2011 Estimates for the HIV/AIDS Epidemic in China

Ministry of Health, People's Republic of China

Joint United Nations Programme on HIV/AIDS

World Health Organization

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LIST OF ABBREVIATIONS

HIV	Human Immunodeficiency Virus
AIDS	Acquired Immune Deficiency Syndrome
MOH	Ministry of Health
UNAIDS	Joint United Nations Programme on HIV/AIDS
WHO	World Health Organization
CDC	(Chinese or US) Center(s) for Disease Control and Prevention
EPP	Estimation and Projection Package
PLHIV	People Living with HIV/AIDS
IDU	Injecting Drug User(s)
MTCT	Mother-to-Child Transmission
MARP	Most-at-Risk Population(s)
STI/STD	Sexually Transmitted Infections/Diseases
NCAIDS	National Center for AIDS/STD Control and Prevention
FSW	Female Sex Worker
ART	Anti-Retroviral Therapy
MMT	Methadone Maintenance Treatment
PMTCT	Prevention of Mother-to-Child Transmission
MSM	Men who have Sex with Men

EXECUTIVE SUMMARY

In order to further understand the changing face of China's HIV/AIDS epidemic, and facilitate a tailored response, the Chinese Ministry of Health (MOH), together with the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO) has generated new estimates and a report for 2011. The US Center for Disease Control and Prevention (US CDC) has provided technical support on the estimates. As with previous estimation exercises (from 2005 to 2009), the Workbook model has been used as the primary estimation method. In addition, Estimation and Projection Package (EPP)/Spectrum methods have been employed to verify annual estimates of new HIV infections and AIDS deaths.

By the end of 2011, it is estimated that 780,000 (620,000 – 940,000) people are living with HIV/AIDS (PLHIV) in China, of whom 154,000 (146,000 – 162,000) are living with AIDS. Of those PLHIV in China, 28.6% are female. National HIV prevalence is 0.058% (0.046% – 0.070%), and the estimated number of new HIV infections in 2011 is 48,000 (41,000 – 54,000). The number of AIDS-related deaths in 2011 is estimated at 28,000 (25,000 – 31,000). Among the 780,000 PLHIV in China, 46.5% contracted HIV through heterosexual contact and 17.4% through homosexual contact. An estimated 28.4% of PLHIV were infected through injecting drug use. Of these injecting drug user (IDU)-related infections, 87.2% occurred in six provinces /autonomous regions (Yunnan, Xinjiang, Guangxi, Guangdong, Sichuan and Guizhou). Former plasma donors and former

contaminated blood or blood product recipients accounted for an estimated 6.6% cases. Of these infections, 92.7% occurred in four provinces (Henan, Anhui, Hubei and Shanxi). Finally, mother-to-child transmission (MTCT) accounted for 1.1% of the total estimated PLHIV population.

These and previous estimates characterize China's HIV/AIDS epidemic as complex and evolving with five main features. Firstly, national prevalence remains low, but the epidemic is severe in some geographical regions. Secondly, although the number of PLHIV continues to increase, new HIV infections have been contained at a low level. Thirdly, HIV infected individuals continually progress to AIDS leading to a rise in the incidence of AIDS and AIDS-related deaths. Fourthly, sexual contact is the primary mode of transmission and the proportion of PLHIV infected by this route continues to grow. Finally, China's epidemics are diverse and evolving.

In conclusion, under the leadership of the Chinese government, and with the joint effort from multiple departments and the community, China's HIV/AIDS prevention strategies and treatment measures have been implemented with notable effectiveness. However the current HIV/AIDS situation is still critical, particularly in key regions and populations, and measures must be taken to continually strengthen identification, treatment and prevention methods. Targeted testing for HIV in high-risk groups must be expanded, particularly in order to identify recently-infected individuals and control secondary HIV transmission. Treatment and care for HIV and AIDS patients must be improved to minimize AIDS-related deaths. In addition, efforts must be continued to expand HIV-related health

education and behavioral interventions, reduce HIV related stigma, minimize AIDS-related harm, and effectively promote public health and safety.

