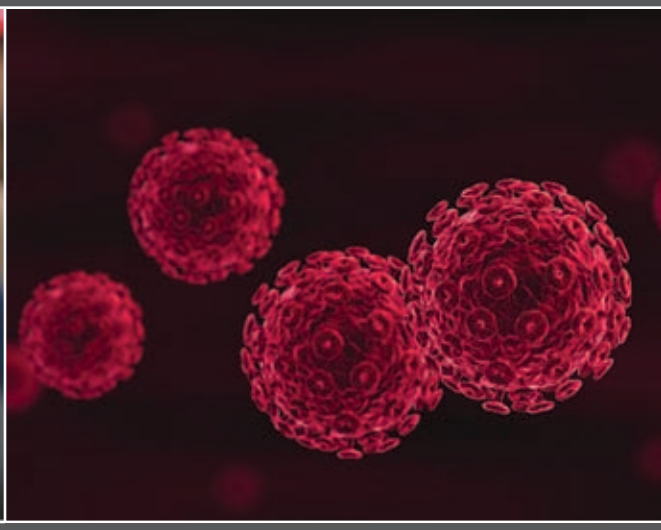
CSIS HIV/AIDS TASK FORCE

Demography of HIV/AIDS in China

A Report of the Task Force on HIV/AIDS
Center for Strategic and International Studies



Authors
Bates Gill
Yanzhong Huang
Xiaoqing Lu

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Center for Strategic and International Studies
1800 K Street, N.W.
Washington, D.C. 20006
Tel: (202) 887-0200
Fax: (202) 775-3119
Web: www.csis.org

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Abbreviations

AIDS	acquired immune deficiency syndrome
ARV	antiretroviral
CSW	commercial sex worker
DU	drug user
FSW	female sex worker
FBD	former blood donor
FPD	former plasma donor
HIV	human immunodeficiency virus
IDU	intravenous drug user
MSM	men who have sex with men
NGO	nongovernmental organization
PAP	People's Armed Police
PLA	People's Liberation Army
RTI	reproductive tract infection
STD	sexually transmitted disease
STI	sexually transmitted infection
VCT	voluntary testing and counseling

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The views expressed in this report are our own and do not necessarily reflect the views and policies of the underwriters or our interlocutors in China.

Executive Summary

Background

- The challenge to determining the true impact of HIV within the general population in China has been the lack of a reliable, comprehensive surveillance and reporting system, coupled with the lack of an effective referral chain within the Chinese healthcare system. However, over the past few years, more information has become available about specific, at-risk populations.
- The nature of China's HIV epidemic complicates assessments about its future. The vast majority of Chinese persons harboring HIV are within marginalized, at-risk, and hard-to-reach populations, such as intravenous drug users (IDUs), commercial sex workers (CSWs), and increasingly within the migrant labor population. Moreover, the disease is found predominantly in more remote and poor areas of China, and it disproportionately affects ethnic minorities, especially in southwestern and western China.

HIV/AIDS Situation in China

- HIV-positive persons are present in all 31 provinces and municipalities of China. As of the end of 2005, the Ministry of Health estimated that approximately 650,000 (range: 540,000 to 760,000) persons could be infected in China, with about three-quarters of these persons living in five Chinese provinces: Yunnan, Henan, Xinjiang, Guangxi, and Guangdong.
- More troubling is data regarding certain at-risk groups. Data as of the end of 2005 shows that prevalence among IDUs has tripled from 1.95 percent in 1998 to 6.48 percent in 2004, and from 0.02 percent in 1996 to almost 1.00 percent in 2004 among CSWs, a remarkable jump of nearly 50-fold. Among pregnant women in high-risk areas, HIV prevalence has also grown dramatically, from nil in 1997 to 0.26 percent in 2004.
- As of the end of 2005, in some provinces, such as Yunnan, Henan, and Xinjiang, HIV prevalence rates exceed 1 percent among pregnant women and among persons who receive premarital and clinical HIV testing. This meets the criteria of the UN Joint Program on HIV/AIDS (UNAIDS) for a "generalized epidemic."
- The source of HIV infection is another indicator of how the disease may be moving toward a more generalized epidemic in China. Data for those who were infected in 2005 shows that while IDU infection accounts for 48.6 percent of HIV infection, sexual transmission for the first time accounts for more infections, at 49.8 percent. Mother-to-child transmission also appears to be increasing as part of the overall epidemic, another indicator that the epidemic is emerging in the general population.

Assessment of At-Risk Populations in China

- While overall numbers of persons infected with HIV in China appear to be lower than expected several years ago, official estimates state that the country had 70,000 new infections in 2005 (about 200 per day).
- Only one major at-risk group—persons who contract or contracted the disease through illegal and/or unsafe blood donations and blood products—is decreasing in size, as the government introduces measures to clean up the blood supply.
- Thus far, interventions have not made a significant impact on reducing the spread of HIV among key at-risk groups, especially among IDUs, CSWs, men who have sex with men (MSM), and migrant workers.
- A lack of education and awareness about HIV continues to undermine efforts to stem the spread of the disease, coupled with continued high levels of risky behaviors such as drug use and unprotected sex among the key at-risk groups.

Assessment of the Chinese Government Response

- China's response to HIV/AIDS has significantly improved since 2003. New leaders were placed in charge of the Ministry of Health, and national and provincial budgets for HIV/AIDS were increased. The national budget allocation for combating HIV/AIDS was increased from RMB100 million (approximately $12.5 million) in 2002 to RMB800 million (approximately $100 million) in 2005. At the end of 2005, it was officially announced that this budget would be nearly doubled for 2006 and 2007, to RMB1.5 billion (approximately $185 million).
- The national treatment program, known as "China CARES" ("China Comprehensive AIDS Response") was initiated in 2003, supported by central government funding and a grant from the Global Fund to Fight AIDS, Tuberculosis and Malaria ("Global Fund"). As of the end of 2006, more than 30,640 patients have been treated in 800 counties in all 31 provinces.[1]
- HIV testing at local levels has been expanding rapidly, with millions of persons tested between 2004 and 2005, especially in suspected high-prevalence areas such as Henan and Yunnan provinces. Free HIV testing has been made available and expanded from 365 counties in 15 provinces in 2002 to over 2,300 counties, with 3,037 sites, in all provinces in 2006.[2]
- In January 2006, long-awaited HIV/AIDS regulations were announced. These regulations, which came into effect on March 1, 2006, bring greater national attention to the plight of those who have contracted HIV, while also codifying anti-stigma and discrimination rules. The regulations also stipulate the role of different government agencies at national and local levels and spell out the rights and obligations of HIV-positive persons and their families. Full

[1] Wu Zunyou et al., "Evolution of China's Response to HIV/AIDS," *Lancet* 369 (February 24, 2007).
[2] Ibid.

implementation and enforcement of the regulations remain a concern, but they mark a step in the right direction.

- China has been more open to the assistance of international organizations (such as the Global Fund), multinational corporations, international foundations, and foreign governments. The international community has become increasingly active in addressing HIV/AIDS in China. According to Chinese vice minister of health Wang Longde, as of late 2005, international cooperation programs to combat HIV/AIDS had been carried out in 27 of China's 31 provinces, autonomous regions, and major municipalities, involving RMB1.867 billion (approximately $229 million).
- However, persistent and serious gaps remain in the Chinese government response. The most challenging problems are:

  Poor coordination within and across relevant agencies and actors;

  Lack of financial and human resources and debilitated public health system, especially in rural and poor areas of China where the epidemic is the worst;

  Continuing concerns with the safety of China's blood supply;

  A need to put more resources into HIV education, awareness, prevention, and testing, especially among marginalized and at-risk groups, which are fueling the spread of the disease: IDUs, CSWs, MSM, and migrant workers;

  Continued reluctance to allow a greater role for domestic and international nongovernmental organizations;

  The emergence of HIV-drug resistance and resistant strains as a result of a poorly executed national treatment plan; and

  Gaps in addressing the special needs of the most at-risk groups.

Conclusions

- *Epidemic following patterns common in other Asian countries.* There is already evidence that in some geographic pockets and among some at-risk groups—especially IDUs and CSWs—prevalence has become "generalized," with rates having surpassed 1.0 percent.
- *Key populations still require significant study.* While the virus itself has followed a trajectory similar to other Asian countries, understanding of key populations such as migrants, former plasma donors (FPDs), and MSM remains comparatively low.
- *Lack of resources and innovative interventions stymie a more effective response.* Limited resources and poor access to most at-risk populations—especially IDUs, CSWs, migrant workers, and MSM—will result in continued significant growth in the Chinese HIV-positive population over the near to medium term.

- *Epidemic will concentrate and spread largely in two regions of China.* Over the next five years, the HIV epidemic in China will largely concentrate and grow in two main regions: (1) in southern and southwest Chinese provinces, where heroin use and commercial sex work are increasing; (2) in Xinjiang, where the epidemic is currently concentrated among ethnic minority IDUs, but will, with time, break out to affect CSWs and the larger population.
- *Actual number of HIV-infected individuals may be higher than official estimates.* Owing to continued limitations in the Chinese surveillance, testing, and reporting system, the current number of HIV-positive persons in China is probably equal to or more than the high-end range of official estimates made in 2005. The actual figure for 2007 to 2008 may be as high as between 760,000 and 1 million persons.
- *Flattening but continuing growth of HIV-infected population.* Presuming the continuation of economic growth and an increase in funding for HIV-related work, in addition to expanding political focus by the Chinese government and increased action by the international community and local NGOs, the growth curve for HIV infection will begin to flatten around 2011 to 2012.

Demography of HIV/AIDS in China

Bates Gill, Yanzhong Huang, and Xiaoqing Lu

Part 1. Background to the Study

The possible evolution of the HIV/AIDS epidemic in China from localized high-prevalence populations to a more widespread, generalized epidemic poses a critical question for which there have been few good answers. China's national surveillance system does not adequately scrutinize the general population for HIV, and the Chinese government's responsiveness to the epidemic, while improving, still lags, especially with respect to certain at-risk populations. This has led some observers to speculate about the long-term spread and impact of the disease.[1]

The challenge of determining the true impact of HIV within the general population in China has been the lack of a reliable, comprehensive surveillance and reporting system, coupled with the lack of an effective referral chain within the Chinese healthcare system. However, over the past few years, more information has become available about specific, at-risk populations. Likewise, the national surveillance system is expanding every year.

However, the nature of China's epidemic further complicates assessments about its future. The majority of people living with HIV worldwide acquired the infection through heterosexual intercourse. In China, heterosexual transmission is the fastest growing mode of HIV transmission. But the vast majority of Chinese persons harboring HIV are within marginalized, at-risk, and hard-to-reach populations, such as intravenous drug users (IDUs), commercial sex workers (CSWs), and increasingly within the migrant labor population. Moreover, the disease is found predominantly in more remote and poor areas of China, and it

[1] Joint UN Program on HIV/AIDS (UNAIDS) and World Health Organization (WHO), "Epidemiological Fact Sheets on HIV/AIDS and Sexually Transmitted Infections, 2004 Update: China," January 9, 2004, http://data.unaids.org/Publications/Fact-sheets01/china_en.pdf?preview=true. The United Nations projected that if the epidemic is left unchecked, the number of people living with HIV/AIDS in China could exceed 10 million by 2010.

disproportionately affects ethnic minorities, especially in southwest and western China, further complicating good data collection and analysis.

Despite the difficulties, it is becoming increasingly possible to develop a good trend line for HIV prevalence at the national level by means of a thorough understanding of the size of different at-risk populations, the frequency of high-risk behavior, the prevalence rate within high-risk groups, and the prevalence of other sexually transmitted infections (STIs) that facilitate HIV transmission. The continued examination of these factors will offer a better understanding of the long-term spread of HIV in China.

