

or not that woman actually has other partners as well. Condom promotion campaigns aimed at men who are likely to have sex outside their marriages therefore need to adopt a broader approach, and encompass casual partners as well as sex workers.

Cambodia is not the only place to witness such shifts in casual partnerships. Since 2000, Tamil Nadu has included unmarried men, aged 15-24 and who live in slums, in its surveillance system. The proportion of these men who bought sex from sex workers fell from 11% to 6% between 2000 and 2002, while condom use at last commercial sex rose from 58% to 82%. But for casual sex, both indicators went in the opposite direction. Not only did casual partnerships rise slightly, from 9% to 11%, but condom use at last casual sex fell from 27% to 16%. If these casual partners are indeed "casual partners" (girlfriends who stick with one boyfriend for considerable periods and who are likely to have far lower exposure to HIV than sex workers), this may not be such a dangerous trend (as explained on page 82). But prevention programmers need to be aware of these shifts, weigh their implications, and adjust programmes appropriately if necessary.

The right thing for the right person: providing services that prevent HIV infection and help people who live with HIV

It is important in Asia that HIV prevention and care efforts reach the people most at risk for contracting or passing on the virus, and reach those most in need of care. But "reaching" people is not enough. It is as important to reach them with services that will actually help them reduce their risk of infection. Getting a pamphlet about the need to use condoms from an outreach worker may increase someone's awareness, but being provided easy access to a condom is more likely to increase safe sex (as shown below). Yet even after 20 years of experience with this epidemic, many prevention programmes in Asia still fail to provide people with services that can directly reduce exposure to HIV, including condoms, clean needles and effective STI treatment. Ultimately, new HIV infections will only fall if exposure to the virus is reduced. Prevention programmes need to provide services that directly reduce exposure to HIV if they want to see an impact in terms of fewer new infections.

Figure 45: Percent of male and female drug injectors in Yunnan, China, who say they received different HIV prevention services in the preceding 12 months

Are prevention programmes providing what their clients most need?

(Source: China-UK HIV/AIDS Prevention and Care Project 2003b)

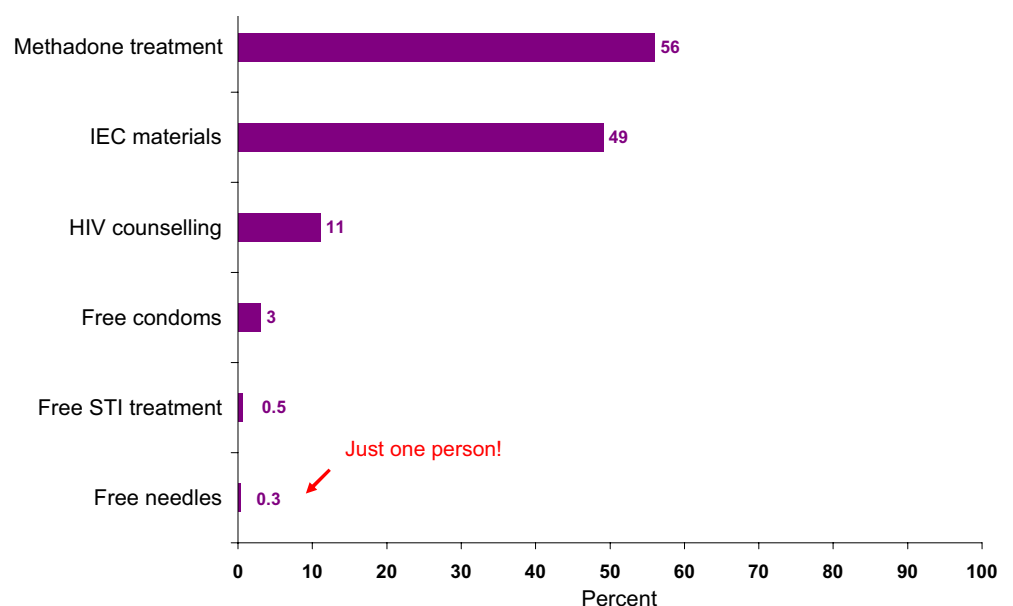


Figure 45 shows data from surveillance among drug users in Yunnan, **China**. Surveillance authorities should be applauded for trying to understand which prevention services are reaching people in need—few questionnaires include such detailed information. What they reveal in this case is that although over half of IDUs are being “reached” with some kind of programme, virtually none are receiving clean needles or condoms, the two things that can most immediately interrupt HIV transmission among IDUs. Providing methadone detoxification or even maintenance is admirable, but it did not succeed in ending injecting practices for the 56% of this injecting population who had been through the programme. Some 21% of IDU in Yunnan tested positive for HIV

in surveillance in 2003, so there is no room for “long-term” approaches in this population, or others just like it around Asia. The prevention services most likely effectively to reduce exposure to HIV need to be provided now, not later.

Along **Nepal’s** major highway, programmes for men who are potential consumers of commercial sex and the women who supply them with sex have reached high levels of coverage in recent years. They have been careful to go beyond just providing leaflets and information.

Figure 46 shows that there was a very close relationship between the percentage of sex workers being provided with condoms by HIV prevention programmes and the consistent use of condoms with all clients.

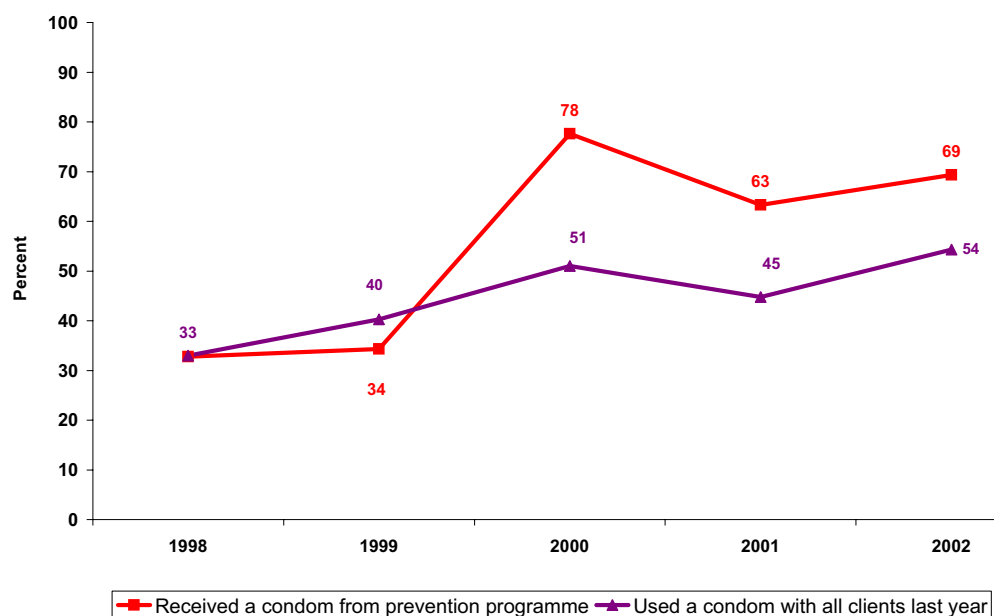


Figure 46: Percent of female sex workers in Nepal reporting having received condoms from an HIV prevention programme, and percent using condoms with all clients in the previous 12 months

Where the right services are provided, people use them!

(Source: New ERA and Family Health International 2003)

HIV testing alone does not always lead to safer behaviour

HIV testing has an important role in helping people discover whether or not they are infected with the virus, and thus whether they are in need of care services and therapy. The link between testing and effective care programmes is therefore strong. Many institutional documents on HIV prevention appear also to assume a positive relationship between HIV testing and effective prevention. Some state that people cannot protect themselves and their partners from HIV unless they know their HIV status. This is puzzling, since condoms and clean needles work as effective obstacles to HIV transmission whether or not the people who are using them know their status. But the underlying assumption that people who learn that they are not infected will change their behaviour to stay uninfected while those who test positive will change their behaviour to avoid infecting others deserves some scrutiny. In a low-prevalence setting, there may after all be some danger that people who have had risky behaviours and who test negative might deduce that those behaviours were not that “risky” after all.

