

# Heterosexual risk behaviour in Asia: The implications for HIV/AIDS

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IN the early 1980s the belief that Asia might avoid a major HIV/AIDS epidemic was widespread. As the epidemic spread in the Western world and devastated Sub-Saharan Africa, Asia appeared strangely immune. By the end of 1987, Asian countries had reported only 252 AIDS cases to the World Health Organization<sup>1</sup>, and when a case did appear in Asia, it was most often associated with Asian men who had sex with men who had sexual contact with foreigners or had travelled abroad or with haemophiliac's use of foreign blood products. Indigenous transmission in observed AIDS cases was rare.

To explain this low rate some speculated that Asians might have a natural resistance to HIV infection. Others said that traditional Asian morality and the value placed on families were protecting the continent from the epidemic. The region seemed to have little cause for concern, and most countries did not undertake any large-scale efforts to prevent or slow down the spread of HIV.

In early 1988, this belief in Asia's immunity to the AIDS epidemic was shaken as HIV prevalences in injecting drug users in Thailand increased rapidly from zero to 30% over an 8-month period<sup>2</sup>. At the same time, studies of female commercial sex workers in Bombay and Madras revealed<sup>3</sup> HIV infection levels of 5%. Prior to this time, some HIV testing had been done among populations vulnerable to HIV in Asian countries, including Thailand and India, but had rarely found infection levels exceeding 1% in any groups other than haemophiliacs and men having sex with men. During the next few years, both India and Thailand saw rates of HIV infection climb first in injecting drug users and commercial sex workers, then in male patients with sexually transmitted diseases (STDs), and finally in pregnant women. For example, by mid-1993 nationwide median HIV prevalences in STD patients and antenatal clinics in Thailand had grown to 8.0% and 1.4%, respectively<sup>4</sup>. In Bombay by 1993 STD clinics showed rates as high as 26% and rates among antenatal women were approaching 1% (ref. 3). Studies of risk factors done in India and Thailand found that most of the infections had been contracted through heterosexual intercourse. Although the rapid spread of HIV started among injecting drug users and commercial sex workers, by the early 1990s the epidemic had clearly established itself in the general population.

Because most other Asian countries have not conducted as extensive HIV testing as India and Thailand, their situation is more difficult to assess. In most countries of the region, the number of reported AIDS cases is small, as seen in Table 1, which shows the cumulative number of AIDS cases reported through the end of 1990 and through mid-1994. In many of the countries the HIV/AIDS epidemic has remained largely invisible, although the increasing AIDS numbers show that an epidemic is underway in most of them.

Several factors have contributed to this invisibility. The first is the nature of HIV itself. In the past many Asian countries have relied largely on reported AIDS cases for data, with only limited HIV testing. Because illness takes many years to develop, and the introduction of HIV in much of Asia occurred in the mid-1980s, case

**Table 1.** Number of AIDS cases reported to the World Health Organization by Asian countries through December 1990 and June 1994. Source: Global Programme on AIDS 1994

Country	December 1990	June 1994
Bangladesh	1	1
Bhutan	0	0
Cambodia	0	0
China	5	36
Democratic People's Republic of Korea	0	0
Hong Kong	27	99
India	52	713
Indonesia	9	49
Japan	294	713
Laos	0	14
Malaysia	15	107
Mongolia	0	0
Myanmar	0	261
Nepal	4	24
Philippines	37	136
Republic of Korea	7	19
Singapore	21	75
Sri Lanka	6	37
Thailand	69	5654
Vietnam	0	107

numbers remain low. In addition, reported numbers are lower than the actual number of cases because HIV disease manifests itself through other diseases, such as tuberculosis and pneumonia. As a consequence, AIDS is often misdiagnosed or goes unrecognized, especially when physicians are not expecting it. This, along with the social stigma of AIDS in most Asian societies, has resulted in underreporting of AIDS cases.

The second factor is the lack of extensive HIV surveillance systems similar to the sentinel seroprevalence system in Thailand<sup>2</sup>. Most countries have only recently begun to establish systematic prevalence testing on even a limited scale. Thus, the quality and quantity of the available HIV data are only now beginning to improve.

The third factor is the public reluctance in Asian societies to discuss or admit to the behaviours that transmit HIV: injecting drug use; homosexual intercourse; and extramarital or premarital commercial and casual sexual intercourse. In most Asian countries, the limited studies of injecting drug use, sexual partnering patterns and sexual practices have focused primarily on attitudes toward drug use and extramarital and premarital sex, not on actual behaviour. While the surveys generally find that publicly expressed attitudes toward sexual activities outside marriage are negative, men are often allowed great latitude to engage in them without sanctions. These negative attitudes and the public reluctance to discuss the issues give the false impression that the risk behaviours needed to sustain an epidemic do not exist in many Asian societies.

However, despite these limitations sufficient HIV and AIDS data do exist to reveal certain similarities and differences between Asian countries. For example, the rates of HIV spread within different countries vary significantly. Although the first AIDS cases appeared in both Thailand and the Philippines in 1984, by 1993 infection levels among commercial sex workers were much lower in the Philippines, 0.6%, compared to approximately 9% among Thai nonbrothel-based commercial sex workers<sup>4,5</sup>. Current data indicate that the rate of spread is quite high in some countries, for example, Cambodia, India, Myanmar and Thailand, but is substantially slower in others, such as China, Hong Kong, Japan, the Philippines and the Republic of Korea.