Furthermore, the actual impact of the HIV/AIDS epidemic in China will be greatly determined by the Chinese government's response. Several key factors will determine the extent of the spread of HIV over the long term: visible political commitment at the highest levels; genuine financial commitment; sustained and effective prevention, awareness, and education programs; STI prevention, treatment, and control; increased role of civil society, including businesses and nongovernmental organizations (NGOs), in prevention, treatment, and care activities. Analysis of the Chinese government's policies and the effectiveness of their implementation will provide further insight into the potential impact that the government could have on reducing the rate of HIV infection.

To examine these issues more closely, the Freeman Chair in China Studies at CSIS partnered with the Center for Global Health Studies at the Seton Hall University Whitehead School of Diplomacy and International Relations to carry out a research and analysis project on the demographic trends of HIV infection in China. We commissioned research from some of the world's leading experts on China's HIV epidemic, convened a meeting of those experts in November 2004, and carried out further research and interviews in China. A listing of the experts who contributed to this project is shown in the appendix of this study.

We are grateful to the sponsors of and contributors to the project. However, the views and findings of this report do not necessarily reflect those of the sponsors and contributing authors.

Part 2. The HIV/AIDS Situation in China

Since China's first reported indigenous case of HIV was identified in Ruili City, Yunnan province, in 1989, HIV has spread numerically and geographically throughout the country. Today, HIV-positive persons are present in all 31 provinces and municipalities of China. As of the end of 2005, the Ministry of Health estimated that approximately 650,000 (range 540,000 to 760,000) persons could be infected in China, with about three-quarters of these persons living in five Chinese provinces: Yunnan, Henan, Xinjiang, Guangxi, and Guangdong.[2]

Although the new estimate of 650,000 cases is lower than previously believed, the rate of infection is rising at a rate of at least 70,000 new cases per year as of 2005.[3] In addition, the government acknowledges that it had only 144,089 *confirmed* cases of HIV infection in China as of 2005, a more than 60 percent increase from the 89,067 confirmed cases reported the year before.[4] By the end of October 2006, the total number of reported HIV/AIDS cases grew to 183,733 nationwide.[5] These figures indicate that some half a million or more persons in China, or about 80 percent of those HIV positive, are unaware of their condition and that the government does not know who they are. Some Chinese experts suggest that up to 95 percent of HIV carriers do not know their status.[6] This has obvious implications for the continued spread of HIV in the country.

Figures are more troubling among certain at-risk groups. Data as of the end of 2005 show that prevalence among IDUs has tripled from 1.95 percent in 1998 to 6.48 percent in 2004—and in some severely affected regions has increased by up to 86.54 percent as of 2005.[7] Prevalence among CSWs has risen from 0.02 percent in 1996 to 1.00 percent in 2004, a remarkable jump of nearly 50-fold.[8] Among pregnant women in high-risk areas, HIV prevalence has also grown

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[2] People's Republic of China Ministry of Health (MOH), UNAIDS, and WHO, *2005 Update on the HIV/AIDS Epidemic and Response in China* (Beijing, National Center for AIDS/STD Prevention and Control, January 24, 2006), p. i. See also "China Has 135,630 Reported Cases of Reported HIV Infection," Xinhua, November 28, 2005. The figure of 840,000 HIV-positive persons in China was reported a year earlier in China State Council Working Committee on AIDS and United Nations Theme Group on HIV/AIDS in China, *A Joint Assessment of HIV/AIDS Prevention, Treatment, and Care in China (2004)* (Beijing: State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, December 1, 2004).

[3] MOH, UNAIDS, and WHO, *2005 Update on the HIV/AIDS Epidemic and Response in China*, p. 1.

[4] UNAIDS and WHO, *Epidemiological Fact Sheets on HIV/AIDS and Sexually Transmitted Infections, 2004 Update: China* (Geneva: UNAIDS, 2004).

[5] "Weishengbu tongbao woguo ai zi bing liuxing xianzhuang: ganran zhe renshu zengjia" [MOH reported China's current HIV epidemic: An increasing number of infected people], *People's Daily*, November 22, 2006, http://politics.people.com.cn/GB/1027/5074814.html#.

[6] Jun Jin, "95% bu zhidao ziji ganran le ai zi bing bingdu" [95% of the population does not know its HIV infection status], Tsinghua AIDS Policy Research Center, June 1, 2006, http://www.aids333.com/data/2006/0601/article_96.htm.

[7] "Harm-reduction as 'Great Wall' for AIDS Prevention," AIDS-China.com, June 27, 2006, http://www.aids-china.com/info/2338-1.htm.

[8] MOH, UNAIDS, and WHO, *2005 Update on the HIV/AIDS Epidemic and Response in China*, p. 4.

dramatically, from nil in 1997 to 0.38 percent in 2004.[9] In some provinces, such as Yunnan, Henan, and Xinjiang, HIV-prevalence rates exceed 1 percent among pregnant women and among persons who receive premarital and clinical HIV testing. This meets the criteria of the UN Joint Program on HIV/AIDS (UNAIDS) for a "generalized epidemic."[10]

In addition, several emerging factors—increases in China's sex trade, increasing pre-marital and extramarital sex, greater social tolerance for homosexuality and men having sex with men, and risky behavior in the "floating population" of migrant workers—could serve as a bridge to spread the epidemic into the general population.[11] The figures cited in the previous paragraph for increased prevalence among CSWs and pregnant women are especially important indicators that the disease is spreading into the wider, "mainstream" population.

The source of HIV infection is another indicator of how the disease may be moving toward a more generalized epidemic in China. For example, past estimates suggested that over two-thirds of Chinese HIV cases were contracted through intravenous drug use with infected needles. Data in 2005, however, show that of all persons living with HIV in China today, about 44.3 percent were infected through intravenous drug use, 43.6 percent were infected through sexual contact, 10.7 percent through tainted blood or blood products, and 1.4 percent through mother-to-child transmission. More recent data for those who were infected in 2005 show that while IDU infection accounts 48.6 percent of HIV infection, sexual transmission for the first time accounts for more infections, at 49.8 percent. Mother-to-child transmission also appears to be increasing as part of the overall epidemic (see table below).

While illegal and unsanitary blood collection practices have been significantly reduced in China, the number of persons contracting HIV through unsafe sex will increase in the years ahead due to a rise in commercial sex and extramarital sex. According to Chinese vice minister of health Wang Longde, national surveillance figures indicate that the "epidemic is spreading from high-risk groups to ordinary people, and that China is in a critical period for AIDS prevention."[12]

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[9] "Yunnan aizi ganran kaishi xiang putong renqun kuosan" [HIV/AIDS transmission to general population], *Caijing*, March 13, 2006.
[10] MOH, UNAIDS, and WHO, *2005 Update on the HIV/AIDS Epidemic and Response in China*, p. 5.
[11] Bates Gill, J. Stephen Morrison, and Andrew Thompson, *Defusing China's Time Bomb: Sustaining the Momentum of China's HIV/AIDS Response* (Washington, D.C.: CSIS, June 2004).
[12] "China Has 135,630 Reported Cases of Reported HIV Infection," Xinhua, November 28, 2005.

Table 1. Source of HIV Infection in China in 2005 (in percent)

Mode of Transmission	Among Total HIV+ Population	Among Those Infected in 2005
Injection drug use	44.3	48.6
Sexual transmission	43.6	49.8
Tainted blood/blood products	10.7	0.0
Mother-to-child transmission	1.4	1.6

Source: People's Republic of China Ministry of Health (MOH), Joint UN Program on HIV/AIDS (UNAIDS), and World Health Organization (WHO), *2005 Update on the HIV/AIDS Epidemic and Response in China* (Beijing, National Center for AIDS/STD Prevention and Control, January 24, 2006), p. 4.

Part 3. Assessment of At-Risk Populations in China

Given what we know about HIV prevalence in China, understanding the future course of the disease demands a deeper examination of epidemiological and behavioral data among at-risk populations in China. These groups include: IDUs, CSWs, MSM, and former plasma donors (FPD) who have contracted HIV. However, other large, amorphous groups are potentially at elevated risk of contracting and transmitting HIV, namely migrants and young people. Understanding the behaviors of these populations and shaping a social and political environment that is conducive to well-designed interventions are vital to mounting an effective national response to HIV/AIDS.

Challenges in Assessing At-Risk Populations in China

From the mid-1990s to today, HIV-risk-related epidemiological and behavioral studies have been conducted with increasing volume, size, and scope. However, the focus of these studies is commonly linked to the evidence generated by the official, national HIV-surveillance system that focuses predominantly on high-risk groups such as IDUs and CSWs, and not on the general population or regions where HIV is thought to be low prevalence.

As a result, China's surveillance system remains limited in its ability to fully capture the extent of HIV incidence throughout the country, as evidenced by the wide gap between registered and estimated cases. As of the end of 2005, China had 329 national sentinel surveillance sites, 400 provincial and local sentinel sites, and a case reporting system that experts estimate captures as few as 15 to 20 percent of the cases occurring throughout the country. Additionally, the majority of sentinel surveillance sites focus on drug users and sex workers in detention centers, as well as visitors to the government's sexually transmitted infection clinics.

The sentinel surveillance system's emphasis on collecting data on certain high-risk groups, at the expense of measuring risk and incidence across a broader cross section of society, leads to the inevitable conclusion that HIV is heavily impacting one group over an understudied group. With few sentinel surveillance sites allocated to MSM, for example, there is very little evidence collected through official channels about the extent and impact of HIV/AIDS on this group. Because of these wide gaps in knowledge, policymakers still "do not know what they do not know," creating potential for misperception and misallocation of resources and energy.[13]

Widespread HIV testing in high-risk areas of China in 2004 and 2005—some 2 million HIV tests were administered, especially in areas of central China affected by China's blood plasma donor scandals of the mid- to late-1990s—

[13] Joan Kaufman and Kathrine Meyers, "AIDS Surveillance in China: Data Gap and Research for AIDS Policy," in *AIDS and Social Policy in China*, ed. Joan Kaufman et al. (Cambridge, Mass.: Harvard University Asia Center, 2006).

allowed the government to identify a larger number of HIV-positive persons and slightly close the gap between the estimated and confirmed number of HIV cases. However, the group of former plasma donors, mostly poor farmers in Henan, Hubei, Anhui, Shanxi, and Hebei provinces, were relatively easier to identify and test than persons in more marginalized populations such as drug users and sex workers.

Gaining more epidemiological and behavioral data and information on these harder-to-reach groups, and assessing Chinese government policies toward these groups, is crucial for predicting the future course of the disease in the country.

Intravenous Drug Users

Background

China has a long history of drug abuse, which reached epidemic proportions in the late nineteenth century as Western nations imported and distributed opium following China's defeat in the two Opium Wars of 1839–1842 and 1856–1860. By 1906, China had an estimated 13.5 million opium addicts consuming 39,000 metric tons of opium a year, representing 27 percent of adult males.[14] Beginning in 1950, the communists employed a mass mobilization campaign to eradicate drug abuse throughout the country and within three years had essentially eliminated that abuse.

In the 1980s, heroin and opium abuse reemerged in China. Opening borders, rising incomes, and increasing personal mobility are all contributing to a growing epidemic of drug abuse. In other cases, problems of joblessness and social alienation lead persons to drug use as well. Heroin and opium were first available in the southwest border region, primarily along the Yunnan-Myanmar border. Much of the heroin imported into China is produced in Myanmar and is easily smuggled across the mountainous border. Smuggled into Yunnan and Guangxi provinces, it is ultimately destined for Xinjiang province (where large numbers of users are found) or cities along China's prosperous East Coast, where it is either consumed or smuggled abroad.

