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ASIA

AIDS epidemic update Regional Summary



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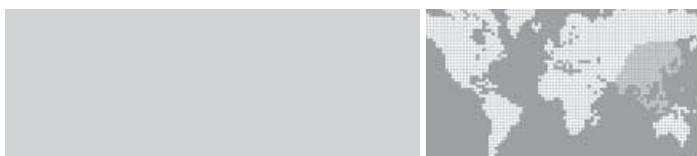
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AIDS epidemic update

Regional Summary





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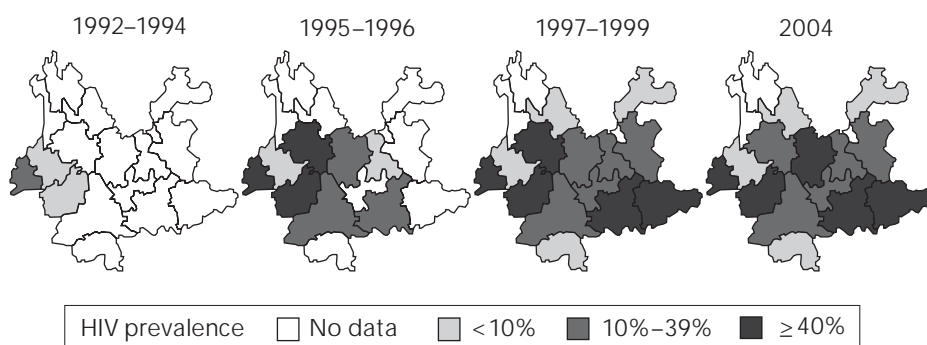
Although HIV infections have been reported in each of **China's** provinces, most of the people living with HIV in China are believed to be in Henan, Guangdong, Guangxi, Xinjiang and Yunnan provinces (Ministry of Health China, 2006). In Yunnan province, HIV surveillance at antenatal service sites found that 0.3% [0.21%–0.31%] of pregnant women were infected with HIV, although prevalence was as high as 1.6% in some counties (Zhang, Hu & Hesketh, 2006).

A little less than half the estimated 700 000 [390 000–1.1 million] people living with HIV in **China** in 2006 are believed to have been infected while injecting drugs with contaminated

equipment, while a similar proportion acquired the virus during unprotected sex (Ministry of Health China, 2006; Lu et al., 2006). Once HIV enters injecting drug user networks, it tends to spread rapidly—especially where HIV knowledge is poor and non-sterile injecting equipment is frequently used. In rural parts of Guangxi province, a study begun in 2002 measured a baseline prevalence of one in four (25%) injecting drug users. After tracking new infections over the next year, they found annual HIV *incidence* of 3.1% among the 702 injecting drug users who participated in the study (Liu W et al., 2006). Similar situations occur in other provinces, such as Guangxi, Sichuan,

Figure 1

HIV prevalence among injecting drug users in Yunnan province, China, 1992–2004



Source: Xiao Y et al. (2006). Expansion of HIV/AIDS in China: lessons from Yunnan Province. *Social Science & Medicine*, 64(3):665–675. Epub 2006 Nov 14.

Xinjiang and Yunnan where high HIV prevalence has been found among injecting drug users (Choi, Cheung & Chen, 2006). In Sichuan province, HIV prevalence in injecting drug users in a city in the south-west rose from 11% in 2002 to 18% in 2004 (Zhang et al., 2006).

More than half (58%) of the injecting drug users surveyed at eight drug rehabilitation centres in Yunnan province said that they used non-sterile injecting equipment (Hesketh et al., 2006), as did 39% of those enrolled in detoxification centres in another part of the province (Christian et al., 2006). In the latter study, one in five (20%) of the injecting drug users did not know that the use of non-sterile needles carries a very high risk of HIV transmission, almost two thirds (64%) of them had had unprotected paid sex in the previous month, and almost half (45%) had never bought a condom. Yet, more than half (57%) of the injecting drug users, most of whom were men, believed that they were at slight or no risk of acquiring HIV (Christian et al., 2006).

Harm reduction efforts, although still partial and scattered, are beginning to show positive results.

China has set up more than 700 needle exchange sites. At the six sites that reported rates of the use of non-sterile needles in a national survey in 2005, 12%–56% of injecting drug users said they still used non-sterile needles, compared to the 27%–79% who had been doing so when the projects began in the early 2000s (Wu et al., 2006). In a similar project in Hunan province, reported use of non-sterile needles declined from 43% to 23% and levels of HIV awareness and knowledge increased fourfold to 80% between 2003 and 2005 (Chen Y et al., 2006). These positive developments underline the need to further improve and expand harm reduction programmes in **China**, with special attention to the rising number of female injecting drug users who use non-sterile equipment (Zhang & Wu, 2002), and to the ways in which gender dynamics influence HIV risk (Choi, Cheung & Chen, 2006) (see box).

The overlap of injecting drug use and sex work is an important aspect of **China's** HIV epidemic. An increasing number of women are injecting drug users in **China** and, in some places, as many as half of those who do so also sell sex (see box). Many male injecting drug users also buy sex,

DOUBLE JEOPARDY: GENDER AND HIV RISK AMONG INJECTING DRUG USERS

The majority of injecting drug users in **China**, as elsewhere in the world, are male. But because women who inject drugs are often also involved in commercial sex, women may be at greater risk of acquiring HIV. Up to 30%–40% of injecting drug users in some Chinese studies were women (Phariss & Thomson, 2004; Jia et al., 2003), and a substantial proportion of them also sold sex (Choi et al., 2007; Li et al., 2006). In a city in the south-west of Sichuan province in 2003–2004, more than half (57%) of the surveyed female injecting drug users sold sex. As a consequence, the female drug users were more likely to be infected with sexually transmitted diseases, compared with their male counterparts. They were also more likely to borrow used needles from their sex partners, compared with male injecting drug users (Choi, Cheung & Chen, 2006). In Anhui province, 39% of female injecting drug users said that they had used non-sterile injecting equipment in the previous month—more than double the 18% of male users who said that they had done likewise. More than half (56%) of the women had also sold sex in the previous year, just over half of whom (53%) said they used condoms “most of the time” when doing so. And yet three quarters (78%) of the female injecting drug users claimed that they were “certain” that they would not be infected with HIV (Liu H et al., 2006).

Furthermore, the context in which women use drugs and sell sex (the latter usually to finance the former) often increases the risks of HIV infection. Where sex work is criminalized and sex workers are harassed by the authorities, clients are more difficult to obtain, and this can compromise the women's abilities to insist on safe sex (Choi, Cheung & Chen, 2006). In another Sichuan province study, fewer than one third of female injecting drug users who sold sex reported consistent condom use with their clients (He et al., 2003). Harm reduction and other prevention programmes need to take into account such gender differences and inequalities in HIV risk.

often without using condoms. In the Yunnan study conducted at rehabilitation centres, only one third (36%) of the sexually active injecting drug users (most of them men) said that they had ever used a condom (Hesketh et al., 2006). Although the use of contaminated drug injecting equipment is still the main mode of HIV transmission in Yunnan province, the proportion of reported HIV infections attributed to sexual transmission more than doubled between 1996 and 2004, from 5.3% to 12% (Lu et al., 2005). Injecting drug use has also been shown to be one of the key factors associated with HIV infection among sex workers in the same province, 21% of whom tested HIV-positive in one recent study (Wang et al., 2006a).

Reported cases of sexually transmitted infections such as syphilis have greatly increased since the 1980s. In the mid-1980s, a mere 194 cases of syphilis were officially reported countrywide; by 2005, that number had risen to 113 000, according to a recent national surveillance exercise. Researchers estimate that 0.5% of pregnant women, 0.8% of sex workers and 15%

Harm reduction efforts, although still partial and scattered, are beginning to show positive results in China.

of men who have sex with men nationally are infected with syphilis (Chen Z-Q et al., 2006). The rapid social and economic changes in **China** are contributing to this trend. Strict policing in the second half of the 20th century helped to limit sex work, and drove it underground. However, economic and social reforms since the 1980s have been accompanied by widening income gaps and a more liberal cultural climate (Nolan, 2003), which has facilitated a resurgence of sex work (Gill et al., 1996).

A skewed national gender ratio (the male/female ratio was estimated at 117:100 in 2000) (Guilmoto, 2005) and an increase in migration are also believed to be contributing to the demand for sex work (Tucker et al., 2005). Research among men who moved from rural areas to Beijing, Nanjing and Shanghai, found that one in 10 (10%) had bought sex and one in five (20%) had a history of sexually transmitted infections (Wang et al., 2006b). Several other studies have highlighted the sexual risky

behaviours among some groups of migrants (Yang & Xia, 2006; Smith & Yang, 2005). A 2003 survey in the south-west of **China** found that temporary migrants were at least five times more likely than non-migrants to have sex with a non-regular partner and seven times more likely to have commercial sex. Female temporary migrants were 14 times more likely to have sex with a non-regular partner than non-migrant women and 80 times more likely to sell sex (Yang & Xia, 2006). This places them at higher risk of exposure to HIV and other sexually transmitted infections.