A. 2011 ESTIMATES FOR THE HIV/AIDS EPIDEMIC IN CHINA

The Chinese government has continued to strengthen its efforts to curb the national HIV/AIDS epidemic by implementing comprehensive strategies for prevention, treatment, care and support. More HIV/AIDS related data and information were collected and analyzed as well. In order to better understand the complex and evolving HIV/AIDS epidemic in China and tailor its response accordingly, the Chinese Ministry of Health (MOH), together with the Joint United Nations Programme on HIV/AIDS (UNAIDS) and the World Health Organization (WHO), has collected and analyzed new HIV/AIDS-related data and generated new estimates for 2011. The United States Center for Disease Control and Prevention (US CDC) has provided technical support throughout the process.

1. Main results

Table 1. Estimated numbers for HIV/AIDS in China (2005-2011)

	2005	2007	2009	2011
PLHIV	650,000	700,000	740,000	780,000
	(540,000 - 760,000)	(550,000 - 850,000)	(560,000 - 920,000)	(620,000 - 940,000)
AIDS	75,000	85,000	105,000	154,000
	(65,000 - 85,000)	(80,000 - 90,000)	(97,000 - 112,000)	(146,000 - 162,000)
AIDS deaths	25,000	20,000	26,000	28,000
	(20,000 - 30,000)	(15,000 - 25,000).	(22,000 - 30,000)	(25,000 - 31,000)
New HIV infections	70,000	50,000	48,000	48,000
	(60,000 - 80,000)	(40,000 - 60,000)	(41,000 - 55,000)	(41,000 - 54,000)
HIV prevalence	0.050%	0.054%	0.057%	0.058%
	(0.042% - 0.058%)	(0.042% - 0.065%)	(0.043% - 0.071%)	(0.046% - 0.070%)

By the end of 2011, it is estimated that 780,000 (620,000 – 940,000) people are living with HIV/AIDS (PLHIV) in China, of whom 154,000 (146,000 – 162,000) are living with AIDS. Among those living with HIV/AIDS, 28.6% are

female. The estimated national HIV prevalence in 2011 is 0.058% (0.046% – 0.070%), and the estimated number of new HIV infections is 48,000 (41,000 – 54,000). The estimated number of AIDS-related deaths in 2011 is 28,000 (25,000 – 31,000).

1.1 Estimation of number of PLHIV

Among the 780,000 PLHIV in China, 46.5% contracted HIV through heterosexual contact and 17.4% through homosexual contact. Heterosexual transmission mainly occurred in provinces with relatively high numbers of PLHIV. Homosexual transmission mainly occurred in large and middle-sized cities and places with large migrant populations.

An estimated 28.4% of PLHIV were infected through injecting drug use. Of these infections, 87.2% were mapped to in six provinces/autonomous regions (Yunnan, Xinjiang, Guangxi, Guangdong, Sichuan and Guizhou). The number of HIV-infected, injecting drug users (IDU) in each of these provinces is estimated to be more than 10,000 in 2011.

HIV transmission through former contaminated plasma donations, former contaminated blood and blood products accounted for an estimated 6.6% of cases. Of these infections, 92.7% occurred in four provinces (Henan, Anhui, Hubei and Shanxi).

Finally, mother-to-child transmission (MTCT) accounted for 1.1% of the total estimated number of PLHIV.

1.2 Estimation of number of people living with AIDS

It is estimated that 154,000 people are living with AIDS (defined as $CD4^+$ T cell count less than 200 cells /mm^3) in China in 2011. Of these, an estimated 46.8% contracted HIV through heterosexual contact, 26.6% through contaminated blood/ blood products (mainly among former plasma donors), 18.8% through injecting drug use, 6.5% through homosexual contact, and 1.3% through MTCT.

1.3 Estimation of number of new HIV infections

In 2011, an estimated 48,000 people are newly infected with HIV via heterosexual contact (52.2%), homosexual contact (29.4%), injection drug use (18.0%) and MTCT (0.4%) modes of transmission.

1.4 Estimation of AIDS-related deaths

It is estimated that the number of AIDS-related deaths in 2011 is 28,000, among whom 54.2% were infected through heterosexual contact, 2.2% through homosexual contact, 32.7% through injection drug use, 10.1% through former contaminated plasma donation, contaminated blood/blood products, and 0.8% through MTCT.

2. Estimates: methods and processes

2.1 Methods

In this estimate, the Workbook method has been used to develop estimates of the number of people living with HIV, and UNAIDS/WHO recommended Estimation and Projection Package (EPP)/Spectrum methods be used to verify estimates of new HIV infection and AIDS deaths.