Because of its long, mountainous and unguarded border with the poppy growing and heroin production region of the golden triangle, Yunnan province is China's front line in the war against drugs. There are wildly divergent estimates of the total amount of heroin produced in Myanmar and trafficked through China (amphetamines and ketamine are also trafficked in smaller quantities), ranging between 80 and 2,300 tons per year.[15] While government seizures have steadily increased since the government began releasing statistics, recent years have seen heroin seizures stabilize around 10 tons per year.[16] Yunnan and the other border

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[14] UN Office for the Coordination of Humanitarian Affairs, *Bitter-Sweet Harvest: Afghanistan's New War* (Kabul: IRIN, 2004), pp. 39–44, http://www.irinnews.org/pdf/in-depth/Bitter-Sweet-Harvest-Afghanistans-New-War.pdf. For an excellent history of the problem in China, see Martin Booth, *Opium: A History* (London: Simon & Schuster, 1996).

[15] UN Office on Drugs and Crime (UNODC), "Myanmar Strategic Programme Framework," UNODC, Vienna, November 2, 2004, p. 1.

[16] "China Admits Drug War Is Failing," Associated Press, May 27, 2005.

provinces are primarily transit areas and not necessarily "destination markets" for illicit drugs. Nevertheless, traffickers are adept at developing markets for their product along smuggling routes. Cultivating consumption along trafficking routes generates income along the way, hedges against subsequent seizures of the product and creates "friendly territory" where the traffickers can more easily find "mules" and transit the area in greater safety. As a result, drug abuse has become common along key border and transit points and highways leading north and east.

China and particularly Yunnan province have waged an active campaign against drugs, mounting robust supply interdiction and demand reduction campaigns. In the past, Yunnan province reported success in reducing the number of registered drug users: from 67,000 in 1990 to 44,245 in 2000.[17] However, three provincial surveys conducted in 2004 found that the number of addicts in the province numbered 68,000. Outside experts suspect the number is at least two to three times that number.

To address the growing number of addicts, the government has increased national and provincial budgets to be used to pay informants to turn in users and dealers and build new drug detoxification centers. The National Narcotics Control Commission (NNCC), China's counternarcotics coordinating body under the Ministry of Public Security, received an annual budget of less than $1 million in the mid-1990s, but by 1998 its budget had increased to approximately $4.5 million and by 2003 to about $17.5 million.[18] Provincial budgets for counterdrug work has also increased, as have the amounts of central government grants allocated to provinces to counter drug smuggling and drug use.

In 2004, the central government began promoting a policy encouraging the provinces to expand their drug detoxification center capacity. In 2005, the central government allocated RMB100 million (approximately $12 million) to expand detoxification centers from 2004 to 2008, and local governments have also planned to spend millions of yuan for the same purpose. Many of the facilities are slated to include segregated areas for HIV-positive inmates.[19]

Yunnan province is planning to expand the capacity of its rehabilitation centers to accommodate 68,000 people by 2008, up from the 36,000 available now. This expansion will allow the province to lengthen sentences in the hope that recidivism can be reduced. A total of 56,056 addicts were admitted to detoxification centers in Yunnan in 2004, compared with 35,913 in 2003.[20] Nationwide, public security officers detained 273,000 drug users in 2004, placing them in compulsory rehabilitation and detoxification facilities. Over 68,000 drug users were detained in reeducation through labor facilities operated by justice

[17] Myat Htoo Razak, "Situation Assessment of Injection Drug Users In Yunnan Province," Futures Group Europe, June 2002.
[18] Bureau for International Narcotics and Law Enforcement Affairs, *International Narcotics Control Strategy Report: Vol. 1: Drug and Chemical Control* (Washington, D.C.: U.S. Department of State, March 2005), http://www.state.gov/documents/organization/42861.pdf.
[19] "China Plans to Expand Drug-relief Reformatories," Xinhua, June 27, 2005.
[20] Josephine Ma, "All Yunnan Addicts Bound for Rehab—New Offensive against Narcotics Will See Drug Treatment Centres Expanded to House 68,000 People," *South China Morning Post*, June 22, 2005.

bureaus. As of 2004, the Ministries of Public Security and Justice operated 583 drug rehabilitation centers with a capacity of 116,054 beds and an additional 165 drug facilities with 143,000 beds for rehabilitation through education and labor.[21]

Drug users in China are largely young and are typically poorly educated. Of the registered drug users in Yunnan province, for example, 2.2 percent are 18 years old or younger, 33.2 percent are aged between 18 and 25, 37.9 percent are between ages 26 and 37, and 26.6 percent are 37 years or older. In Beijing, there are an estimated 26,000 drug users, 4,000 over the age of 35.[22] More than 50 percent of Shanghai's some 17,000 registered drug addicts are teenagers and young people under 30. Moreover, people under the age of 18 are the biggest users of ecstasy, or the "head-swaying pill" as it is known locally.[23] Over 80 percent of the 189,000 known drug users in Guangdong are young people, according to the Guangdong Provincial Anti-Drugs Committee.[24] According to the "Chinese Anti-Drug Whitepaper," the majority of China's drug users were considered "young people," with 79.2 percent of them below the age of 35.[25]

Ethnic minorities—such as the Uighur in Xinjiang province, the Yi in southern Sichuan province, and the Dai and Mosuo in Yunnan province—are disproportionately represented among drug-using populations (and HIV-positive populations) in China.

Until the mid-1990s, HIV infection in IDUs was reported only in Yunnan province. A 1993 behavioral survey detected no HIV infection among drug users in provincial drug detoxification centers outside Yunnan.[26] By 1996, however, HIV had spread to IDUs beyond Yunnan's borders, to Guangxi, Guangdong, and Xinjiang. By 2002, it was found among drug users in all 31 provinces. Seven provinces—Yunnan, Xinjiang, Guangxi, Guangdong, Guizhou, Sichuan, and Hunan—account for nearly 90 percent of HIV/AIDS cases among IDUs in China, with each province having more than 10,000 such cases.[27]

Overall, between 1990 and 2003, China has seen a 15-fold increase in the reported number of illegal drug users. As of early 2007, the number of registered drug users exceeded 1 million.[28] Dr. Wu Zunyou, head of China's National Center for HIV/AIDS, stated in June 2005 that there were 1,140,000 registered drug abusers as of 2004, with as many as 85 percent abusing heroin, or about 970

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[21] "China Has 740,000 Drug Addicts: Police," *People's Daily*, June 21, 2004.
[22] "Beijing Demands Drug Users Register with Police," *China Daily*, May 12, 2004.
[23] "Drug Use of Youngsters on the Up," *China Daily*, June 17, 2004.
[24] Liang Qiwen, "Drug Users Mostly Young People," *China Daily*, June 16, 2005.
[25] State Council of China, "Chinese Anti-Drug Whitepaper," June 2000, http://www.ha.xinhuanet.com/yincang/2007-06/25/content_10393476.htm.
[26] X. Zheng et al., "HIV Risk Behaviors but Absence of Infection among Drug Users in Detoxification Centers Outside Yunnan Province, China, 1993," *AIDS* 9, no. 8 (August 1995): 859–863.
[27] MOH, UNAIDS, and WHO, *2005 Update on the HIV/AIDS Epidemic and Response in China*, p. 1.
[28] "Drug-ravaged Province to Open 22 New Methadone Clinics in Southwest China," Xinhua, January 11, 2007.

million IDUs.[29] Some estimates place the actual population at four to seven times the reported number. If 85 percent of these are IDUs, then the actual number of IDUs in China may be between 3.6 and 6.2 million.[30]

Knowledge, Behaviors, and Risk of HIV Transmission

Drug users in China tend to be relatively poor and poorly educated and, as a result, have low awareness of the consequences of high-risk behaviors, including drug abuse and unprotected sex with multiple partners. Awareness of the modes of HIV transmission and of prevention methods is also low. Printed material cannot always be employed—many drug abusers are ethnic minorities who do not necessarily speak or read Mandarin or even the regional dialect of the more educated health professionals engaging in prevention counseling. As such, there are formidable obstacles to educating drug users about the consequences of high-risk behaviors, such as needle sharing and unprotected sex.

Surveys of education levels of heroin abusers in Yunnan province are illustrative of this trend. Among registered drug users in Yunnan province in 2004, 19.4 percent are illiterate, 35.7 percent have graduated from primary school, 38.5 percent from junior high, 6.1 percent from senior high school, and 0.2 percent from junior and senior college.[31]

Even for educated individuals, knowledge of high-risk behavior and its consequences is still limited. While many communities feel that it is appropriate to begin antidrug education at an early age, sex and sexual health education is rarely taught in lower classes. Students learn in their history lessons about opium and its devastating effects on the country at a far earlier age than deemed appropriate for "sex ed." In many rural areas, schools are reluctant to teach any form of health education that addresses sex, partly because a single class can contain students ranging in age from 10 to 17, making discussions about such topics awkward and inappropriate.

To complicate this issue, drug use at a young age has been associated with high rates of reported sexual activity and risk of sexually acquired HIV infection. A study of 833 drug users found that 85 percent of them reported having sex, and among sexually experienced drug users, 58 percent had multiple sexual partners and 68 percent never used a condom.[32]

According to Dr. Li Jianhua of the Yunnan Institute for Drug Abuse, awareness of HIV/AIDS and high-risk behavior varies widely among drug users

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[29] Wu Zunyou, presentation at the CSIS HIV/AIDS Policy Roundtable, Center for Strategic and International Studies, Washington, D.C., June 6, 2005.

[30] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China (2004)*, p. 5; "Report on Drug Crime in Western Regions," *People's Daily,* September 15, 2004, http://www.people.com.cn/GB/shehui/1060/2786514.html.

[31] Li Jianhua, "Research on the Relationship between the Current Situation of Drug Use and AIDS/STDs in China," paper presented at the Center for Strategic and International Studies, Washington, D.C., November 17, 2004.

[32] Xiaoming Li, Bonita Stanton, Yong Zhou, "Injecting Drug Use and Unprotected Sex Among Institutionalized Drug Users in China," *Journal of Drug Issues* (Summer 2000): 669.

across the country. Generally, urban drug users have higher awareness levels than rural ones. Many urban abusers understand the three main routes of HIV transmission—sexual contact, shared needles/blood, and mother-to-child transmission—while rural drug users might have heard of "AIDS" (艾滋病, or *ai zi bing*) but are less likely to fully comprehend the modes of transmission or prevention methods.

Numerous behavioral surveys have determined that the sharing of injecting equipment is common among both urban and rural drug users, with rates ranging from 60 to 99 percent in different areas.[33] A survey of 655 drug abusers in Guangdong found that 75.7 percent had shared needles in the past and 55.1 percent still share equipment regularly.[34] According to a separate study, only a small percentage of drug users perceived the susceptibility of contracting HIV (11 percent) or STDs (24 percent) in the future.[35] A survey of 860 drug users in three rural counties of Yunnan showed that all the IDUs shared needles, but none cleaned the injection equipment with alcohol or bleach.[36]

The proportion of IDUs sharing needles increased significantly, from 30 percent in 2001 to 45 percent in 2003 according to some surveys.[37] If we accept a lower-end estimate of 3.6 million IDUs in China, then the number of IDUs sharing needles would equal approximately 1.6 million. Assuming 2 to 3 injections per IDU per day, the estimated the number of shared injections per day would be between 3.2 and 4.8 million.