Meanwhile, low levels of HIV and reproductive health knowledge, clients' reluctance to use condoms and the illegal status of sex work in **China** place female sex workers at high risk of exposure to HIV. In a study among sex workers in Hong Kong Special Administrative Region, a minority (43%) of the women used condoms consistently with clients (in the previous three months), and a similar percentage (42%) of the women were found to be infected with at least one sexually transmitted infection (Choi, 2006). Consistent condom use with clients is reported to be especially low among women working in the lower echelons of the sex trade (on the streets, or in parks, salons or inns)—under 20%, compared with 57% among sex workers operating out of expensive hotels, according to another study (Parish & Suiming, 2006). Indeed, sexual risk-taking seems to be the norm among male clients. Only one third (36%) of the almost 1000 sex worker clients participating in a recent study in Sichuan province said they had used a condom the last time they paid for sex; 6% of them had had a sexually transmitted infection in the previous six months (Wan & Zhang, 2006).

Though still few in number, condom promotion projects that target sex workers and their clients are yielding results. Started in 2003, a 100% condom use programme set up in barbershops (which sometimes double as commercial sex sites) in the city of Liuzhou (in Guangxi province) led to an increase in condom use among sex workers from 48% to 80% and a decline in gonorrhoea cases from 8.6% to 2.2% within two years (Li, 2006). In Wuhan, the capital of the eastern Hubei province, condom use levels increased from 33%, when a similar project was started in 2002, to 69% a year later, and the proportion of sex workers infected with *Chlamydia* was halved, to 15% (Wei et al., 2006). Reports from similar projects in Guangxi, Hainan, Hubei, Hunan and Jiangsu

provinces also show positive outcomes (WHO, 2004). If sufficient in number and quality, such projects could prove vital in **China's** efforts to reverse its epidemic.

The spread of HIV among men who have sex with men has received relatively little attention in China, although as many as 7% of HIV infections could be attributable to unsafe sex between men, according to some estimates (Lu et al., 2006). Studies have found HIV prevalence among men who have sex with men ranging from 1.5% in Shanghai (Choi et al., 2007), 1.7% in the south (Tao et al., 2004; Zhu et al., 2005), and 3.1%–4.6% in Beijing (Choi et al., 2003; Ma et al., 2006).

Several studies indicate patterns of behaviour that could lead to wider exposure to HIV in and beyond networks of men who have sex with men. Most of the participants in the Shanghai study (cited above) were knowledgeable about HIV transmission, with 52% believing that they were at low risk and 38% believing that they were at no risk of becoming infected. Yet more than half (57%) of the men interviewed had had unprotected anal sex with other men in the previous six months, and 13% had had unprotected sex with both men and women. A total of 14% of the men were infected with syphilis (Choi et al., 2007). Very high levels of sexual risky behaviours have been found in a Beijing study, where two thirds (68%) of men who have sex with men said that they had had unprotected sex with other men in the previous six months. HIV prevalence among them was 4.6% (Ma et al., 2006). Another study in the same city revealed slightly lower levels of HIV infection (3.2%), but equally widespread sexual risk-taking behaviour among men who have sex with men, a significant proportion of whom (29%) also had sex with women. Fewer than one quarter (21%–24%) of the men used condoms consistently with regular male partners, fewer than half (35%–42%) did so with non-regular male partners, and only one third (33%) did so with their female partners (Ruan et al., 2007).

In Guangzhou city, in the southern province of Guangdong, findings were similar, with 55% of surveyed men saying they had had unprotected sex with other men, and with syphilis prevalence of 11%. Since one quarter (26%) of the men were married and almost one third (32%) of the men had regular female partners, the potential for sexually transmitted infections to spread beyond

their male sexual networks exists (He et al., 2006), as it does in Beijing and Shenyang, where studies found that 28% and 36%, respectively, of surveyed men who have sex with men also had recent female sexual partners (Choi et al., 2004; Gu et al., 2004). Such study findings underscore the need for prevention programmes that strengthen the social networks of men who have sex with men in **China**, and promote safer sex within them.

Other factors complicate **China's** AIDS response, including capacity constraints, low levels of civil society involvement and substantial HIV-related stigma. Of the almost 4000 nurses surveyed in Guangxi, Sichuan and Yunnan in 2005, for example, almost one in five (18%) said patients with HIV should be isolated and nearly half (45%) said that they preferred not to work in AIDS wards. In another study, 43% of the 1100 surveyed health-care providers supported mandatory HIV tests for all persons using hospital facilities (Sun et al., 2006).

Overall, though, **China** has stepped up its response to the HIV epidemic in recent years. Free HIV testing is available at more than 3000 sites in all 31 provinces (Wu et al., 2007), and an estimated 30 000 patients were receiving antiretroviral treatment at the end of 2006 (Wu et al., 2007). However, research suggests that the response would benefit considerably from stronger coordination between and across relevant agencies and actors, and from a more concerted focus on most-at-risk groups (Gill, Huang & Lu, 2007). In addition, improved co-management of HIV and tuberculosis needs to be a priority and should include improved laboratory diagnosis, earlier commencement of antiretroviral treatment, stronger adherence strategies and better community awareness. Field studies are reporting significant levels of coinfections of HIV and tuberculosis. In a rural study in 2003–2005, nearly one quarter (22%) of persons with HIV also had tuberculosis. Death rates among them were high, largely due to low tuberculosis treatment completion rates (Dahmane et al., 2006).

Overall, although high levels of risky behaviour have been documented in some provinces of **China**, and prevalence of HIV and other sexually transmitted infections are increasing in some population groups, it is difficult to generalize on the basis of that information. **China's** HIV epidemic is heterogeneous and is evolving at different rates in different regions.

India

New, more accurate estimates indicate that approximately 2.5 million (2 million–3.1 million) people in **India** were living with HIV in 2006, and that adult national HIV prevalence was 0.36%. Although the proportion of people living with HIV is lower than previously estimated, **India's** epidemic continues to be substantial in terms of absolute numbers.

These latest estimates are based on an expanded surveillance system, improved data (including a countrywide, population-based HIV survey carried out in 2005–2006), as well as the use of more robust and enhanced methodology. The estimates confirm earlier population-based HIV data which suggested that state-level and national prevalence estimates based on sentinel surveillance might have been overestimated. Research in Guntur district in the southern state of Andhra Pradesh had found that HIV prevalence in a population-based study was about half

as high as those based on sentinel surveillance (Dandona L et al., 2006). Among almost 100 000 adults (aged 15–49 years) tested for HIV in the most recent national population-based survey (NFHS-3, 2007), reported prevalence was 0.28% (0.23–0.33%).

India's epidemic is highly varied across states and regions, and diverse trends are evident in different parts of this huge country. Even in the four southern states (Andhra Pradesh, Karnataka, Maharashtra and Tamil Nadu) where the large majority of people living with HIV in India are believed to reside, HIV prevalence varies, and the epidemic tends to be concentrated in certain districts (NACO, 2005a; World Bank, 2005). Reported adult HIV prevalence in six states included in the recent national population-based survey (NFHS-3, 2007) varied from 0.07% in Uttar Pradesh, 0.34% in Tamil Nadu, 0.62% in Maharashtra, 0.69% in Karnataka, 0.97% in Andhra Pradesh, to 1.13% in Manipur.

UNDERSTANDING INDIA'S NEW HIV ESTIMATES

The revised HIV estimates for **India** are the outcome of several key improvements that include an expanded and improved HIV surveillance system, and the adaptation of estimation methodology to incorporate the new data.

A major improvement has been the national household survey (the National Family Health Survey 3, conducted in 2005–2006), which sampled about 100 000 households and which, for the first time, included a component on HIV (NFHS-3, 2007). This survey constitutes an entirely new source of data for **India** and is the widest population-based survey with an HIV component ever carried out in the country. Similar surveys have been conducted in many countries in sub-Saharan Africa where they have also provided a basis for improving HIV estimates.

India has also expanded its HIV surveillance system in recent years. The system has grown from 155 surveillance sites (in 1998) to 1100 sites (in 2006). It now collects data from pregnant women attending antenatal clinics, people attending sexually transmitted infections clinics and population groups that are at a higher risk of HIV infection. The latter data are especially important because such groups (including men who have sex with men, injecting drug users and sex workers) are often missed by population-based surveys. These various sources of data therefore complement one another.

Finally, **India** updated its methods for analysing the new data collected from surveys and HIV surveillance efforts. National and international experts have revised the methodology for generating consolidated estimates of adult HIV prevalence, the number of people living with HIV and other, related indicators.

The result is a more complete and accurate understanding of India's HIV epidemic—a vital step forward in improving HIV prevention programming, and informing treatment, care and support needs. In particular, the new information enables India to focus its AIDS efforts where they are needed most and are likely to be most effective.

Prevalence in all other states was 0.13%. HIV prevalence in southern states overall was about five times higher than in northern states in 2000–2004 (Kumar R et al., 2006). However, pockets of significant HIV prevalence (mainly among population groups at high risk of exposure to HIV) have been identified in parts of some northern states (such as Bihar, Orissa, Rajasthan and West Bengal), while unexpectedly high prevalence of nearly 3% has been found in the general population in one district of Karnataka, in the south (see box).