The relative importance of different transmission modes also varies substantially. In Japan, haemophilia patients who received blood products imported mostly from the United States account for 64% of all AIDS cases<sup>6</sup>. In China and Malaysia most AIDS cases cite injecting drugs as the route of exposure<sup>7,8</sup>, but in Japan fewer than 1% of nonhaemophiliac AIDS cases are attributed to injecting drugs<sup>5</sup>. In Hong Kong, India, Indonesia, and Thailand most infections in reported AIDS cases have been through sexual intercourse<sup>3,4,9,10</sup>. However, in Hong Kong and Japan infection through

homosexual intercourse is more common, while heterosexual intercourse is the more frequent transmission route in the other countries.

The HIV/AIDS epidemic in Asian countries is dynamic in nature, and the comparative contribution of the various transmission routes is changing with time. One striking similarity among the countries of Asia is that most are either seeing or moving toward predominantly heterosexual transmission of HIV. For example, in Hong Kong, while the overall ratio of homosexually transmitted to heterosexually transmitted HIV infections is 1.17 to 1.00, if one only considers those infected in 1993, the ratio is 1 to 2 in favour of heterosexual infections<sup>9</sup>. Japan has almost twice as many detected heterosexual HIV infections as homosexual infections, and new heterosexual AIDS cases have outnumbered homosexual AIDS cases since 1992 (ref. 6). In Singapore, a second wave of heterosexual infections is now following the initial wave of homosexual infections<sup>11</sup>. There is little doubt that in the long term the HIV/AIDS epidemic in Asia will be principally a heterosexual epidemic. Heterosexual risk behaviour is thus playing a key role in the epidemic.

### **The roles of commercial, casual and marital sex in the heterosexual epidemic**

If the course and severity of the epidemic in Asia are to be anticipated and an understanding reached of the variation among countries, exploring the forms of heterosexual transmission and their relative contributions to the epidemic is important. Heterosexual transmission can occur in three settings: during commercial sex, during noncommercial casual sex outside marital relationships, and during marital coitus. Comparing the relative rates of transmission in these settings and examining the prevalence of each in Asian societies may help to clarify the situation. Before looking more closely at these factors, a brief examination of the Thai situation can provide valuable insights into the factors influencing a heterosexual epidemic.

The Thai HIV/AIDS epidemic has been one of the most intensively studied epidemics in history. Although the first Thai AIDS cases occurred in 1984, the epidemic did not begin to spread rapidly until late 1987 among injecting drug users. In 1989, comparatively early in the epidemic, Thailand established national surveillance for HIV that has allowed tracking of the epidemic's progress<sup>12,13</sup>. Based on these data, collected by the Ministry of Public Health and the Royal Thai Army, and on extensive epidemiological and behavioural studies, the patterns of the Thai epidemic are well understood. Five waves have been observed: (1) injecting drug users; (2) female commercial sex workers; (3) clients

of commercial sex workers; (4) wives and girlfriends of clients and (5) children born to infected mothers. (For more detailed material on the Thai epidemic, see refs. 2, 4).

Unlike HIV/AIDS epidemics in the West, where the contribution of heterosexual transmission has been low, the Thai epidemic has seen a rapid spread among heterosexuals, with infections among female commercial sex workers spreading particularly fast. For example, limited testing of sex workers in Chiangmai in northern Thailand in 1987 found no HIV, but by 1989 levels had surpassed 40% in brothel based sex workers<sup>2</sup>. This explosive growth in infection among brothel-based female commercial sex workers resulted both from the large numbers of clients they serviced and from the sex workers' high levels of other STDs, which enhance HIV transmission. At the same time, infection levels among indirect sex workers, working out of bars, nightclubs and restaurants grew more slowly because both their client numbers and STD levels were lower. For example, in mid-1990, when HIV prevalence among brothel-based sex workers was 14% nationwide, it was less than 3% among indirect sex workers.

Despite the rapid growth in infection among sex workers, the bulk of the country's present HIV infections resulted from the third and fourth waves: clients of sex workers and their female sexual partners. In 1990, the Survey of Partner Relations found that 23.4% of Thai men between 15 and 49 years of age had engaged in commercial sex in the last year<sup>14</sup>. This large pool of susceptible males, in conjunction with high rates of female sex worker to client transmission<sup>15</sup>, contributed to a rapid rise in new male infections between 1989 and 1991 (ref. 16). The rate of new male infections has now slowed substantially because of an aggressive national program that has increased condom use, brought about a substantial drop in STD levels, and reduced the number of men visiting sex workers, but the third wave has left behind close to half a million infected males.

