



## ASIA

An estimated 8.6 million [6.0 million–13.0 million] people were living with HIV in Asia in 2006, including the 960 000 [640 000–2.5 million] people who became newly infected in the past year. Approximately 630 000 [430 000–900 000] died from AIDS-related illnesses in 2006. The number of people receiving antiretroviral therapy has increased more than threefold since 2003, and reached an estimated 235 000 [180 000–290 000] by June 2006. This represents about 16% of the total number of people in need of antiretroviral treatment in Asia. Only **Thailand** has succeeded in providing treatment to at least 50% of people needing it (WHO/UNAIDS, 2006).

### China

In **China** an estimated 650 000 [390 000–1.1 million] were living with HIV at the end of 2005 (Ministry of Health China, UNAIDS, WHO, 2006, UNAIDS, 2006). Although HIV infections have been detected in each province of this large country, most have been reported in Henan, Yunnan, Guangxi, Xinjiang and Guangdong province, while Ningxia, Qinghai and Tibet appear to have been spared HIV outbreaks to date (Ministry of Health China, UNAIDS, WHO, 2006).

Having begun in rural areas before spreading to cities—an unusual pattern (Zhao et al., 2006)—China's injecting drug use-related HIV epidemic has reached alarming proportions. Nearly half (44%) of the people living with HIV in China are believed to have been infected while injecting drugs (Ministry of Health China, UNAIDS,

WHO, 2006; Lu et al., 2006), and almost 90% of HIV infections acquired in that manner have occurred in seven provinces (Yunnan, Xinjiang, Guangxi, Guangdong, Guizhou, Sichuan and Hunan) (Ministry of Health China, UNAIDS, WHO, 2006). Reportedly, half (49%) of injecting drug users have used non-sterile injecting equipment at some stage (China State Council AIDS Working Committee and UN Theme Group on HIV/AIDS in China, 2004). Therefore, it is not surprising that HIV prevalence has exceeded 50% among injecting drug users in parts of Xinjiang, Yunnan and Sichuan provinces (Mingjian et al., 2006; Ministry of Health China, UNAIDS, WHO, 2006; MAP, 2005a), nor that HIV prevalence has risen suddenly among injecting drug users (in southwest Sichuan province, for example, where prevalence among urban injecting drug users rose from 11% to 18% between 2002 and 2004 (Zhang et al., 2006).

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*Half the new HIV infections in China in 2005 occurred during unprotected sex. With HIV spreading gradually from most-at-risk populations to the general population, the number of HIV infections in women is growing.*

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After opening its first needle and syringe exchange project in 1999, China has launched similar projects in 18 provinces, and 92 of them were operating in 2006. The benefits are beginning to materialize. Data collected at six

needle exchange sites suggest that the use of non-sterile needles ranged from 27%–79% when the projects began, but had fallen to 12%–56% by end-2005 (Wu et al., 2006). At an outreach-based needle and syringe exchange in Hunan province, the proportion of injecting drug users sharing needles decreased from 43% to 23% in 2003–2005, while HIV knowledge and awareness increased fourfold (from 21% to 80%) (Chen et al., 2006). Unfortunately, harm reduction projects still encounter resistance at provincial and lower government levels in some places. As a result, China's response varies considerably in type and quality from place to place (Qian et al., 2006). Along with expanding the number of methadone clinics and needle and syringe exchange sites further, basic HIV knowledge must still be improved among injecting drug users and their partners: a study among injecting drug users in Yunnan province, for example, found that one in five did not know that needle-sharing carries a risk of HIV transmission (Christian et al., 2006).

Sexual risk behaviours among injecting drug users compound the likelihood of HIV spread among and beyond injecting drug users (Zhao et al., 2006). National surveillance data suggest that as many as 11% of drug users also engage in high-risk sexual activities (Ministry of Health China,

UNAIDS, WHO, 2006). More than one third of the sexually active drug users participating in one study said that they used non-sterile needles, yet only 4% of that group used condoms consistently with their regular sexual partners (Liu et al., 2006). In Yunnan province, two thirds of injecting drug users (enrolled in detoxification centres) said that they did not use a condom when buying sex in the previous month, and more than half said they had never bought a condom (Christian et al., 2006).

Many male drug users buy sex, and as many as half of female drug users also sell sex, whether intermittently or frequently (Liu et al., 2006; Yang et al., 2005). In some provinces (such as Sichuan) a small but significant percentage of sex workers also inject drugs, and they tend to have more clients but use condoms less frequently than their non-injecting counterparts (MAP, 2005a; MAP, 2005b).

Poor knowledge of HIV and high rates of unprotected sex mean that sex workers who do not inject drugs also face a high risk of becoming infected with HIV. Only one in three establishment-based sex workers surveyed in Yingjian county of Yunnan Province, for example, were using condoms consistently with clients and one