Overall, data from the expanded 2006 sentinel surveillance show high HIV prevalence among sex workers, and possibly rising HIV prevalence among injecting drug users and men who have sex with men in a few states. Although HIV has

reported among Sikhs (1.8%), Buddhists/Neo-Buddhists (1.5%), men who were away from home for more than one month at a time (1.4%), men not currently living with a spouse, or who are divorced, widowed or separated (1.2%) and men aged 20–24 years old (1.2%). Of surveyed men having engaged in paid sex, 62% indicated that they had used a condom the last time they paid for sex. Among men and women aged 15–49 years surveyed in the NFHS-3, only 1 in 1000 women (0.1%) and 2 in 100 men (2%) reported having had two or more sexual partners in the last 12 months, while the proportion reported having had sex with someone other than a spouse or cohabiting partner was higher (0.2% of women and 5% of men) (NFHS-3, 2007). Condom use during such higher risk sex was

A SURPRISE IN THE SOUTH

A community-based study in the Bagalkot district of northern Karnataka has revealed surprisingly high adult HIV prevalence of 2.9%. Also unusual was the significantly higher prevalence in rural (3.6%) compared with urban (2.4%) areas. HIV prevalence in the 10 villages surveyed ranged between 0% and 8.2%. Almost three quarters (70%) of the study participants had never seen a condom, and fewer than one in 10 (9%) (under 3% in the case of rural women) had ever used one (Becker et al., 2007). These pockets of high prevalence are being attributed to the high volumes of sex work in the district, and the fact that most of the sex workers are young, of a lower caste and illiterate (Becker et al., 2007; Blanchard et al., 2005; O'Neil et al., 2004; Population Research Centre, 2003).

spread into the wider population and, in some states, is affecting increasing numbers of women considered to be at low risk of infection. **India's** epidemic is largely a result of HIV transmission within, between and immediately beyond those most-at-risk populations. Outside of the north-east of the country, where contaminated drug injecting equipment is the key factor, HIV appears to be spreading mainly as a result of unprotected sex between sex workers and their clients, and their respective other sex partners (Kumar et al., 2005).

The percentage of Indian men who visit sex workers (or have sex with a non-regular partner) varies considerably between different areas and subgroups. Less than 1% of men sampled in the national population-based survey in 2006 (NFHS-3, 2007) reported engaging in paid sex in the 12 months preceding the survey. The highest percentages of men engaging in paid sex were

low: 15% among women and 38% among men. In other studies, 8%–13% of men and 1%–4% of women reported having had a non-regular sex partner in the previous year (Kumar R et al., 2006). Nevertheless, when men do buy sex there is a chance that they will be having sex with someone who is HIV-positive and yet many of them choose not to use condoms. Almost half (49%) the female sex workers participating in a 14-district survey in Karnataka said they had unprotected sex with a client at least once in the previous month (Mondal et al., 2006). In the same state, HIV prevalence of 16% was found among home-based sex workers, 26% among their street-based peers, and 47% among those working in brothels (Ramesh et al., 2006).

Knowledge of HIV, as recorded in the national population-based survey differed significantly between men and women in India (NFHS-3, 2007). Only 61% of adult women and 84% of

adult men had heard of AIDS at the time of the survey. About 40% of women and 70% of men had some knowledge of prevention methods, while misconceptions were common (e.g. only 38% of women and 61% of men knew that a healthy-looking person can be infected with HIV). Only 3% of women and 4% of men in India had ever been tested for HIV (NFHS-3, 2007), while the proportion of women who had been tested and were given the results of the test varied from 0.2% in Rajasthan to 15% in Goa.

The proportion of people living with HIV in India is lower than previously estimated, but the epidemic continues to affect substantial numbers of people.

Studies suggest that between half and two thirds of male clients of sex workers are either married or have regular female partners (APAC Project & Voluntary Health Services, 2004a, 2004b; NACO, 2001a). Consequently, a significant proportion of women with HIV are believed to have been infected by their regular partners, who had acquired HIV during unprotected paid sex (Lancet, 2006).

Some prevention programmes focusing on sex workers appear to be successful. HIV prevalence seems to be on the decline among sex workers in areas that have been the focus of targeted prevention efforts, especially in Tamil Nadu and other southern states.

Interventions that involve sex worker collectives (such as those pioneered in the Sonagachi project in Kolkata) appear to be most effective (Kumar, 1998). A survey of sex workers in Karnataka found that higher degrees of collectivization were associated with better knowledge of HIV and higher rates of condom use (Halli et al., 2006). However, such activities remain limited and often have to contend with resistance or indifference from the authorities (Dandona R et al., 2006b). One quarter (25%) of the female sex workers participating in a survey in Andhra Pradesh had never used a condom (with clients or regular partners) (Kumar GA et al., 2006).

Prevention efforts are often complicated by the varied nature of commercial sex. In some southern states, it is estimated that most sex work is street-

and home-based, with brothels (where prevention activities can be easily implemented) accounting for 10% or less of paid sex (Char, Piller & Shirke, 2003). Research findings also point to a need to focus greater attention on reaching younger entrants into the sex trade with prevention activities. In West Bengal, HIV prevalence among young (under 20 years) brothel-based sex workers was more than twice as high as it was among their older counterparts (13% compared with 5.4%) (Sarkar et al., 2006). Women and girls who are victims of sex trafficking face especially high risks of exposure to HIV. In Mumbai, considered to be largest centre of sex trafficking in India (US Department of State, 2005), about one in four (23%) trafficked women and girls tested HIV-positive in one recent study. For those women, the likelihood of being HIV-infected increased the longer they were confined to the brothel: each additional month in the brothel increased their risk of acquiring HIV by 3%–4% (Silverman et al., 2006).

Injecting drug use remains an important factor for transmission of the epidemic, especially in the north-east of the country. In Manipur in 2005, almost a quarter (24%) of injecting drug users were found to be HIV-positive, as were 5% of their counterparts in Nagaland and Mizoram (NACO & Ministry of Health and Family Welfare, 2006). Use of non-sterile injecting drug equipment features in varying degrees in the epidemics in several large cities elsewhere in the country, as well (including Chandigarh, Chennai, Delhi and Mumbai) (Chandrasekaran et al., 2006; NACO, 2005a, 2005b). Between 31% (Srikrishnan et al., 2006) and 39% (NACO, 2005b) of injecting drug users in Chennai were found to be infected with HIV, as were 28% in Mumbai in 2004 (NACO, 2005b).

The overlap of injecting drug use and sex work is a potentially important factor in **India's** epidemic (Chandrasekaran et al., 2006). Such intersecting risk factors are evident in a study carried out at sexually transmitted infection clinics in Mumbai. More than one in 10 (12%) injecting drug users attending the clinics were HIV-positive; of them, eight in 10 had bought sex and almost three in 10 (27%) had sold sex in the previous three months (Yu et al., 2006).

Sex between men is a significant, yet under-researched aspect of India's HIV epidemic. It is unclear how widespread sex between men

is in **India**. In a cross-sectional survey of 2910 rural men in five districts in five states (Haryana, Karnataka, Orissa, Rajasthan, Uttar Pradesh), nearly 10% of single men and 3% of married men reported having had anal sex with another man in the previous year (Verma & Collumbien, 2004), while almost 7% of men in urban slums in Chennai (Tamil Nadu) said they had had sex with at least one other man (Go et al., 2004). However, in a large population-based study in Andhra Pradesh, only 2% of the men reported having ever had sex with a man (Dandona R et al., 2006a).

Although HIV has been transmitted into the wider population, India's epidemic is largely a result of HIV transmission within, between and immediately beyond most-at-risk populations.

HIV prevalence in studies among men who have sex with men varies considerably—from 1.7% in Goa to almost 7% in Tamil Nadu, 10%–13% in Mumbai (NACO, 2005b; Kumta et al., 2006), 18% at 10 clinics in Andhra Pradesh (Srivankumar, Prabhakar & Mythri STI/HIV Study Group, 2006) and 19% in Pune (Gupta et al., 2006). Fewer than half the men who have sex with men surveyed in Andhra Pradesh and Bangalore said they used condoms during anal sex (Banerjee & Sengupta, 2006; Anthony et al., 2006). Male sex workers in particular are at high risk of being infected. Among those seeking treatment for sexually transmitted infections in Mumbai, one third tested HIV-positive, and 21% of the men had never used a condom during anal sex (Jerajani et al., 2006).

Significant proportions of men who have sex with men are either married and/or have sexual relationships with non-regular female partners. Among the married rural men with male partners in the five-state study cited above, almost one in 10 (8%) visited female sex workers and more than one in three (36%) also had non-regular female partners (Verma & Collumbien, 2004). About one quarter of the HIV-positive men in both Andhra Pradesh and Mumbai reported having sex with both men and women (Srivankumar, Prabhakar & Mythri STI/HIV Study Group, 2006; Kumta et al., 2006). More than one third (36%) of men who have sex with

men surveyed at sexually transmitted infection clinics in Pune (south of Mumbai) were married, three quarters (73%) of them reported sex with a female sex worker, and more than half (57%) had at least one non-regular female partner (Gupta et al., 2006). In Andhra Pradesh, half (51%) of the surveyed men who have sex with men reported sex with a woman in the previous three months and only one in six (16%) said they used a condom the last time they had sex with a woman (Dandona et al., 2005).

Such sexual behaviour patterns provide possible bridges between various high-risk and low-risk population groups, and underscore the need to improve the quality and scope of programmes aimed at preventing HIV transmission in and beyond networks of men who have sex with men.