2.2 Data sources

Basic demographic information was obtained from the 2010 National Population Census. Data for HIV infections in sub-groups were derived from the HIV/AIDS national surveillance system, specific epidemiological investigations, results from testing performed in high-risk populations, and literature reviews. The sizes of specific high risk populations were estimated through surveys of most-at-risk populations (MARP), behavioral surveillance surveys, data from the Ministry of Public Security and literature reviews.

2.3 Estimation process

Under the direction of the MOH, the 2011 National HIV/AIDS Epidemic Estimation Working Group (hereafter "Working Group") was established. This Working Group comprised both national and international HIV experts, including experts from the National Center for AIDS/STD Control and Prevention at the Chinese Center for Disease Control and Prevention (NCAIDS/China CDC), the Chinese Ministry of Health Expert Committee for AIDS/STD, Peking University Health Science Center, Peking Union Medical College of Tsinghua University, People's University of China, UNAIDS, WHO and US CDC. After reviewing the process, results, and lessons learned from the 2005-2009 estimation exercises, the Working Group continued to use the "2009 National HIV/AIDS Estimation Technical Guidance on Data Collection and Utilization." The estimation exercise was carried out in close cooperation with the Working Group, provincial/autonomous region municipal health departments, local CDCs and community representatives.

In 2011, the Working Group visited several provinces, and worked closely with provincial working groups on data analysis and estimation. In addition, the Working Group held multiple consultative workshops, with participation from UNAIDS, WHO, US-CDC and other international partners, to review, advise, and reach a consensus with regard to both the estimation process and results.

3. Quality Control

3.1 Improved data quantity

Data sources for 2011 HIV/AIDS estimates were expanded with the incorporation of all surveillance data reported from 1,888 HIV sentinel surveillance sites.

3.2 Intensive staff training

The “2011 Guidelines for National HIV/AIDS Estimates” was issued on April 15th, 2011, and on-site guidance and training were provided to the nine priority provinces.

Two national level staff received training for HIV estimation modeling methods in the East-West Center, Hawaii, United States, May 28th to June 18th, 2011.

A UNAIDS/WHO-supported workshop on the application of the EPP/ Spectrum method, with a special emphasis on estimating new HIV infections and AIDS-related mortality, was held from June 28th to July 2nd 2011. During this workshop, staff from each of the 31 provinces/autonomous regions received training on the use of the Spectrum methods, as well as guidance on its application

to provincial level estimation work.

3.3 Intensive support to priority provinces

The HIV/AIDS Epidemic Estimation Working Group, consisting of experts from the Chinese Ministry of Health Expert Committee for AIDS/STD, academic institutions, NCAIDS/China CDC, UNAIDS, WHO, and US CDC, conducted field visits to Beijing, Chongqing, Henan, Hubei, Hunan, Guangdong, Guangxi, Jiangsu and Heilongjiang provinces/autonomous regions/municipalities to support provincial estimation. Provincial estimation project teams worked closely with the national Working Group to carry out data analysis and results interpretation. In this way a consensus was reached for each provincial estimate.

3.4 Strengthened involvement of international organizations

Several international organizations supported the estimation exercise. Experts from UNAIDS, WHO, and US CDC were actively involved in protocol development, staff training, technical support for the development of provincial and national estimates, and finalization of the report.

B. CHANGING EPIDEMIC FEATURES IN CHINA

1. NATIONAL PREVALENCE REMAINS LOW, BUT THE EPIDEMIC IS SEVERE IN SOME GEOGRAPHICAL REGIONS

By the end of 2011, it is estimated that there are 780,000 PLHIV (620,000 – 940,000) in China, with a low national HIV prevalence of 0.058% (0.046% – 0.070%). Five provinces each have more than 50,000 PLHIV, together accounting

for 60.0% of the estimated total national figure. Twelve provinces each have less than 5,000 PLHIV, together accounting for 4.8% of the estimated total national figure (Figure 1).