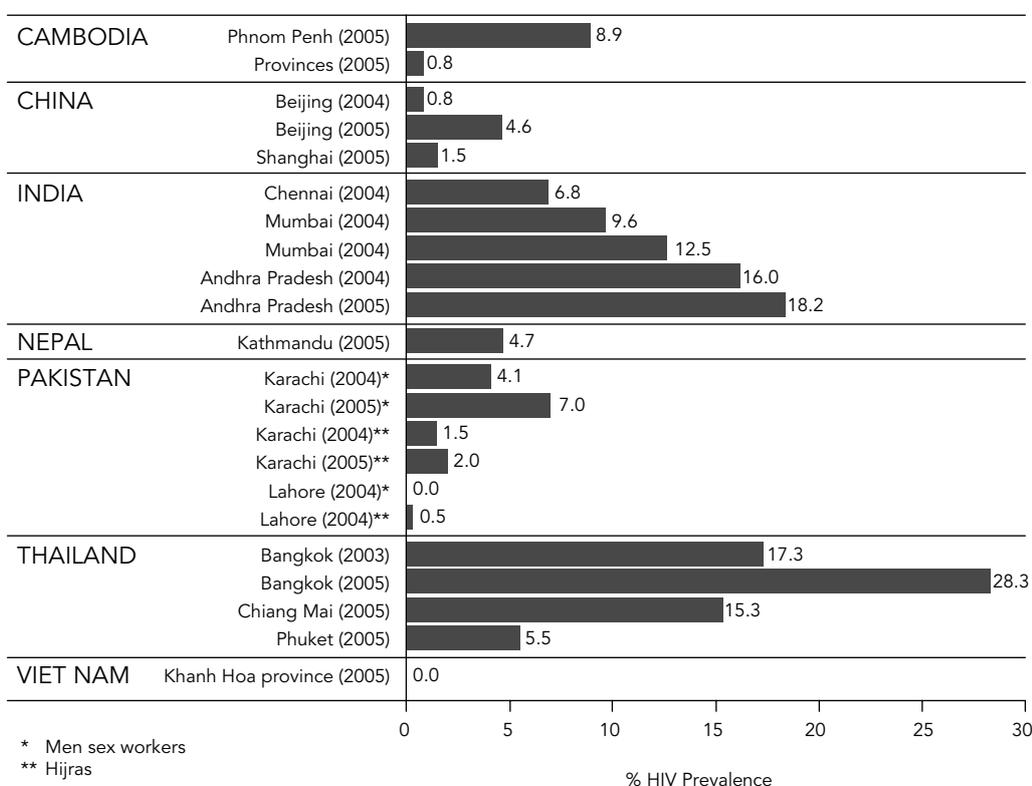
## MIGRATION AND HIV RISK IN CHINA

There is considerable speculation about the possible impact of large-scale migration and population movements on the evolution of China's epidemic. It is widely assumed that male migrants are more likely to visit sex workers, thus putting themselves and their other sexual partners at risk of HIV and sexually transmitted infections. Assumptions that migrants will feature strongly in China's epidemic are based on the large number of migrants (an estimated 120–150 million), evidence of the association between migration and HIV from studies of migrants elsewhere (especially in southern Africa) (Lurie et al., 1997; Lurie et al., 2003) and HIV surveillance among migrants in some cities (Hesketh et al., 2006).

In China, some evidence seems to support such expectations. In Suining and Luzhou (Sichuan province), for example, the majority of clients of sex workers are migrant workers, who buy sex often (on average 11 times in the previous six months) and tend not to use condoms regularly (only 36% used one the last time they paid for sex) (Wan and Zhang, 2006). In an earlier (2002) study in Beijing, Nanjing and Shanghai, one in ten migrant men said they had paid for sex at some stage (Wang et al., 2006).

But generalizations should be avoided. The situation differs across the country, especially in those parts of China where significant numbers of migrants are moving with their partners. Thus, the first population-based study among Chinese workers and migrants in Zhejiang province's capital, Hangzhou, found no HIV infections. There are several possible reasons for such findings. Up to half of the migrant workers in China are female and are unlikely to engage in paid sex. In parts of the country, a large proportion of migrants move with their partners—as one third of the migrant workers in the Hangzhou study had done. Many migrants also seem to maintain relatively conservative, traditional attitudes toward casual sex (Hesketh et al., 2006).

## HIV prevalence among men who have sex with men in selected parts of Asia, 2003–2005



Sources: XVI International AIDS Conference abstracts, 2006 – (Cambodia) M. Phalkun, et al. HIV, sexually transmitted infections, related risk behaviour among Cambodian men who have sex with men; (China) X. Ma, et al. Possible rise in HIV prevalence among men who have sex with men in Beijing; (India) S. Kumta et al. Sociodemographics, sexual risk behaviour and HIV among men who have sex with men attending voluntary counselling and testing services in Mumbai, India; Sravankumar K, Prabhakar P, Mythri/STI/HIV Study Group. High risk behaviour among HIV positive and negative men having sex with men (MSM) attending Myrthi clinics in Andhra Pradesh, India; (Nepal) L.B. Acharya, et al. HIV and STI prevalence among MSM in Kathmandu, Nepal; (Pakistan) A. Altaf, et al. Behavioral characteristics of male and eunuch (hijra) sex workers in Karachi, Pakistan; (Thailand) F. van Griensven, et al. Surveillance of HIV prevalence among populations of men who have sex with men in Thailand, 2003–2005; (Viet Nam) M. Truong Tan, et al. HIV risk behavior and prevalence among MSM in Khanh Hoa province, Viet Nam. National Study of Reproductive Tract and Sexually Transmitted Infections. Survey of High Risk Groups in Lahore and Karachi, 2005. National AIDS Control Program, DFID and FHI. (Pakistan); NACO, 2004; Andhra Pradesh State AIDS Control Society (2004). 8th round of national annual sentinel surveillance for HIV, Andhra Pradesh. Hyderabad, APSACS. (India)

Figure 5

in five said they *never* used a condom (Hesketh et al., 2005). In another study in the Yunnan province, one in five sex workers was found to be HIV-infected (Wang, Yang et al., 2006). Violence is a further concern: in one recent study, 49% of sex workers said they had been sexually assaulted, and a strong correlation was found between such high incidence of violence and the presence of sexually transmitted infections (Choi SY, 2006). Consequently, HIV prevalence in sex workers overall has increased substantially during the past decade, from 0.02% in 1994 to just under 1% (0.93%) in 2004, according to sentinel surveillance data (Ministry of Health China, UNAIDS, WHO, 2006).

Appropriate interventions to reduce the risk of HIV transmission during paid sex do make a difference—especially when buttressed by part-

nerships with the health authorities, police and establishment managers. Three years after a 100% condom use programme was introduced in Li county, Hunan province, self-reported condom use increased almost fourfold (from 24% in 2002 to 88% in 2005) and the number of reported sexually transmitted infections fell by almost two thirds (from 513 to 192) (Chen Y et al., 2006). The legal, policy and operational environments will need to be harmonized, however, if such achievements are to become more commonplace.

Meanwhile, more light is being shed on the role of sex between men in China's epidemic. It is now estimated that some 7% of HIV infections in China were acquired during unsafe sex between men (Lu et al., 2006), with new studies revealing high rates of unprotected sex between men who have sex with men, signifi-

cant proportions of whom also have sex with women (17%–41%) or sell sex (17%) (Jiang et al., 2006; Xu et al., 2006; Liu, Wang et al., 2006). In a study in Jiangsu province, for example, almost one half of men who have sex with men said they had had unprotected anal intercourse in the previous three months. None was HIV-positive, but the prevalence of other sexually transmitted infections was high (7% had syphilis and 8% had HSV-2) (Jiang et al., 2006). In the midst of this behaviour, HIV can spread quickly once it does establish a presence. Such a trend could be under way in several cities. In Beijing, HIV prevalence of 3% and 4.6%, respectively, has been found in two studies among men who have sex with men (Choi KH et al., 2006; Ma et al., 2006). One in five of the men participating in the latter study (in 2005) had never heard of HIV, and more than two in three reported unprotected sex in the previous six months (Ma et al., 2006). Meanwhile, in Shanghai, HIV prevalence of 1.5% was found among men who have sex with men in a 2004–2005 study (Choi K et al., 2006).