The fourth wave, wives and girlfriends of clients of commercial sex workers, proceeds at a slower but relentless pace. Recently completed studies have found that transmission from infected husband to wife occurs at a much lower rate than from sex workers to clients<sup>17</sup>. This probably results because rates of STD co-infection are lower in both marital and noncommercial casual sexual contacts than in commercial contacts. However, because married couples and noncommercial sexual partners rarely use condoms in Thailand, in the absence of intervention most infected men will eventually infect their wives or girlfriends, although it may take several years. Thus, female infections, which currently number about one quarter of a million, lag substantially behind male infections. This is in contrast to the situation in Africa, where male and female infection levels are roughly equal, and reflects the important role played by commercial sex in the early dynamics of the Thai

epidemic. The extent to which unmarried Thai women are at risk depends largely on how males' sexual networks link casual and commercial sex. Because women married to infected men outnumber sex workers, most infected women in Thailand contracted their infections from their husbands, despite the higher HIV transmission rates in commercial sex.

Other countries can learn several important lessons from the Thai experience. If a country has a sex worker population with high client numbers and STD levels, then the growth of HIV can be explosive. Given that HIV had been introduced to Thailand as early as 1984, but that infections among commercial sex workers were rarely found until 1988, this indicates that a substantial delay can occur between HIV introduction and the beginning of this explosive growth. The absence of detected HIV infections in commercial sex worker populations today should not be misconstrued as the absence of potential for a rapid spread of HIV. The much lower seroprevalence among indirect workers compared to brothel-based workers shows that the frequency with which commercial sex workers have clients has a significant effect on the rate of infection on a national scale. Thus, the relative mix of brothel-based commercial sex with other forms of commercial sex may provide some indication of the overall vulnerability to the rapid spread of HIV. Finally, the rate of HIV transmission in commercial contacts and in marital or noncommercial casual contacts can vary greatly, perhaps by an order of magnitude or more. Thus, the heterosexual epidemic may proceed much more slowly in countries where noncommercial casual sex is more common than commercial sex.

As noted earlier, the predominantly heterosexual nature of the AIDS epidemic is becoming apparent in most Asian countries. Based on the analysis of the Thai epidemic presented here, the rate of growth and ultimate magnitude of the HIV/AIDS epidemic in each Asian country will be determined largely by: the prevalence of heterosexual commercial sex; the overlap between commercial, casual and marital sex; and the levels of other sexually transmitted diseases. To assess whether a particular country or population is likely to face major HIV problems, these are the factors that must be examined. The remainder of this paper will, therefore, focus on the levels of heterosexual risk in the countries of Asia to assess the potential for the spread of HIV in the region as a whole.

### **Heterosexual risk behaviour in Asia – commercial sex**

As India's and Thailand's experiences have shown, commercial sex can play a critical role in HIV transmission in Asia. While commercial sex is certainly not unique to Asia, it may have more of a role in epidemics in the region than in other parts of the world.

Commercial sex, despite frequent public condemnation, has a long history of tacit acceptance in many Asian societies. As a consequence, it is widespread, and sex workers often have large numbers of clients. For the human immunodeficiency virus, these high client numbers offer two obvious advantages: (1) commercial sex workers have higher than normal rates of infection and reinfection with other sexually transmitted diseases, which enhance HIV transmission; and (2) the larger numbers of sexual partners offer increased opportunities for the virus to spread from client to sex worker and from sex worker to client. These factors have driven the rapid growth of HIV seen in Cambodia, India, Myanmar and Thailand.

Efforts at HIV prevention during commercial sex are often hampered by the comparative lack of control sex workers have over sexual transactions in Asian societies, where control usually rests with the client. Thus, even if a sex worker wants to take precautions against disease transmission, for example, by using condoms, this is not her choice to make. This lack of control greatly increases the workers' vulnerability to HIV and other STDs.

The roots of commercial sex in Asia are both cultural and economic. Culturally, widespread gender inequality in sexual matters is the most important factor contributing to the demand for commercial sexual services. Many Asian societies have very different expectations from men and women in terms of sexual behaviour. Women are almost universally expected to be virgins at marriage and not to engage in extramarital sexual activities. For men, by contrast, despite publicly expressed attitudes opposing premarital and extramarital sex, strong societal sanctions against such practices are lacking and in some places men are expected to be sexually experienced at the time of marriage or people believe that men need sexual variety. This creates an imbalance between male sexual demand and female sexual supply. While many men seek sexual contact outside of marriage, either premaritally or extramaritally, few women are available. This creates the high demand for female commercial sexual services.

Growing economic prosperity and economic disparity between urban and rural areas are also fuelling the growth of commercial sex in the region. While the countries of Asia as a whole are experiencing phenomenal economic growth, the resulting benefits are not equally distributed between urban and rural areas. While improving economic conditions drive an increasing consumerism, permeating the rural villages, where most Asians live, the resulting employment opportunities are generally concentrated in urban areas. This increases the urban/rural economic disparity, leaving villagers without the means to pay for either the basic necessities of life or for the consumer items and luxuries that are becoming national norms. Lacking the education or training

necessary for many of the newly created jobs, many young female villagers turn to commercial sex as an alternative for supporting their families. The steady flow of men and women into urban areas for work also removes them from their traditional social environments and disrupts social norms, thereby further increasing the demand for and acceptability of commercial sex.