It is essential for **India** to increase prevention coverage of its most-at-risk populations, and to ensure that more favourable legal and institutional environments are in place for doing so. Also important are strategies that include high coverage of good-quality peer interventions, such as those introduced in Kolkata and, more recently, West Bengal, (Kumar R et al., 2006; Roy et al., 2006; Kumar, 1998). In addition, access to and uptake of treatment and care services need to be enhanced. Some 3600 public HIV testing centres have been set up and **India** has expanded its treatment programme, with about 57 000 people receiving antiretroviral treatment at 103 centres by the end of January 2007 (Steinbrook, 2007). However, patients receiving antiretroviral treatment in three private clinics in Mumbai between 2004 and 2005 reportedly struggled to afford the drugs and spent a median of 60% of their monthly income on treatment. In the absence of government support, the more expensive second-line antiretroviral regimens are likely to prove unaffordable to most private sector patients (Shah et al., 2007).

In neighbouring **Pakistan**, poor knowledge about HIV and transmission routes and widespread risky behaviours among most-at-risk groups provides the epidemic with potential for further growth. In Karachi, one study has found that HIV prevalence among injecting drug users rose from under 1% in early 2004 to 26% in March 2005 (Emmanuel, Archibald & Altaf, 2006), while other studies have found that HIV prevalence among injecting drug users has reached 24% in Quetta (along the border with

Afghanistan) (Achakzai, Kassi & Kasi, 2007), 12% in Sargodha, nearly 10% in Faisalabad (Nai Zindagi and Associates, 2006) and 8% in Larkana (Abbasi, 2006).

HIV prevalence in other at-risk groups appears to be relatively low. In 2005, among female sex workers in Karachi, HIV prevalence of 2% was found while it was below 1% in Lahore and Rawalpindi (Ministry of Health Pakistan, 2005; National AIDS Control Program Pakistan, 2005). But the fact that as many as 70% of surveyed female sex workers have reported sexually transmitted infection symptoms indicates that unprotected sex is a common practice (Ministry of Health Pakistan, 2005). Indeed, in behavioural surveys, almost three quarters (73%) of female sex workers in Rawalpindi and more than half (51%) in Karachi said they had not used a condom in the previous month (Ministry of Health Pakistan, 2006). And, in earlier studies, only 11% of male clients in various cities said they had used a condom the last time they bought sex. Only 7% of male sex workers reported using a condom the last time they sold anal sex (Ministry of Health Pakistan, 2005).

HIV prevalence is increasing among injecting drug users in Pakistan.

The evolution of **Pakistan's** HIV epidemic will be determined largely by the degrees and overlap of risk-taking behaviour among most-at-risk populations, and the coverage and effectiveness of prevention programmes that target those modes of exposure. Large proportions of injecting drug users are sexually active (often having unsafe sex) and once infected with HIV, they could transmit the virus to their sexual partners. When surveyed in 2005, eight in 10 (79%) injecting drug users in Karachi and six in 10 (58%) of their peers in Rawalpindi said that they were sexually active, while one quarter (26%) in a Quetta study were married (Achakzai, Kassi & Kasi, 2007). In Karachi, 13% of the injecting drug users had bought sex from a female sex worker in the previous six months and 8% had done so from a male sex worker; in Rawalpindi, the corresponding proportions were 28% and 27%, respectively. Yet almost nine in 10 (86%) of those in the Karachi study had not used condoms at all during paid sex in the previous six months,

as had one half (49%) of those in Rawalpindi. In addition, as many as one in five injecting drug users in various cities in **Pakistan** said they had also sold sex in exchange for money or narcotics. A small but significant percentage of male sex workers (7% and 9% in Karachi and Rawalpindi, respectively) and female sex workers (5% in Karachi) also inject drugs (Ministry of Health Pakistan, 2006).

There are also concerns about the potential role of migrant labour in **Pakistan's** epidemic. In Lahore, one in 10 (11%) unmarried male migrant workers reported having had unprotected paid sex in the previous year (Faisal & Cleland, 2006). If HIV infection levels in sex workers rise, these workers could provide a potential bridge for HIV transmission into the wider population. In 2006, it was estimated that only 5% of female sex workers were being reached by HIV prevention activities (National AIDS Control Program Pakistan, 2006).

Adult national HIV prevalence in **Nepal** is estimated at under 1% (Ministry of Health Nepal, 2006; UNAIDS, 2006a), but higher prevalence has been found among populations at higher risk of exposure to HIV. The most recent behavioural surveys (in 2005) showed HIV prevalence among injecting drug users to be 52% in Kathmandu, 32% in the Eastern Terai districts, 22% in Pokhara and 12% in the Western Terai districts (New Era & STD/AIDS Counselling and Training Services (SACTS), 2005a, 2005b, 2005c). The majority of injecting drug users (most of whom are male) are sexually active but condom use levels are low (Ministry of Health Nepal, 2006).

As many as 16% of street-based female sex workers operating in Kathmandu valley were found to be HIV-positive in 2001 (National Centre for AIDS and STD Control Nepal et al., 2006), but more recent studies have found much lower infections levels of 2% or less among female sex workers in Kathmandu, Pokhara and in the east of the country (New Era & STD/AIDS Counselling and Training Services (SACTS), 2005a, 2005b & 2005d). Behavioural surveillance among men having sex with men in Kathmandu showed HIV prevalence of about 4% and about 5% among male sex workers (Centre for Research on Environment Health and Population Activities & Family Health International, 2005).

Several factors—including deteriorating economic conditions, the low socioeconomic status of women, drug trafficking and high levels of labour migration—provide potential for growth of **Nepal's** HIV epidemic. Of special concern is the prospect of increased spread of HIV among returning labour migrants. It is estimated that between 600 000 and 1.3 million Nepalese men migrate to **India** for work. HIV prevalence of 8% has been found among labour migrants returning from Mumbai in the early 2000s (New Era & Family Health International, 2006), but lower levels (3% or less) have been found in more recent studies in Achham and Kailali (New Era & Family Health International, 2006). It is estimated that almost half of all people living with HIV in **Nepal** have worked as labour migrants (WHO, UNICEF & UNAIDS, 2006). Nepalese girls and women who have been sex-trafficked are at especially high risk of HIV infection. HIV prevalence of 38% has been found among repatriated sex-trafficked females, and one half of the women and girls trafficked to Mumbai (**India**) were HIV-positive (Silverman et al., 2007).

It is estimated that fewer than 0.1% [$<0.2\%$] of adults in populous **Bangladesh** were living with HIV in 2005 (UNAIDS, 2006b). Here, too, risky behaviour among some population groups—notably injecting drug users—may contribute to wider transmission of HIV. In the Dhaka region, HIV prevalence among injecting drug users is comparatively low (7%), though it has risen from 1.4% in 2000 (Ministry of Health and Family Welfare Bangladesh, 2007). Yet behavioural surveillance in the centre of the country has found that more than three quarters (77%) of male injecting drug users used non-sterile equipment the last time they injected, and that more than one third (35%) had had paid sex in the previous year, mostly without using condoms (Ministry of Health and Family Welfare Bangladesh, 2004). In a recent study among female injecting drug users in the Dhaka region, none were found to be infected with HIV (Azim et al., 2006). HIV prevalence found among female sex workers and men who have sex with men has not yet exceeded 1% (Ministry of Health and Family Welfare Bangladesh, 2007).

HIV prevalence in **Sri Lanka** appears to be low, as well. Among antenatal clinic patients, prevalence was below 0.1% in 2005, and it was 0.1% among female sex workers (National STD & AIDS Control Programme Sri Lanka, 2005).

South and South-East Asia

Although overall adult HIV prevalence in South and South-East Asia is still relatively low at 0.3% [0.2%–0.4%], the HIV epidemic affects a large number of people—an estimated 4.0 million [3.3–5.1 million] were living with HIV in this subregion in 2007.

The epidemic trends in this subregion are varied. HIV prevalence is increasing in **Viet Nam** and **Indonesia** (especially in its Papua province), while the epidemics in **Myanmar**, **Thailand** and, most profoundly, **Cambodia**, all show declines in HIV prevalence.

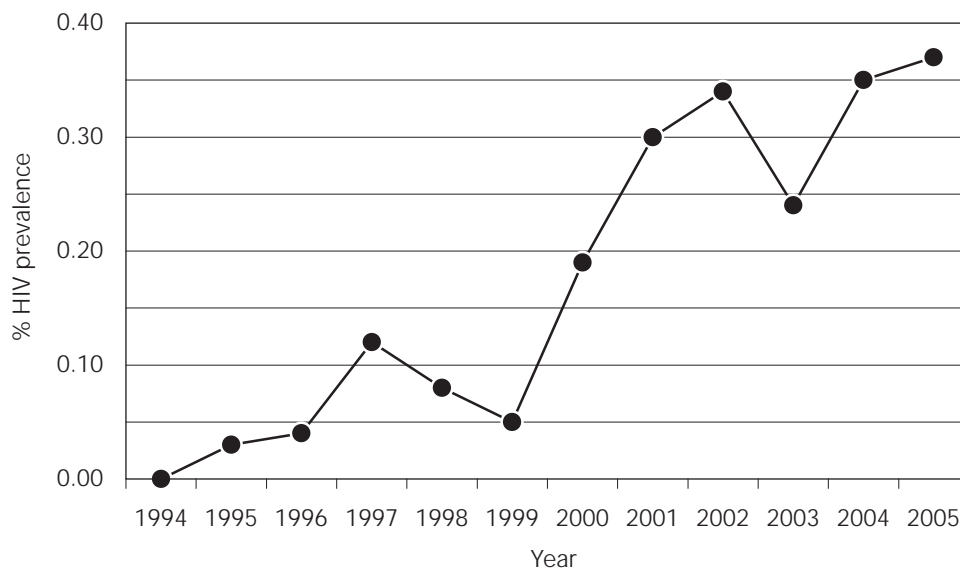
Currently within Asia, only in **China**, **India** and **Thailand** are more people living with HIV than in **Viet Nam**, where the epidemic appears to be increasing. Although about one third of people living with HIV reside in the Mekong River Delta and Ho Chi Minh City provincial clusters, HIV infections have been reported in all 64 provinces and in more than 90% of the country's 659 districts (Ministry of Health Viet Nam, 2007; Viet Nam Commission for Population et al., 2006). Nationally, between 2000 and 2005, the estimated number of people living with HIV more than doubled—from 122 000 to 263 000 (Ministry of Health Viet Nam, 2005), and an estimated 0.5% [0.3%–0.9%] of adults were living with HIV in 2005 (UNAIDS, 2006b). But in the North Coast and Ho Chi Minh City provincial clusters, adult prevalence exceeded 1% in 2005 (Viet Nam Commission for Population et al., 2006).