The reasons for sharing injecting equipment are complex and vary by region and circumstance. Urban drug users have relatively easy access to needles in drug stores, where they are reasonably priced and widely sold without restriction or prescription. In rural areas, needles are harder to come by. In most areas, drug stores and clinics are rarely open 24 hours, making clean needles difficult to purchase at night. In rural areas, walking distances between shops and clinics that sell needles can be significant, leading some users to share equipment. Lastly, in

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[33] Li Jianhua, "1998 nian ai zi bing zhuangkuang he zhuyao gongzuo" [General situation of AIDS in 1998], *Chinese Journal of STD/AIDS Prevention and Control*, no. 3 (1999): 97–99; Luo Jian, Yang Fang, and Li Jianhua, "306 li xidu zhe xidu xingwei ji ai zi bing de KAB diaocha" [Research on the behaviors of 306 drug users and KAB survey on HIV/AIDS], *Chinese Journal of Drug Dependence*, no. 4 (2002): 300–302; Zhang Guiyun and Zheng Xiwen, "Guangxi xidu renqun ai zi bing bingdu ganranlu diaocha" [Survey on HIV infection rate among the drug users in Guangxi province], *Chinese Journal of Epidemiology*, no. 1 (2000): 15–16; Liu Zhiming et al., "Si diqu xidu zhe xidu xingwei xing xingwei jiqi dui ai zi bing taidu zhishi de liuxingbing xue diaocha" [Epidemiological survey of drug-taking behavior and sex behavior of drug users in four areas and their attitude and knowledge of AIDS], *Chinese Journal of Drug Dependence*, no. 10 (2001): 48–52.

[34] Liu Yongying et al., "Study of HIV-risk Behaviors among Drug Users in Different Regions of Guangdong Province," *China Journal of AIDS and Sexually Transmitted Diseases* 10, no. 1 (2004): 7–9.

[35] J. Lau et al., "Needle Sharing and Sex-related Risk Behaviors in China," *AIDS Care* (February 2005): 166–181.

[36] Zheng Xiwen, "Injecting Drug Use and HIV Infection in Southwest China," *AIDS* 8, no. 8 (1994): 1141–1147.

[37] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004)*.

many areas, police detain drug users if they are found carrying needles. As a result, users are reluctant to "stock up" and will only purchase a needle when they need it and discard it soon afterwards. Efforts to improve needle and syringe exchange and distribution in communities where drug use is prevalent have met with opposition from communities, including the families of drug users, neighbors, and government officials, particularly law enforcement.

While some drug users are married and in monogamous relationships, others have multiple sexual partners. In some cases, especially among women drug users, selling sex is a common method to earn money or provide in-kind remuneration to purchase drugs (the nexus between drug use and sex work is discussed in more detail below).

Additionally, condom use appears to be generally low within the IDU population. In one study of 306 drug users, 79.6 percent of the IDUs had two or more sex partners, 37.7 percent had two to four partners, and 41.9 percent had more than five partners within the latest months. According to this study, 83.2 percent of the IDUs had never used or seldom used condoms.[38] In a study conducted in Guangdong province, 12.2 percent of IDUs had had sex in the past month with someone who was not a regular partner, and 21.3 percent of those used a condom. Only 9.5 percent of this group reported using condoms with their regular sexual partners.[39] A survey of 1,680 drug users in Yunnan and Sichuan found that 709 had had sex with temporary partners, amounting to 42.2 percent of the sample. Of those 709 persons, the average number of sexual partners was 5.2, with half of them reporting that they never used condoms over the course of 2003.[40] Another survey conducted among 602 drug users in Xichang, a city in southern Sichuan province, found that 40 percent, or 150 of those surveyed, did not have monogamous sexual relationships, and 82 percent of them did not use condoms with their sexual partners.[41]

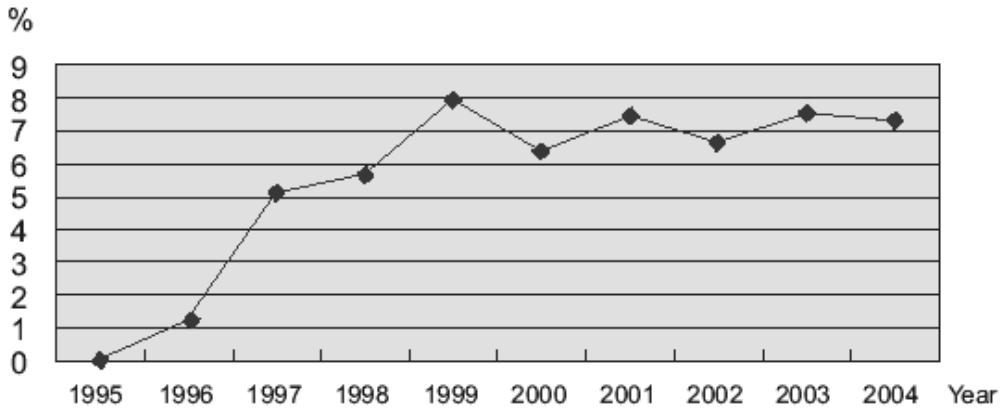
The high frequency of multiple high-risk behaviors among drug users in various parts of China is disconcerting. Sharing contaminated syringes is an extremely efficient method for transmitting HIV because a large number of HIV interferons in contaminated blood are passed from one person to another through the syringe. Heterosexual transmission is a less efficient means of transmitting HIV, but the combination of needle sharing and unprotected sex is a "bridge" between intravenous drug users and drug-free sexual partners. Additionally, unprotected sex with multiple partners increases the risk that other sexually transmitted diseases (STDs) are transmitted. If either partner has a sexually transmitted disease, the risk of HIV infection increases dramatically. A report reveals that the prevalence of STDs/STIs is between 20 and 30 percent among

[38] Li Jianhua, "Research on the Relationship between the Current Situation of Drug Use and AIDS/STDs in China," p. 6.
[39] Liu Yongying et al., "Study of HIV-risk Behaviors among Drug Users in Different Regions of Guangdong Province," pp. 7–9.
[40] Li Jianhua, "Research on the Relationship between the Current Situation of Drug Use and AIDS/STDs in China," pp. 5–6.
[41] Ibid., p. 6.

drug users.[42] The confluence of multiple high-risk behaviors in areas with already high prevalence of HIV in the population dramatically increases the likelihood that HIV infection will "break out" of the drug-using subpopulation into the "general population."

According to data from sentinel surveillance, the average HIV infection rate in IDUs increased from 1.95 percent in 1996 to 7.54 percent in 2005.[43] At the regional level, however, the prevalence rate varies significantly. While lower than 5.0 percent in Jiangsu, Zhejiang, Inner Mongolia, and Liaoning provinces, it has reached over 50.0 percent in Yunnan and Sichuan,[44] and 34.8 percent in Guizhou.[45] In certain regions of Yunnan and Xinjiang, the infection rate among IDUs is over 80.0 percent.[46]

Figure 1. National HIV Prevalence among Intravenous Drug Users in China, 1995–2004



Source: State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China (2004)* (Beijing: Ministry of Health, December 2004), p. 3, http://www.casy.org/engdocs/JAREng04.pdf.

Commercial Sex Workers

Background

After 1949, the new regime in China closed all brothels and rehabilitated prostitutes through reeducation and reemployment programs. However, the sex trade had never fully disappeared and started to reemerge in full force after the

[42] China Central Television, "UNAIDS Column—Female Drug Users," CCTV.com, http://www.cctv.com/health/topic/health/UNAIDS/20050303/100585.shtml.
[43] "Yifa tuijin ai zi bing fangzhi gongzuo" [Enhancing HIV/AIDS prevention and control work by law], *People's Daily*, October 12, 2006, http://paper.people.com.cn/rmrb/html/2006-10/12/content_11474567.htm.
[44] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004).*
[45] Li Jianhua, "Research on the Relationship between the Current Situation of Drug Use and AIDS/STDs in China," pp. 5–6.
[46] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004).*

1980s. The dramatic changes in attitudes and behavior toward sex, in conjunction with growing consumerism and relaxed state control, have contributed to the resurgence of the commercial sex industry.

Although prostitution, like drug use, is illegal in China, commercial sex work is openly visible in many urban and rural areas. Sex workers are visible in expensive hotels in the wealthiest cities and at roadside rest stops for truck drivers along many rural roads. In smaller prefectural capitals, brothels and other "entertainment centers" are common, as in the major urban areas. Commercial sex workers come from urban as well as rural areas, and both males and females engage in transactional sex, though females are more visible and in greater numbers. Commercial sex work is dominated by migrants who engage in the practice away from their homes or neighborhoods, engage in the work for a short period, and are considered highly mobile with few ties to the community.[47]

While there is no official report or estimation of the number of sex workers in China, one unofficial and often-cited estimate places the number of prostitutes at 4 to 6 million. The actual number may be much higher and has been estimated to be as much 20 million.[48] Based on a survey conducted by a team of American and Chinese researchers, the cumulative total of women who had been sex workers since 1990 was in the range of 1,767,000 to 5,891,000.[49]

The prominent return of commercial sex work reflects changing economic and social conditions in China. Many rural women have low levels of education but are compelled to find employment to support their families. Likewise, women are more likely to be laid off from state-owned enterprises and often have few alternatives for gainful employment. Rising incomes and increased mobility are also factors that increase demand for commercial sex, as more and more "mobile men with money" have free time and the income to purchase sex. Lastly, in stark contrast to pre-1979 China, people's attitudes toward sex have changed, and premarital and extramarital sex is increasingly common.

Knowledge, Behaviors, and Risk of HIV Transmission

Numerous studies of sex workers and their behaviors in China have determined that sex work is very diverse and transitory in nature. The vast majority of female sex workers (FSWs) are only engaged in sex work temporarily. Professor Pan Suiming of Beijing University, China's best-known specialist on commercial sex work, has conducted over 11 large-scale surveys of FSWs and claims that he has never met a sex worker who had been engaged in the practice for more than three years.

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[47] The authors have met with sex workers in both rural and urban environments, and their stories are frequently the same. For one story reported in the official Chinese press, see "Rural Teacher Serves as Sex Worker," *China Daily,* February 24, 2006.

[48] "A Close Look at China's 'Sex Industry,'" *Lianhe Zaobao*, October 2, 2000, http://www.usembassy-china.org.cn/sandt/sex-industry.html.

[49] Pan Suiming, "Sex Industry and HIV in China," paper presented at the Center for Strategic and International Studies, Washington, D.C., November 17, 2004.

FSWs in China are a heterogeneous group and include females selling sex for benefits ("the second wife"), engaging in indirect sex consumption (e.g., show girl, stripper, pornography player), providing an escort service with some sexual expectations, masturbating for clients, and/or offering oral, vaginal, or anal sex.

The majority of female sex workers are apparently seeking to raise a fixed amount of capital to send home to open a small business or otherwise spend at home. According to Professor Pan Suiming of the Institute for Research on Sexuality and Gender at Renmin University of China, approximately three-fourths are married or have long-term relationships. Close to half were cohabitating at the time they were engaged in commercial sex, and close to half had children at home, indicating that there is significant risk of FSWs spreading sexually transmitted diseases to long-term partners or possibly to newborns through mother-to-child transmission. According to one study focusing on migrant workers, most female sex workers and individuals with sexually transmitted diseases had concurrent sexual partners. Many continued to have unprotected sex after noticing STD symptoms in themselves or their sexual partners. From 5 to 26 percent of rural-to-urban migrants had multiple sexual partners, and 10 percent of males patronized FSWs during migration.[50]

Despite an increasing condom use rate overall in China, unprotected sex remains common among commercial sex workers and their clients. A 2003 survey suggests that 20.5 percent of commercial sex workers had never used condoms, while only 19 percent always used condoms.[51]

The actual rate of condom use is difficult to determine. Over the past five years, greater resources have been invested in promoting condom use among high-risk persons, resulting in higher reported rates of condom use. However, most condom use surveys are conducted by the organizations implementing condom promotion programs, and many sex workers have been "conditioned" to provide the "correct" answers. When interviewed, some sex workers report that they frequently use condoms, but subsequent questioning reveals that some FSWs are often willing to engage in unprotected sex if the client is willing to pay extra. Undoubtedly, prevention and social marketing programs are valuable, and the awareness level of sex workers and availability of condoms is increased by most interventions, but there have been few critical surveys conducted by independent organizations to validate reported results.