Economic disparity is growing not only between urban and rural areas, but also between countries in the region. This has fuelled an active international sex trade encompassing both sexual tourism and commerce in female sex workers. Men visiting commercial sex workers while travelling is commonly reported throughout Asia (see, for example, ref. 18 on Japanese men in Thailand and ref. 19 on Korean men). As education, improving economic conditions, and the fear of HIV reduce the supply of sex workers in Thailand, the deficit has been made up by sex workers with lower education levels and less knowledge of the AIDS epidemic imported from Myanmar and China. This is a regionwide phenomenon: Nepalese sex workers often go to India for work, Vietnamese sex workers are frequently found in Cambodia, and Thai sex workers are regularly imported into Japan. Should any of these women test positive for HIV during their foreign employment, they are inevitably returned to their country of origin. As a consequence, many of the earliest female AIDS cases in Asia are women who formerly worked for commercial sex in other countries and may have contracted HIV there.

The tacit acceptance of commercial sex and the high male sexual demand, combined with poverty and increasing consumerism, make commercial sex work an economically attractive alternative for women, especially those with little education or from poor families, and the supply/demand imbalance guarantees that female commercial sex workers will have a steady flow of clients, making it a viable profession.

The quiet acceptance of commercial sex is fostered by strong historical traditions in many Asian cultures. In a number of countries, laws against commercial sex are historically recent. Given the time often needed to effect changes in cultural beliefs and attitudes, in many countries the legal sanctions against commercial sex may be in direct conflict with an underlying cultural acceptance of the practice, resulting in lax enforcement of these laws. For example, China has a long history of both government and privately run commercial sex, perhaps starting as early as the seventh century BC<sup>20</sup>. It was only when the communists came to power in 1949 that commercial sex was made illegal. Despite legal restrictions, the recent rapid economic expansion, especially in southern China, has fuelled the growth of commercial sex and arrests of sex workers and clients have been increasing. In the Ayuddhya period in Thailand (1350–1767), commercial sex was both legal

and subject to government tax, becoming illegal only in the 1950s (ref. 21). In India, the Hindu tradition of dedicating girls (*Devadasi*) to gods and goddesses lowered the stigma against these women engaging in commercial sex work and provided a cultural basis for accepting commercial sex<sup>22-24</sup>.

The result of these cultural, traditional and economic factors is that every country in Asia has a commercial sex industry, although in most places it is technically illegal. Because the number of clients is high and drawn from all strata of society, commercial sex occurs in a number of settings and forms to cater to the diversity and economic resources of the clientele: brothels, tea houses, coffee shops, street walkers, barber shops, massage parlours, and so on. The relative mix of these settings varies substantially from country to country. In most countries, the extent of the sexual service industry has been poorly determined, largely because of its illegality and the resulting invisibility of the sites, public reluctance to discuss the issue openly, and the protection afforded from official scrutiny by its economic profitability. While investigators have conducted numerous studies of commercial sex workers in Asia, these have focused primarily on the women's health and working conditions and very few have examined the total number of sex workers or establishments. Similarly, studies exploring the extent and practices of men who visit commercial sex workers are a recent development, prompted largely by the HIV/AIDS epidemic. Many of these studies, for example, in Malaysia, the Philippines, Singapore and Thailand were part of the effort by the World Health Organization's Global Programme on AIDS to encourage and support studies of sexual risk behaviour worldwide<sup>25</sup>. In several cases, these studies have proven extremely valuable in making policy-makers aware of the potential problems their countries face.

While current data on clients are limited and not always strictly comparable because of variations in sampling, population subgroup, underreporting differences, and information gathered, the highest rates of commercial sex have been reported in southeast Asian countries and the lowest in east Asian countries. Nevertheless in each country that has examined the situation, the fraction of the total male population visiting sex workers is not insubstantial, thereby creating the potential for rapid spread of HIV. For example, in Thailand in 1990 the Survey of Partner Relations found that 23.4% of males had visited a sex worker within the last 12 months<sup>14</sup>. This number had dropped to 10.1% by 1993. In Phnom Penh, Cambodia, a survey in 1993 found that 41% of sexually experienced males had visited a sex worker within the last year<sup>26</sup>. A survey in Manipur state, India, found that 19.1% of married men had visited a commercial sex worker in their lifetimes<sup>27</sup>. East Asian numbers appear somewhat lower, but researchers suspect underreporting. For example, in a

survey conducted by the Hong Kong AIDS Foundation in 1992, 5.5% of male respondents had visited sex workers in the last 12 months<sup>28</sup>. An earlier survey in Hong Kong had found that 22% of males had visited a sex worker by age 26 (ref. 29). Similar numbers have been noted in Singapore. In a sample of international travellers in Korea, 24% reported having paid for sex in the last 5 years<sup>19</sup>.

### **Heterosexual risk behaviour in Asia – non-commercial casual sex – premarital and extramarital sex**

Needle sharing and commercial sex have often provided the initial high-grade fuel for Asian HIV/AIDS epidemics, resulting in infection of a large fraction of injecting drug users, female commercial sex workers, and clients of sex workers. From the clients HIV spreads to their girlfriends and wives. Unless condom use among married couples is common as a contraceptive, husbands who are infected through commercial sex will almost invariably transmit the infection to their wives. These women are at high risk even though they are engaged in 'low-risk' behaviour, thereby illustrating the danger of not considering the risk of all potential avenues of heterosexual HIV transmission. Thus, assuming that all infected males eventually marry, the size of the female population at high risk of HIV infection is the same as the population of male clients. If one includes extramarital and premarital sexual contacts, and the possibility that males may have multiple female partners over a period of time, the female population at risk becomes larger than the male population at risk.