Vietnam offers encouraging evidence that people who have voluntarily presented for an HIV test, received counselling and collected their test results have safer behaviour than those who do not know their status. Among men who have sex with men in Ho Chi Minh City, 68% of those who had been counselled and tested used a condom the last time they had anal sex with a casual partner—which is significantly more than the 48% who had not requested a test. (Colby 2003) But that is just about it for the good news. In the same city, drug injectors who knew their HIV status were no less likely to share needles than those who did not. (Hien, Giang et al 2001)

Generally, surveillance data requires only to know whether someone has been tested, not what their status was. But a multi-city study in Vietnam of people selected because they were HIV-positive recorded extraordinarily high levels of risk behaviour. Up to 62% of IDUs who knew they were HIV-positive shared needles, a larger proportion than in groups of unknown HIV status. (Vietnam National Committee for Population Family and Children 2002) It is possible that these men only shared with other injectors who they knew were infected with HIV. But consumption of commercial sex was also higher among the HIV-positive men than among groups of men included in surveillance because they were especially likely to report risky sex, and condom use was lower. Up to three-quarters of men living with HIV in the Vietnam study reported unprotected sex with sex workers; they cannot have known the HIV status of all their commercial partners. The reasons for this behaviour are not clear. But in qualitative work among HIV-positive people in other countries in the region, it is sometimes reported that people who have learned of a positive test result (often without their full prior understanding or consent) feel angry and vengeful, and some express a wish to “take others down with them”.

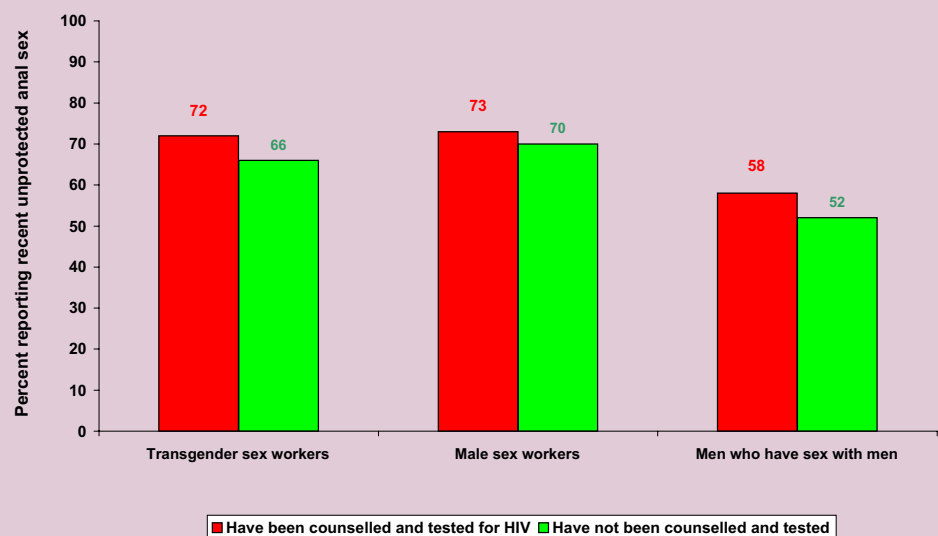
In Jakarta, **Indonesia**, 100% of the small number of IDUs who had received voluntary counselling and testing reported sharing needles in the previous week, compared to 86% who had not accessed those services (over two-thirds of all voluntary counselling and testing clients had tested positive). In some Asian settings, counselling does not seem to be very effective at promoting safer behaviour among those who learn they are negative, either. In three cities in Indonesia, neither transgender sex workers, male sex workers nor MSM reported less risk if they had been through counselling and testing, as Figure 47 indicates. The majority of these respondents were HIV-negative.

A study in northern **Thailand** showed no relationship between having been counselled and tested for HIV, and risk behaviour among young adults. Among those who said they

Figure 47: Percent of transgender and male sex workers and MSM who report unprotected anal sex in the previous week (transgender) or previous month (others), by VCT history

Men who have had an HIV test with counselling are just as likely to carry on with risky behaviour as those who have never been tested

(Source: Pisani, Girault et al 2004b)



had received a negative test result at their last voluntary test, a significant number were positive when recruited to the study, indicating ongoing risk since their counselling. (Kawichai, Beyrer et al 2004)

Testing access is surprisingly high for many marginalised populations in some settings. For example, one in four MSM in Chengdu reported having taken a voluntary HIV test, yet risk behaviour in this population was extremely common. In **India**, 23% of MSM say they have had voluntary HIV tests in five cities in BSS, and in Mumbai it is as high as 56%. Yet high levels of unprotected anal sex persisted in this population

Why are counselling and testing services not having a more positive effect on behaviour? Possibly because service quality is poor and the counselling is not as “voluntary” as it should be. Among drug injectors in Beijing, for example, 20% said they had been tested for HIV and 70% of those got their test results. But barely 3% had received pre-test counselling and only one individual was given any post-test counselling. In addition, counselling is unlikely to lead to safer behaviours unless it is supported by services and networks that enable HIV-positive people to live productive lives free of discrimination, and that provide them with the means to avoid passing on the infection to others.

Clearly, the equation “more testing = more safe behaviour” does not currently hold in many situations in Asia. In planning the expansion of these services, it is necessary to consider how to increase the quality of the services, and their utility and acceptability to populations at high risk of acquiring HIV.

The one population among whom acceptability seems relatively high is also one of the populations at lowest risk of being infected in the still largely male-dominated HIV epidemics of Asia: pregnant women. Experience in Cambodia shows that counselling and testing for HIV is considered quite acceptable as long as it is accompanied by benefits for the recipient—82% of pregnant women accepted testing and 86% came back for their results (which amounts to an “acceptability rate” of 70%). (Saman, Kruey et al 2002) Similar levels of acceptability have been found among women in India, 83% of whom accepted same-day testing, and almost all of their husbands, interviewed separately, supported testing with counselling for their wives. (Shankar, Pital et al 2003)

Size matters! The time for “boutique” pilot projects is long past

This report has described a number of prevention approaches which have been shown to work. But it would be misleading not to add that some of them have only been shown to work on a small scale. This is especially true of approaches which require intensive, repeated counselling, as discussed on page 36. This does not necessarily imply that those approaches would not be successful, were they to be replicated nationwide. Given the financial and human resource constraints, however, the likelihood of such expansion is questionable.

Small “boutique” projects can change the lives of the people they reach. Donors often favour such projects because they can be implemented by NGOs which are thought to be better equipped than government agencies or

the private sector to serve the needs of populations with high-risk behaviours. And some governments favour them because, as long as there are “pilot programmes” in place, the country seems to be doing something about the epidemic, and the government is spared the political difficulties of being associated with wide-scale, controversial programmes.

The problem with small-scale pilot projects is that because of the high levels of mobility and turnover in risk populations and the constant interaction of risk behaviours, they are highly unlikely to make a major dent in the HIV epidemic. This is true if they only reach a small proportion of populations at risk in one location, but it is also likely to be true if they achieve good coverage in only a fraction of the places in a country or region where substantial risk takes place.

In prevention programming terms, the rationale for pilot interventions is questionable.

We know that behaviours will become safer if ready access to clean needles, condoms, lubricants, STI screening and treatment is ensured, and people acquire the means and abilities to use those tools. Pilot interventions are sometimes useful in building local political support for an intervention, and they can help work out adaptations which make programmes work better in particular situations. But at this stage of the epidemic, any pilot programmes should be designed from the start to include mechanisms which will increase their scope and their reach, in a defined timeframe.

Because of the high levels of mobility and turnover in risk populations and the constant interaction of risk behaviours, small scale prevention projects are highly unlikely to make a major dent in the HIV epidemic.

Figure 48 shows the estimated coverage of prevention programmes among sex workers in **Indonesia**, in areas where local NGOs have been supported to provide prevention services since the mid-1990s. It is estimated that existing programmes reached fewer than 6% of sex workers in 2003, even in cities where the programmes have been in place for the best part of a decade. Coverage of clients was even lower. Modelling based on these and other Indonesian data suggest that if 100% of the people reached through prevention programmes in 2003 elimi-

nated all their risk of exposure to HIV overnight, only 2.3% of new infections nationwide would be averted.

Yet countries and regions that have managed to provide access to prevention services on a sizeable scale have cut exposure to HIV. In central **Bangladesh**, just over one-half of street-based sex workers said they accessed HIV prevention services in the preceding 12 months, compared with 21% in the south-eastern region. Figure 49 provides some hints of the relationship between coverage and behaviour change.