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*Serious epidemics among men who have sex with men are being uncovered in Cambodia, China, India, Nepal, Pakistan, Thailand and Viet Nam.*

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Overall, it is estimated that half the new HIV infections in China in 2005 occurred during unprotected sex. With HIV spreading gradually from most-at-risk populations to the general population, the number of HIV infections in women is growing, too (Ministry of Health China, UNAIDS, WHO, 2006). By 2004, women already accounted for 39% of reported HIV cases (compared with 25% just two years earlier). Recent analysis of the HIV test results of 138 000 pregnant women in almost half the counties of Yunnan province found 0.3% were HIV-positive, but prevalence varied from 0% to as high as 1.6% in specific counties (Zhang, Hu, Hesketh, 2006). In parts of Henan and Xinjiang provinces, HIV prevalence higher than 1% has been found among pregnant women and women receiving premarital and clinical HIV testing (Ministry of Health China, UNAIDS, WHO, 2006), indicating that the virus is spreading relatively freely in some locales.

Meanwhile the epidemic among former blood and plasma donors in provinces such as Anhui, Hebei, Henan, Hubei and Shanxi continues (Cohen, 2004), although HIV appears not to have spread into the general population as dramatically as feared (Mastro and Yip, 2006). Among villagers in one county of Shanxi province (where most HIV infections were related to blood and plasma donations), overall HIV prevalence was 1.3% in 2004. But the infections appeared to be concentrated among former donors (4.1% of whom were HIV-positive), with only 0.1% of villagers who had not been donors testing HIV-positive (Wang, Jia et al., 2006). Such trends have been attributed to the limited sexual networks of some rural populations (Mastro and Yip, 2006). But a different situation has been found in villages of rural Anhui, where 15% of former plasma donors were HIV-infected, as were 5% of residents with no history of plasma donations. Most of the latter probably were infected during unprotected sex with HIV-positive spouses or casual partners (Ji et al., 2006). Approximately 69 000 former commercial blood and plasma donors and recipients were living with HIV in 2005 (Ministry of Health China, UNAIDS, WHO, 2006).

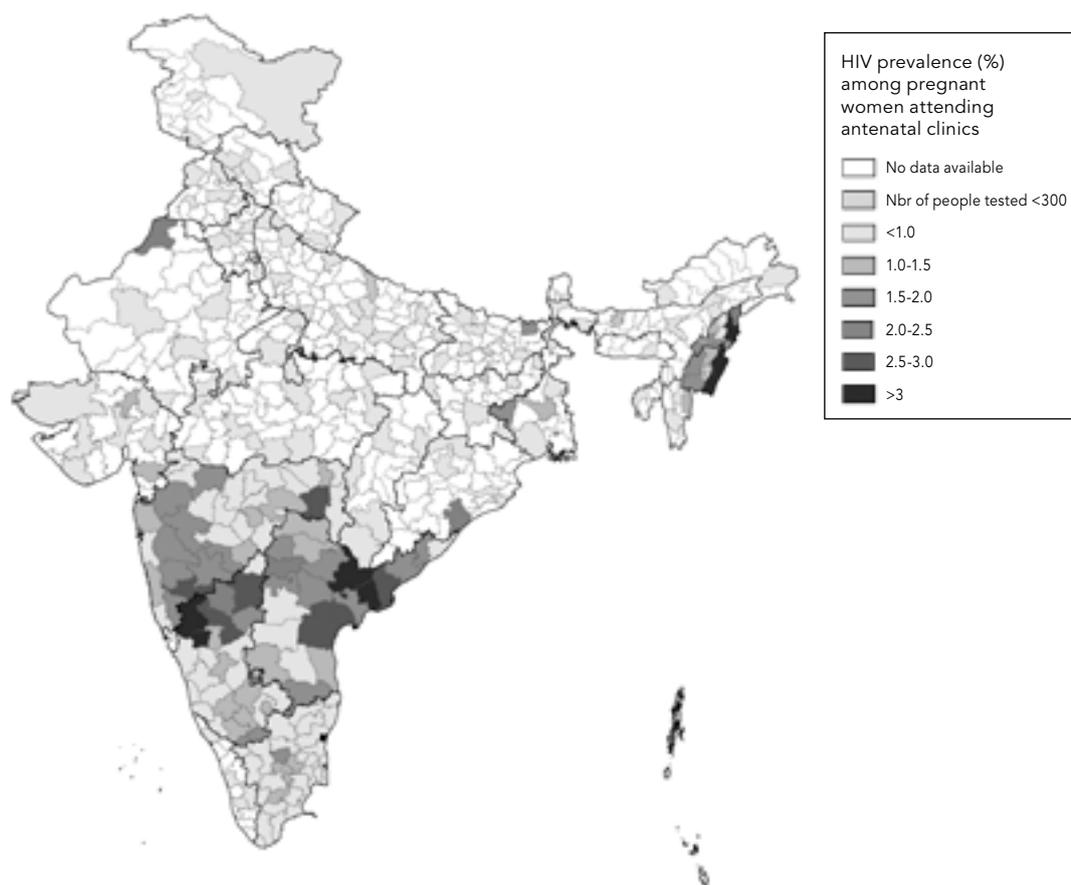
Although expanded in recent years, basic elements in China's HIV response still need to be improved. HIV awareness is very low (including among political leaders at some levels) and stigma remains a problem in many areas (Ministry of Health China, UNAIDS, WHO, 2006). Almost one in three (30%) health professionals in Yunnan Province, for example, said they would not treat an HIV-positive person (Hesketh et al., 2005). Whether or not China curbs its growing epidemic will depend largely on the extent to which it succeeds in limiting the spread of HIV among and between injecting drug users, sex workers and their clients.

## India

The world's second-most populous country, **India**, is experiencing a highly varied HIV epidemic which appears to be stable or diminishing in some parts while growing at a modest rate in others. Approximately 5.7 million [3.4 million–9.4 million] people, of which 5.2 million were adults aged 15–49 years, were living with HIV in 2005.

As in China, the majority of HIV infections in India appear to be occurring in a few

## HIV prevalence in India – by district, 2005



Source: NACO. Sentinel Surveillance data, ANC Sites (2005).