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[50] Yang Hongmei et al., "Heterosexual Transmission of HIV in China: A Systematic Review of Behavioral Studies in the Past Two Decades," *Sexually Transmitted Diseases* 32, no. 5 (May 2005): 270–280.

[51] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004)*.

Table 2. Condom Use Rate of Female Sex Workers in Sichuan Province

Year	Number of FSWs Surveyed	Condom Use Rate during Last Sex (in percent)	Condom Use Rate during Last Month (in percent)
2002	7,516	71.6	33.5
2003	51,536	81.1	40.4
2004	59,432	83.0	42.1

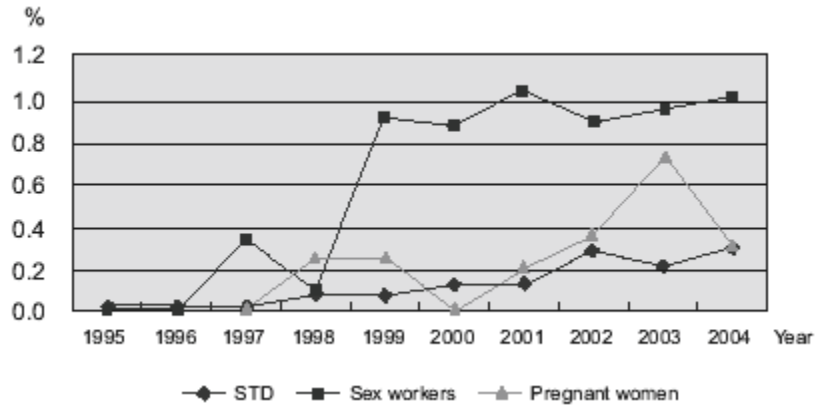
Source: Futures Group Europe, "Progress Report of China-UK HIV/AIDS Prevention and Care Project in Sichuan, 2000–2004, Beijing, 2005, pp. 71–72.

Mirroring the increase in prostitution, STIs in China have increased dramatically since 1986, when China publicly confirmed its first cases of STIs in 22 years. The country reported 56,090 STD cases in 1988 alone. By the end of 2005, the total number of reported cases reached 703,001, of which the main victims include CSWs, their clients, and MSM.[52] The cumulative reported number of STDs between 1977 and 2003 was more than 7.2 million. Yet survey results from the Chinese Center for Disease Control and Prevention suggest the actual number of STI cases is 10 to 20 times larger.[53] A population-based study of 3,426 Chinese individuals (1,738 women, 1,688 men) aged 20 to 64 in 2000 revealed widespread distribution of chlamydial infection in China; the overall prevalence rate was 2.6 percent for women and 2.1 percent for men, which is comparable to Western countries.[54]

Sexually transmitted disease plays a critical role in amplifying HIV transmission, not only because the presence of an STD can make people more susceptible to infection with HIV, but also because people coinfected with HIV and another STD can more easily transmit HIV infection to others. Not surprisingly, the post-1997 years saw a steady increase in HIV prevalence among STD outpatients in China (see figure 2).

[52] China National Center for STDs Control, "Xingbing qingkuang jianbao" [STDs epidemic bulletin], February 2006, http://www.ncstdlc.org/zxgl-detail/communication/06-2.pdf.
[53] See Guangzhou Dermatological and Venereal Disease Prevention Institute, "Woguo xingbing fabing taishi yan" [China's sexual disease transmission situation worsens], May 31, 2004, http://www.gzpfs.com/news/news_detail.asp?id=68.
[54] William L. Parish et al., "Population-Based Study of Chlamydial Infection in China: A Hidden Epidemic," *Journal of the American Medical Association* 289 (2003): 1265–1273.

Figure 2: HIV Prevalence among Sex Workers, STD Outpatients, and Pregnant Women, 1995–2004



Source: State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China (2004)*, p. 3.

Compared to the general population, CSWs are at particular risk for STD/HIV transmission. Unsafe sex is particularly a problem for CSWs who work at lower echelons—in small salons or inns, on the streets, or in parks (see table 3). A national survey conducted during 1999–2000 suggests that at least 50 percent of the respondents' most recent contact with a sex worker occurs at these sites.[55]

Rapid urbanization in China only contributes to the growing number of sex workers at the bottom of the hierarchy of commercial sex. CSWs in this group typically are less educated (therefore lack knowledge of the risks of unprotected sex), poor (therefore easier to be persuaded to conduct no-condom-sex for money), and for brothel-based CSWs, controlled strongly by the manager of the sex business (therefore do not have the power to insist on the use of condoms with their clients). This explains their relatively low condom use. A survey published in 2006 found that the percentage of those consistently using condoms was less than 20 percent for this group, compared with 56.7 percent for those who provide service at more expensive hotels (see table 3).[56]

[55] William L. Parish and Pan Suiming, "Sexual Partners in China: Risk Patterns for Infection by HIV and Possible Interventions," in *AIDS and Social Policy in China*, ed. Joan Kaufman et al., pp. 190–213, http://www.fas.harvard.edu/~asiactr/publications/pdfs/AIDS%20Volume%20complete.pdf.
[56] Ibid.

Table 3. Different Types of Commercial Sex Workers in China

Worker Types	Commercial Sex Outlet	Client Types	Number of Clients per day	Condom Use
Hired (paid) second wives (er nai; bao mei), courtesans, escort or call girls	Client's home, high-class hotels, large saunas, and night clubs in urban areas, particularly southern coastal cities	Men of rank or wealth	0.3–0.8	1/6–1/2
Singing, dancing, escort girls selling on the spot (san pei nu), massage girls (an mo nu), beauty parlor girls (fa lang mei), roadhouse-based girls (lu bian dian)	Dance halls, saunas, barber shops, small inns, bars, or karaoke parlors in towns, outskirts, and cities	Lower to middle classes	0.5–0.7	1/10–1/5
Street-walking girls (liu ying); women shared by groups of male laborers (gong pen nu)	Street, park, bus stop, CSW's home, construction cites near cities	Lower classes, peasant laborers	1.0–2.0	0–1/10

Source: Adapted from Pan Suiming, "Sex Industry and HIV in China," presentation at the Center for Strategic and International Studies, Washington, D.C., November 17, 2004.

Other factors increase the risk of CSWs at the bottom of the hierarchy being infected with or infecting others with STDs and/or HIV. Since commercial sex remains illegal in China, and local police remain underpaid, arresting CSWs has become an easy and safe way to create funds to finance the local police. With few friends within the local sex industry or wider local community (most work away from home), they often need to borrow money from the manager of the sex business, a debt that is repaid by servicing clients more frequently.

The nexus between drug use and sex work is of particular concern for the future. Survey results in 2003 showed 1.4 percent of sex workers injected drugs in the past half-year, with 38 percent of them sharing needles. In Guangxi, Hunan, and Chongqing, the proportion of HIV-positive sex workers who injected drugs was between 25 and 100 percent.[57] Female drug users in China often engage in commercial sex to support their drug habit, and they are at particular risk of acquiring HIV through needle sharing, exposing clients and long-term partners to HIV. By 2000, females constituted about 17 percent of the reported drug users in China, with 50 percent estimated to collect money to buy drugs by offering sexual

[57] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004)*, p. 6.

services.[58] Another report reveals that the prevalence of STDs/STIs varies from 21 to 33 percent among female drug users. In particular, up to 29.2 percent of female drug users contracted syphilis.[59] Worse, some 51 percent of female sex workers who inject drugs do not use condoms regularly.[60]

In a 2003 study of 1,153 drug users conducted by Yang Xiushi, more than 16 percent of those surveyed had engaged in commercial sex.[61] Additionally, drug users are often also the clients of sex workers. In Mianyang City in Sichuan province, one study found that 44.9 percent of the 688 drug users surveyed had gone to prostitutes. Of those, 76.4 percent did not use a condom, and only 2.9 percent report using condoms every time they visit sex workers.[62] A survey of 602 drug users in Xichang City of Sichuan province showed that, among the 375 drug users who took part in the behavioral survey, 150, or 40 percent, had no steady sex partner; 114, or 82 percent, did not use condoms with their partners. Among the 98 female drug users in the survey, 34.7 percent sold sex to buy drugs.[63]

Over time, client networks of female drug users selling sex and those of nondrug use commercial sex workers will likely overlap. This overlap between sex workers and IDUs, particularly among females, greatly increases the likelihood of secondary HIV transmission—from commercial sex workers to their male clients, then to low-risk females and onward to low-risk males.

As a result of these and other factors, the most recent official data from China state that while the national average prevalence for HIV among CSWs is 1.00 percent, as of 2004 this figure was well above 1.00 percent in some parts of China—such as 6.7 percent in Honghe (Yunnan), 5.08 percent in Chongqing, 4.3 percent in Tulufan (Xinjiang) and Dehong (Yunnan), and 3.3 percent in Yili (Xinjiang), among others.[64] Some data showed an alarming prevalence rate of more than 10 percent among CSWs in the most severely infected areas.[65] In part because of the higher number of HIV cases found among CSWs, the proportion of

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[58] "Rang jindu zanduan aizibing manyan liantiao" [Use drug control to stop AIDS epidemic], *China Youth Daily*, June 25, 2002, http://big5.china.com.cn/chinese/zhuanti/164114.htm.
[59] Wu Xiaoyang, "UNAIDS Column—Female Drug Users," CCTV.com, http://www.cctv.com/health/topic/health/UNAIDS/20050303/100585.shtml.
[60] "Female IDUs Key Population for Fighting AIDS in China: Experts," *People's Daily,* June 25, 2004, http://english.people.com.cn/200406/25/eng20040625_147475.html.
[61] Yang Xiushi et al., "Prevalence and Correlates of HIV Risk Behaviors among Drug Users in China," *AIDS and Behavior* 10, no. 1 (January 2006): 71–81.
[62] Yang Hongwu, Zhang Guanggui, Zhu Xueying, "Mianyangshi xidu renqun xingweixue ji meidu he ai zi bing jiance jieguo yu fenxi" [Analysis of behavior of 688 drug users and the results of syphilis and HIV testing in Mianyang city], *Supplement to Chinese Journal of Sexually Transmitted Diseases and AIDS* (2003): 21–23.
[63] Li Jianhua, "Research on the Relationship between the Current Situation of Drug Use and AIDS/STDs in China," paper presented at the Center for Strategic and International Studies, Washington, D.C., November 17, 2004, p. 6.
[64] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004)*, p.12.
[65] Pengfei Zhao, "100% CUP: Strategies, Progress and Steps for Implementation in China," National Population and Family Planning Commission of China, Beijing, 2005, http://www.npfpc.gov.cn/aids/100%25%20CUP%20strategy%20-%202005%20%D4%C6%C4%CF.pdf.

women in the total HIV-positive population in China has steadily grown, from 10 percent in the period between 1990 and 1995, to 39 percent in 2004 (see table 4). The data also point to increased vertical transmission of HIV from mother to child, as demonstrated by the prevalence among pregnant women such as 5.3 percent in Kashgar (Xinjiang), 2.4 percent in Shangcai (Henan), and 0.5 percent in Suizhou (Hubei).[66]

Table 4. Percentage of Female HIV Cases in China, 1990–2004

1990–95	1996–97	1998	1999	2000	2001	2002	2003	2004
10.0	12.5	15.3	14.3	19.4	22.7	25.4	35.6	39.0

Sources: State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment of HIV/AIDS Prevention, Treatment and Care in China (2004)*; and *Health Daily,* November 30, 2004.
Note: Data for 2004 covers January through September 2004.