Figure 1. Geographic distribution of the estimated 780,000 PLHIV in China in 2011

According to the case reporting system, HIV/AIDS cases were reported in all 31 provinces (including autonomous regions and municipalities), and by the end of September 2011, 93.0% of all counties/districts (2,869 of 3,085) in the country have reported cases of HIV/AIDS. However, there are large differences between provinces in the number of reported cases. The six provinces with the highest cumulative number of reported HIV/AIDS cases (Yunnan, Guangxi, Henan, Sichuan, Xinjiang, and Guangdong) represent 75.8% of the national total, while the seven provinces with the lowest cumulative number of reported cases (Tibet, Qinghai, Ningxia, Inner Mongolia, Gansu, Hainan, and Tianjin) account for 1.2%

of the national total (Figures 2 and 3). The 20 counties, districts, and cities with the highest cumulative numbers of reported cases are concentrated in Yunnan, Guangxi, Xinjiang, Henan and Sichuan provinces/autonomous regions.

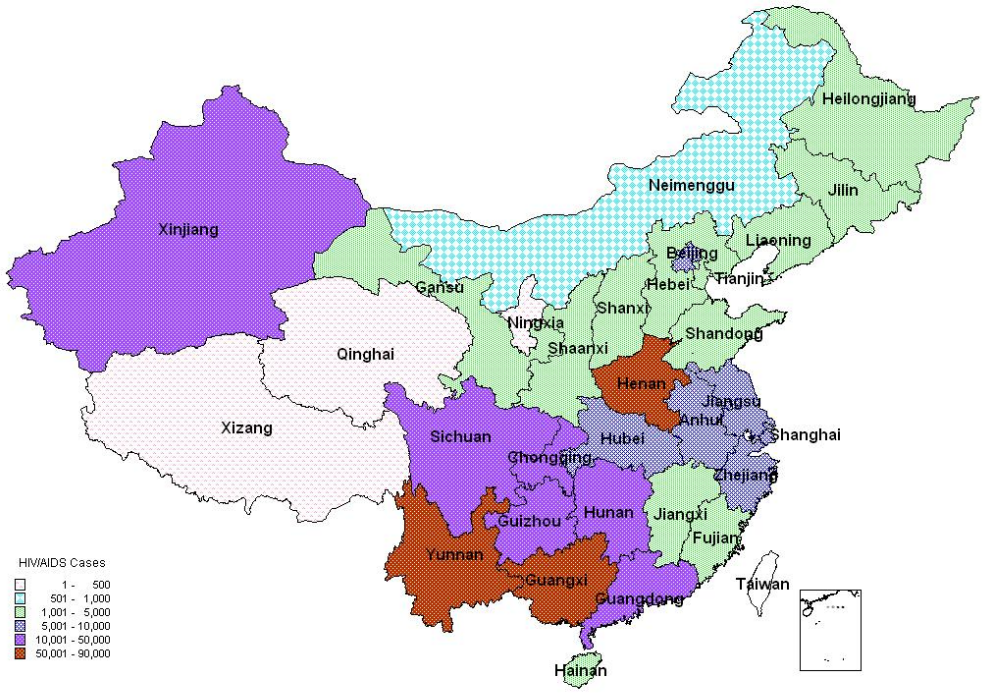


Figure 2. Geographic distribution of cumulative numbers of reported HIV/AIDS cases in China (by the end of September 2011).

Figure 3. Geographic distribution of cumulative number of reported AIDS cases in China (by the end of September 2011).

HIV prevalence also varies greatly among different sub-populations. HIV prevalence among drug users (particularly IDU) is the highest, and shows clear regional disparities. Sentinel surveillance data shows that the sites with the highest HIV prevalence among drug users are located in Yunnan, Xinjiang, Sichuan, Guangxi, Guizhou and Guangdong provinces/autonomous regions. In prefectures such as Honghe (Yunnan), Wuzhou (Guangxi) and Yili (Xinjiang), HIV prevalence rates among drug users all exceed 50%. HIV prevalence among female sex workers (FSW) has remained relatively low nationally. HIV prevalence exceeded 1% in FSW sentinel surveillance sites located in Yunnan, Xinjiang, Guangxi, Sichuan and Guizhou provinces/autonomous regions. HIV prevalence is relatively high among FSW who had engaged in both drug use and commercial sex. HIV

prevalence among pregnant women is nearly 0% nationally. However, a higher prevalence (e.g., some around or over 1%), has been reported in several sentinel surveillance sites in areas most impacted by the epidemic.