The epidemics in Myanmar, Thailand and Cambodia show declines in HIV prevalence, but those in Viet Nam and Indonesia (especially in its Papua province) are growing.

The key factors for HIV infection are the use of contaminated injecting equipment and unprotected sex with non-regular partners (Tuan et al., 2007). As the epidemic evolves, increasing numbers of women are acquiring HIV from males who were infected during unsafe paid sex and injecting drug use. In 2006, an estimated one third of people living with HIV were women (Viet Nam Commission for Population et al., 2006). However, the majority of HIV infections are still directly or indirectly linked to injecting drug use.

Figure 2

HIV prevalence among pregnant women in Viet Nam, 1994–2005



Source: Ministry of Health, Sentinel Surveillance Survey Data.

HIV prevalence among injecting drug users in **Viet Nam** is very high. Nationally, an estimated one in three (34%) was living with HIV in 2005, up from 9% in 1996 (Ministry of Health Viet Nam, 2006 & 2005). In Hai Phong and Quang Ninh provinces, respectively, 57% and 58% of injecting drug users tested HIV-positive in 2005, as did more than 40% in Dien Bien and Ho Chi Minh City (Viet Nam Commission for Population et al., 2006; Ministry of Health Viet Nam, 2005), and 32% in Long An province (Tran et al., 2006). HIV is being transmitted rapidly among new injecting drug users. In Ho Chi Minh City, more than in one four (28%) persons who had been injecting drug users for less than one year were already infected with HIV, according to a 2006 survey (Ministry of Health Viet Nam, 2006).

A strong overlap between sexual risky behaviours and injecting drug use could lead to further epidemic growth. In a 2005/2006 survey, between 20% and 40% of injecting drug users (depending on the place) said that they had bought sex in the previous 12 months, and up to 60% said that they regularly had sex with a steady partner (Ministry of Health Viet Nam, 2006). In other studies, 40% or more of injecting drug users in Bac Ninh, Da Nang, Hai Phong and Hanoi said that they had paid for sex in the previous year (Schumacher et al., 2006; Ministry of Health

Viet Nam, National Institute of Hygiene and Epidemiology & Family Health International, 2001). Condom use, however, was infrequent. In the 2005/2006 survey, depending on the place, only 16%–36% of injecting drug users said that they had consistently used condoms with regular partners (Ministry of Health Viet Nam, 2006). The high prevalence of sexually transmitted infections found among injecting drug users (30% in a study in northern **Viet Nam**, for example), underscores the substantial risks of sexual transmission from HIV-positive injecting drug users to sex workers and other sexual partners (Go et al., 2006).

Besides geographical variation, HIV infection levels among female sex workers tend to be considerably higher in those women who also inject drugs. In some cities, notably Hanoi and Hai Phong, large percentages of sex workers are also injecting drug users, increasing their risk of acquiring HIV (Tran et al., 2005; Ministry of Health Viet Nam, National Institute of Hygiene and Epidemiology & Family Health International, 2001). In Hanoi, one third (32%) of surveyed female sex workers said that they injected drugs, and 12% of those women were HIV-positive (Tran et al., 2005), compared with an average HIV prevalence of 6.5% among sex workers nationally (Ministry of Health Viet Nam, 2006). Similarly, the high HIV prevalence found among

sex workers in Hai Phong, where 30% tested HIV-positive in one study, appear to be linked to the large proportion (29%) of the women who also inject drugs (Luu Thi Minh et al., 2006). Meanwhile, safer sex is infrequent among sex workers in **Viet Nam**. In the Hanoi study cited above, fewer than two thirds (63%) of the women reported having used condoms consistently with non-regular clients, less than half (41%) with regular clients and hardly any (5%) with their regular partners (Tran, Detels & Lan, 2006).

The fact that at least 4% of patients at sexually transmitted infection clinics tested HIV-positive in six provinces in 2005 suggests that risky sexual behaviour is common enough to facilitate wider sexual transmission of HIV in parts of the country (Viet Nam Commission for Population et al., 2005). Surveys indicate that a large proportion of single young men in **Viet Nam** visit sex workers. In a 2003–2004 survey, almost one quarter (22%) of sexually active, single young men (15–24 years) overall, and one third (34%) in urban areas, said that they had bought sex (Ministry of Health Viet Nam, 2005).

The estimated number of people living with HIV in Viet Nam more than doubled between 2000 and 2005.

Nevertheless, there is evidence from **Viet Nam** that prevention projects can result in safer behaviour. After the introduction of a community-based condom promotion project in five provinces (Dien Bien, An Giang, Kien Gian, Dong Thap and Quang Tri), the proportion of street-based sex workers using condoms with clients tripled from about 20% in 2001 to 60% in 2004, while condom use with husbands and boyfriends more than doubled from 16% to 38%. Impressive changes also occurred among male injecting drug users, half of whom reported using condoms when buying sex at the end of the project (compared with fewer than one quarter before the projects began), and almost one third (30%) of whom reported using condoms with wives and girlfriends (versus 12% in 2001) (Viet Nam Commission for Population et al., 2006). In another initiative, which focused on improving access to user-friendly sexually transmitted infection services for sex workers in five border provinces, HIV prevalence among the partici-

pating women decreased from 4.5% to 3.6% during the project (Vu Thuong et al., 2007).

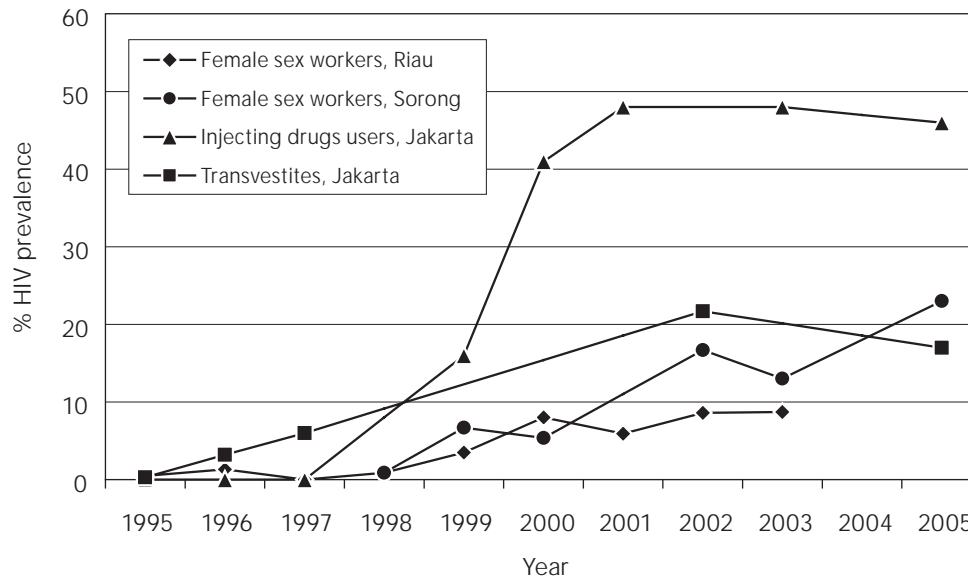
Although limited, available information about the role of sex between men in **Viet Nam's** epidemic points to high levels of risk-taking and a likelihood of significant HIV transmission among and beyond this population group. A 2001 behavioural survey in Ho Chi Minh City found that 60% of men who have sex with men had not used a condom the last time they had anal sex (Colby, 2003). In more recent studies, about two thirds of men who have sex with men in the country's two largest cities (69% in Hanoi and 63% in Ho Chi Minh City) said that they had not consistently used condoms in the previous month (Ministry of Health Viet Nam, 2006). Some studies show that large proportions of men who have sex with men also engage in paid sex (either buying or selling), and are injecting drug users. Consequently, HIV surveys in this population group reveal high levels of infection. For example, 8% of men who have sex with men recruited from more than 70 sites in Ho Chi Minh City, tested HIV-positive, as did 33% of male sex workers among them and 7% of transgender individuals (Nguyen et al., 2007).