The rise in HIV infection among CSWs indicates that China may be following a path similar to Thailand and other countries, with sexual transmission beginning to surpass shared needles as the dominant route for the spread of HIV.

Male Commercial Sex Work

There is little data available regarding the number and behavior of men who provide commercial sex in China. However, particularly among individuals and organizations who work with MSM and try to provide HIV prevention intervention in China, there is a growing body of information about MSM who engage in commercial sex work.

Male commercial sex in China has increasingly become brothel based. Previously, male sex workers met clients in parks and other public places. With more male sex workers working in such establishments, the distribution of information and condoms improves, as does the possibility of assessing the extent and impact of male sex work. The trend of "institutionalization" reflects changing attitudes toward male-to-male sex, as it becomes increasingly "accepted," though stigma against male-to-male sex is still severe. Similar to female sex work, demand for male sex work has increased as income and mobility have increased, particularly in cities. However, because of the intense stigma against male-to-male sex and the illegal status of prostitution in China, male brothels are much more discrete than the venues hosting female sex workers. Estimates in the mid-2000s suggest there were between 8 to 10 such brothels in Beijing and the same

[66] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004)*, p. 14.

number in Shenzhen. Brothels tend to be located in private apartments, with a three or four bedroom apartment housing approximately 10 male sex workers.[67]

While large-sample empirical data are thin, it appears male sex workers who are not brothel based tend to be at higher risk of contracting HIV/AIDS for a variety of reasons. They are harder for public health officials and NGOs to identify and educate about HIV/AIDS. Sex workers in public places are more likely to be runaways or recent arrivals from the countryside who are uneducated and unaware of HIV/AIDS or are desperate to earn money and are willing to engage in risky behaviors. In contrast, brothel-based workers tend to be more risk averse, to have adequate food and shelter, and to have comparatively better access to prevention information.

Men Who Have Sex with Men (MSM)

Background

Sociological and anthropological studies have indicated that in any given society the proportion of MSM ranges from 2 to 5 percent of the adult male population regardless of historical, social or cultural background.[68] If these studies are correct, with an adult male population (aged 15 to 64) of approximately 452 million, MSM in China may number between 9.04 to 22.6 million. Chinese health authorities estimate there are 5 to 10 million gay men across the country.[69]

It is important to distinguish between "men who have sex with men" (MSM) and male homosexuals. MSM is based on behavior, rather than orientation. MSM can include male sex workers who are heterosexual in orientation but engage in sexual behavior with male clients to earn money. MSM can also include men who might be married or have girlfriends, but still engage in sex with male partners. Men who have sex with other men in an all-male setting, such as an army unit or prison would also be considered MSM.

Stigma against MSM in China is extremely severe and presents another challenge to mounting an effective response to HIV/AIDS. Homosexuality, while no longer officially considered a mental disorder, is still an off-limits subject for many Chinese. While Chinese society overall does not reject homosexuality on religious grounds, the Confucian principle that sons should carry on the family lineage creates immense pressure on males to marry and bear a male heir. Many homosexual men struggle with tremendous social pressure to hide the fact that they engage in male-to-male sex. They get married and lead "straight" lives at work and at home, while occasionally engaging in male-to-male sex. Stigmatization drives MSM underground and creates an atmosphere in which they are less likely to seek help. This phenomenon is particularly troubling given the relatively high HIV/AIDS prevalence rate within the MSM population.

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[67] Chung To, presentation to the CSIS workshop, "Future Demography of China: The Evolution of the HIV/AIDS Epidemic," Center for Strategic and International Studies, Washington, D.C., November 18, 2004.
[68] Ibid.
[69] "China Mulls Monitoring Gays and Truck Drivers for STDs," Xinhua, August 13, 2006.

While much of the stigma surrounding HIV/AIDS is derived from the behaviors associated with transmission, such as drug use or sex work, because HIV/AIDS affects MSM disproportionately, it compounds the stigma felt by MSM. Lastly, many people in Chinese society do not understand the nature of homosexuality, which increases the level of stigma focused on MSM. Many people understand that persons turn to injecting drugs because heroin is highly addictive, while sex work or plasma donation may be driven by poverty. Those populations receive more sympathy in Chinese society than homosexuals, who are not considered to have been forced into high-risk behavior by circumstance.

Knowledge, Behaviors, and Risk of HIV Transmission

MSM are much less studied in China compared to other at-risk populations. There are several possible explanations, including the extent of stigma within society and among public health experts or the difficulty of identifying MSM.

As a marginalized and hard-to-locate population, survey results have invariably found low levels of awareness and significant high-risk behaviors. However, portions of the MSM community are well educated, have financial means, and congregate in entertainment establishments in cities, increasing the likely success of prevention education. Ensuring the success of prevention efforts is critical, particularly as the social and policy environment for MSM becomes more tolerant and open.

A number of factors make MSM one of the most at-risk groups in China for HIV infection. First, MSM appear to engage in higher-risk behavior. In one study of MSM in Beijing, 49 percent of participants reported unprotected anal intercourse during the previous 6 months.[70] The 2003 national epidemiological survey showed a relatively high proportion of non-condom use by MSM—43 and 38.5 percent in Changde and Xi'an respectively.[71] High prevalence of other STDs among MSM, such as syphilis, makes this group even more vulnerable to HIV.

Second, the gay community in general may be poorly informed about HIV/AIDS. According to a survey among male homosexuals conducted in Harbin, Heilongjiang province, in 2004, at least 80 percent of gays believe they are safe from HIV/AIDS.[72]

Third, MSM are unlikely to have long-term monogamous relationships due to intense social stigma. Instead, many MSM hide their true sexual orientation by getting married and opt to maintain short-term extramarital homosexual relationships. One study in the mid-1990s put the average number of sexual partners for a homosexual man around 17 per year.[73] As suggested by the Harbin survey, 31.7 percent of Chinese MSM have one to 10 sex partners and 22.2

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[70] K.H. Choi et al., "Emerging HIV-1 Epidemic in China in Men Who Have Sex with Men," *Lancet* 361, issue 9375 (June 21, 2003): 2125–2126.
[71] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004)*, p. 6.
[72] "China's Gay Men Know Little about AIDS," *China Daily*, December 15, 2004.
[73] Pan Suiming, *Zhong guo xing xian zhuang* [The contemporary situation of sexuality in China] (Beijing: Guangming Daily Publishing House, 1995).

percent have more than 100 partners; 17.4 percent of Chinese MSM also have female partners and 12.6 percent of them are married.[74] The latter findings are consistent with a Beijing study, which found that almost a quarter of MSM also had unprotected anal or vaginal intercourse with women.[75]

The first survey of gay men conducted by the government, a collaborative effort between the national-level and Heilongjiang provincial Centers for Disease Control and Prevention found that 80.6 percent of gay men surveyed were unaware of their possible exposure to the virus or underestimate the risk.[76] A 2005 report on a survey of 220 gay men in Shenzhen by the Shenzhen Center for Disease Control and Prevention found that only 20 percent use condoms every time they have sex. The center estimates that there are approximately 100,000 gay men in Shenzhen. Other experts report that Shenzhen is a destination for many Hong Kong men seeking commercial sex.[77]

A study in Hefei, Anhui province, of 147 MSM attending three gay bars during a two week period in 2004 found that 10.5 percent reported a history of STD infection, and 3.4 percent (6 of 174) of these MSM self-reported that they were HIV positive.[78] The study found that the respondents were generally well educated, with 69 percent having a college education, 24 percent having graduated from senior high school, and 7 percent having a junior high school education or less.

The respondents in the Anhui study also reported the following:

- 82.8 percent had anal sexual intercourse in the previous six months;
- 16.0 percent always used a condom in anal sexual intercourse in the previous six months;
- 25.7 percent never used a condom in anal intercourse in the previous six months;
- 21.6 percent always used condom during vaginal intercourse in the previous six months;
- 32.0 percent never used a condom in vaginal sexual intercourse in the previous six months;
- 50.0 percent had a homosexual partner in the previous two months;
- 17.8 percent had a same-sex commercial sex partner in the previous two months;
- 63.8 percent had a same-sex primary sex partner; and

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[74] "China's Gay Men Know Little about AIDS," *China Daily*, December 15, 2004.
[75] Choi et al., "Emerging HIV-1 Epidemic in China in Men Who Have Sex with Men."
[76] "China's Gay Men Know Little about AIDS," *China Daily*, December 15, 2004.
[77] "Only 20 Percent of Gay Men Use Condoms Each Time They Have Sex in Shenzhen, China," Associated Press, May 23, 2005.
[78] Zhang Hongbo, "The Characteristics of Sexual Partner Networks among MSM in Gay Bars, Hefei, China," presentation at Yale University AIDS Science Day Conference, New Haven, Conn., April 22, 2005, http://cira.med.yale.edu/events/asd2005/panels/asd2005_hongbo_zhang.pdf.

- 55.7 percent had a female sex partner during their lifetime.

The MSM population in China may become a significant factor for the spread of HIV infection in the country. The principal reasons for this are: low awareness and perceptions of risk; significant stigma and social marginalization; multiple, anonymous same-sex sexual encounters; more efficient HIV transmission through anal sex; elevated rates of other STDs; low rates of condom use; significant incidence of heterosexual relations; and significant underinvestment in public health interventions targeting MSM. Together, these factors create the potential that HIV will continue to grow within the MSM population and spread further to female sex partners.

Migrants, Rural Population

Background

Scores of millions of Chinese peasants—China's *liudong renkou* or "floating population"—are abandoning the countryside in the poorer central and western provinces, where economic development lags, and flocking toward urban areas in search of better employment prospects. According to data released by China's National Population and Family Planning Commission (NPFPC), the total number of internal migrants increased from about 53.5 million in 1995 to over 140 million in 2004. Migrant workers today account for about 20 percent of China's working-age population (15 to 64 years old).

The floating population will continue to grow for the near term. Some government experts predict the number will rise to 300 million by 2020, and eventually to 500 million.[79] This is especially true as rural households become more productive, rendering rural laborers more and more redundant. In recent years, in an effort to absorb rural surplus labor and provide inexpensive workers to China's booming manufacturing sector, the Chinese government significantly loosened the old household registration, or *hukou* system of residence permits, which restricted labor mobility and made it difficult for rural residents to live in cities. At the end of 2005, the Ministry of Public Security signaled it would soon drop the urban and rural *hukou* system gradually.

As a group, migrants are more vulnerable to HIV/AIDS than the "general population." Migrants are generally young, in the sexually active period of their lives, and far from home and families.[80] They may be more likely to engage in extramarital sex, including sex with commercial sex workers. Having lower levels of education, they often have lower levels of awareness about HIV/AIDS. Lacking skills, female migrants are more likely to engage in transactional sex in order to earn adequate income or secure food and shelter. Additionally, migrant women who engage in commercial sex are particularly vulnerable because they often lack the knowledge or ability to negotiate safe sex from clients and pimps.

[79] Jim Yardley, "In a Tidal Wave, China's Masses Pour from Farm to City," *New York Times*, September 12, 2004.
[80] See results of the Fifth National Census, 2000.

Migrants are a particular concern to public health authorities. Because they are at heightened risk of infection and are mobile, they can potentially spread HIV from high-prevalence areas to low ones, in addition to facilitating the spread to lower risk populations. Because the majority of migrants are male, sexually active, and often separated from their spouses, they are a potential "bridge" that threatens to spread HIV to wives, girlfriends, and therefore, children. Because married migrants are often separated for the better part of the year, the faithfulness of spouses cannot be assured, presenting the potential that HIV could be spread even further.