2. ALTHOUGH THE NUMBER OF PLHIV CONTINUES TO INCREASE, NEW INFECTIONS HAVE BEEN CONTAINED AT A LOW LEVEL

Epidemic estimate results show that the estimated total number of PLHIV in 2011 is still increasing. Since 2009, the number of PLHIV has increased by 40,000, and the number of people living with AIDS has increased by 49,000, from 105,000 in 2009 to 154,000 in 2011. However, new HIV infections have been contained at a relatively low level and the number of people newly infected with HIV each year remains stable at 50,000 in 2007 and 48,000 both in 2009 and 2011.

An increase in the number of people living with AIDS can be explained by two factors. Firstly, cumulative HIV-infected individuals are gradually progressing to clinical symptomatic stage. Secondly, intensified prevention and treatment programs through the “Four Free and One Care” policy of the Chinese government has improved survival of HIV/AIDS patients. By the end of September 2011, 133,524 adult patients had received free antiretroviral therapy (ART). Among these, 106,593 cases are currently receiving ART, including 12,608 on second-line therapy. Cumulatively, 2,563 children living with HIV/AIDS have received ART, among whom 2,104 are currently being treated including 186 on second-line therapy. Among identified PLHIV who are eligible for treatment, ART coverage increased from 62.0% in 2009 to 73.5% by the end of September 2011.

The achievement of a low-level of new HIV infections may largely be explained by the preventive strategies in the 11th “Five-Year Action Plan” launched by the Chinese government. This program intensified prevention efforts for MARP and strengthened control of new HIV infections, thereby reducing secondary HIV transmission.

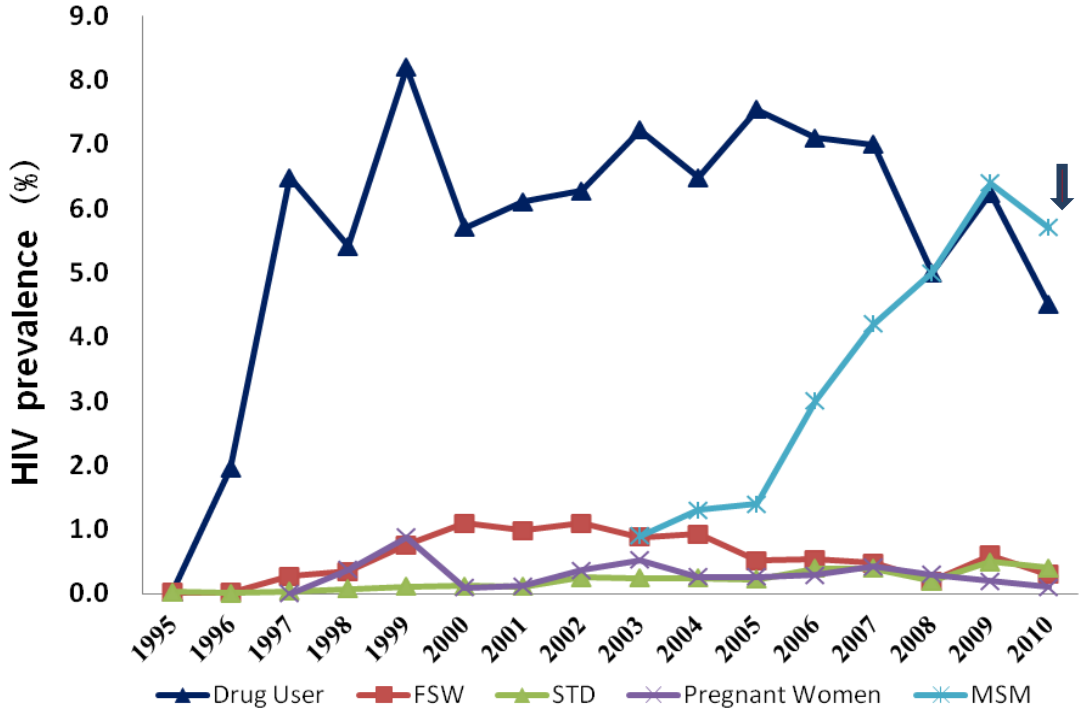
By the end of September 2011, 716 Methadone Maintenance Treatment (MMT) clinics had been established nationwide, with 332,996 heroin-users treated, cumulatively, and 132,879 currently in treatment. Comprehensive interventions in clinics were intensified with further progress made in treatment quality. The HIV incidence of clients participating in MMT fell from 1% in 2004, to less than 0.5% in 2010. An estimated 7,000 new HIV infections were prevented by MMT programs, excluding secondary sexual HIV transmission. On average in 2010, 937 needle exchange programs were operating, with a monthly average of 39,504 IDU participants. HIV transmission through injecting drug use has been effectively reduced by these interventions.