**Figure 6**

regions. In the case of India, about two thirds of reported HIV infections have been in six of the country's 28 states—mainly in the industrialized south and west and in the north-eastern tip. On average, HIV prevalence in those states is 4–5 times higher than in the other Indian states. The highest prevalence rates are found in the Mumbai-Karnataka corridor, the Nagpur area of Maharashtra, the Nammakkal district of Tamil Nadu, coastal Andhra Pradesh, and parts of Manipur and Nagaland (in the north-east of India) (National AIDS Control Organization, 2005a; World Bank, 2005). Notably, in the south of the country, infection levels in rural and urban populations tend to be similar (World Bank, 2005).

A recent analysis of HIV data from 216 antenatal clinics and 132 sexually transmitted infection clinics for 2000–2004 suggest that HIV prevalence among women aged 15–24 years in southern states declined from 1.7% in 2000 to

1.1% in 2004 (Kumar et al., 2006). HIV infection levels also fell among men aged 20–29 years who attended sexually transmitted infection clinics in the south. (There was no evidence of declining prevalence in northern states.) The authors have attributed the trends to a postulated rise in condom use by men and female sex workers in southern India, which is presumed to have reduced the transmission of HIV (Kumar et al., 2006). However, further analysis of the data collected suggests that the apparent reduction in HIV prevalence in the south is due mainly to a decline in HIV prevalence in Tamil Nadu (John, 2006). Other analysts contend that insufficient evidence exists to support the attribution of a decline in HIV prevalence in the south to behaviour change (Hallett and Garnett, 2006).

The bulk of HIV infections in India are occurring during unprotected heterosexual intercourse (National AIDS Control Organization, 2005b). Consequently, women account for a

growing proportion of people living with HIV (some 38% in 2005), especially in rural areas. HIV infection levels of over 1% have been found among pregnant women in Andhra Pradesh, Maharashtra and Karnataka (National AIDS Control Organization, 2004a). In 2004, mean HIV prevalence of 1.6% was found in pregnant women in Karnataka, with AIDS the leading reported cause of death in some northern districts; in some rural sub-districts, prevalence ranged between 1.1% and 6.4% among adults, underlining the highly varied character of the epidemic (Moses et al., 2006).

A large proportion of women with HIV appear to have acquired the virus from regular partners who were infected during paid sex (Lancet, 2006). In Mumbai and Pune (in Maharashtra), for example, where 54% and 49% of sex workers, respectively, have been found to be HIV-infected (NACO, 2005c), the likelihood of transmitting HIV to clients and their partners can be high. Indeed, in the higher-prevalence states of the south, most HIV transmission appears to be occurring between sex workers and their clients, and their other sex partners (Kumar et al., 2005). In Karnataka, for example, almost one quarter (23%) of 1100 female sex workers taking part in a recent study were HIV-infected, as were almost one half (47%) of the women operating out of brothels (Ramesh et al., 2006).

HIV prevention efforts targeted at sex workers are being implemented in India. However, the law enforcement context of sex work is complex and often acts as a barrier against effective HIV prevention and treatment efforts (Dandona et al., 2006b). In addition, the interventions tend to mostly target brothel-based sex workers, who represent a minority of sex workers. Some prevention programmes run by sex workers—in Sonagachi, Kolkata, for example—have encouraged safe paid sex practices and have been associated with lower HIV prevalence (Kumar, 1998; Jana et al., 1998). Building on those experiences, sex workers organizations have expanded their primary prevention programme throughout the state of West Bengal to reach some 28 000 sex workers in almost 50 areas (Roy et al., 2006). However, risk-taking during paid sex is still commonplace in other parts of India. In Andhra Pradesh, for example, one in four sex workers canvassed in 13 districts had never used a condom, and one in two used them inconsistently. More than half the street-based sex workers said they

never or seldom used condoms. Notably, those women who knew that HIV infection could be prevented and who had access to free condoms were significantly more likely to be using condoms consistently (Dandona et al., 2005).

Injecting drug use is the main risk factor for HIV infection in the north-east (especially in the states of Manipur, Mizoram and Nagaland), and features increasingly in the epidemics of major cities elsewhere, including in Chennai, Mumbai and New Delhi (MAP, 2005a; National AIDS Control Organization, 2005). Products injected include pharmaceuticals that are not illegal (such as buprenorphine, pentazocine and diazepam), in addition to heroin. In Chennai, 31% of injecting drug users were found to be HIV-infected in a recent study (Srikrishnan et al., 2006).

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Currently, interventions among injecting drug users tend to be inconsistent, and too small and infrequent to yield demonstrable results (Basu and Koliwad, 2006). Harm reduction programmes need to be extended and expanded as a matter of urgency in those parts of India with serious drug injecting-related HIV epidemics. Failing that, there is a possibility that the combination of injecting drug use and paid sex could lead to larger HIV epidemics. A recent study among men seeking treatment for sexually transmitted infections in Mumbai clinics showed that among those patients who injected drugs, 12% were HIV-positive, 80% of whom had recently (in the past three months) paid for sex and 27% of whom had themselves sold sex (Yu et al., 2006). As of 2006, several needle exchange programmes were operating in the North East, West Bengal and Delhi; however, only one project using substitution therapy has been started, in the state of Manipur.

There has been little research on the role of sex between men in India's HIV epidemic. In the two states where such data have been collected,

HIV prevalence of 6.8% and 9.6% were found among men who have sex with men in Chennai and Mumbai, respectively (NACO, 2004b). More recently, HIV prevalence of 12% was found among men who have sex with men seeking voluntary counselling and testing services in Mumbai, and 18% prevalence was found at 10 clinics in Andhra Pradesh (Kumta et al., 2006; Sravankumar, Prabhakar, Mythri STI/HIV Study Group, 2006). Those HIV infection levels were comparable to the 16% prevalence found in that state in sentinel surveillance conducted among men who have sex with men in 2004 (Andhra Pradesh State AIDS Control Society, 2004). In some areas, a substantial proportion of men who have sex with other men also sell sex: in a large study in Andhra Pradesh, for example, one in four of the men sold sex to other men (Dandona et al., 2006a). Poor knowledge of HIV has been found in groups of men who have sex with men. In Bangalore, for example, three in four men who have sex with men did not know how the virus is transmitted, and a large proportion of them engaged in unprotected sex with other men (Anthony et al., 2006).

