Limiting the Future Impact of HIV and AIDS on Children in Yunnan (China)

China HIV/AIDS Socio-Economic Impact Study Team **

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Currency: US$1.00 = approximately RMB 8

Yunnan: Socioeconomic profile

Yunnan, one of China's poorer provinces, is in the south-central part of China. Bordered by Myanmar to the west and the Lao PDR and Viet Nam to the south, it is on the edge of the 'Golden Triangle', of opium-growing fame. The province has 42 million inhabitants, one third of whom are ethnic minorities, mainly living in the mountainous border regions.

In 2000, Yunnan was the only province in China with a negative GDP growth rate (-2.4 per cent) when the national average was 7.1 per cent. In 1998, 2.7 million of Yunnan's inhabitants (6.4 per cent) were found to be living below the poverty line, compared with a national average of 4.6 per cent of rural people and 1 per cent of registered urbanites (based on the Government's poverty rate of <$0.66 per person per day; the World Bank's standard is $1 per person per day). State Statistics Bureau rural household data for 1996 show Yunnan with 3.6 per cent of China's 919.4 million rural people, but 15.3 per cent of the country's 58 million rural poor. In 1999, Yunnan's average per capita GDP was approximately $500 per annum (RMB 4,295), but average rural incomes were below $175. This discrepancy was mainly caused by the fact that one of the main cash crops is tobacco, which provides a good income to those engaged in processing and sales, but little for the farmer who grows the crop. However, cigarette tax revenues do allow the Yunnan Government to fund more basic social services than can be found in many of the other western provinces.

The province has 12 million children below the age of 15. The mortality rate for children below the age of five is reported to be less than 50 per 1,000, and the

MMR is around 100 per 100,000. In rural areas, 73 per cent of the people have access to safe drinking water, but only 34 per cent have access to sanitation. Primary school enrolment is quite high: 99.02 per cent of urban children, 97.42 per cent of rural children and 95.4 per cent of ethnic minority children are enrolled and the five-year retention rate is 80 per cent. However, although the Government now reports very high national enrolment rates for primary education (98.8 per cent in 1996), the United Nations Development Programme (UNDP) noted in 1998: 'Actual school enrolment rates may be somewhat lower than officially reported rates.' In some areas of China, enrolment rates are as low as 46 per cent, with girls accounting for three quarters of the children not enrolled in school (UNDP 1998).

In 2000, the incidence of malnutrition in children below the age of five in Yunnan was 15.9 per cent (15.1 per cent for boys and 16.8 per cent for girls), with malnutrition being much more prevalent in the countryside (20.4 per cent) than in the towns and cities (6.1 per cent).

Overview of HIV

China has three simultaneous HIV epidemics that are beginning to coincide. In the west and on the border with the Golden Triangle, intravenous drug use is the principal mode of transmission. Tainted blood and plasma transfusion is the predominant cause in the central provinces, while in coastal areas it is commercial sex.

In 2006, all indications point to these epidemics becoming explosively widespread in China, contributed to by already disquieting, but practically overlooked, increases in factors that facilitate the spread of the disease.

Nationally, the number of infections is rising rapidly (figure 1) and, between 2000 and 2001, the annual incidence to prevalence ratio rose from 30 per cent to more than 60 per cent. The Ministry of Health (MoH) reported 3,541 new infections in the first six months of 2001, a 67 per cent increase from the first half of 2000. In January 2006, MoH, UNAIDS and WHO estimated that there had been 70,000 new HIV infections in 2005 and a total of 650,000 people were living with HIV in the country, with an incidence of 0.05 per cent (www.unchina.org/unaids). China still ranks second in Asia after India, according to UNAIDS (UNAIDS 2004), but the organization has warned that HIV could begin to increase faster in Asia than it does in Africa.

Chinese HIV researchers explain the as yet relatively low incidence of HIV in China (0.1 per cent, 2003 (UNAIDS 2004)) with the fact that only recently have drug users and sex workers begun to mingle. Formerly, drug users clustered in ethnic minority areas in rural Yunnan province and Xinjiang region and were usually poor and less mobile. Sex workers were more mobile and generally resided in urban areas. This situation is changing rapidly (US Embassy 2000), coinciding with reductions in travel restrictions in the early 1990s.