Condom promotion programs among FSW populations have expanded. The monthly coverage rate of this outreach program rose to 53.4% among estimated numbers of FSW in 2010, a 10.7% increase since 2009. Sentinel surveillance data further indicates that rates of consistent condom use with commercial sex partners has increased gradually among FSW in recent years. In 2010, the percentage of condom use within the last month and the percentage of condom use during the most recent, commercial, sexual encounter were reported at 67.8% and 90.5%,

respectively. This suggests that interventions specific for FSW have played a role in slowing down the growth of HIV infections through heterosexual contact.

Measures adopted to control secondary transmission include: a 100% condom use program, a counseling service offered to HIV sero-discordant couples to reduce the risk of sexual transmission among couples and a prevention of mother-to-child transmission (PMTCT) program. The PMTCT program has been conducted in 1,156 prefectures/counties where the epidemic is relatively high. It has resulted in a gradual reduction in the percentage of MTCT in nationally-reported cases from 1.4% in 2009, to 1.3% in 2010, to 1.2% in 2011, achieving effective prevention of MTCT among identified HIV-infected women. In 2011, only an estimated 0.4% of new HIV infections occurred through MTCT, an improvement that could be attributed to the increased coverage of PMTCT programs.

Data from HIV/AIDS sentinel surveillance indicates that HIV prevalence among MSM has increased significantly but a downward trend in HIV prevalence among IDUs has been observed since 2005, and HIV prevalence among FSW, sexually transmitted disease (STD) clinic attendees and pregnant women have been maintained at a low level. (Figure 4).



Notes: The arrow indicates a sudden decline in prevalence among MSM in 2010 may be partly attributed to expansion of surveillance sites targeting this population

Figure 4.HIV sentinel surveillance data on IDUs, FSW, STD clinic attendees, pregnant women and MSM, 1995-2010

3. HIV-INFECTED INDIVIDUALS CONTINUALLY PROGRESS TO AIDS, LEADING TO A RISE IN THE INCIDENCE OF AIDS AND AIDS-RELATED DEATHS

The estimates indicate that the number of people living with AIDS increased annually between 2005 and 2011. The estimated number of people living with AIDS was 75,000 in 2005, 85,000 in 2007, 105,000 in 2009, and 154,000 in 2011. The percentage of AIDS patients among PLHIV increased from 11.5% in 2005, to 12.1% in 2007, 14.2% in 2009, and 19.7% in 2011. Due to the greater estimated numbers of AIDS patients, the estimated numbers of AIDS-related deaths also increased. AIDS-related deaths were estimated at 25,000 in 2005, 20,000 in 2007,

26,000 in 2009, and 28,000 in 2011.

Data from the case reporting system revealed an upward trend in the number of AIDS patients, both among newly-reported AIDS cases and in HIV-infected individuals who progressed to AIDS. From January 2007 to September 2011, annual numbers of newly reported AIDS cases (including HIV infected individuals who progressed to AIDS) were 10,742, 14,509, 20,056, 34,188 and 27,695, respectively (with the number of AIDS cases for the entire 2011 year being 36,927 if extrapolated from data collected up to September). A similar upward trend was found in annual numbers of reported HIV/AIDS deaths from January 2007 to September 2011, with 5,544, 9,748, 12,287, 18,987 and 14,435 reported, respectively (with the number of HIV/AIDS deaths being 19,247 in 2011, if extrapolated from data collected up to September).

4. SEXUAL CONTACT IS THE PRIMARY MODE OF TRANSMISSION AND THE PROPORTION OF PLHIV INFECTED BY THIS ROUTE CONTINUES TO GROW

Of the 780,000 PLHIV in 2011, 63.9% were estimated to have been infected through sexual transmission, which represents a 4.9% increase from 59.0% in 2009. Of sexually-acquired infections, heterosexual contact accounted for 46.5% in 2011, which increased from 44.3% in 2009, and homosexual contact accounted for 17.4%, which increased from 14.7% in 2009. Of those infected through heterosexual transmission, approximately 25% were infected through spousal sexual contact. Of the estimated 48,000 new HIV infections in 2011, heterosexual

transmission accounted for 52.2%, a 10% increase from 42.2% in 2009, and homosexual transmission accounted for 29.4%, representing a 3.1% decrease from 32.5% in 2009. In total, sexual transmission accounted for an estimated 81.6% of new infections in 2011. This same figure was 75.7% in 2009.