While comparatively few studies have looked at sexual networks in the region, many have inquired about levels of extramarital and premarital sex. The findings raise serious concerns throughout Asia. In general, the studies confirm the difference in levels of male and female extramarital and premarital sex. In Japan, for example, a 1990 survey found that 19% of urban married males reported extramarital intercourse in the last 12 months compared to only 8% of women<sup>30</sup>. A study in Eastern Shan State in Myanmar found that 40.3% of married men, but only 5.5% of married women, reported extramarital intercourse during their lifetime<sup>31</sup>. In Manipur state, India, 27.8% of unmarried men and 11.3% of unmarried women reported having had intercourse<sup>27</sup>. In Nepal 24.1% of males and 14.9% of females reported premarital sex. The investigators observed a strong association of seasonal migration with premarital and extramarital sex in this case<sup>32,33</sup>. Similar high levels of extramarital and premarital sex have been found in many other countries, even when gender differences are not reported. For example, in Malaysia 33% of sexually experienced men and 11% of married men reported casual sexual contacts in the last year<sup>8</sup>. In

Korea, 46% of males who travelled internationally reported extramarital sex in the last 5 years<sup>19</sup>.

There are some indications that male and female behaviour may be changing among adolescents in some parts of Asia, with closer equality of male and female premarital sex. For example, in a survey of final-year Japanese high school students, 20.5% of males and 22.9% of females reported sexual experience<sup>34</sup>. A similar study of students in Hong Kong found that 21% of males and 19% of females reported sexual experience<sup>35</sup>. How this translates into changes in partnering patterns and the relative mix of commercial and casual sex is not known.

The final factor that will influence the growth of the heterosexual epidemic is the linkage between commercial and casual sex. Studies of sexual networks in Thailand have found that most of the men visiting commercial sex workers often have one or more girlfriends prior to marriage, which may place their casual partners at risk<sup>36,37</sup>. Studies in Hong Kong and Singapore, in contrast, have shown less overlap between commercial and casual sexual relations, with most males having primarily commercial or casual contacts, but usually not both, prior to marriage. The total risk to women having casual sex with clients of sex workers may thus vary greatly from country to country. However, it should be remembered that HIV risk in a sexual network is not confined to simultaneous overlap of casual and commercial partners but is cumulative. If a single man engages in commercial sex while young and becomes infected, then all subsequent partners, including his future wife, are at risk.

### Implications for the HIV/AIDS epidemic

Although most Asian countries report low numbers of AIDS cases and detected HIV infections, the trend is clear: heterosexual sex is becoming the dominant contributor to the growth of the HIV/AIDS epidemic in Asia. What does this mean for the future progression of the Asian epidemic, for intervention, and for future research needs?

Despite the limited availability of behavioural and epidemiological data, an explanation of the variation between countries is possible. Those countries seeing a rapid spread of HIV, for example, Cambodia, India and Thailand, are countries where commercial sex is common and a large percentage of the male population are clients of commercial sex workers. The resulting large number of nightly clients for commercial sex workers combines with elevated levels of other STDs to produce extremely high HIV transmission rates. The result is the frighteningly rapid growth of the epidemic. Those countries with lower rates of growth, for example, Hong Kong, Japan and the Philippines, are those where casual sex is as common or more common than

commercial sex (but where commercial sex services still exist, although to a lesser extent) with lower overall levels of heterosexual risk. The epidemic has spread more gradually in these countries, but even within these countries, commercial sex presents greater risk for contracting HIV, and most early male heterosexual AIDS cases are associated with it. Thus, heterosexual risk in commercial settings is becoming the dominant factor in reported AIDS cases.

Casual sex has played less of a role in Asian AIDS epidemics, both because it occurs less often than in the West or in Africa, and because the transmission rates associated with it are lower. The female/male imbalance in sexual activity in Asia has slowed the spread into the unmarried female population. This is not to say that interventions can ignore casual sex, especially in the light of recent trends toward increasing casual sexual activity among females of the younger generation at precisely those ages where most sexually transmitted diseases, including HIV, are concentrated. Casual sex also deserves serious attention because the low perception of associated HIV risk leads to low levels of condom use. Even in countries such as Thailand, where condom use in commercial sex has risen dramatically, it remains quite low in casual sex, despite a large reservoir of currently infected males.

However, while most male infections in Asia over the next several years will occur in commercial settings, most female infections will happen in marital settings. Because comparatively few Asian females engage in casual sexual contacts, most of their HIV risk accrues from the sexual practices, current or past, of their mates. These cases will grow more slowly because of low HIV transmission rates in the absence of STDs, but they will grow inexorably unless interventions can be developed to address the risk posed to Asian women by their spouses' premarital and extramarital sexual activities.