The extent and effectiveness of India's efforts to increase safe sex practices between sex workers and their clients, and between men who have sex with men (and their other sex partners) will likely determine the scale and development of India's HIV epidemic (Kang et al., 2005). In the north-east states, as well as in major cities elsewhere, extensive harm reduction programmes are equally vital. Amid all this, more must be done to combat stigma—which remains rife in all walks of Indian society, including among health-care workers (Mahendra et al., 2006)—and to reduce the gender and other inequalities that make HIV prevention and treatment such a huge challenge in this country (Lancet, 2006).

The highest national HIV infection levels in Asia continue to be found in south-east Asia, where combinations of unprotected paid sex and sex between men, along with unsafe injecting drug use, are fuelling the epidemics in most countries.

**Viet Nam's** epidemic continues to increase, with HIV having been detected in all 64 provinces and all cities. The number of people living with HIV has doubled since 2000, and reached an estimated 260 000 [150 000–430 000] in 2005. Some 40 000 people are being infected with HIV each year (Ministry of Health Viet Nam, 2005), the

vast majority of them injecting drug users and persons who buy or sell sex.

The use of non-sterile injecting equipment is widespread in Viet Nam, with an estimated one in five injecting drug users having done so in the previous three months, according to one recent study (Longfield et al., 2006). As a result, HIV infection levels in injecting drug users have grown from 9% in 1996 to over 30% in 2003 (Ministry of Health Viet Nam, 2005; Hien et al., 2004), and reaching levels of infection as high as 63% (in Hanoi) and 67% (in Hai Phong) in 2005 (Pham et al., 2006; Luu Thi Minh, Tran Nhu et al., 2006a).

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A strong overlap between sexual risk-taking and injecting drug use is evident in several Vietnamese cities. Large proportions of male injecting drug users engage in unprotected sex, including paid sex (40% in Bac Ninh province in the north of Viet Nam, for example) (Schumacher et al., 2006). Additional evidence of injecting drug use and sex work among young male migrant workers (16–26 years of age) in Hanoi confirms the need for prevention programmes that target both the sexual and drug-related risk among migrants (Giang et al., 2006). As well, significant percentages of female sex workers also inject drugs. In Hanoi, for example, 21% of 'middle-class' and 39% of 'lower-class' female sex workers participating in one study injected drugs, and many of them had drug-injecting 'love mates' and clients (Tran et al., 2005a). Only 5% of the women said they used condoms during sex with 'love mates' (Tran et al., 2005b). The outcome of such compounded risk-taking can be dramatic. In Hai Phong (the country's largest port city), HIV infection levels among female sex workers were more than twice as high as those among their counterparts in Ho Chi Minh city in 2004 (30% compared with 12%). The differences appeared to be related to the larger percentage of Hai Phong sex workers who also injected drugs (29%)

compared with those in Ho Chi Minh City (12%) (Luu Thi Minh, Tran Nhu et al., 2006b).

The rapid evolution of Viet Nam's epidemic is especially evident in Lang Son province, along the border between Viet Nam and China. In the wake of a prevention project targeting injecting drug users, HIV incidence among injecting drug users fell by a third and HIV prevalence remained steady or declined, depending on the area. However, up to 12% of sex workers and 18% of the sexual partners of injecting drug users have been found to be infected with HIV, and in some places prevalence among pregnant women attending antenatal clinics has passed the 1% mark (Hammet, Des Jarlais et al., 2006).

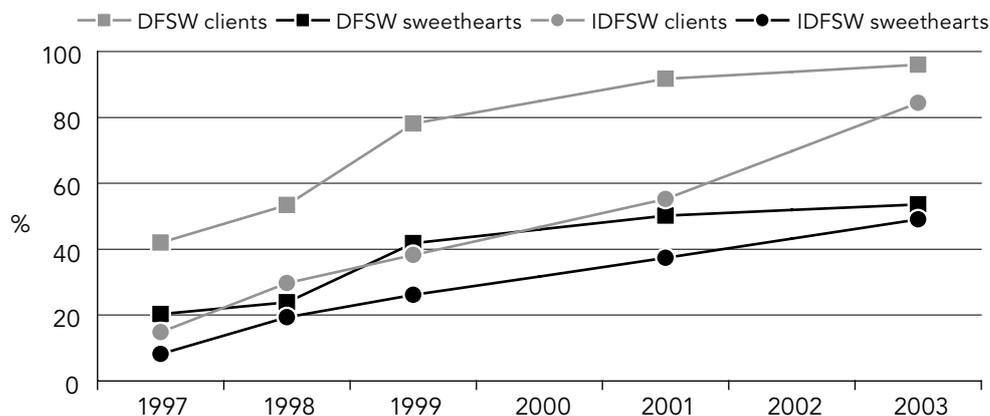
Strategies to reduce HIV in female sex workers should include efforts to reduce their stigmatization, encourage less sharing of drug paraphernalia, and promote voluntary counselling and testing, as well as more appealing marketing of condoms (Tran et al., 2005b). To succeed, a more enabling policy and institutional environment needs to

(National Institute of Hygiene and Epidemiology and ORC Macro, 2006).

Current trends therefore suggest that most of the impetus for Viet Nam's epidemic stems from a combination of unprotected commercial sex and unsafe drug injecting practices—making this an obvious area for focusing stronger prevention efforts. Behavioural trends, though, are liable to change with time—especially in countries undergoing profound social and economic transitions.

**Cambodia's** epidemic appears to be stabilizing, having diminished since the late 1990s. There is strong evidence that behaviour change efforts introduced by the state and nongovernmental organizations have been effective, particularly in the sex industry. In 2003, 96% of brothel-based (direct) sex workers in five cities (Phnom Penh, Battambang, Sihanoukville, Siem Reap, Kampong Cham) said they were using condoms consistently with clients, compared with 53% in 1997 (Gorbach et al., 2006). Male clients of sex workers also report high rates of consistent condom use

Condom use of direct and indirect female sex workers with commercial partners and with sweethearts, Cambodia, 1997–2003



DFSW – Direct female sex workers; IDFSW – Indirect female sex workers

Source: National Center for HIV/AIDS, Dermatology and STDs, 2004.