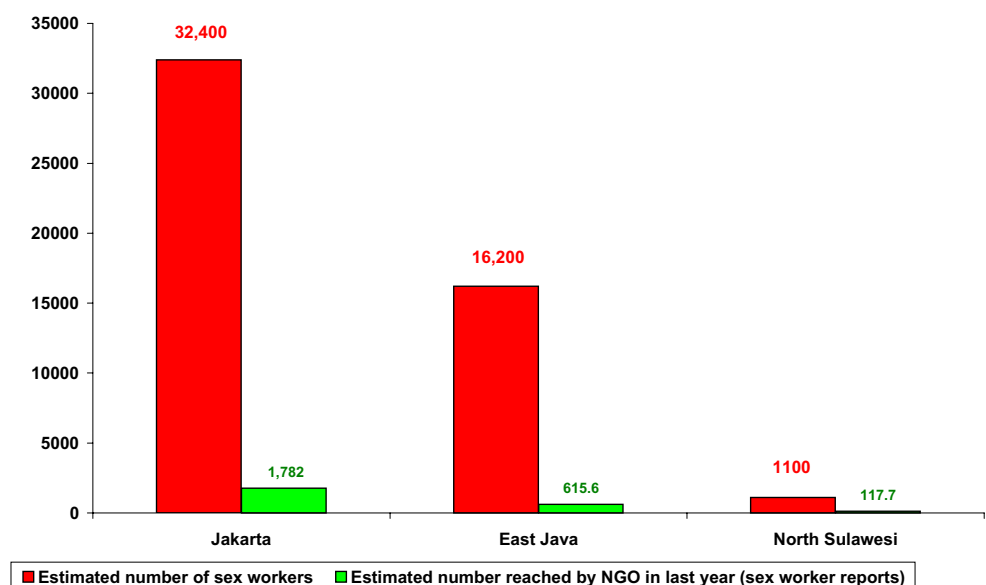
The data indicates that where programme coverage is higher, a higher proportion of overall sex acts are protected by condom use, even for sex workers who did not access the programme. In part, this might be due to a "diffusion" effect. Where effective prevention programmes begin to change behaviour between sex workers and clients on a significant scale, condom use may become more of a habit in the industry overall. These changing norms will eventually filter through, even to those who have not had direct contact with prevention programmes. The combination of higher coverage, more behaviour change among those reached, and this "diffusion" effect, helped create a situation where 36% of sex workers in central Bangladesh used condoms at last sex with a new client, compared with 22% of sex workers in southeast Bangladesh.⁴

⁴ The data for regular clients are omitted for simplicity, but condom use with regular clients follows the pattern of the new clients very closely.

Figure 48: Estimated number of sex workers in three Indonesian cities, and estimated number covered by interventions, based on percentage of sex workers reporting access to prevention services in the previous 12 months, 2002/2003

Changes in behaviour cannot be expected if coverage is very low

(Source: Calculated from Indonesia National Estimates and Behaviour Surveillance Survey results 2002-2003)



The data indicate that where programme coverage is higher, a higher proportion of overall sex acts are protected by condom use, even for sex workers who did not access the programme.

Those differences appear to be reflected in the biological data. HIV prevalence in these groups of women is mercifully very low, but consistently low condom use has led to significant levels of syphilis infection. Among street-based sex workers in southeast Bangladesh, there has been no significant change in syphilis over time. But in central Bangladesh, lifetime exposure to syphilis has fallen dramatically, from 57% in 1998/1999 to 30% in 2002. Active syphilis infection rates, indicative of more recent risk behaviour, have decreased even more sharply steeply, from 34% to 8% over the same period. Rises in condom use may well have contributed to this fall, although it is probable that improved treatment of syphilis also explains a substantial part of the decline.

Figure 49 provides another interesting insight. In terms of condom use with *all* clients (not just the most recent client), those exposed to the prevention services in southeast Bangladesh did better. They reported twice as much consistent condom use compared with central Bangladesh. Without a follow-up qualitative evaluation any explanation would be

speculative, but it might be that a smaller intervention—which allows for more frequent, personal contact with sex workers—is more effective at developing the skills needed to get all clients to use condoms, all the time. However as we saw on page 98, in situations where HIV prevalence is still low, risk elimination is not really necessary. Prevention programmes which enable a large number of people to adopt some safe behaviour are much more effective than programmes which help a small number of people adopt perfectly safe behaviours.

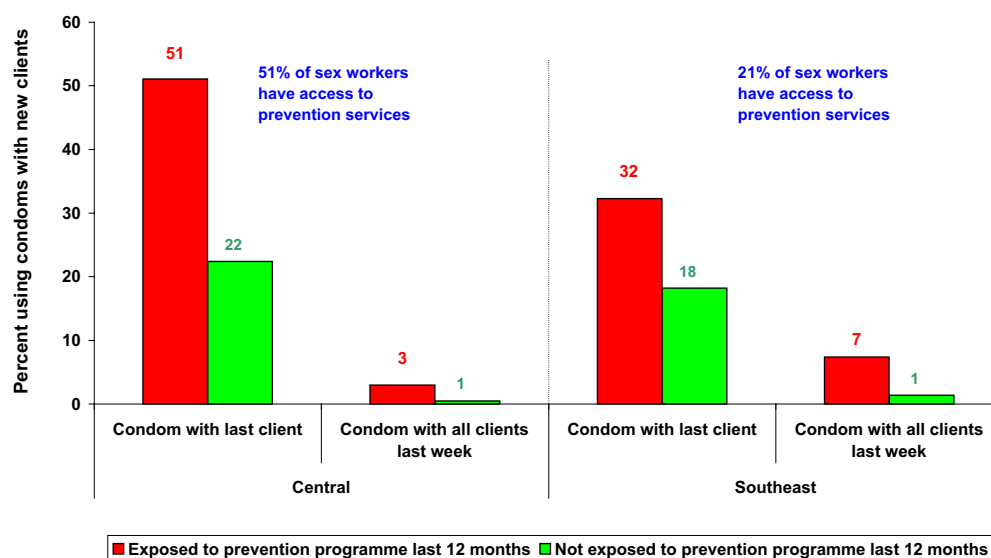


Figure 49: Percent of street-based sex workers in Bangladesh using condoms with new clients, according to whether they accessed prevention services in the past year, 2002

Where there is more coverage there is more behaviour change, though less risk elimination

(Source: Bangladesh National AIDS/STD programme, Ministry of Health and Family Welfare, 2003).

Conclusion

Armed with the facts,
Asia must choose its future



**Conclusion:
Armed
with the
facts,
Asia must
choose its
future**

This report has attempted to lay out the facts surrounding HIV transmission in Asia in 2004. The facts do not always accord with received wisdom, or with the political fashions that often drive health and development agendas. But they point to clear pathways forward, summarised in Chapter 7.

The countries of Asia have recorded more widespread HIV prevention successes than those of any other continent in the developing world. By paying attention to the facts and learning the lessons they teach, the governments and people of the continent can multiply those successes if they choose. The task of providing care for those affected by HIV while expanding prevention services to the many millions more that need them is not an easy one. This is especially true since a large proportion of the population most in need of services engages in behaviours that are not supported by the social mainstream. Providing services that help make those behaviours safer, and creating an environment in which people can easily choose safe behaviour, requires courage and foresight as well as resources.

A minority of governments and communities in the world's most populous continent have already demonstrated the courage and foresight needed to protect their citizens from expanding HIV epidemics. They have shown it is possible. It now falls to the majority of the countries in Asia which do not yet have adequate HIV programmes to face the facts of their own behaviours, and to choose the future course of their HIV epidemics.

Appendix 1

Members of the Monitoring the AIDS Pandemic Network



Appendix 1: Members of the Monitoring the AIDS Pandemic Network

The members of the MAP Network are listed below. Special thanks to those who appear in bold for their active participation in the preparation of this report

Roy Anderson
Chris Archibald
Anabella Arredondo
Emil Asamoah-Odei
Tasnim Azim
Timoteo Badoy
Seth Berkley
Stefano Bertozzi
Stephen Blount
Tim Brown
Hor Bun Leng
Anne Buve
Carlos F. Caceres
Ricardo Calderon
Bilali Camara
Michel Carael
Manuel Carballo
Jordi Casabona
Pedro Chequer
A Chung
Tom Coates
Jim Chin
Paloma Cuchi
Gina Dallabetta
Quang Vinh Dao
Karl-Lorenz Dehne
Kevin de Cock
Paul De Lay
Carlos Del Rio
Helene Gayle
Peter Ghys
Ron Gray
Sofia Gruskin
Francoise Hamers
Osamah Hamouda
Catherine Hankins
Nguyen Tran Hien
Rokiah Ismail
Manoj Jain
John Kaldor
Mitsuhiro Kamakura
Claudes Kamenga
Masahiro Kihara
Ann Marie Kimball
Irena Klavs
Maria Laga
Peter Lamptey
Stefano Lazzari
Sophie Le Coeur