The HIV epidemic in **Indonesia** is among the fastest-growing in Asia. Although adult national prevalence is still low (estimated at 0.2% in 2006), almost 200 000 people were living with HIV across this heavily populated archipelago (Centers for Disease Control and Environmental Health and National AIDS Commission, 2006). An HIV epidemic which initially centred largely among injecting drug users in Bali, Jakarta and West Java now encompasses many of their non-injecting sex partners, as well as prisoners, sex workers and their clients, and has spread to 32 provinces and 169 districts. In 2000, half as many provinces had reported an HIV or AIDS case (Ministry of Health Indonesia & Statistics Indonesia, 2007)

It appears that the majority of HIV infections are occurring through the use of contaminated injecting equipment, unprotected paid sex and, to a lesser extent, unprotected sex between men. High prevalence has been found in those population groups (see Figure 3). One in four (25%) injecting drug users in Bandung, almost one in three (32%) in Jakarta and three in four (78%) in Denpasar said that they had always used non-sterile needles (Ministry of Health Indonesia & Statistics Indonesia, 2006). When surveyed in

Figure 3

HIV prevalence among populations with high-risk behaviours
in Indonesia, 1995–2005



Source: Directorate General of Disease Control and Environmental Health.

2005, more than 40% of injecting drug users in Jakarta tested HIV-positive (WHO & Ministry of Health Indonesia, 2007), as did about 13% in West Java (Ministry of Health Indonesia, 2006).

With many injecting drug users also buying or selling sex, HIV has become established in commercial sex networks (Ministry of Health Indonesia & Statistics Indonesia, 2006). In 2005, approximately one quarter of injecting drug users in Bandung, Jakarta and Medan said they had had unprotected paid sex in the previous year (Ministry of Health Indonesia & Statistics Indonesia, 2006). HIV prevalence of 6%–8% has been found among female sex workers in Jambi, Riau, West Java and Yogyakarta (Ministry of Health Indonesia, 2006), and has exceeded 20% in Sorong (in Papua province, see below) (WHO & Ministry of Health Indonesia, 2007). In some places, such as Depok, Jakarta, risk-taking behaviour is so common that almost three in four injecting drug users (71%) and one in four sex workers (23%) were found to be HIV-positive in 2006 (WHO & Ministry of Health Indonesia, 2007).

HIV awareness and prevention programmes have helped encourage safer paid sex. According to behavioural surveys in 2004–2005 in the country's major cities, 61% of brothel-based and 57% of non-brothel-based sex workers said that

they had used a condom the last time they sold sex (Ministry of Health Indonesia & Statistics Indonesia, 2006). Similarly, efforts to reduce the use of non-sterile injecting equipment are showing positive results. Among injecting drug users reached with such projects in parts of Jakarta and Medan, more than 80% said that they had always used clean needles (Ministry of Health Indonesia & Statistics Indonesia, 2006).

Very few studies have been conducted to determine HIV prevalence among men who have sex with men. The most recent such study (conducted in 2002) found infection levels of 2.5% in Jakarta, 3.6% among male sex workers, and 22% among waria (transgendered) sex workers, and widespread sexual risky behaviours. Two thirds (65%) of the sex workers and more than half (53%) of other men who have sex with men reported having had unprotected anal sex with male partners. More than half (54%) of the sex workers had also had sex with women in the previous year (Pisani et al., 2004; TREAT Asia, 2006).

The epidemic shows significant geographical variation. In the provinces of Bali, Java, South Sulawesi, Sumatra and West Kalimantan, the vast majority of HIV infections are directly or indirectly linked to the use of contaminated injecting equipment. But a distinct epidemic is under

way in Papua province, bordering **Papua New Guinea** (see below), which is also experiencing a serious epidemic. In a province-wide population-based survey in Papua in 2006, adult HIV prevalence was estimated at 2.4%, and reached 3.2% in the remote highlands and 2.9% in less-accessible lowland areas. Among 15–24-year-olds, HIV prevalence was 3% (Ministry of Health Indonesia & Statistics Indonesia, 2007).

Injecting drug use is a rare phenomenon in Papua province; the main mode of HIV transmission is unprotected sex. Several factors appear to be facilitating the rapid spread of HIV. Knowledge of HIV and AIDS is very poor. Fewer than half (48%) of the population in the province have heard of HIV, and almost two thirds (65%) do not know that using a condom can prevent HIV transmission. A substantial proportion of men engage in high-risk sex: one quarter (25%) of men reported having had sex with a non-regular partner in the previous year, and one fifth (20%) said that they had more than one sexual partner. Almost half of the men with non-regular partners said that they had paid for sex. Condom use, however, is rare. Only about 14% of men who had paid for sex said that they had used condoms during those encounters, and fewer than 3% of men overall said they had consistently used condoms with non-regular partners in the previous month (Ministry of Health Indonesia & Statistics Indonesia, 2007). Consequently, HIV prevalence of 14%–16% has been found among sex workers in Nabire, Merauke and Sorong (National AIDS Commission Indonesia, 2006). Sex education and condom promotion and distribution programmes are an urgent priority in Papua.

Two additional factors also seem to feature in Papua's growing epidemic. As in neighbouring **Papua New Guinea**, surveys show that sexual violence is common, with one in eight (12%) women saying that they have been forced to have sex, most often by domestic partners (Ministry of Health Indonesia & Statistics Indonesia, 2007). Studies elsewhere in the world have shown that strong links exist between intimate partner violence and risk of exposure to HIV (Maman et al., 2002; Dunkle et al.,

2004; Heise, Ellsberg & Gottemoeller, 1999). Circumcision status might be a factor as well. HIV prevalence among men with non-regular partners was found to be almost six times higher in uncircumcised men, compared with their circumcised counterparts (5.6% versus 1%) (Ministry of Health Indonesia & Statistics Indonesia, 2007).

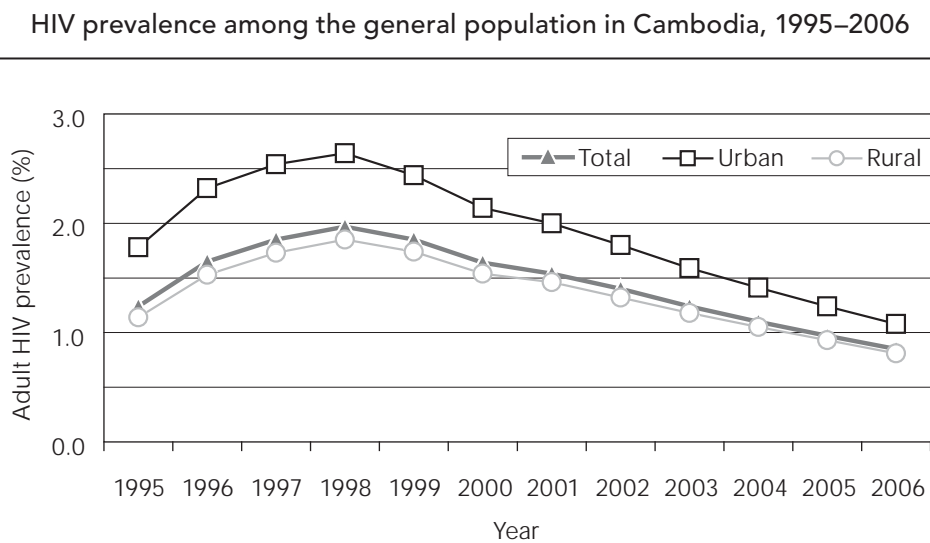
Meanwhile, **Cambodia** provides evidence that well-focused and sustained prevention efforts can help reverse an HIV epidemic. Nationally, HIV prevalence has fallen to an estimated 0.9% among the adult (15–49 years) population in 2006, down from the revised estimates of 1.2% in 2003 and the peak of 2% in 1998 (National Center for HIV/AIDS, Dermatology and STIs, 2007).¹

The fall in HIV prevalence is a long-term consequence of mortality combined with a substantial drop in the number of new HIV infections that is estimated to have begun in the late 1990s. Prevention programmes put in place by the Government of **Cambodia** have ensured that there has been no resurgence of infection rates since then. Those programmes need to be sustained to make a long-lasting impact on the lives of thousand of Cambodians.

Especially important have been prevention programmes aimed at reducing HIV transmission during paid sex. Over the past decade, condom use during paid sex in brothels has increased significantly, and fewer men appear to be buying sex (Gorbach et al., 2006; National Center for HIV/AIDS, Dermatology and STIs, 2005). In Cambodian studies, policemen are often regarded as proxies for sex worker clients. Thus, for example, one third (33%) of policemen surveyed in 2003 said that they had paid for sex in the previous year, compared with 8% of Cambodian men participating in a household survey (National Center for HIV/AIDS, Dermatology and STIs, 2005.) Among policemen, HIV prevalence fell from 4.5% in 1997 to 2.7% in 2003—resulting from the combination of mortality and significant behaviour change. The percentage of policemen reporting extra-marital sex in the previous 12 months dropped from 48% to 36% in that same period, while consistent condom use with brothel-based sex workers in

¹ The latest estimates are based on improved methodologies and more comprehensive data gathered from the 2006/2007 HIV sentinel survey and the Demographic and Health Survey carried out in 2005 (National Institute of Public Health, National Institute of Statistics & ORC Macro (2006). *Cambodia Demographic and Health Survey 2005*. Phnom Penh and Calverton). The sentinel survey included brothel-based female sex workers, "beer-promoting" women and karaoke singers, police officers, and pregnant women at antenatal clinics.

Figure 4



Source: National Center for HIV/AIDS, Dermatology and STDs (NCHADS).

the previous three months improved from 59% to 94%. Consistent condom use by policemen with non-regular partners also rose from 11% in 1997 to 41% in 2003 (Ministry of Health Cambodia, 2006; National Center for HIV/AIDS, Dermatology and STIs, 2004a).