Figure 7

be cultivated. In particular, stronger harmony is needed between HIV policies, the legal context and policing approaches. Knowledge and awareness of HIV needs to be increased as well. Currently, fewer than half of young people demonstrate comprehensive knowledge of HIV

during paid sex—85% and higher, depending on the group (Sopheab et al., 2006). HIV prevalence levels among brothel-based sex workers fell from 43% in 1995 to 21% in 2003 (National Center for HIV/AIDS, Dermatology and STIs, 2004). Among non-brothel-based (indirect) sex workers,

condom use rates also rose—from 30% in 1997 to 84% in 2003 (Gorbach et al., 2006), while HIV prevalence declined from 20% in 1998 to 15% in 2002 (Lengh et al., 2004).

Sustaining such achievements will require continual efforts. Cambodia’s sex industry is in flux, with more women selling sex outside of brothel settings (where safer sex initiatives tend to be most effective) (Gorbach et al., 2006) and staying in sex work for longer periods. This could lead to some older sex workers foregoing condom use more often as they seek to compete with younger counterparts in a tougher market.

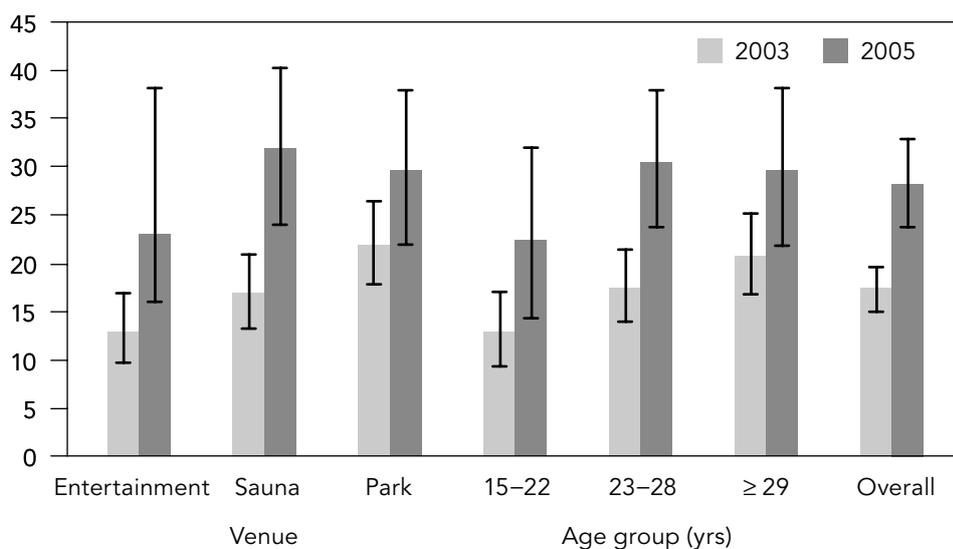
However, HIV prevalence among pregnant women attending antenatal clinics did not change much between 1997–2003 (it dipped slightly from 2.3% to 2.1%) (Phal et al., 2006). This suggests that significant numbers of women are still being infected—likely by husbands and boyfriends who probably acquired HIV during paid sex (National Center for HIV/AIDS, Dermatology and STIs, 2004; Gorbach et al., 2000). Women comprised almost half (47%) of people living with HIV in Cambodia in 2003, compared with just over one third (37%) in 1998. Indeed, a high proportion of married women

(41%) admit being concerned about being infected by their husbands (Sopheab et al., 2006).

Little data are available on HIV trends among men who have sex with men. A 2000 survey in Phnom Penh found 15% of men who have sex with men were infected with HIV, while a more recent survey in the capital found 8.9% were HIV-positive (Phalkun et al., 2006). In the provincial cities of Battambang and Siem Reap, HIV prevalence was very low, at 0.8%. However, condom use was rare: a mere 16% of the men said they used condoms consistently during anal sex (compared with 54% in the capital). Among men who sold sex, only 18% used condoms consistently during those encounters (Phalkun et al., 2006). Given such behavioural trends, there is a strong likelihood that HIV could spread rapidly among men who have sex with men in cities like Battambang and Siem Reap once the virus establishes itself in those networks.

In neighbouring **Thailand**, an estimated 580 000 [330 000–920 000] adults and children were living with HIV at the end of 2005 (UNAIDS, 2006). The number of new annual HIV infections continues to drop—the estimated 18 000 new infections in 2005 were 10% less than in

Prevalence of human immunodeficiency virus among men who have sex with men,\* by recruitment venue and age group — Bangkok, Thailand, 2003 and 2005



\*Refers to men who have sex with men but who were not enrolled at venues where male sex workers or transgendered persons congregate.

Source: van Griensven F., MMWR, 2006.

Figure 8

2004. However, a large percentage of new HIV infections are occurring in people considered to be at low risk of infection (Gouws et al., 2006). Approximately one third of new infections in 2005 were in married women who probably were infected by their spouses, according to the country's Ministry of Public Health. The government is now encouraging married couples to be tested regularly for HIV and to use condoms more often. Some social changes might also increase the risk of HIV infection: premarital sex is no longer a rarity among young Thais, yet only a minority (20%–30%) of sexually active young people uses condoms consistently (Punpanich et al., 2004).

Meanwhile men who have sex with men in Thailand remain at high risk of HIV infection. In Bangkok, HIV prevalence has risen steeply among men who have sex with men—from 17% in 2003 to 28% in 2005. Among those 22 years of age or younger, prevalence rose from 13% to 22% in the same period, which indicates high underlying HIV incidence. Infection levels were 15% in Chiang Mai and 5.5% in Phuket. Among male sex workers, prevalence ranged from 11% in Chiang Mai, 14% in Phuket and 19% in Bangkok—implying low rates of consistent condom use during paid sex. Troubling, too, is the lack of awareness among men who have sex with men about their HIV serostatus. Fully 80% of the men found to be infected with HIV had either never before been tested for the virus or had believed they were HIV-negative (Van Griensven et al., 2006). Overall, an estimated one fifth (21%) of new HIV infections in Thailand occur in men who have unsafe sex with men (Gouws et al., 2006). There is urgent need for programmes that reduce sexual risk behaviour and promote more frequent HIV counseling and testing in these networks.

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*A large proportion of new HIV infections in Thailand are in people considered to be at low risk of infection: about one third of new infections in 2005 were in married women who were probably infected by their spouses.*

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HIV rates among female sex workers are difficult to ascertain. Some research points to comparatively low HIV infection levels among women

selling sex. For example, national HIV sentinel surveillance showed 7.7% of brothel-based and 4.2% of non-brothel-based female sex workers were living with HIV in 2005 (Plipat and Teeraratkul, 2006). Other research has highlighted a recent trend of erratic condom use by female sex workers. Women selling sex in Bangkok, Chang Mai and Mae Hong Son reported using condoms in just over one half of commercial sex encounters. Similarly, fewer than one third of young men surveyed in the north of the country said they always used condoms with sex workers (Buckingham et al., 2005).