SuSu Liao
Conky Lim-Quizon
Isaac Babila Macauley
Ricardo Mateo Jr
Thierry Mertens
Steve Mills
Rob Moodie
Rosemary Musonda
Jai Narain
Ibra Ndoeye
Angus Nicoll
Mary O'Grady
Mead Over
Tia Phalla
Chansy Phimpachanh
Peter Piot
Elizabeth Pisani
Gilles Pומרerol
Abdool Karim Quairrasha
D Stephen Reddy
Deborah Rugg
Tobi Saidel
Swarup Sarkar
Bernhard Schwartzlander
Mohammed Shaukat
Qu Shuquan
Weerasit Sittitrai
Karen Stanecki
Robert Stein
Rand Stoneburner
Steffanie Strathdee
Donald Sutherland
Daniel Tarantola
George Tembo
Kumnuan Ungchusak
Johannes Van Dam
Eric Van Praag
Maria Wawer
Peter Way
Alan Whiteside
Stefan Wiktor
Fernando Zacarias
Myint Zaw
Xiwen Zheng
Debrewerk Zwedie

Appendix 2

Surveillance data used in this report



Appendix 2: Surveillance data used in this report

The majority of the data in this report is taken from national surveillance systems. Although there are weaknesses, described in the box on page 29, most countries in Asia have quite well developed sentinel surveillance systems for tracking HIV infection. These systems generally take left-over blood taken for other purposes (such as syphilis screening and treatment) from populations at high risk for HIV. They remove all identifiers from the blood samples and test them for HIV, in order to get an idea of the overall level of infection in the part of the population represented by the sample.

In general, behavioural surveillance entails mapping a part of the population thought to practice behaviours that carry a high risk for HIV (such as female, transvestite or male sex workers, drug injectors, men who have sex with men or “high risk” heterosexuals represented by mobile men with money). When the population has been mapped, a sample is drawn and those sampled are asked questions about their demographic background, their knowledge about HIV and their sexual and injecting practices. As far as possible, behavioural surveillance systems try to sample in the same way over time, so that results can be compared from one year to the next. This helps public health professionals gauge whether their HIV prevention efforts are having any effect.

While almost all HIV surveillance systems are run by ministries of health, behavioural surveillance systems are more variable. Some countries, such as Cambodia, Indonesia and the Philippines have institutionalised behavioural surveillance in health ministries; in the case of Indonesia behavioural surveillance is implemented in the field by the Central Bureau of Statistics. In other countries, such as India and Nepal, behavioural surveillance is contracted to private research firms, while elsewhere academic institutions play a part. Donor-funded projects and programmes continue to play a major role in behavioural surveillance in a number of countries.

This report is based on the best available data. Its authors have, as far as possible, ascertained that the data used was collected following reliable protocols and standard procedures. The MAP Network wishes fully to acknowledge the sources for all of the data used. However because the report refers to data with very great frequency, the sourcing

of each individual data point cited would be impractical. For that reason, the sources for surveillance data are consolidated in this list. Any data point that is not individually sourced, or that is sourced to “national surveillance records” or “behavioural surveillance”, comes from the sources on this list. Unless otherwise stated, a cited data point refers to the most recent year for which data are available, as stated on this list. Note that this list refers to the year of data collection, not the year of publication.

Data which comes from stand-alone studies rather than from repeated surveillance efforts are individually referenced in the pages that follow this list.

Bangladesh

National AIDS/STD programme, Directorate General of Health Services, Ministry of Health and Family Welfare Government of the People's Republic of Bangladesh. National HIV and Behavioural Surveillance. (1999-2003)

Cambodia

National Center for HIV/AIDS, Dermatology and STDs. HIV Sentinel Surveillance (1997-2000)

National Center for HIV/AIDS, Dermatology and STDs. BSS I-V (1997-2001).

National Center for HIV/AIDS, Dermatology and STDs. STI Prevalence Survey (1996 and 2001)

China

HIV Prevalence among STD patients and CSWs in Guangxi (1995-1999) Provided by China Centre for Disease Control

China-UK HIV/AIDS Prevention and Care Project, Behavioural Surveillance Survey of HIV/AIDS in Sichuan and Yunnan provinces. (2003)

Futures Group Europe. 2001 Baseline Behavioural Surveillance Study in Yunnan and Sichuan Province: Sex Worker Report.

India

National AIDS Control Organization, Ministry of Health & Family Welfare, Government of India National Baseline General Population behavioural Surveillance Survey – 2001

National AIDS Control Organization. National Baseline High Risk and Bridge Population Behavioural Surveillance Survey-2001 Part - I (FSW and their clients)

National AIDS Control Organization. National Baseline High Risk and Bridge Population Behavioural Surveillance Survey -2002 Part - II (MSM and IDUs)

National AIDS Control Organization. HIV Sentinel Surveillance Report Population – and sentinel site – wise report 1998-2002.

AIDS Prevention and Control Project and Voluntary Health Services. HIV Risk Behaviour Surveillance Survey in Tamil Nadu Wave I – VII (1996-2002)

Indonesia

Directorate of Communicable Disease Control and Environmental Health, Ministry of Health. HIV sentinel surveillance (1989-2003)

Directorate of Communicable Disease Control and Environmental Health, Ministry of Health and Central Bureau of Statistics. Behavioural surveillance (1996-2003)

Iran

Ministry of Health and Medical Education. AIDS/HIV Surveillance Report 2003

Japan

AIDS Surveillance Committee, Ministry of Health, Labor and Welfare. Annual AIDS Surveillance Report 2002, 2003.

AIDS Surveillance Committee, Ministry of Health, Labor and Welfare, National Institute of Infectious Diseases. Infectious Agents Surveillance Report: 1999-2003.

Kazakhstan

National AIDS Control Programme and Ministry of Health, Center of Public Opinion Investigation, UNAIDS. Behavioral surveillance among injecting drug users in nine cities of Kazakhstan (Almaty, Pavlodar, Shymkent, Karaganda, Temirtau, Astana, Petropavlovsk, Uralsk, Ust-Kamenogorsk) 2002

National AIDS Control Programme and Ministry of Health, Report on sentinel epidemiological surveillance over HIV prevalence in the Republic of Kazakhstan in 2002, Almaty 2002

Myanmar

AIDS Prevention and Control Project, Department of Health, Sentinel surveillance data for 1989 - 2003.

Laos

National Committee for the Control of AIDS Bureau. Behaviour Surveillance Survey: 2000-2001.

National Committee for the Control of AIDS Bureau. HIV Surveillance Survey and STI Periodic Prevalence Survey 2001.

Nepal

New ERA and FHI. Behavioural Surveillance Survey in The Eastern to Western Highway Route of Nepal: Round No.1-5 (1998-2002)

New ERA and FHI. Behavioural Surveillance Survey with FSWs in Kathmandu Valley: Round 1 (2002)

New ERA and FHI. Behavioural Surveillance Survey with FSWs in The Western to Far-western Highway Route of Nepal: Round No.1 (2002)

New ERA/SACTS and FHI. Behavioural and Sero-Prevalence Survey Among IDUs in Kathmandu (2002)

New ERA/SACTS and FHI. Behavioural and Sero-Prevalence Survey Among IDUs in Pokhara (2003)

New ERA/SACTS and FHI. Behavioural and Sero-Prevalence Survey Among IDUs in Eastern Terai Districts (Jhapa, Morang and Sunsari) (2003)

New ERA/SACTS and FHI. HIV/STD Prevalence and Risk Factors among Migrant and Non-Migrant Males of Kailali District in Far-Western Nepal (2002)

New ERA/SACTS and FHI. HIV/STD Prevalence and Risk Factors among Migrant and Non-Migrant Males of Achham District in Far-Western Nepal (2002)

New ERA/SACTS and FHI. STD and HIV Prevalence Survey Among Female Sex Workers and Truckers on Highway Routes in the Terai, Nepal – round 1 (1999)

Center for Research on Environment Health and Population Activities (CREHPA) and FHI, Injecting and Sexual Behaviours of Injecting Drug User in Birathagar, Nepal (2003)

CREHPA and FHI. Injecting and Sexual Behaviours of Injecting Drug Users in Dharan, Nepal (2002)

CREHPA and FHI. Injecting and Sexual Behaviours of Injecting Drug Users in Pokhara, Nepal (2002)

CREHPA and FHI. Injecting and Sexual Behaviours of Injecting Drug Users in Jhapa District, Nepal (2002)

Philippines

Republic of the Philippines, Department of Health. The 2002 Technical report of the National HIV/AIDS Sentinel Surveillance System. (1997-2002)