Although still high (at 21% in 2003), HIV prevalence among brothel-based female sex workers was less than half the 46% prevalence found in sentinel surveys in 1998 (Ministry of Health Cambodia, 2006). Of particular importance is the fact that HIV prevalence in young brothel-based sex workers (20 years and under) has been decreasing more steeply than in their older counterparts—from 44% in 1998 to 8% in 2003, compared to a drop from 47% to 26% over the same period among sex workers older than 20 years. This suggests that HIV *incidence* among sex workers has been declining (Ministry of Health Cambodia, 2006). Here, too, safer sex has been a major contributing factor. Among brothel-based sex workers, consistent condom use with clients rose from 53% in 1997 to 96% in 2003 in Battambang, Kampang Cham, Phnom Penh, Siem Reap and Sihanoukville (Gorbach et al., 2006).

However, other forms of commercial sex are on the rise. When surveyed in 2003, 40% of “beer promoters” and 56% of karaoke singers reported selling sex in the previous 12 months (Ministry of Health Cambodia, 2006). Generally, compared with brothel-based sex work, client turnover in such non-brothel based sex work tends to be lower, but condom use is also believed to be less frequent. Yet, in **Cambodia’s** five major cities,

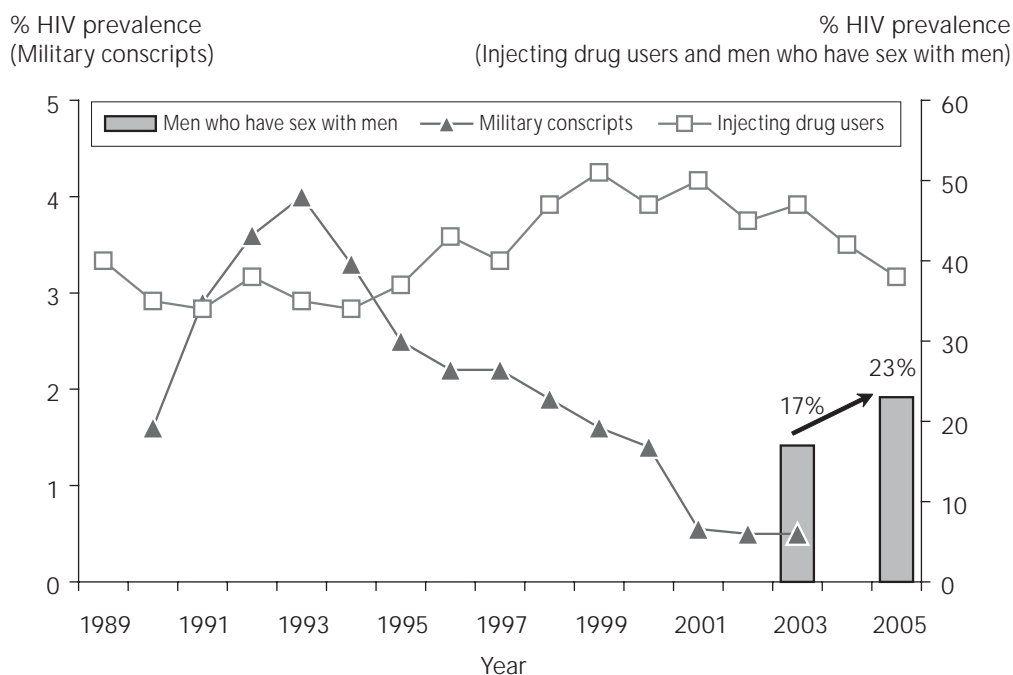
consistent condom use among non-brothel-based sex workers has increased substantially, from 30% in 1997 to 84% in 2003 (Gorbach et al., 2006). These trends are not yet consistent across **Cambodia**. One in four “beer promoter” women in Battambang tested HIV-positive in one recent study, and only 39% of the surveyed women said they consistently used condoms (Kim et al., 2005). Moreover, for these women, the risk of infection grows considerably the longer they sell sex. A total of 14% of “beer promoters” older than 20 years were found to be HIV-positive when surveyed in 2003, compared with 4% of those younger than 20 years (Ministry of Health Cambodia, 2006). Prevention efforts focused on non-brothel-based sex need to be widespread and sustained if the recent downward trends in HIV prevalence are to continue.

Cambodia provides evidence that well-focused and sustained prevention efforts can help reverse an HIV epidemic.

Overall, the proportion of new, annual HIV infections *directly* attributable to unsafe paid sex has decreased to about one fifth, according to some estimates (WHO, 2003). At the same time, the spouses and regular partners of people who acquired HIV during commercial sex account for a growing percentage of new infections (National Centre for HIV/AIDS, Dermatology and STIs, 2004b). A study among men visiting brothels in three provinces found that 9% were HIV-positive.

Figure 5

HIV prevalence among selected groups in Thailand, 1989–2005



Source: World Health Organization, Regional Office for South-East Asia, (2007). HIV/AIDS in the South-East Asia region: 2007.

Almost half of those clients said that they also had sex with wives and girlfriends, yet condoms were hardly ever used on those occasions (Hor et al., 2005). Successfully encouraging sex worker clients to know their HIV status and to protect their regular partners against infection remains an unmet challenge.

The little research that has been conducted on HIV trends among men who have sex with men in **Cambodia** indicates high levels of risk-taking behaviour and significant HIV prevalence in this population group. A survey among men who have sex with men (most of whom were also involved in sex work) in Phnom Penh in 2000, found HIV prevalence of 14% (Girault et al., 2004). More recently, HIV prevalence among men who have sex with men was found to be 9% in Phnom Penh, and 0.8% in both Battambang and Siem Reap (UNAIDS, 2007a). In the last two cities, however, only one in six (16%) men surveyed said that they had used condoms consistently during anal sex, compared to more than one in two (54%) in the capital, Phnom Penh (Phalkun et al., 2006).

The number of new annual HIV infections in **Thailand** continues to decline. Fewer than 16 000 new HIV infections were estimated to

have occurred in 2006, compared to approximately 140 000 per year at the peak of the country’s HIV epidemic in the early 1990s (Over et al., 2007). An estimated 1.4% [0.7%–2.1%] of adults in **Thailand** were living with HIV in 2005 (UNAIDS, 2006b).

The patterns of HIV transmission in **Thailand** have changed over time, with the virus spreading increasingly to persons considered to be at lower risk of infection. More than four in 10 (43%) new infections in 2005 were among women, the majority of whom probably acquired HIV from husbands or partners who had been infected either during unsafe paid sex or through injecting drug use (WHO, 2007). Because HIV incidence in this population is low—about 0.03 per 100 population per year (Gouws et al., 2006)—the size of the overall epidemic has continued to decrease, although the decline in HIV prevalence appears to be slowing as more people access life-prolonging antiretroviral treatment.

Meanwhile, a substantial proportion of new HIV infections are occurring in most-at-risk populations. Although no longer the main route for HIV transmission in **Thailand**, unsafe paid sex remains an important factor in the epidemic. It is estimated that almost one in five (18%) new

HIV infections in 2005 were in sex workers, their clients and those clients' other partners. Changes in the sex industry (with paid sex increasingly shifting outside brothel settings) in recent years has made it difficult to determine the extent of HIV spread among sex workers. According to national HIV sentinel surveillance, about 8% of brothel-based and 4% of non-brothel-based female sex workers were living with HIV in 2005 (Plipat & Teeraratkul, 2006).

Thailand's earlier reversal of its epidemic appears to be continuing, but there are substantial gaps in its AIDS response.

Despite the overall achievements in reversing the HIV epidemic in **Thailand**, prevalence among injecting drug users has stayed consistently high over the past 15 years, ranging between 30% and 50% (WHO, 2007) (see Figure 5). Injecting drug users and their partners are estimated to have accounted for roughly 7% of new HIV infections in 2005 (Gouws et al., 2006). The estimated incidence rate of injecting drug users in Thailand is 3%–10%—those being *newly* infected with HIV each year (Kawichai et al., 2006). At the Thanyarak drug treatment centre, HIV *incidence* among injecting drug users was 7.3% in 2002, while *prevalence* was 37% among those who injected heroin (heroin users were a subset of the overall group) (Verachai, Phutiprawan & Sawanpanyalert, 2005). There is a need to expand outreach programmes that can provide comprehensive harm reduction services to injecting drug users. The same holds for prison inmates, among whom HIV prevalence of 25% has been found in one Bangkok prison (Thaisri et al., 2003). Given that as many as two thirds of prisoners are incarcerated for drug-related offences, HIV prevalence among them is likely to be elevated. Injecting drug use inside prisons is believed to have decreased in recent years, but when it does occur, injecting equipment is very likely non-sterile. The use of collective tattooing equipment also carries a high risk of HIV infection (Wilson, Ford & Ngamdee, 2007).