Knowledge, Behaviors, and Risk of HIV Transmission

Numerous studies have been conducted over several years to better understand migrant awareness and behaviors related to HIV/AIDS. Several large-sample studies of migrants have found their behaviors tend to be higher risk for HIV/AIDS than within the general population. In one study of 986 sexually active migrants in Shanghai, 14.5 percent had more than one sexual partner, 31.1 percent had premarital sex, 3.3 percent had oral or anal sex, and 78.0 percent had never used condoms. Younger migrant men were more likely to have earlier onset of sexual intercourse, more premarital sex, more sexual partners and more sexual acts.[81] A study carried out from September 2002 through January 2003 revealed that the percentage of migrants who reported multiple sexual partners (31 percent) was substantially higher than similar reports among indigenous rural Chinese in other studies.[82] The same study revealed that 36 percent of the migrants never used a condom during sex and 63 percent did not use a condom during their last three sexual encounters.[83]

Available data also demonstrate that rural-urban migrants have a higher tendency to become illegal drug users than nonmigrants. In one study of illegal drug users in Beijing, almost half of the addicts in an involuntary drug treatment center were temporary migrants.[84] A similar study in Zhejiang province reported that the percentages of migrant drug users engaged in injecting and needle-sharing were significantly higher than nonmigrant drug users: 36.6 percent of migrant drug users are engaged in intravenous drug use versus 26.3 percent among nonmigrant users; whereas 27.0 percent of migrant drug users are engaged in needle-sharing versus 7.2 percent among nonmigrant users.[85]

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[81] N. He et al., "Sexual Behavior and Sexually Transmitted Diseases among Male Rural Migrants in a Metropolitan Area of Eastern China," abstract presented at the XV International AIDS Conference, Bangkok, Thailand, July 2004.
[82] Li Xiaoming et al., "HIV/STD Risk Behaviors and Perceptions among Rural-to-Urban Migrants in China," *AIDS Education and Prevention* 16, no 6 (2004), pp. 538–556.
[83] Ibid., p. 545.
[84] T. Zu, et al., "Beijingshi aizibing chuanbo hexin renqun ji xidu renqun xingweixue tezheng yanjiu" [Behavioral characteristics of the main AIDS risk-taking group—drug use population in Beijing], in *Essay Collection of the First China Conference on HIV/AIDS and STDs Prevention and Control* (Beijing: Chinese Association of STD and AIDS Prevention and Control, 2001), pp. 156–158.
[85] J. Yang, J. Yao, and E. Chen, "Zhejiangsheng xidu renqun xingweixue tezheng ji HIV ganran xiankuang diaocha" [Behavioral characteristics and HIV infection among drug use population in

Changing migration patterns also increase the migrant population's exposure to HIV/STDs. During the 1980s, most migrants moved to midsize cities in their home provinces for job opportunities. Today, more and more of them travel to mega-cities or southern coastal regions. The mega-cities and southern coastal regions have a greater number of dance halls, saunas, and barber shops, which provide ample opportunity for male migrant workers to interact with commercial sex workers.[86]

Many female migrants seeking economic independence are similarly exposed to the commercial sex trade. Subject to constant discrimination in the labor market, selling sex may be the only choice female migrants have for economic survival. Xinhua reported in 2005 that among the 1.1 million rural-to-urban migrants in Nanjing (the capital city of Jiangsu province), around 90 percent are away from their families. A survey of 90 migrant workers in Nanjing found 11 percent admitted that they had bought sex.[87] Another survey conducted in Yunnan in the late-1990s suggested that 80 percent of barmaids and 83 percent of female barbers sell sex in their services.[88] In this sense, the migrants are doubly exposed to HIV/AIDS, not only themselves as risk takers but also as victims of risk-taking behaviors. The three most economically developed coastal provinces (Zhejiang, Guangdong, and Jiangsu) are also those with the highest incidence of STDs.[89]

In the same Shanghai study noted above, the prevalence of chlamydia, gonorrhea, and syphilis among the 986 participants was 3.5 percent, 0.5 percent, and 1.0 percent, respectively. None of them was infected with HIV. The prevalence of STDs was 3.2 percent for construction workers, 5.6 percent for market vendors, and 5.6 percent for factory workers. Important risk factors for STDs were longer time of migration, frequent hometown visits, having multiple sex partners, and desire to have multiple sex partners.[90] These findings indicate that even though HIV was not detected, high-risk behaviors were present among the sampled migrants, and the presence of STDs will potentially facilitate the spread of HIV. The high prevalence of STDs is an important epidemiological marker for HIV, as it indicates high levels of unprotected sex.

Zhejiang province], in *Essay Collection of the First China Conference on HIV/AIDS and STDs Prevention and Control*, pp. 75–77.

[86] Yang Xiushi, "Temporary Migration and the Spread of STDs/HIV in China: Is There a Link?" *International Migration Review* 38, 1 (Spring 2004).

[87] "Yiliao bumen renda daibiao jihu: qianghua tijian quebao mingong xing anquan" [People's congress representative calling for enhanced medical check for migrant workers to ensure safe sex], Xinhua, January 20, 2005, http://www.js.xinhuanet.com/xin_wen_zhong_xin/2005-01/20/content_3600840.htm.

[88] Zunyou Wu et al., "Yunnansheng dehongzhou jiuba faliang fuwu xiaojie xing fuwu qingkuang diaocha" [Survey on barmaids and barbers services in Dehong prefecture of Yunnan province], *China HIV/AIDS/STDs Prevention and Control Magazine* 3, no. 1 (1997), pp. 14–16.

[89] "Jiangsu xingbing fashenglu dafu xiajiang, jiangfu zai quanguo weiju qianlie" [Jiangsu's rate of STDs drops dramatically, positioning Jiangsu as the national leader], *Jinlin Evening*, March 20, 2002, http://www.jschina.com.cn/gb/jschina/health/focus/userobject1ai69464.html.

[90] He et al., "Sexual Behavior and Sexually Transmitted Diseases among Male Rural Migrants in a Metropolitan Area of Eastern China."

Another study of 728 sexually experienced migrant women found that 5.5 percent reported having engaged in commercial sex. Those who did were generally younger, less educated, and more likely to be single and have HIV-related risk behaviors, such as having multiple sexual partners. This survey also found that while all women queried had a high level of understanding of the efficacy of condoms for preventing HIV and STDs, consistent condom use was low: 20.0 percent of the CSWs in the survey consistently used condoms; 8.7 percent of the women who were not CSWs used condoms consistently during sex.[91]

Migrant workers and their susceptibility to HIV infection remains woefully understudied. Owing to epidemiological, behavioral, and social circumstances, migrants could be a major vector for the spread of HIV in China in the years ahead. This trend has become more visible as more relevant studies are conducted, signaling a shift in transmission modes. A report at the end of 2005 stated that 45.1 percent of HIV-positive persons in Chongqing are part of the "floating population."[92]

Former Plasma Donors

Background

Over the course of the 1980s and into the late-1990s, large numbers of poor Chinese donated blood and blood plasma for pay. Many of the donors were destitute individuals who were from high-risk populations, including intravenous drug users and prostitutes. In the mid-1980s, the Ministry of Health was not aware that the blood supply was contaminated with blood borne diseases, including syphilis and hepatitis B and C. In the early 1990s, blood collection centers were established in rural areas in central China. Recruiters known as "blood heads" fanned out across the region, promising farmers payment for donating their blood and plasma at the station. Bus tickets were provided, convenient dormitories housed the farmers so they could stay close to the stations and make repeated donations. The cash earned was carried home and used to build new houses and start small businesses in rural areas.

As farmers in many communities began to notice that their neighbors were earning quick cash and visibly improving their lot, more and more people were willing to travel to the stations and make donations. Around 1993, several stations in southern Henan province began the practice of collecting the blood of numerous donors of the same type, pooling it in a centrifuge and collecting the plasma, then returning the red blood cells to the donors to prevent anemia, thereby enabling the farmers to more quickly donate again. Donors were not screened for blood borne diseases, allowing hepatitis, HIV, and other blood-borne diseases to quickly and efficiently spread to large numbers of plasma donors. The number of

[91] H. Yang et al., "HIV-related Risk Behaviors and Psychosocial Factors Related to Commercial Sex among Female Migrants in China," abstract presented at the XV International AIDS Conference, Bangkok, Thailand, July 2004.
[92] "45.1% of the Population Infected with AIDS Are Migrants," *Chongqing Times*, December 26, 2005, ttp://news.sina.com.cn/c/2005-12-26/08037817124s.shtml.

blood and plasma stations expanded in the 1990s, and growing numbers of farmers from across the country traveled to numerous sites to donate plasma for cash. As many as 230 plasma collection centers existed in Henan province prior to a government crackdown between 1995 and 1997.[93]

By early 2000, this cohort of former plasma donors (FPD) began showing the symptoms of AIDS and dying in large numbers in "hot spots." Villages close to plasma stations, and villages where several members traveled together to donate at distant stations, became known as "AIDS villages" with infection rates ranging between 20 and 80 percent of the adult villagers. Henan province's Shangcai county is home to the earliest plasma donors and has already experienced significant numbers of deaths among former plasma donors, spouses, and even children. The six provinces contiguous to Henan have significant numbers of FPDs who were infected during the 1990s, either from donating in Henan or in stations that subsequently opened closer to home.

Following the discovery of an "AIDS village" in China's most northeastern province in 2004, health officials stated that "most provinces" were likely affected by HIV/AIDS resulting from unsanitary blood sales.[94] The media as well as the Ministry of Health have repeatedly reported instances of illegal blood selling, indicating that a 1997 law and crackdown to halt unsafe and illegal blood collection were not completely successful.

China has focused significant resources and attention in its fight against HIV/AIDS on former plasma donors. Because FPDs did not engage in illegal activities, the government has more readily reached out to them. The first national AIDS treatment program, launched in 2003 and called the China Comprehensive AIDS Response ("China CARES"), initially focused almost exclusively on HIV-positive FPDs in seven provinces to distribute a free first line of antiretroviral therapy.

Knowledge, Behaviors, and Risk of HIV Transmission

Compared to other at-risk populations, the FPD population in several provinces has been extensively studied by a number of government and nongovernmental organizations. These studies have shown that on the whole, FPDs have consistently low levels of education, are rural, and poor. In addition, many migrate to other parts of China in search of work and have been found to have multiple sex partners. Studies have also indicated that condom use is infrequent. While this information is a good starting point, a more thorough understanding of the behavior of FPDs will be necessary to design effective prevention interventions that will reduce the vertical transmission of HIV from FPDs to non-FPD sexual partners.

A 2003 study of 800 women conducted by family planning authorities in Shangcai county, Henan province, a high-prevalence area, found that women

[93] "On an Odyssey to Help AIDS Orphans," *Shenzhen Daily*, November 28, 2003.
[94] "Officials Say Most China Provinces Could Have AIDS from Blood Selling," Agence France Presse, March 4, 2004.

lacked knowledge of the modes of HIV transmission and did not know how to protect themselves. Among the respondents, only 62.6 percent could identify the modes of HIV transmission, 50.0 percent thought that oral contraceptive pills could prevent HIV, and 41.5 percent did not know how to use a condom. Only 10 percent of couples had used condoms before, and only 3.13 percent used them consistently and correctly.[95]

Additional studies, including surveys focusing on rural residents have determined that other risky behaviors exist within populations that include FPDs. According to Roger Detels, professor of epidemiology from the School of Public Health at the University of California, Los Angeles, up to 17 percent of males under age 25 and 12 percent of all sexually active males have multiple sexual partners, and only 10 percent of them use condoms regularly in rural Anhui province. Additionally, Dr. Detels reports that in high-prevalence villages, half of the males surveyed were migrants and two-thirds had visited sex workers in urban areas, though he points out that condom use was higher among men who visit sex workers.[96]

An epidemiological survey covering 30 areas in 14 provinces found an overall prevalence of 2.7 percent among commercial blood and plasma donors.[97] As a result of the mass HIV testing among FPDs in 2004, this population accounted for 31.1 percent of the confirmed HIV cases in China that year, which is higher than the percentage of this group in the overall estimated HIV population (24.1 percent) in 2004.