Thailand

Ministry of Public Health, Bureau of Epidemiology, HIV Serosurveillance in Thailand (1989-2003)

Ministry of Public Health, Bureau of Epidemiology, Behavioural Surveillance Surveys (1995-2003)

AIDS Control Division, Health Department, Bangkok Metropolitan Administration. The Behavioural Surveillance Survey of 7 Target Groups in Bangkok (2000-2003)

Vietnam

National AIDS Committee, HIV sentinel surveillance (1994-2003)

National AIDS Standing Bureau and National Institute of Hygiene and Epidemiology, HIV/AIDS Behavioural Surveillance Vietnam (2000)

References



References

- Agha, S. (2002). "Sexual behaviour among truck drivers in Pakistan." Culture Health & Sexuality 4(2): 191-206.
- Ahmed, M. A., T. Zafar, et al (2003). "HIV/AIDS risk behaviors and correlates of injection drug use among drug users in Pakistan." Journal of Urban Health: Bulletin of the New York Academy of Medicine 80(2): 321-329.
- AIDS Prevention and Control Project (2003). HIV risk behavior surveillance survey in Tamil Nadu Wave VII. Chennai.
- Allen, T. M. and M. Altfeld (2003). HIV-1 superinfection. J Allergy Clin Immunol. 112: 829-35.
- Asian Institute Mahidol University and Bangkok Metropolitan Administration AIDS Control Division (2003). The Behavioural Surveillance Survey of 7 Target Groups in Bangkok.
- Azim, T., M. S. Alam, et al (2004a). "Impending concentrated HIV epidemic among injecting drug users in Central Bangladesh." International Journal of STD & AIDS 15: 280-282.
- Bangladesh National AIDS/STD programme (2003). HIV in Bangladesh: is time running out? Background document for the dissemination of the fourth round (2002) of national HIV and behavioural surveillance. Dhaka, Ministry of Health and Family Welfare.
- Beyrer, C., J. Jittiwutikarn, et al (2003). "Drug use, increasing incarceration rates, and prison-associated HIV risks in Thailand." AIDS Behav 7(2): 153-61.
- Beyrer, C., M. H. Razak, et al (2000). Overland heroin trafficking routes and HIV-1 spread in south and south-east Asia. AIDS. 14: 75-83.
- Bianc, M.-E., N. M. Thang, et al (2004). Male Behaviours, HIV/AIDS/STI Risk and Condom Use in Hanoi, IRSEA/POPCON.
- Blackstone Market Facts and Family Health International (2001). Preparatory Studies: Mapping of Commercial Sex Access Points and Relevant Service Outlets in Maharashtra. New Delhi.
- Buavirat, A., K. Page-Shafer, et al (2003). "Risk of prevalent HIV infection associated with incarceration among injecting drug users in Bangkok, Thailand: case-control study." BMJ 326(7384): 308.
- Bui, T. D., C. K. Pham, et al (2001). "Cross-sectional study of sexual behaviour and knowledge about HIV among urban, rural, and minority residents in Viet Nam." Bull World Health Organ 79(1): 15-21.
- Cambodia National Center for HIV/AIDS Dermatology and STDs (2003). 2001 Cambodia STI Prevalence Survey. Phnom Penh, Ministry of Health.
- Cambodia National Center for HIV/AIDS Dermatology and STDs, M. o. H. (2004). BSS V: Sexual Behaviour among Urban Sentinel Groups, Cambodia 2001, Ministry of Health.
- Cambodian Working Group on HIV/AIDS Projection (2002). Projections for HIV/AIDS in Cambodia: 2000-2010. Phnom Penh, National Center for HIV/AIDS, Dermatology and STD, Ministry of Health.

- Caumont, A., N. T. Lan, et al (2001). Sequence analysis of env C2/V3, gag p17/p24, and pol protease regions of 25 HIV type 1 isolates from Ho Chi Minh City, Vietnam. AIDS Res Hum Retroviruses. **17**: 1285-91.
- Center for Research on Environment Health and Population Activities (2002). A situational assessment of injecting drug users in Kathmandu Valley: a focus ethnographic study. Final Report. Kathmandu, Family Health International.
- CHANGES and Family Health International (2004). Report of STI prevalence study among FSWs in Kakinada and Peddapuram, Andhra Pradesh. New Delhi.
- Chen, Y. M., K. L. Huang, et al (2001b). Temporal trends and molecular epidemiology of HIV-1 infection in Taiwan from 1988 to 1998. J Acquir Immune Defic Syndr. **26**: 274-82.
- Chen, Y. M. A., C. L. J. Chung, et al (2001a). Surveys on the sexual behaviours, HIV-1 infection and its related risk factors among men attending gay saunas in Taiwan. Poster Mo0660. 6th International Congress on AIDS in Asia and the Pacific, Melbourne.
- Chin, J., A. Bennett, et al (1998). "Primary determinants of HIV prevalence in Asian-Pacific countries." AIDS **12 Suppl B**: S87-91.
- China National Center for AIDS/STD Control and Prevention (2003). Questionnaire survey of injection drug users in a compulsory detoxification centre and non-treatment locations in Beijing. Beijing, World Health Organization.
- China National Center for AIDS/STD Control and Prevention (2004). A needle social marketing intervention program in Guangdong and Guangxi province, China Center for Disease Control.
- China-UK HIV/AIDS Prevention and Care Project (2003a). Technical Report on 2003 BSS in Sichuan Province. Beijing.
- China-UK HIV/AIDS Prevention and Care Project (2003b). Behavioural Surveillance Survey of HIV/AIDS in Yunnan province. Beijing.
- Choi, K. H., H. Liu, et al (2003). "Emerging HIV-1 epidemic in China in men who have sex with men." Lancet **361**(9375): 2125-6.
- Choopanya, K., D. C. Des Jarlais, et al (2002). "Incarceration and risk for HIV infection among injection drug users in Bangkok." J Acquir Immune Defic Syndr **29**(1): 86-94.
- Choopanya, K., J. W. Tappero, et al (2004). Preliminary results of a phase III HIV vaccine efficacy trial among injecting drug users in Thailand. Abstract submitted to 15th International AIDS Conference, Bangkok.
- Colby, D., N. H. Cao, et al (2004). "Men who have sex with men and HIV in Vietnam: A review." AIDS Education and Prevention **16**(1): 45-54.
- Colby, D. J. (2003). "HIV knowledge and risk factors among men who have sex with men in Ho Chi Minh City, Vietnam." J Acquir Immune Defic Syndr **32**(1): 80-5.

- Desai, V. K., J. K. Kosambiya, et al (2003). "Prevalence of sexually transmitted infections and performance of STI syndromes against aetiological diagnosis, in female sex workers of red light area in Surat, India." Sex Transm Infect **79**(2): 111-5.
- Doussantousse, S., N. T. N. Anh, et al (2002). Synopsis of 'Men who engaged in having sex with men in Viet Nam - a Hanoi snapshot'. Hanoi, MSF.
- Douthwaite, M. (2003). Reproductive Health Risk Young Men's Sexual Behaviour in Cambodia: Evidence that Safe Sex Messages are Getting Through. 2nd Asia Pacific Conference on Reproductive and Sexual Health, Bangkok, Center for Health Policy Studies, Mahidol University.
- Elmer, L. (2001). HIV/AIDS Intervention data on commercial sex workers in Vietnam: A review of recent research findings, National AIDS Standing Bureau Hanoi, Vietnam.
- Faruque, M. O., T. Azim, et al (2004). Enhancing efforts at needle/syringe exchange: the response of an intervention program to ongoing research. 15th International Conference on the Reduction of Drug-related Harm, Melbourne.
- Giang, L. T. (2002). HIV/AIDS Situation in Viet Nam & Ho Chi Minh City. Powerpoint presentation. Ho Chi Minh City, Department of Health.
- Gibney, L., N. Saquib, et al (2003). "Behavioural risk factors for STD/HIV transmission in Bangladesh's trucking industry." Soc Sci Med **56**(7): 1411-24.
- Girault, P., T. Saidel, et al (2004). "HIV, STIs, and sexual behaviors among men who have sex with men in Phnom Penh, Cambodia." AIDS Educ Prev **16**(1): 31-44.
- Go, V. F., A. K. Srikrishnan, et al (2004). "High HIV Prevalence and Risk Behaviours in Men Who Have Sex With Men in Chennai, India." J Acquir Immune Defic Syndr **35**(3): 314-319.
- Greenstar Social Marketing (2002). Mapping of HIV risk behaviour among truckers in Pakistan 2002, Canadian International Development Agency (CIDA).
- Hawkes, S., L. Morison, et al (2002). "Reproductive tract infections: prevalence and risk factors in rural Bangladesh." Bull World Health Organ **80**(3): 180-8.
- Hesketh, T., X. M. Huang, et al (2003). "Using the premarital examination for population-based surveillance for HIV in China: a pilot study." AIDS **12**(10): 1574-76.
- Hien, N. T., L. T. Giang, et al (2001). "Risk factors of HIV infection and needle sharing among injecting drug users in Ho Chi Minh City, Vietnam." J Subst Abuse **13**(1-2): 45-58.
- Hu, D. J., S. Subbarao, et al (2002). "Higher viral loads and other risk factors associated with HIV-1 seroconversion during a period of high incidence among injection drug users in Bangkok." J Acquir Immune Defic Syndr **30**(2): 240-7.
- India National AIDS Control Organisation (2002). National Baseline High Risk and Bridge Population Behavioural Surveillance Survey Part II Men who have Sex with Men and Injecting Drug users. New Delhi, India.
- Indonesia Central Bureau of Statistics and MACRO International (2004). Indonesia Young Adults Reproductive Health Survey. Jakarta, BPS.