Although existing behavioural data are limited and much research remains to be done, some subregional patterns are becoming apparent. Most countries of southeast Asia share a common pattern of tolerance toward commercial sex and frequent use of commercial sex services by males. This leaves these areas vulnerable to the same explosive growth seen in Thailand, and indeed, this is now being seen in Cambodia, Myanmar, and perhaps Vietnam. In east Asia, data are more limited, but studies indicate that commercial and casual sex occur at lower levels than in southeast Asia, with less overlap between casual and commercial sex. Nonetheless, a substantial portion of the male population has made use of commercial sex services in their lifetimes. These countries still have large enough populations of clients for the heterosexual epidemic to grow quite large. It will just take more time to get there. South Asia is somewhat of an enigma with fewer behavioural studies done, as well as substantial

variations in behaviour and practices even within countries, for example, in India. This has resulted in geographically uneven growth of the epidemic in India and makes assessing the country as a whole more difficult. No behavioural risk or epidemiological data are available for countries such as Bangladesh and Pakistan. However, the absence of data does not imply an absence of risk, and the case of India shows the potential for HIV spread in the south Asia subregion.

The heterosexual nature of the AIDS epidemic in Asia has consequences for the ultimate size of Asian epidemics. In one sense, epidemics in men having sex with men and in injecting drug users are self-limiting, because they constitute a comparatively small fraction of the total population. For example, in most places injecting drug users make up less than 1% of the total population and men having sex with men may represent 2–3%. Heterosexuals, however, make up the bulk of any population; thus, the group of susceptible people is much larger. The risk for individuals is also raised depending upon their age. For example, while in Hong Kong and the Philippines only a few per cent of males visit commercial sex workers, these men are concentrated in the 15–30 age range, meaning that the risk for individuals in this age range is substantially elevated.

This analysis has several implications for intervention programmes. Urgent intervention to reduce HIV transmission in commercial sex is essential. The national programme in Thailand has demonstrated that condom promotion, aggressive STD control, and mass media campaigns can radically reduce the rates of disease transmission in commercial sex<sup>38</sup>. These efforts have succeeded largely because authorities worked with brothel owners and sex workers to increase condom use and improve STD treatment, while simultaneously using mass media and workplace interventions to reach clients, rather than attempting to eliminate commercial sex. Given the cultural and economic forces sustaining the commercial sex industry, eradication in the short term is an idealistic, not a realistic, option. If one merely removes the supply of sexual services without altering the demand, the demand will express itself elsewhere. Commercial sex will be driven underground and intervention will become impossible. Such efforts will have the net result of promoting the spread of HIV. For now, it is better to focus on decreasing the HIV risk associated with commercial sexual contact through condom promotion and STD control.

From both the public health and human rights viewpoints there are clear reasons to discourage commercial sex, but this is a long-term, not a short-term strategy. Efforts should begin now to change the norms and practices of young people regarding commercial sex before their sexual habits have formed. Mass media approaches can be used to reach the public and show the

negative aspects and risks associated with commercial sex. However, such efforts must be handled with care so as not to stigmatize further sex workers. Other long-term approaches include working on the roots of the commercial sex industry: poverty and social displacement. Development policies can increase employment and educational opportunities for young women, especially in rural areas, so they have fewer incentives to engage in commercial sex work. This might be done by providing scholarships for young, rural women to allow them to continue their education beyond primary school. In developing new industrial zones, consideration should be given to moving entire families rather than asking husbands to leave their wives and children behind when they leave to find work. This will help by providing a more normal social environment, thereby reducing the demand for sexual services. Finally, efforts to improve women's status and their control in sexual situations should continue, because the roots of Asia's HIV problem lie in the inequality between the genders.

Intervention in the casual and marital sex arenas are also needed. At present condom use in casual sexual contacts is almost nonexistent in most of Asia. As the heterosexual spread of HIV infection continues, this places large numbers of people at risk for contracting HIV. Focusing on this is particularly important in countries with strong sexual network linkages between casual and commercial sex, for example, in southeast Asia. General efforts to educate the public should stress that all vaginal sex carries a risk of HIV transmission, focusing on the act rather than on the partner. Too often in the past the emphasis has been on commercial sex in education messages, not on vaginal transmission, leaving many with the impression that it was who you had as a partner, not what you did, that placed you at risk. Education efforts should teach proper use of condoms and negotiating skills for sexual situations. Another essential component of programmes to address casual sex should be the reduction of barriers to access to condoms and STD treatment for single men and women. In many places, for example, Indonesia<sup>39</sup>, unmarried people face significant social and structural barriers to condom access or STD treatment.

For women in Asia, the greatest risk of HIV comes from regular sexual partners, primarily husbands. In marital settings, approaches to increase sexual communication between husbands and wives should be explored. Married Asian women need to understand the risks they face. This will only happen if husband and wife discuss sexual matters and come to a mutual understanding. Part of these efforts will involve education to make women aware of the levels of premarital and extramarital activity in their countries, and part will be training in skills and building mechanisms of peer support so that women are in a

position to influence their husbands' behaviour. In addition, governments could consider promoting voluntary premarital or pre-pregnancy testing and counselling. If properly executed, such efforts might encourage men to reduce their premarital and extramarital risks, while providing women with the knowledge they need to protect themselves.