Injecting drug use continues to be a risk factor for infection in Thailand's multifaceted epidemic. An estimated 45% of injecting drug users attending treatment clinics have been found to be infected with HIV (Punpanich et al., 2004), and an estimated 3%–10% of injecting drug users in Thailand are estimated to be newly infected with HIV each year (Kawichai et al., 2006). This is due chiefly to the large proportion of injecting drug users who use contaminated injecting equipment (some 35%, according to one recent study) (Longfield et al., 2006).

Thailand needs to reinvigorate its safer sex campaigns, and ensure that its overall HIV prevention programme encompasses men who have sex with men and injecting drug users more assuredly. For a start, HIV surveillance in those population groups must be increased; the number of provinces reporting HIV infections in men seeking treatment for sexually transmitted infections and drug users receiving methadone treatment has reportedly declined by more than 50% in the past five years (Iamsirithaworn and Detels, 2006). In addition, there is a pressing need to expand outreach programmes that can provide comprehensive harm reduction services to injecting drug users (Kawichai et al., 2006), as well as scale-up and improve the accessibility of services for voluntary HIV counselling and testing throughout the country.

In neighbouring **Myanmar** there are early indications that the epidemic might be diminishing (Wiwat, Brown, Calleja-Garua, 2005). HIV infection levels have declined among pregnant women (1.3% in 2005, down from 2.2% in 2000) (National AIDS Programme Myanmar, 2005) and among men seeking treatment for other sexually transmitted infections (from 8% in 2001 to 4% in 2005) (National AIDS Programme Myanmar,

2005). Nevertheless, the country is experiencing a serious epidemic, with an estimated 360 000 [200 000–570 000] people living with HIV at the end of 2005, and national adult HIV prevalence of approximately 1.3%. HIV prevalence of 2.2% among young people (15–24 years of age) in 2005 is a cause for serious concern (National AIDS Programme Myanmar, 2005). So, too, are the high HIV infection levels found in most-at-risk groups, such as sex workers and injecting drug users. Some 43% of injecting drug users and nearly one in three (32%) sex workers countrywide were living with HIV in 2005—proportions that have changed little since 2000 (National AIDS Programme Myanmar, 2005). In a study in urban and rural communities in seven townships, only 16% of youth (15–24) reported being sexually active and of the men, only 3% of youth reported having sex with sex workers in the past year. The proportion of men who reported using condoms consistently with sex workers was 60% among young men and 50% among older men (Thwe et al., 2005). Meanwhile, nongovernmental organizations working with the informal support of the authorities have established pilot programmes to bring HIV prevention services to injecting drug users. More than 11 000 injecting drug users are believed to have benefited from such efforts in 2005 (National AIDS Programme Myanmar, 2005).

In **Pakistan**, high HIV infection levels among groups of injecting drug users could cross over into other populations, including male and female sex workers. In Larkana, 8% of injecting drug users were HIV-infected in 2005 (Abbasi, 2006), as were at least 6% in Faisalabad, Lahore, Sargodha and Sialkot, where a majority of injecting drug users were either married or sexually active (Nai Zindagi, 2006). In Karachi, 26% of injecting drug users participating in a 2005 study were found to be HIV-infected (Emmanuel, Archibald, Altaf, 2006). The majority of infected drug users had one risk factor in common: they used non-sterile injecting equipment. Even the most basic elements of effective harm reduction are lacking. Only one half of the injecting drug users taking part in a study in Karachi and Rawalpindi, for example, knew that HIV could be transmitted through using unclean needles—and as many of them said they had used non-sterile injecting equipment in the previous month (Abbas, 2006).

Rates of condom use are still low during commercial sex encounters. Fewer than one in five female sex workers—and one in 20 of their

male counterparts—in Karachi and Rawalpindi said they had consistently used condoms during the previous month (Abbas, 2006). In an earlier study in Karachi, one in four sex workers could not recognize a condom (Ministry of Health Pakistan, DfID, Family Health International, 2005). In addition, a 2005 study has confirmed that HIV transmission is occurring within the sexual networks of male and eunuch (*hijra*) sex workers in Karachi. The study found 7% of the male sex workers and 2% of the *hijras* were HIV-infected (Altaf et al., 2006). In another study in Karachi, 4% of male sex workers and 2% of *hijras* tested positive. Very high levels of other sexually transmitted infections indicate widespread sexual risk-taking. In the latter study, 23% of the male sex workers had syphilis and 36% had gonorrhoea, while among the *hijras*, 62% had syphilis and 29% gonorrhoea. Indeed, only 4% of male sex workers and less than 1% of the *hijras* said they used a condom the last time they had sex with a man. Also of note is the finding that one in four of the male sex workers said they also bought or sold sex to women (Ministry of Health Pakistan, DfID, Family Health International, 2005). Such high-risk behaviour must be addressed in order to limit the further spread of HIV in and beyond those sexual networks.

There is evidence that HIV is now present in neighbouring **Afghanistan**, where conditions favour the rapid spread of HIV. Afghanistan's emerging epidemic is likely to hinge on a combination of injecting drug use and unsafe paid sex. In Kabul, 4% of injecting drug users are HIV-infected, according to a new study. Almost one third (31%) of the injecting drug users participating in the study said they used contaminated injecting equipment. More than one half (54%) of them had been imprisoned and, among those, one third (32%) had injected drugs while behind bars. Large proportions of these drug users (all male) engaged in other high-risk behaviour as well: one third (32%) had sex with men or boys, and more than two thirds (69%) bought sex (Todd et al., 2006a). At the very least, basic HIV knowledge must be increased quickly. Only about half of the injecting drug users knew that using unclean syringes carries a high risk of HIV transmission or that condoms can prevent infection (Todd et al., 2006b).

The high HIV infection levels found among **Indonesia's** estimated 145 000–170 000 injecting drug users (Pisani, 2006) herald possible wider HIV

outbreaks in the country. Some 170 000 [100 000–290 000] adults were living with HIV in 2005 (UNAIDS, 2006). As recently as 1998, no HIV infections were being detected among injecting drug users seeking treatment in Jakarta, the capital (Pisani, 2006). But by early 2002, more than 40% of injecting drugs users surveyed at rehabilitation centres in Jakarta were testing HIV-positive, and subsequently even higher infection levels have been reported in Pontianak (Borneo) (Riono and Jazant, 2004; MAP, 2005a). More recent data show that 13% of injecting drug users in West Java are HIV-positive (Ministry of Health Indonesia, 2006).