- Indonesia Directorate General of Communicable Disease Control and Environmental Health (2003). National Estimates of Adult HIV Infection, Indonesia 2002. Jakarta, Ministry of Health.
- Indonesia Ministry of Health and Aksi Stop AIDS/Family Health International (2004). Prevalence of Reproductive Tract Infections among female sex workers in Jayapura, Banyuwangi, Semarang, Medan, Palembang, Tanjung Pinang, and Bitung, Indonesia. Draft report. Jakarta.
- Indonesia Ministry of Health and Central Bureau of Statistics (2004). Behavioural Surveillance in 13 Provinces 2002-2003. Jakarta.
- Iran National AIDS Program. Ministry of Health (2004). Brief results of some behavioral studies in Iran. Summarised by Mitra Motamedi.
- Islam, S. K. N., K. J. Hossain, et al (2003). "Prevalence of HIV infection in the drug addicts of Bangladesh: drug habit, sexual practice and lifestyle." International Journal of STD & AIDS **14**: 762-764.
- Japan National Institute of Infectious Diseases (2003). Infectious Agents Surveillance Report: 1999-2003. Tokyo, Ministry of Health, Labor and Welfare, National Institute of Infectious Diseases.
- Kamarulzaman, A., K. Petoumenos, et al (2003). Antiretroviral Therapy in HIV-infected Patients in Kuala Lumpur, Malaysia. University Malaya Medical Centre, Kuala Lumpur.
- Kar, H. K., R. K. Jain, et al (2001). "Increasing HIV prevalence in STD clinic attendees in Delhi, India: 5 year (1995-2000) hospital based study results." Sexually Transmitted Infection **77**(5): 393.
- Kato, K., S. Kusagawa, et al (2001). "Closely related HIV-1 CRF01_AE variant among injecting drug users in northern Vietnam: evidence of HIV spread across the Vietnam-China border." AIDS Res Hum Retroviruses **17**(2): 113-23.
- Kato, S., R. Saito, et al (2003). Differential prevalence of HIV type 1 subtype B and CRF01_AE among different sexual transmission groups in Tokyo, Japan, as revealed by subtype-specific PCR. AIDS Res Hum Retroviruses. **19**: 1057-63.
- Kawichai, S., C. Beyrer, et al (2004). "HIV incidence and risk behaviours after voluntary HIV counselling and testing (VCT) among adults aged 19-35 years living in peri-urban communities around Chiang Mai city in northern Thailand, 1999." AIDS CARE **16**(1): 21-35.
- Kazakhstan National AIDS Control Programme and Ministry of Health, Center of Public Opinion Investigation, et al (2002). Behavioural surveillance among injecting drug users in nine cities of Kazakhstan (Almaty, Pavlodar, Shymkent, Karaganda, Temirtau, Astana, Petropavlovsk, Uralsk, Ust-Kamenogorsk). Almaty.
- Kunanusont, C., H. M. Foy, et al (1995). HIV-1 subtypes and male-to-female transmission in Thailand. Lancet. **345**: 1078-83.
- Kusagawa, S., H. Sato, et al (1998). Genetic and serologic characterization of HIV type 1 prevailing in Myanmar (Burma). AIDS Res Hum Retroviruses. **14**: 1379-85.

- Lao People's Democratic Republic National Committee for the Control of AIDS Bureau (2001). HIV Surveillance Survey and Sexually Transmitted Infection Periodic Prevalence Survey: Lao People's Democratic Republic, 2001, Lao PDR HIV/AIDS Trust.
- Lau, J. T., J. H. Kim, et al (2003a). "Prevalence and risk behaviors of Chinese men who seek same-sex partners via the internet in Hong Kong." AIDS Educ Prev **15**(6): 516-28.
- Lau, J. T., P. C. Siah, et al (2002). "A study of the STD/AIDS related attitudes and behaviors of men who have sex with men in Hong Kong." Arch Sex Behav **31**(4): 367-73.
- Lau, J. T. F. and H. Y. Tsui (2003b). "HIV/AIDS Behavioural Surveillance Surveys of the Cross-Border Sex-Worker Population in Hong Kong from 1997-2001." Sex Transm Dis.
- Lertpiriyasuwat, C., T. Plipat, et al (2003). "A survey of sexual risk behavior for HIV infection in Nakhonsawan, Thailand, 2001." AIDS **17**(13): 1969-76.
- Limpakarnjanarat, K., K. Ungchusak, et al (1998). "The epidemiological evolution of HIV-1 subtypes B and E among heterosexuals and injecting drug users in Thailand, 1992-1997 [letter]." AIDS **12**(9): 1108-9.
- Ma, S., N. H. Dukers, et al (2002). "Decreasing STD incidence and increasing condom use among Chinese sex workers following a short term intervention: a prospective cohort study." Sex Transm Infect **78**(2): 110-4.
- Manjunath, J. V., D. M. Thappa, et al (2002). "Sexually transmitted diseases and sexual lifestyles of long-distance truck drivers: a clinico-epidemiologic study in south India." International Journal of STD **13**: 612-617.
- MEASURE Evaluation (2004). Central Asia PLACE Study Results. Chapel Hill, NC, Carolina Population Center, University of North Carolina.
- Motomura, K., S. Kusagawa, et al (2000). Emergence of new forms of human immunodeficiency virus type 1 intersubtype recombinants in central Myanmar. AIDS Res Hum Retroviruses. **16**: 1831-43.
- Motomura, K., S. Kusagawa, et al (2003). "Different subtype distributions in two cities in Myanmar: evidence for independent clusters of HIV-1 transmission." AIDS **17**(4): 633-6.
- Nai Zindagi (2003). A national wide integrated health. HIV prevention and drug services program for street drug users in Pakistan. First project report.
- Navaratnam, V., B. Vicknasingham, et al (2003). Survey of drug users in Penang and the Northern Province Wellesley district. Penang, Universiti Sains Malaysia.
- Naz Foundation International and Vision (2002). Pakistan enhanced HIV/AIDS program: Social assessment and mapping of men who have sex with men (MSM) in Lahore, Pakistan.
- Neal, J. J., H. Sopheab, et al (2004). Integrated HIV, STD, and Behavioural Survey among Female Sentinel Groups, Banteay Meanchey Province, Cambodia, 2003. Abstract submitted to 15th International AIDS Conference, Bangkok.
- New ERA and Family Health International (2003). Behavioural Surveillance Survey on the Highway Routes of Nepal: Round No. 5, Family Health International.