Data from the case reporting system shows that the portion of identified PLHIV that acquired HIV through sexual contact has been gradually increasing, from 33.1% in 2006 to 75.2% by September 2011. 13% of sexually acquired HIV was through homosexual contact, an increase from 2.5% in 2006 (Figure 5).

Sentinel surveillance data also clearly demonstrates a rapid increase of HIV prevalence among MSM (Figure 6).

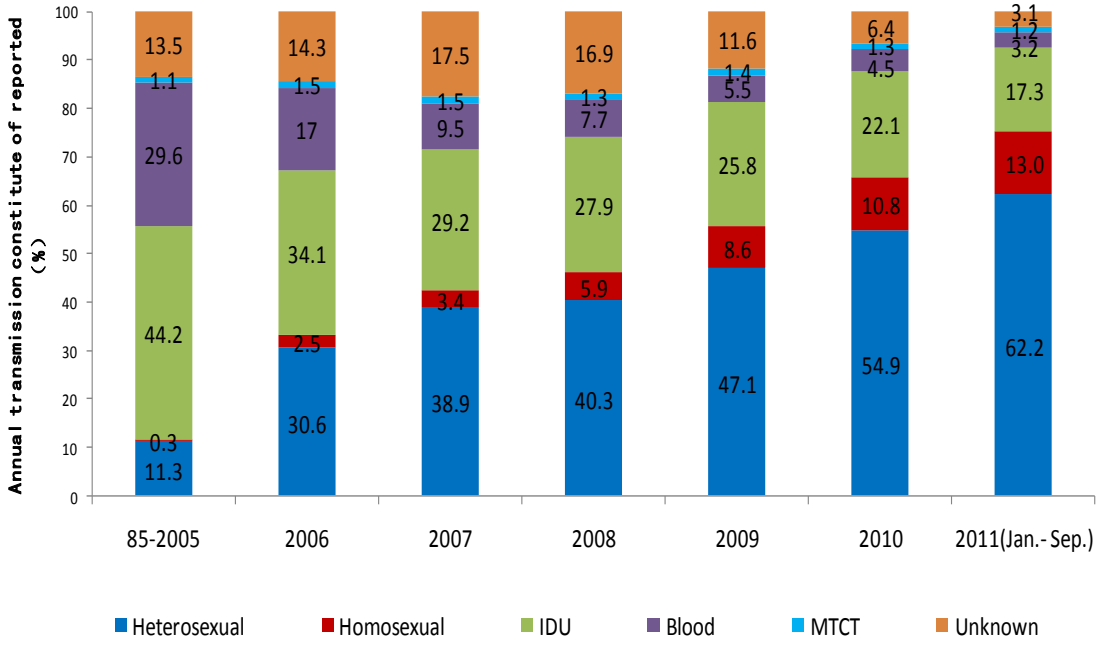


Figure 5. Distribution of transmission routes of reported HIV/AIDS cases in China (1985 to 2011[Jan.-Sep.])