In studies, most injecting drug users report high-risk practices, including using non-sterile injecting equipment and frequent unprotected sex, often with several partners (Pisani et al., 2003). Between 21% and 32% of injecting drug users in Denpasar, Medan, Bandung and Jakarta reported always using non-sterile needles. Condom use is rare: only 14%–27% of injecting drug users in Medan, Jakarta and Denpasar said they used one the last time they had sex (Statistics Indonesia, 2006; Ministry of Health Indonesia, 2006). Risk behaviours are commonplace also in Indonesia's prisons, where HIV prevalence of 13% was found among inmates in West Java in 2005, 18% in Jakarta and 36% in Banten (Ministry of Health Indonesia, 2006).

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*HIV outbreaks are being found in some most-at-risk populations in Afghanistan and Pakistan, where widespread risk behaviours offer the HIV epidemic scope for future growth.*

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As in several other Asian HIV epidemics, injecting drug use and sex work networks overlap in Indonesia. Between one quarter (in Jakarta, Medan and Bandung) and almost one half (in Surabaya) of injecting drug users had unprotected paid sex in the previous year (Statistics Indonesia, 2006; Ministry of Health Indonesia, 2006). Unless counteracted by preventive practices, those linkages could expedite the wider and more rapid spread of HIV. Substantial proportions of sex workers are infected with HIV in parts of Indonesia: 6% in Yogyakarta and Riau, 7% in Jambi and 8% in West Java (Statistics Indonesia, 2006; Ministry of Health Indonesia, 2006).

Condom use in sex work might be improving in some places, though. About 60% of sex workers surveyed in 16 cities in 2005 said they had used a condom with their most recent client (Statistics Indonesia, 2006; Ministry of Health Indonesia, 2006). On the other hand, in Jakarta, three quarters of sex workers operating out of massage parlours and clubs, and 85% of those working out of brothels, said they had not used condoms with any of their clients in the previous week (MAP, 2005b).

In Papua, on the edge of this sprawling archipelago, HIV is now well-established in the general population. Almost 1% of adults in several villages have been found to be living with HIV (MAP, 2004). With injecting drug use not widespread in Papua, the chief contributing factor in this localized epidemic appears to be unprotected, paid sex in a culture in which as many as 10%–15% of young men (aged 15–24 years) buy sex. In the late 1990s, HIV prevalence in commercial sex workers was around 1%–2% in most urban areas. By 2004, however, prevalence had increased to 9% in Timika, 14% in Nabire, 15% in Merauke and 16% in Sorong (National AIDS Commission Indonesia, 2006).

An estimated 69 000 [33 000–220 000] people were living with HIV in 2005 in **Malaysia**, where the most common risk factor for HIV infection was exposure to contaminated drug injecting equipment (which accounted for three in four HIV infections in 2002, most of them in men, aged 20–40 years) (UNAIDS, 2006). HIV prevalence among pregnant women seeking antenatal care has remained very low (0.04% in 2002). Infection levels of 41% and 31% have been found among injecting drug users in the provinces of Keleantan and Terengganu, respectively (Ministry of Health Malaysia and WHO, 2004). More recently, one in five (19%) heroin users who enrolled for drug treatment in Muar tested HIV-positive (Chawarski et al., 2006).

Up-to-date HIV data from Malaysia are limited, but the available information indicates that a small but growing proportion of new HIV infections (17% in 2002, up from 7% seven years earlier) is attributable to unsafe sex, much of it between current or former injecting drug users, their sexual partners and sex workers (Ministry of Health Malaysia and WHO, 2004; Huang and Hussein, 2004). Similar to their counterparts in other south-east Asian countries, the

Malaysian authorities have tried to respond by cracking down on drug users: almost 39 000 were arrested in 2004 alone, most of them heroin users (National Drug Agency, 2005). It is not clear what, if any, effect this and/or increased concerns about HIV might be having on drug-use trends. It is worth noting, though, that the Muar study found that significant proportions of drug users had opted for smoking rather than injecting heroin or had stopped using non-sterile needles (Chawarski et al., 2006). Meanwhile, buprenorphine and methadone maintenance treatments are now more widely available in the private sector and is being evaluated for use in public health HIV clinics (Chawarski et al., 2006). Better coordination of HIV prevention (the purview of the Ministry of Health) and drug rehabilitation and treatment efforts (vested with the Internal Affairs Ministry) would improve the situation (Chawarski et al., 2006).

In the **Philippines**, where HIV is being transmitted primarily during unprotected sex (National Epidemiology Center, 2006), national adult HIV prevalence remains well under 0.1% (UNAIDS, 2006). About one third of HIV infections diagnosed since 1984 have been in returning overseas Filipino workers (mostly in seafarers and domestic workers) (National Epidemiology Center, 2006). Efforts to screen and treat sex workers for sexually transmitted infections, along with other prevention efforts initiated since the early 1990s have possibly helped contain the spread of the virus during paid sex (Mateo et al., 2003). Less than 1% of sex workers are infected with HIV, according to successive sentinel surveillance rounds since 2002 (Department of Health Philippines, 2005). HIV prevalence higher than 1% has not yet been detected among men who have sex with men, either (Department of Health, 2005). There is no guarantee this situation will continue. Condom use is not the norm during paid sex (when surveyed in 2002, just 6% of sex workers said they used condoms with all their clients in the previous week) (MAP, 2005b), and the use of non-sterile injecting equipment among injecting drug users is a common practice in some areas (such as Cebu City) (Wi et al., 2002; Mateo et al., 2003; Department of Health Philippines, 2003). In such light, the apparent complacency among young Filipinos about the epidemic (three in five 14–20-year-olds believe they cannot contract HIV) gives cause for concern.

Approximately 17 000 [10 000–29 000] adults and children were living with HIV in Japan in 2005. An increasing number of HIV infections are being found in men who have sex with men, who account for at least 60% of annual reported HIV infections (Shimada et al., 2006). Some 780 new HIV infections were reported in 2004, up from the 640 reported in the previous year and more than double the number reported in the mid-1990s (Nemoto, 2004).