- New ERA and S. A. C. a. T. Service (2004). HIV/STI Prevalence and risk behavioral study among female sex workers and truckers along the Terai Highways routes covering 22 districts of Nepal, Family Health International and ICDDR, B.
- New ERA and STD/AIDS Counselling and Training Service (2002). Behavioural and sero-prevalence survey among IDUs in Kathmandu. Kathmandu, Family Health International.
- Oelrichs, R. B. (2004). The subtypes of human immunodeficiency virus in Australia and Asia. Sexual Health. 1: 1-11.
- Osmanov, S., C. Pattou, et al (2002). Estimated global distribution and regional spread of HIV-1 genetic subtypes in the year 2000. J Acquir Immune Defic Syndr. 29: 184-90.
- Pakistan National AIDS Control Program (2002). A Behavioural Mapping Study: Female Commercial Sex Workers in Lahore, Karachi and Multan. Karachi, Ministry of Health.
- Parish, W. L., E. O. Laumann, et al (2003). "Population-based study of chlamydial Infection in China: a hidden epidemic." JAMA 289(10): 1265-73.
- Philippines Department of Health (2002). The 2002 technical report of the national HIV/AIDS sentinel surveillance system (1997-2003). Manila, AIDS Surveillance and Education Project.
- Pisani, E. (2002). Data needs in East Timor. Dili, Family Health International.
- Pisani, E., Dadun, et al (2003). "Sexual behavior among injection drug users in 3 Indonesian cities carries a high potential for HIV spread to noninjectors." J Acquir Immune Defic Syndr 34(4): 403-6.
- Pisani, E. and Dili STI survey team (2004a). HIV, STIs and risk behaviour in East Timor: an historic opportunity for effective action. Dili, East Tmor, Family Health International.
- Pisani, E., P. Girault, et al (2004b). HIV, syphilis infection and sexual practices among transgenders, male sex workers and other men who have sex with men in Jakarta, Indonesia. Sex Transm Infect (in press).
- Puri, M. C. and J. Busza (2004). "In forests and factories: sexual behaviour among young migrant workers in Nepal." Culture, Health & Sexuality 6(2): 145-158.
- Razak, M. H., J. Jittiwutikarn, et al (2003). "HIV Prevalence and Risks Among Injection and Noninjection Drug Users in Northern Thailand: Need for Comprehensive HIV Prevention Programs." J Acquir Immune Defic Syndr 33(2): 259-266.
- Reynolds, S. J., A. R. Risbud, et al (2003). "Recent herpes simplex virus type 2 infection and the risk of Human Immunodeficiency virus type 1 acquisition in India." The Journal of Infectious Diseases 187.
- Riono, P. (2001). Sexual networking among men and STDs/HIV epidemic in Indonesia. Public Health. Los Angeles, University of California, Los Angeles.
- Saidel, T. J., D. Des Jarlais, et al (2003). "Potential impact of HIV among IDUs on heterosexual transmission in Asian settings: scenarios from the Asian Epidemic Model." International Journal of Drug Policy 14: 63-74.

- Saman, M., L. S. Krui, et al (2002). "Feasibility of antenatal and late HIV testing in pregnant women in Phnom Penh Cambodia: the PERIKAM/ANRS1205 study." *AIDS* **16**(6): 950-1.
- Samlanh/Friends, M. (2001). Survey on Substance Abuse Among Street Children in Phnom Penh. Phnom Penh, Mith Samlanh/Friends.
- Sattah, M. V., S. Supawitkul, et al (2002). "Prevalence of and risk factors for methamphetamine use in northern Thai youth: results of an audio-computer-assisted self-interviewing survey with urine testing." *Addiction* **97**(7): 801-8.
- Shah, S. A., O. A. Khan, et al (1999). "HIV-infected workers deported from the Gulf States: impact on southern Pakistan." *International Journal of STD & AIDS* **10**: 812-814.
- Shankar, A. V., H. Pisal, et al (2003). "Women's acceptability and husband's support of rapid HIV testing of pregnant women in India." *AIDS CARE* **15**(6): 871-874.
- Sittitrai, W., P. Phanuphak, et al (1994). "A survey of Thai sexual behaviour and risk of HIV infection [letter]." *Int J STD AIDS* **5**(5): 377-8.
- Smith, G., L. C. Chung, et al (2003). A study of the sexual behaviour and attitudes of the men who use Hong Kong's Gay Saunas, AIDS Concern.
- Takebe, Y., K. Motomura, et al (2003). "High prevalence of diverse forms of HIV-1 intersubtype recombinants in Central Myanmar: geographical hot spot of extensive recombination." *AIDS* **17**(14): 2077-87.
- Thai Working Group on HIV/AIDS Projection (2001). Projections for HIV/AIDS in Thailand: 2000-2020. Bangkok, Division of AIDS, Ministry of Public Health.
- Thailand Department of Corrections (2004). Number of people in jail with narcotics-related offenses. Bangkok.
- Thato, S., D. Charron-Prochownik, et al (2003). "Predictors of condom use among adolescent Thai vocational students." *J Nurs Scholarsh* **35**(2): 157-63.
- Tovanabutra, S., V. Watanaveeradej, et al (2003). "A new circulating recombinant form, CRF15_01B, reinforces the linkage between IDU and heterosexual epidemics in Thailand." *AIDS Res Hum Retroviruses* **19**(7): 561-7.
- Tuan, N. A., N. T. Hien, et al (2004). "Intravenous drug use among street-based sex workers: A high risk behavior for HIV transmission." *Sex Transm Dis* **31**(1): 15-19.
- van Griensven, F., S. Supawitkul, et al (2001). "Rapid assessment of sexual behavior, drug use, human immunodeficiency virus, and sexually transmitted diseases in northern Thai youth using audio-computer-assisted self-interviewing and noninvasive specimen collection." *Pediatrics* **108**(1): E13.
- van Griensven, F., S. Thanprasertsuk, et al (2004). Prevalence and Risk Factors for HIV Infection among Men who have Sex with Men in Bangkok. Abstract submitted to 15th International AIDS Conference, Bangkok.
- Vanichseni, S., D. Kitayaporn, et al (2001). "Continued high HIV-1 incidence in a vaccine trial preparatory cohort of injection drug users in Bangkok, Thailand." *AIDS* **15**(3): 397-405.

- Vietnam Ministry of Labour Invalids and Social Affairs (2001). Report results of the survey on high risk factors of drug abuse among groups of female prostitutes in Vietnam, UNDCP.
- Vietnam National AIDS Committee (2002a). Current status of the HIV epidemic in Viet Nam.
- Vietnam National AIDS Standing Bureau and National Institute of Hygiene and Epidemiology (2001). HIV/AIDS Behavioural Surveillance. Hanoi, Vietnam, Family Health International.
- Vietnam National Committee for Population Family and Children (2002). Community action for preventing HIV/AIDS in Lai Chau, Quang Tri, Dong Thap, An Giang and Kien Giang. Hanoi.
- Vonthanak, S. and B. Parekh (2004). BED-Capture EIA: A subtype-independent, second-generation assay for HIV-1 incidence estimation. New Strategies for HIV/AIDS Surveillance in Resource Constrained Countries, Addis Ababa, Ethiopia.
- Walker, N., J. M. Garcia-Calleja, et al (2001). "Epidemiological analysis of the quality of HIV sero-surveillance in the world: how well do we track the epidemic?" *AIDS* **15**(12): 1545-54.
- Wasi, C., B. Herring, et al (1995). "Determination of HIV-1 subtypes in injecting drug users in Bangkok, Thailand, using peptide-binding enzyme immunoassay and heteroduplex mobility assay: evidence of increasing infection with HIV-1 subtype E." *AIDS* **9**(8): 843-9.
- Weniger, B. G., Y. Takebe, et al (1994). "The molecular epidemiology of HIV in Asia." *AIDS* **8 Suppl 2**: S13-28.
- Wi, T., E. Ramos, et al (2003). Enhanced STI Control in Angeles City, Philippines. Manila, Family Health International.
- Wi, T., O. Saniel, et al (2002). RTI/STD Prevalence in Selected Sites in the Philippines. Manila, Department of Health and Family Health International.
- World Bank Group (2004). World Development Indicators. **2004**.
- World Health Organization (2003). Rapid Assessment and Response Multi-Center Project on Injection Drug Use, Final Report for Tehran. Tehran.
- Yang, R., S. Kusagawa, et al (2003). Identification and characterization of a new class of human immunodeficiency virus type 1 recombinants comprised of two circulating recombinant forms, CRF07_BC and CRF08_BC, in China. *J Virol*. **77**: 685-95.
- Yu, X. F., J. Chen, et al (1999). "Emerging HIV infections with distinct subtypes of HIV-1 infection among injection drug users from geographically separate locations in Guangxi Province, China." *J Acquir Immune Defic Syndr* **22**(2): 180-8.
- Yu, X. F., X. Wang, et al (2003). Characterization of HIV type 1 heterosexual transmission in Yunnan, China. *AIDS Res Hum Retroviruses*. **19**: 1051-5.
- Yuthea, N. (2004). Drug Risk of Cambodian In-School Youth. Abstract submitted to United States National Institute on Drug Abuse International Forum, San Juan, Puerto Rico.
- Zaidi, A., M. Zahiruddin, et al (2004). Profile of HIV positive clients attending a VCT unit in Bangladesh. Abstract submitted to the 15th International AIDS Conference, Bangkok.