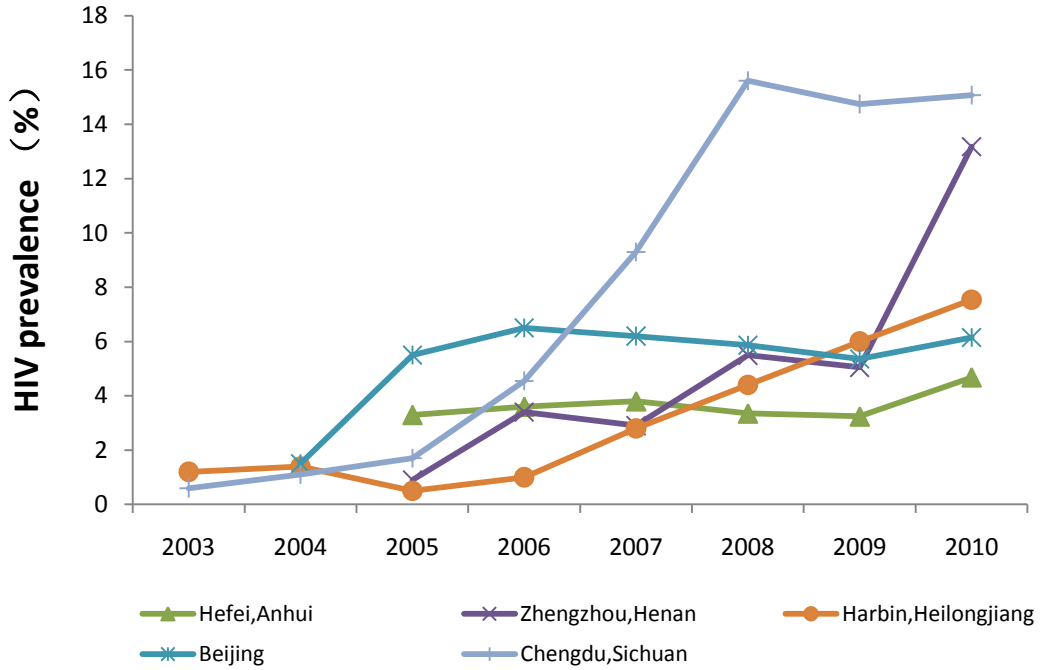


Figure 6. HIV prevalence among MSM from selected HIV sentinel surveillance sites (2003 to 2010)

5. CHINA'S EPIDEMICS ARE DIVERSE AND EVOLVING

It is estimated that by the end of 2011 there are 780,000 PLHIV in China, with 343,000 PLHIV cases reported. The difference between these two numbers suggests that large numbers of PLHIV have not yet been identified, and are still unaware of their infection status, presenting a risk for further transmission.

HIV/AIDS surveillance data from 2010, shows that HIV-related risk behaviors persist in surveyed MARP: 25% of IDU reported sharing needles; 32% of FSW reported inconsistent condom use during commercial sex; 87% of MSM reported sex with multiple male partners within the last six months, during which only 44% used condoms during anal sex. Although reported injecting drug use has decreased, there has been a reported increase in the use of mostly non-injection new types of drugs, which have been associated with increased homosexual and

heterosexual sexual risk behavior.

HIV/AIDS is also affecting more diverse groups of people. From January to September in 2000, there was an unexpected increase in the number of reported cases in individuals between 50 and 64 years of age and among students. The portion of the total annual number of reported cases attributed to the 50- to 64-year-old age group increased from 1.6% to 13.6%, representing a 7.5-fold increase since 2000. The portion of the total annual number of reported cases made up by the age group over 65 years old and above increased from 0.34% to 7.0%, representing a 20-fold increase in the same period of time. In addition, from January 2006 to September 2011, the portion of reported cases in individuals self-identified as students increased steadily, from 0.96% in 2006, to 1.64% in 2011 (Jan. – Sep.). Among reported cases in individuals self-identified as students, the portions of those between 20 and 24 years of age increased from 20.3% in 2006, to 49.0% by September 2011. Among reported cases in individuals self-identified as students, 55.5% acquired HIV through homosexual contact in 2011 (Jan. – Sep.), an increase from 8% in 2006. Similarly, heterosexual contact accounted for 19.3% of the reported student cases in 2011, an increase from 4% in 2006.

Increased population movement and migration has also influenced China's HIV epidemic, both internally and along China's borders with neighboring countries. Surveys have reported HIV infection among women who move from high HIV-prevalence areas to low-prevalence areas (such as Shandong, Shanxi, Jilin, Anhui or Jiangsu) for marriage, suggesting a possible link between this

migratory pattern and the potential for spousal transmission and MTCT of HIV.

In conclusion, under the leadership of the Chinese government, and with the joint efforts from multiple departments and the community, China's HIV/AIDS prevention strategies and treatment measures have been implemented with notable effectiveness. However, the current HIV/AIDS situation is still critical, particularly in key geographical regions and populations, and measures must be taken to continually strengthen identification, treatment and prevention methods. Targeted testing for HIV in high-risk groups must be expanded, particularly in order to identify recently-infected individuals and control secondary HIV transmission. Treatment and care for HIV and AIDS patients must be improved to minimize AIDS-related deaths. In addition, efforts must continue to expand HIV-related health education and behavioral interventions, reduce HIV-related stigma, minimize AIDS-related harm, and effectively promote public health and safety.

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