Finally, an examination of the existing situation emphasizes the need for expanding knowledge about sexual risk in Asian countries. While studies have been done in many countries, they are of varying quality and generalizability. Only a handful are scientifically executed nationwide samples that can be said to represent adequately the behaviours in the country. In many cases, studies have been weakened by high levels of nonresponse. In most Asian countries, little or no information is available on sexual behaviour in rural areas, where most people live. In other countries no representative sexual behaviour studies have been done at all. If national policies are to be based on a realistic appraisal of the level of HIV risk in a country, and if the effectiveness of intervention programmes is to be evaluated, regular, consistent and methodologically sound surveys need to be conducted at regular intervals. Given the importance of commercial sex in the Asian HIV/AIDS epidemics, such studies should explicitly gather information on both casual and commercial sex. Behavioural surveillance should be an essential component of every national AIDS programme, with national surveys executed every 2 or 3 years to track trends and changes. Two such studies done 3 years apart in Thailand found substantial increases in condom use along with a significant decline in visits to commercial sex workers, which indicates that the national programme is achieving its goals. Such regular behavioural surveillance should be coupled with intensive qualitative and quantitative studies of the forms and prevalence of commercial sex and the levels of HIV and STD among commercial sex workers.

A common misconception has been that because most countries in Asia have seen fewer AIDS cases than Thailand, they do not have sufficient levels of risk behaviour to support a widespread, heterosexual HIV epidemic. Recent shifts in epidemiological patterns and behavioural studies done in the region have shown this to be untrue. While the epidemic will vary in terms of its growth rate and ultimate size in different countries of the region, each of them has sufficient heterosexual risk behaviour to support a large-scale HIV/AIDS epidemic. Just because they have not experienced a large epidemic by 1994 does not mean that they are immune to one in the future, but it does present them with a unique opportunity to intervene early and prevent much death and suffering. An immediate investment in national programmes to reduce risk in commercial settings coupled with a strong education programme aimed at the

general population will reap immense benefits in averted costs and social destruction. Immediate action is essential. Every month of delay only adds to the epidemic's eventual social and economic cost.

1. Global Programme on AIDS, AIDS Cases Reported to WHO by Continent/Year, Geneva, Switzerland, 1994.
2. Weniger, B., Limpakarnjanarat, K., Ungchusak, K., Thanprasertsuk, S., Choopanya, K., Vanichseni, S., Uneklabh, T., Thongcharoen, P. and Wasi, C., The epidemiology of HIV infection and AIDS in Thailand, *AIDS*, 5 (suppl. 2), S71-S85 (errata corrected in 1993, 7(1): following 147).
3. Jain, M. K., John, T. J. and Keusch, G. T., Epidemiology of HIV and AIDS in India, *AIDS*, 1994, 8 (suppl. 2), S61-S75.
4. Brown, T., Sittitrai, W., Vanichseni, S. and Thisyakorn, U., The recent epidemiology of HIV and AIDS in Thailand, *AIDS*, 1994, 8 (suppl 2), S131-S141.
5. Tan, M. L. and Dayrit, M. M., HIV/AIDS in the Philippines, *AIDS*, 1994, 8 (suppl. 2), S125-S130.
6. Kitamura, T., Summary of the epidemiology of HIV/AIDS in Japan, *AIDS*, 1994, 8 (suppl 2), S95-S97.
7. Xinhua, S., Junhua, N. and Qili, G., AIDS and HIV infection in China, *AIDS*, 1994, 8 (suppl 2), S55-S59.
8. Singh, J., Che'rus, S., Chong, S., Chong, Y. K., and Crofts, N., AIDS in Malaysia, *AIDS*, 1994, 8 (suppl. 2), S99-S103.
9. Lee, S. S., Lim, W. L., Lee, S. H. and Chan-Fung, M. F. C., Epidemiology of HIV Infection in Hong Kong Paper presented at the Tenth International Conference on AIDS and STDs, Yokohama, Japan, August 1994 (abstract PC0070), 1994.
10. Jalal, F., Abednego, H. M., Sadjimin, T., and Linnan, M. J., HIV and AIDS in Indonesia, *AIDS*, 1994, 8 (suppl. 2), S91-S94.
11. Oh, H. M. L. and Chew, S. K., HIV infection in Singapore, 1985-1993, Paper presented at the Tenth International Conference on AIDS and STDs, Yokohama, Japan, August 1994 (abstract PC0071).
12. Division of Epidemiology., First sentinel surveillance June 1989. *Weekly Epidemiol. Sur. Rep. (Thailand)*, 1989, 20, 376-389.
13. Sirisopena, N., Torugsa, K., Carr, J., Jugsudee, A. et al., Prevalence of HIV-1 infection in young men entering the Royal Thai Army, Paper presented at the Ninth International Conference on AIDS, Berlin, June 1993 (abstract PO-C08-2778).
14. Sittitrai, W., Phanuphak, P., Barry, J. and Brown, T., Thai sexual behavior and risk of HIV infection: A report of the 1990 survey of partner relations and risk of HIV infection in Thailand, Research Report, Thai Red Cross Society, Programme on AIDS, Bangkok.
15. Mastro, T. D., Satten, G. A., Nopkesorn, T., Sangkharomya, S. and Longini Jr., I. M., Probability of female-to-male transmission of HIV-1 in Thailand, *Lancet*, 1994, 343, 204-207.
16. NESDB (National Economic and Social Development Board) Working Group, *Projections for HIV in Thailand 1987-2005 An Application of EPIMODEL*, Bangkok, 1994.
17. Duerr, A., Xia, Z., Nagachinta, T., Tovanabutra, S., Tansuhaj, A. and Nelson, K., Probability of male-to-female HIV transmission among married couples in Chiangmai, Thailand, Paper presented at the Tenth International Conference on AIDS and STDs, Yokohama, Japan, August 1994 (abstract 105C).
18. Cash, R.A., Heterosexual behavior related to the risk of HIV infection among Japanese men in Bangkok, Thailand, Paper presented at the Xth International Conference on AIDS and STDs, Yokohama, Japan, August 1994 (abstract PD0367).
19. Choi, K.-H., Catania, J., Coates, T. J., Hyung, L. and Hearst, N., International travel and AIDS risk in South Korea *AIDS*, 1992, 6, 1555-1557.
20. Ruan, F. F., *Sex In China: Studies in Sexology in Chinese Culture*, Plenum Press, New York, 1991.