Estimates provided by
WHO/UNAIDS

Country	Number of adults and children living with HIV, end-2003		Number of adults (15-49) living with HIV, end-2003		Percent of adults (15-49) living with HIV, end 2003		Number of women (15-49) living with HIV, end-2003		Number of children (0-14) living with HIV, end-2003		HIV-related deaths in adults and children during 2003	
	Estimate	[low estimate - high estimate]	Estimate	[low estimate - high estimate]	Estimate	[low estimate - high estimate]	Estimate	[low estimate - high estimate]	Estimate	[low estimate - high estimate]	Estimate	[low estimate - high estimate]
Global Total	37,800,000	[34,600,000 - 42,300,000]	35,700,000	[32,700,000 - 39,800,000]	1.1	[1.0 - 1.2]	17,000,000	[15,800,000 - 18,800,000]	2,100,000	[1,900,000 - 2,500,000]	2,900,000	[2,600,000 - 3,300,000]
East Asia	900,000	[450,000 - 1,500,000]	900,000	[450,000 - 1,500,000]	0.1	[0.1 - 0.2]	200,000	[100,000 - 320,000]	7,700	[2,700 - 22,000]	44,000	[22,000 - 75,000]
China	840,000	[430,000 - 1,500,000]	830,000	[430,000 - 1,400,000]	0.1	[0.1 - 0.2]	190,000	[95,000 - 320,000]	...	...	44,000	[21,000 - 75,000]
Hong Kong SAR	2,600	[1,300 - 4,400]	2,600	[1,300 - 4,300]	0.1	[<0.2]	900	[400 - 1,400]	...	...	<200	[<400]
Dem. Peo. Rep. of Korea	...	...	...	...	...	...	...	...	...	...	...	...
Japan	12,000	[5,700 - 19,000]	12,000	[5,700 - 19,000]	<0.1	[<0.2]	2,900	[1,400 - 4,800]	...	...	<500	[<1,000]
Mongolia	<500	[<1,000]	<500	[<1,000]	<0.1	[<0.2]	<200	[<400]	...	...	<200	[<400]
Republic of Korea	8,300	[2,700 - 16,000]	8,300	[2,700 - 16,000]	<0.1	[<0.2]	900	[300 - 1,800]	...	...	<200	[<400]
Oceania	32,000	[21,000 - 46,000]	31,000	[21,000 - 45,000]	0.2	[0.1 - 0.3]	6,100	[3,600 - 9,200]	600	[<2,000]	700	[<1,300]
Australia	14,000	[6,800 - 22,000]	14,000	[6,600 - 22,000]	0.1	[0.1 - 0.2]	1,000	[500 - 1,600]	...	...	<200	[<400]
Fiji	600	[200 - 1,300]	600	[200 - 1,200]	0.1	[0.0 - 0.2]	<200	[<400]	...	...	<200	[<400]
New Zealand	1,400	[480 - 2,800]	1,400	[500 - 2,800]	0.1	[<0.2]	<200	[<400]	...	...	<200	[<400]
Papua New Guinea	16,000	[7,800 - 28,000]	16,000	[7,700 - 26,000]	0.6	[0.3 - 1.0]	4,800	[2,400 - 7,900]	...	...	600	[200 - 1,200]
South & South-East Asia	6,500,000	[4,100,000 - 9,600,000]	6,300,000	[4,000,000 - 9,300,000]	0.6	[0.4 - 0.9]	1,800,000	[1,200,000 - 2,700,000]	160,000	[91,000 - 300,000]	460,000	[290,000 - 700,000]
Afghanistan	...	...	...	...	...	...	...	...	...	...	...	...
Bangladesh **	...	[2,500 - 15,000]	...	[2,400 - 15,000]	...	[<0.2]	...	[400 - 2,500]	...	...	...	[<400]
Bhutan	...	...	...	...	...	...	...	...	...	...	...	...
Brunei Darussalam	<200	[<400]	<200	[<400]	<0.1	[<0.2]	<200	[<400]	...	...	<200	[<400]
Cambodia	170,000	[100,000 - 290,000]	170,000	[99,000 - 280,000]	2.6	[1.5 - 4.4]	51,000	[31,000 - 86,000]	7,300	[3,800 - 14,000]	15,000	[9,100 - 25,000]
India	5,100,000	[2,500,000 - 8,500,000]	5,000,000	[2,500,000 - 8,200,000]	0.9	[0.5 - 1.5]	1,900,000	[710,000 - 2,400,000]	120,000	[55,000 - 260,000]	...	...
Indonesia	110,000	[53,000 - 180,000]	110,000	[53,000 - 180,000]	0.1	[0.0 - 0.2]	15,000	[7,100 - 24,000]	...	...	2,400	[1,100 - 4,100]
Iran (Islamic Republic of)	31,000	[10,000 - 61,000]	31,000	[10,000 - 60,000]	0.1	[0.0 - 0.2]	3,800	[1,200 - 7,400]	...	...	800	[300 - 1,600]
Lao People's Dem. Rep	1,700	[600 - 3,600]	1,700	[560 - 3,300]	0.1	[<0.2]	<500	[<1,000]	...	...	<200	[<400]
Malaysia	52,000	[25,000 - 86,000]	51,000	[25,000 - 84,000]	0.4	[0.2 - 0.7]	8,500	[4,100 - 14,000]	...	...	2,000	[1,000 - 3,600]
Maldives	...	...	...	...	...	...	...	...	...	...	...	...
Myanmar **	330,000	[170,000 - 620,000]	320,000	[170,000 - 610,000]	1.2	[0.6 - 2.2]	97,000	[51,000 - 180,000]	7,600	[3,600 - 16,000]	20,000	[11,000 - 35,000]
Nepal	40,000	[19,000 - 68,000]	39,000	[19,000 - 65,000]	0.3	[0.2 - 0.5]	7,300	[3,600 - 12,000]	...	...	1,700	[800 - 3,400]
Pakistan	74,000	[24,000 - 150,000]	73,000	[24,000 - 140,000]	0.1	[0.0 - 0.2]	8,900	[3,000 - 18,000]	...	...	4,900	[1,600 - 11,000]
Philippines	9,000	[3,000 - 18,000]	8,900	[2,900 - 18,000]	<0.1	[<0.2]	2,000	[700 - 4,000]	...	...	<900	[<1,000]
Singapore	4,100	[1,300 - 8,000]	4,100	[1,300 - 8,000]	0.2	[0.1 - 0.5]	1,000	[300 - 2,000]	...	...	<200	[<400]
Sri Lanka	3,500	[1,200 - 6,900]	3,500	[1,100 - 6,800]	<0.1	[<0.2]	600	[200 - 1,200]	...	...	<200	[<400]
Thailand	570,000	[310,000 - 1,000,000]	560,000	[310,000 - 1,000,000]	1.5	[0.8 - 2.8]	200,000	[110,000 - 370,000]	12,000	[5,700 - 24,000]	58,000	[34,000 - 97,000]
Viet Nam	220,000	[110,000 - 360,000]	200,000	[100,000 - 350,000]	0.4	[0.2 - 0.8]	65,000	[31,000 - 110,000]	...	...	9,000	[4,500 - 16,000]
Central Asia	36,000	[21,000 - 60,000]	36,000	[21,000 - 56,000]	0.1	[0.1 - 0.2]	11,000	[6,000 - 19,000]	<300	[<1,500]	<600	[<1,400]
Azerbaijan	1,400	[500 - 2,800]	1,400	[500 - 2,800]	<0.1	[<0.2]	...	...	...	...	...	...
Kazakhstan	18,000	[5,800 - 35,000]	17,000	[5,700 - 34,000]	0.2	[0.1 - 0.3]	5,900	[2,000 - 12,000]	...	...	<200	[<400]
Kyrgyzstan	2,100	[700 - 4,200]	2,100	[700 - 4,100]	0.1	[<0.2]	<500	[<1,000]	...	...	<200	[<400]
Tajikistan	<200	[<400]	<200	[<400]	<0.1	[<0.2]	...	...	...	...	...	...
Turkmenistan	<200	[<400]	<200	[<400]	<0.1	[<0.2]	...	...	...	...	...	...
Uzbekistan	15,000	[4,900 - 30,000]	15,000	[4,900 - 29,000]	0.1	[0.0 - 0.2]	5,000	[1,700 - 9,900]	...	...	<500	[<1,000]

** = New surveillance conducted but not available for estimation process.

This report may be found online at:

http://www.mapnetwork.org/reports/aids_in_asia.html

http://www.who.int/hiv/pub/epidemiology/aids_in_asia/en/

http://www.fhi.org/en/HIVAIDS/Publications/survreports/aids_in_aisa.htm