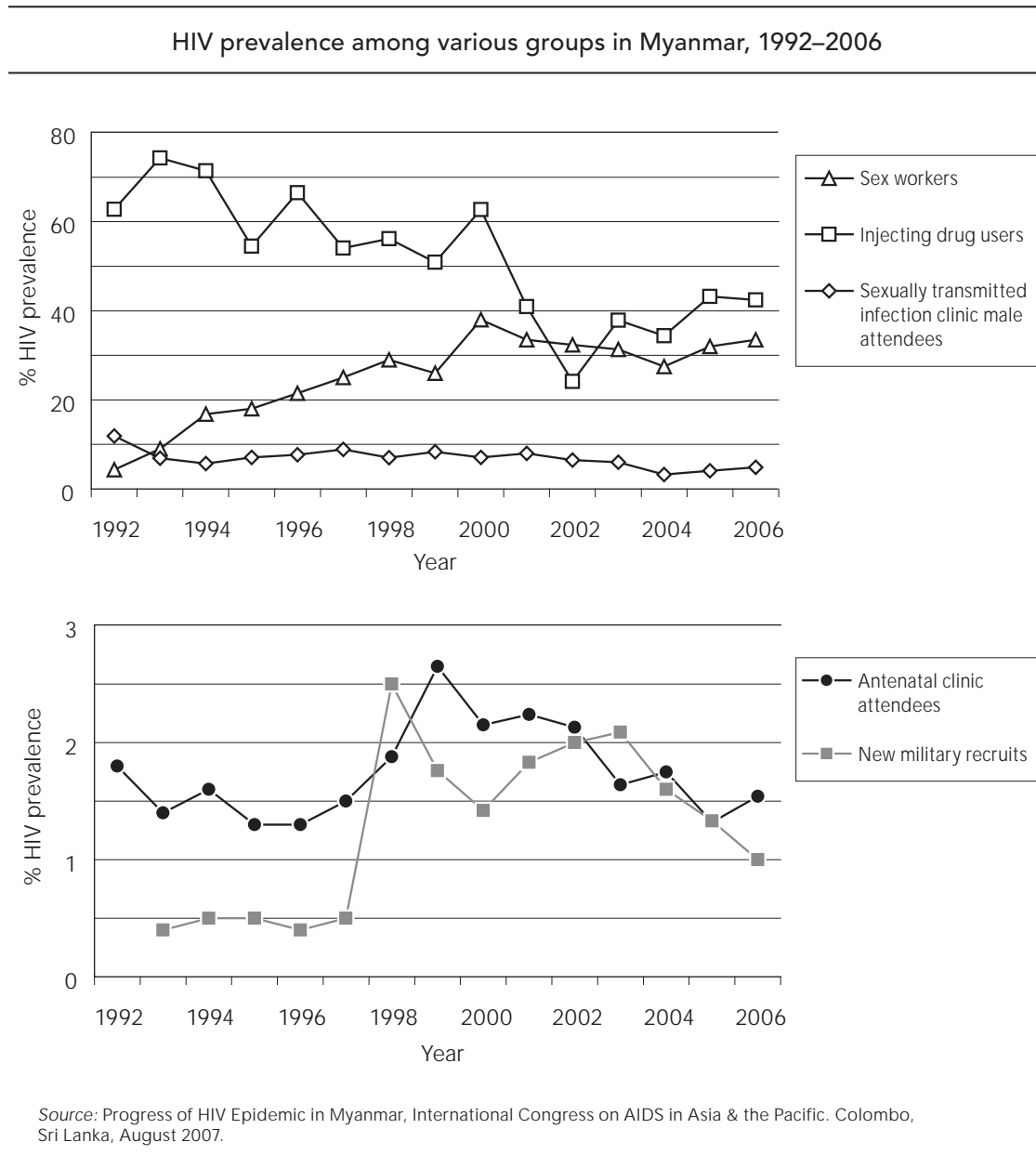
Overall, as many as one in five (21%) new HIV infections in 2005 in **Thailand** were in men who have sex with men, according to one estimate (Gouws et al., 2006), and HIV prevalence in this population is on the rise (see Figure

5). In Bangkok, HIV prevalence among men who have sex with men increased from 17% in 2003 to 28% in 2005. A total of 81% of the men who tested HIV-positive had thought that they were HIV-negative or had never been tested for HIV before. That, along with the fact that more than one in five (22%) of the men aged 22 years or younger tested HIV-positive in 2005, indicates that HIV prevention efforts have not been reaching this population group (Van Griensven et al., 2006). Indeed, **Thailand's** 100% Condom Use Programme never explicitly targeted men who have sex with men. There is an urgent need to introduce prevention programmes that can reduce the spread of HIV in this population group.

There has been good progress in preventing mother-to-child transmission of HIV. In 2005, 98% of women who delivered their babies in public sector facilities received HIV counselling and testing, and of those found to be HIV-positive, 94% received antiretroviral preventive therapy (WHO, 2007). According to a study carried out at 84 public hospitals in six provinces from 2001 to 2003, the transmission risk of HIV from mothers to their children, as a result, was reduced to about 10% overall and about 4% among those mothers and infants who received a complete zidovudine regimen along with other antiretroviral drugs (such as nevirapine) (Plipat et al., 2007).

Neighbouring **Myanmar's** epidemic is showing signs of a decline, with HIV prevalence among pregnant women at antenatal clinics having dropped from 2.2% in 2000 to 1.5% in 2006 (National AIDS Programme Myanmar, 2006). Despite the overall decline in prevalence, the high infection levels found among young people (2.2% in 2005) (National AIDS Programme Myanmar, 2005, 2006) are a concern, as is the persistently elevated prevalence of HIV among key populations at higher risk (see Figure 6). HIV prevalence is particularly high in a few areas (National AIDS Programme Myanmar, 2005). HIV prevalence among male patients at sexually transmitted infection clinics in 2006 exceeded 10% in Kawthaung, Mandalay and Meiktila and reached 15% in Yangon and Taungngu. Among pregnant women attending antenatal clinics, HIV prevalence reported from sentinel surveillance sites was 3% in Yangon, 5.5% in Kawthaung and 6.5% in Muse (National AIDS Programme Myanmar, 2007).

Figure 6



Myanmar's AIDS response has grown considerably during the past decade, and includes programmes focused on preventing HIV infections among sex workers, injecting drug users and men who have sex with men) (Williams et al., 2007; UNAIDS 2007b), but their effects are not yet evident among most-at-risk groups. Although there are limited sentinel surveillance sites monitoring trends in HIV prevalence among these most-at-risk groups, one in three (34%) sex workers (two sites in Yangon and Mandalay) and almost one in two (43%) injecting drug users (four sites around the country) tested HIV-positive in 2006 (National AIDS Programme Myanmar, 2006).

Unfortunately, the most recent behavioural information dates back to 2003 (and only surveyed young people and the general population), making it difficult to analyse the behavioural trends and patterns that underpin the high HIV prevalence found in most-at-risk groups. Officially, no HIV data and very little behavioural information regarding men who have sex with men have been collected since 1996. In the wider population, HIV knowledge is relatively poor: only half of the adults (50%) surveyed in 2005 could name at least three ways of preventing HIV transmission, although this was an improvement on the fewer than 40% who could do so in a similar study three years earlier (Ministry of Health Myanmar & UNFPA, 2005).

Overall, substantial advances have been made in terms of the scope and diversity of service delivery, including outreach to most-at-risk populations and the provision of antiretroviral treatment. But these improvements are not sufficient to reach the majority of people in need of HIV or AIDS services, and a greater effort is required if the country is to gain the upper hand over its epidemic.

Malaysia's HIV epidemic is concentrated mainly around unsafe injecting drug use injecting practices, and it is estimated that more than two thirds of HIV infections to date have been in injecting drug users (Reid, Kamarulzaman & Sran, 2007). In Muar, one in five (19%) injecting drug users have been found to be HIV-positive, as have one in three (31%) in the state of Kelantan and four in 10 (41%) in the state of Terengganu (Chawarski, Mazlan & Schottenfeld, 2006; Ministry of Health Malaysia & WHO, 2004). Overall, adult national HIV prevalence was estimated at 0.5% in 2006 (UNAIDS, 2006b).

As in other countries in the region, the authorities initially adopted a mainly punitive illicit drug policy, and it is not clear what effect this has had on drug use behaviours or on HIV transmission among injecting drug users. In recent years, though, substitution therapy (particularly methadone and buprenorphine) pilot projects have been introduced (Chawarski, Mazlan & Schottenfeld, 2006). There have been official indications that methadone maintenance programmes would be allowed to move beyond the pilot phase, and that needle- and syringe-exchange programmes might be established, as well (Reid, Kamarulzaman & Sran, 2007).

The HIV epidemic in the **Philippines** remains very small, with national adult HIV prevalence estimated to be well under 0.1% [$<0.2\%$] (UNAIDS, 2006b). Although small in number, there has been a recent increase in the annual reported number of new HIV cases, which rose from 193 in 2003 to 309 in 2006 (Department of Health Philippines, 2006). Most HIV infections are attributable to unprotected heterosexual intercourse (National Epidemiology Center, 2006).

Even among most-at-risk populations, HIV prevalence has remained very low to date. When surveyed in 2005, 0.8% of injecting drug users were found to be HIV-positive, as were 0.2% of sex workers (Department of Health Philippines, 2005). In Manila and Baguio City, no HIV infections were found among men who have sex with men (Hernandes & Imperial, 2005).

Risky practices provide potential for epidemic growth, however. The use of non-sterile drug injecting equipment is common in some places (Wi et al., 2002; Mateo et al., 2003), and is reflected in the very high levels of hepatitis C infection found among injecting drug users (up to 81% in some areas) (Department of Health Philippines, 2005). Meanwhile, only 10% of men who have sex with men in Manila had used condoms consistently during the previous month and only 2% did so in Baguio City, according to a 2005 study (Hernandes & Imperial, 2005). In both cities, almost one in three (32%) men who have sex with men was found to have at least one sexually transmitted infection in 2004 (Department of Health Philippines, 2005).



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