21. Boonchalaksi, W. and Guest, P., *Prostitution in Thailand*, Institute for Population and Social Research Publication No. 171, Bangkok, Thailand, Mahidol University, 1994.
22. Mane, P. and Maitra, S. A., *AIDS Prevention: The Sociocultural Context in India*, Tata Institute of Social Sciences, Bombay.
23. Mawar, N., Divekar, A. D., Tripathy, S. P., Bagul, R. G., Swamy, M., Banerjee, K. and Rodrigues, J. J., Commercial sex workers' risk to HIV in Pune, Paper presented at the Tenth International Conference on AIDS and STDs, Yokohama, Japan, August 1994 (abstract 448D).
24. Stephens, E. J., *et al.*, Intervention development in areas of traditional prostitution in Tamil Nadu, Paper presented at the Tenth International Conference on AIDS and STDs, Yokohama, Japan, August 1994 (abstract PD0447).
25. Carballo, M., Cleland, J., Carael, M. and Albrecht, G., A cross national study of patterns of sexual behavior. *J. Sex Res.* 1989, 26, 287-299.
26. Sundhagul, D. and Gill, Z. J., Phnom Penh AIDS Awareness Project, World Vision International Cambodia and Office of Population Technical Assistance, Phnom Penh.
27. Seghal, P. N. and Singh, K., *Knowledge, Attitudes, Beliefs and Practices (KABP): Study Related to AIDS in Manipur State, India and Intervention Strategies*. Voluntary Health Association of India, New Delhi, 1992.
28. Lui, P. K., Kwong, P. Lau, J., Cheng, H., Yeung, V. and Wong, T., *The Knowledge, Attitude, Behaviour and Practice Survey on AIDS in Hong Kong 1992*. Hong Kong AIDS Foundation, Hong Kong, 1993.
29. Task Force on the Study of Adolescent Sexuality, 1989, *Working Report on Adolescent Sexuality Study*, 1986, Hong Kong, Family Planning Association of Hong Kong, 1989.
30. Munakata, T. and Tajima, K. The Japanese risk behaviours and their HIV/AIDS preventive behaviours, unpublished report. (Some results from this study are also reported in Munakata, T., *AIDS in Japan*, Akashi Shoten, Tokyo, 1994.
31. Htoon, M.T., Lwin, H. H., San, K. O., Zan, E. and Thwe, M., HIV/AIDS in Myanmar, *AIDS*, 1994, 8 (suppl. 2), S105-S109.
32. Gurubacharya, V. L. and Suvedi, B. K., Sexual behaviour pattern in Nepal, Paper presented at the Tenth International Conference on AIDS and STDs, Yokohama, Japan, August 1994 (abstract PC0123).
33. Suvedi, B. K., Gurubacharya, V. L. and Thapa, K., Seasonal migration and its relation to HIV transmission in western Nepal, Paper presented at the Tenth International Conference on AIDS and STDs, Yokohama, Japan, August 1994, (abstract 192D).
34. Iwamuro, S., Use of condoms among Japanese high school students, Paper presented at the Tenth International Conference on AIDS, Yokohama, Japan, August 1994 (abstract PD0590).
35. Lau, J., *Working Report Evaluation of Educational Programmes on AIDS in Secondary Schools in Hong Kong*. Hong Kong, Advisory Council on AIDS, 1994.
36. Havanon, N., Bennett, A. and Knodel, J., Sexual networking in provincial Thailand, *Studies in Family Planning*, 1993, 24, 1-17.
37. Xenos, P., Pitaktepsombati, P. and Sittitrai, W., Partner patterns in the sexual behaviour of unmarried, rural Thai men, *Asian Pacific Population Forum*, 1993, 6(4), 104-117.
38. Hanenberg, R., Rojanapithayakorn, W., Kunasol, P. and Sokal, D., The impact of Thailand's HIV-control programme as indicated by the decline of sexually transmitted diseases. *Lancet*, 344, 243-245.
39. Merati, T. P., Suarmiartha, E., Ruddick, A. C., Ekstrand, M. and Mandel, J., Assessing the role of traditional Balinese youth groups (STTs) in AIDS prevention programmes, Paper presented at the Tenth International Conference on AIDS, Yokohama, Japan, August 1994 (abstract PD0351).