At the end of 2003, Chinese officials estimated the total number of FPDs infected with HIV to be 199,000. However, official estimates as of the end of 2005 state that some 55,000 persons contracted the disease as FPDs, a reduction in the estimate by some 144,000. The figure is lower than in previous years as this population dies from AIDS; some 10,000 FPDs are estimated to have died of AIDS in 2005. Also the official report on HIV in China for 2005 states that improved and widespread screening found that figures for HIV-positive FPDs in 2003 were overestimates and that the spread of HIV by this mode of transmission was "more localized than previously thought."[98]

Some independent specialists believe the government number is far too low. According to Dr. Gao Yaojie, a well-known civilian HIV/AIDS activist, the actual number of HIV-infected people in Henan caused by the commercial blood donation is probably 10 times higher than the official number. In addition, trans-provincial blood plasma sales were very common in the 1990s. In Shangluo region of Shaanxi province alone, at least 12,700 people were found to have sold

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[95] Y.M. Cheng et al., "Evaluating Need of AIDS Prevention in Area of High-prevalence Rate of HIV Infection in Henan Province, China," abstract presented at the XV International AIDS Conference, Bangkok, Thailand, July 2004.
[96] Roger Detels, "Sexual Behavior in China," presentation at the Center for Strategic and International Studies, Washington, D.C., November 17, 2004.
[97] State Council AIDS Working Committee Office and UN Theme Group on HIV/AIDS in China, *A Joint Assessment Report of HIV/AIDS Prevention, Treatment and Care in China (2004)*, p. 6.
[98] MOH, UNAIDS, and WHO, *2005 Update on the HIV/AIDS Epidemic and Response in China*, pp. 1, 2.

blood at some time in the 1990s in Shanxi and Henan.[99] Poorly regulated blood collection centers were opened in other provinces, including Anhui, Hebei, Hubei, Shanxi, Shaanxi, and Shandong. In fact, among the 1,517 blood collections stations shut down or reorganized by the government by the end of 1995, only 200 or 13 percent were located in Henan.[100] Other provinces, such as Anhui and Hubei, could be likely candidates for an HIV problem brought on by unsafe blood and blood plasma donation schemes, comparable to Henan's. An earlier study in Anhui province, for example, showed HIV prevalence of 12.5 percent among plasma donors, which is quite similar to the prevalence rate in Henan.[101] China still faces a problem with the illegal sale of blood, years after illegal blood collection was banned. China has promoted voluntary blood donations for decades, and while they fulfill 95 percent of needs, the system has developed unevenly and underground blood sales have persisted.[102] The true number of commercial blood and plasma donors and their HIV prevalence will not be fully known without continued mass HIV testing in other provinces.

[99] Zhao Shilung and Shang Guangwu, "HIV among Shanglou District, Shaanxi Province Blood Donors," *Southern Weekend*, March 15, 2001.
[100] See the Web site of the Beijing-based Aizhi Institute: http://www.aizhi.org/azxd/page44.htm.
[101] Wu Zunyou, Rou Keming, and Roger Detels, "Prevalence of HIV Infection among Former Commercial Plasma Donors in Rural Eastern China," *Health Policy and Planning* 16, no. 1 (2001): 41–46.
[102] "China Says Faces Threat from Illegal Blood Sales," Reuters, June 14, 2007.

Part 4. Conclusions: Future of the Epidemic in China

Looking ahead, and based on the evidence presented in this report, several conclusions and predictions can be made about the future of the HIV epidemic in China.

- *Epidemic following patterns common in other Asian countries.* The early phases of the Chinese epidemic resemble those already seen in other Asian countries, where infection has spread from high-risk to low-risk populations. In China, this pattern began to emerge with the introduction of the virus to the population in the mid-1980s, followed by increasing infections among IDUs, then spreading to CSWs, and on to the general population. This is the pattern China has followed and will likely continue to follow. There is already evidence that in some geographic pockets and among some at-risk groups, especially IDUs and CSWs, prevalence has become "generalized," with rates having surpassed 1.0 percent.[103]
- *Key populations still require significant study.* While the virus itself has followed a trajectory similar to other Asian countries, understanding of key populations such as migrants, FPDs, and MSM remains comparatively low. These populations have been understudied by demographers and epidemiologists in predictions about the future of the epidemic. Overall, far more work is needed to generate greater and more reliable data, especially regarding the prevalence and behaviors of at-risk groups, to make more exacting predictions about the future of the HIV epidemic in China.
- *Lack of resources and innovative interventions stymie a more effective response.* China's immense size and government-dominated approach to public health complicate implementation of comprehensive studies and interventions that capture the majority of disenfranchised populations for sustained periods. Limited resources and poor access to most at-risk populations—especially IDUs, CSWs, migrant workers, and MSM—will result in continued significant growth in the Chinese HIV-positive population over the near to medium term.

[103] For example, in Thailand, the first cases of HIV were detected in 1984, but the rapid growth of the epidemic did not occur until 1987 when HIV prevalence among IDUs reached 44 percent, soon followed by increases in prevalence among female sex workers and, in 1988, in the heterosexual population. HIV prevalence among Thai female sex workers peaked at 33 percent in 1994 but has since declined to around 22 percent following an aggressive 100 percent condom program among commercial sex workers in the 1990s. In the early 1990s in Thailand, more than 80 percent of all new adult infections were among sex workers and their clients. Currently, around 50 percent of new adult infections are women who have been infected by their husbands or sex partners, 25 percent are due to intravenous drug use, and only about 20 percent occur among sex workers and their clients. Giovanna Merli, Sara Hertog, Bo Wang, and Jing Li, "Modeling the Spread of HIV/AIDS in China: The Role of Sexual Transmission," *Population Studies* 60, no. 1 (2006): 1–22.

- *Epidemic will concentrate and spread largely in two regions of China.* Over the next five years, the HIV epidemic in China will largely concentrate and grow in two main regions: (1) in southern and southwest Chinese provinces (including, but not limited to Yunnan, Guangxi, Guizhou, Sichuan, Hainan, and Guangdong), where heroin use and commercial sex work are increasing; (2) in Xinjiang where the epidemic is currently concentrated among ethnic minority IDUs, but will, with time, break out to affect CSWs and the larger population. Because of the illegal and stigmatized nature of the activities of IDUs and CSWs, interventions have proven to be particularly challenging. In addition, continuing differences over the near to medium term between public health and public security bureaucracies over the appropriate means to address the spread of HIV among IDUs and CSWs in these provinces will undermine prevention-oriented education and harm-reduction strategies.
- *Actual number of HIV-infected individuals may be higher than official estimates.* Owing to continued limitations in the Chinese surveillance, testing, and reporting system, the current number of HIV-positive persons in China is probably equal to or more than the high-end range of official estimates made in 2005. The actual figure for 2007 to 2008 may be as high as between 760,000 and 1 million persons. As the disease continues to spread, and Chinese HIV testing and surveillance expands, the estimate of HIV-infected individuals will likely grow by between 15 and 20 percent for the next five to six years. At that rate, by 2012, the number of HIV-positive persons in China could number between 1.5 and 2.5 million persons.
- *Flattening but continuing growth of HIV-infected population.* Presuming the continuation of economic growth and an increase in funding for HIV-related work, in addition to expanding political focus by the Chinese government and increased action by the international community and local NGOs, the growth curve for HIV infection will begin to flatten around 2011 to 2012. At annual growth rates of about 10 percent from 2011, the Chinese HIV-positive population in 2015 may reach between 2.34 million and 4.53 million persons, or a mean of approximately 3.43 million persons. This level and growth of HIV infection will probably not present a major social or economic challenge to the nation as a whole, but it will be damaging in certain communities, especially in Guangxi, Yunnan, southern Sichuan, and western Xinjiang provinces.

Appendix. Experts List for the CSIS Workshop, "Future Demography of China: The Evolution of the HIV/AIDS Epidemic," November 18, 2004[1]

Myron Cohen, *University of North Carolina at Chapel Hill*

Roger Detels, *University of California at Los Angeles*

Erika Elvander, *U.S. Department of Health and Human Services*

Kevin Frost, *amfAR*

Bates Gill, *CSIS*

Yanzhong Huang, *Seton Hall University*

Jianhua Li, *Yunnan Institute for Drug Abuse*

Suiming Pan, *Renmin University*

Drew Thompson, *CSIS*

Chung To, *Chi Heng Foundation*

[1] The workshop was convened by the CSIS Freeman Chair in China Studies, the CSIS HIV/AIDS Task Force, and the Center for Global Health Studies at Seton Hall University.

About the Authors

Bates Gill has held the Freeman Chair in China Studies at CSIS since July 2002. He previously served as a senior fellow in foreign policy studies and inaugural director of the Center for Northeast Asian Policy Studies at the Brookings Institution. His current projects focus on U.S.-China-Europe relations, China-Africa relations, China's growing influence in Asian regional affairs, and China's challenging domestic policy agenda. He is the author, coauthor, or coeditor of six books, including *Rising Star: China's New Security Diplomacy* (Brookings, 2007) and *China: The Balance Sheet* (PublicAffairs, 2006). Among his professional affiliations, Dr. Gill serves on the boards of the National Committee on U.S.-China Relations, the U.S.-China Policy Foundation, the American Association for Chinese Studies, the Feris Foundation of America, the Council for Security and Cooperation in the Asia Pacific, and the China-Merck AIDS Partnership. He is on the editorial boards of the *Journal of Contemporary China*, *China Security*, *China and Eurasia Forum Quarterly*, and the *Hong Kong Journal* and is a member of the Council on Foreign Relations and the International Institute for Strategic Studies. Dr. Gill received his Ph.D. in foreign affairs from the University of Virginia.

Yanzhong Huang joined the Whitehead School of Diplomacy in 2003 and directs its Center for Global Health Studies, which examines global health issues from a foreign policy and national security perspective. He teaches courses on global health, bioterrorism, Chinese politics, and U.S.-China relations. He has written extensively on global health governance, public health in China, health security, and Chinese politics. He also serves as editor-in-chief of Global Health Governance, the journal of the Center for Global Health Studies. Dr. Huang has testified before Congress and is frequently consulted by major media outlets, pharmaceutical firms, governmental, and nongovernmental organizations on global health issues. He has been a visiting fellow at CSIS, a consultant to the Canadian Department of Foreign Affairs, a participant on the China Task Force of the Eurasia Group, and a consultant to the United Nations Association of the United States of America. Dr. Huang is a term member of the Council on Foreign Relations, a member of the National Committee on United States–China Relations, and a member of the Security Experts Council of the Gerson Lehrman Group. He received his Ph.D. from the University of Chicago.

Xiaoqing Lu is a research associate with the CSIS Freeman Chair in China Studies. She works on projects concerning public health challenges in China, including the HIV/AIDS epidemic and health care reform, China's civil society development, and current trends in U.S.-China bilateral relations. Ms. Lu graduated with an M.A. in sustainable international development from Brandeis University in 2005. She has worked with the Woodrow Wilson Center for International Scholars and the Kenan Institute Washington Center. She has also worked as a program assistant for the American Bar Association–Asia Law Initiative in Beijing. She received her B.A. in international economics and trade from Beijing International Studies University in 2002.