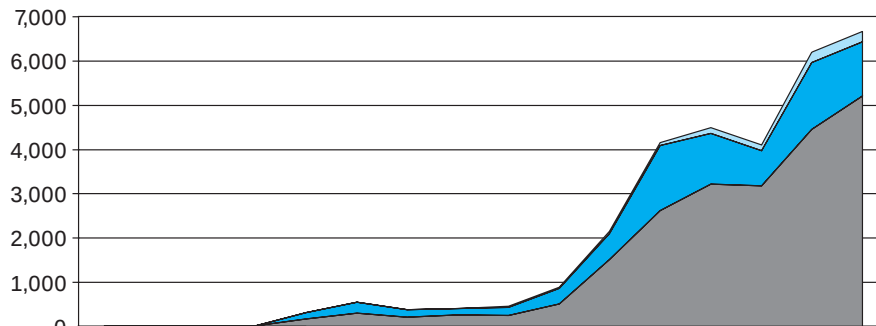
HIV infection started in China in Yunnan's Ruili County, with the first case being identified in 1986. During the 1980s, HIV infections were mostly associated with people with international contacts, but by the early 1990s, Yunnan had a more established epidemic, especially among intravenous drug users. Since 1995, that epidemic has spread along truck routes across and beyond Yunnan, in addition to the other epidemics related to heterosexual contacts and tainted blood.

In the 1990–1995 period, Yunnan accounted for 3 per cent of China's population, but 50 per cent of the country's HIV infections. But the HIV percentage has dropped dramatically as the epidemic has spread to other parts of China, so that it is projected that in 2010 only 3 per cent of China's HIV cases will live in Yunnan.

General attitudes toward people with HIV and AIDS are very negative, despite the fact that the Ministry of Health has issued directives stating that people living with HIV are not to be discriminated against and on World AIDS Day 2003, Premier Wen Jiabao visited patients with HIV-related illness in hospital. Ethnographic and anecdotal evidence indicates people are shunned, dismissed from their jobs, evicted from their homes, and chased out of town when it becomes known that they are infected with HIV. People are generally unaware of the ways HIV can be contracted and levels of fear are very high. Many believe using the same chopsticks can pass on an infection. An ID card that identifies a person as being from an inland provincial village known to have a particularly high prevalence is sufficient to make him or her a pariah in surrounding areas. After unsubstantiated press reports that Henan farmers might be injecting watermelons with tainted blood, the villagers in Henan found it next to impossible to sell their produce, compounding their economic hardship.

Figure 1. HIV reported cases and estimates for China and Yunnan Province

Annual Detected Cases of HIV/AIDS in China and Yunnan Province
(1985–2000) from Case Reporting, excluding Sentinel Surveillance data



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
AIDS China	1	0	2	0	0	2	3	5	23	29	52	58	126	136	230	233
HIV Yunnan	–	–	–	–	146	251	160	142	176	353	581	1,480	1,145	793	1,517	1,229
HIV China	4	1	7	7	171	297	213	256	251	502	1,515	2,611	3,217	3,170	4,447	5,201

Table 1. Estimated HIV prevalence for China

Variable	1990–1995	1996–1997	1998–1999	2000–2001	UNAIDS Estimate for China 2005	UNAIDS Estimate for China 2010
Population						
China	1,211 M	1,236 M	1,259 M	1,279 M	1,316 M	1,359 M
Yunnan	39.90 M	40.94M	41.92M	42.90M	44.61M	46.93M
Estimate total Adult HIV						
China	10,000	100,000	500,000	>1,000,000	5,000,000	20,000,000
Yunnan[1]	5,100	27,000	40,000	54,000	200,000	600,000
Adult HIV prevalence						
China	<0.002%	<0.02%	<0.1%	<0.2%	<1%	<3%
Yunnan	0.0125%	0.054%	0.095%	0.17%	0.44%	1.32%
Male/female Ratio						
China	9 to 1	7 to 1	5 to 1	4 to 1	3 to 1	2 to 1
Yunnan	10 to 1	6 to 1	6 to 1	5 to 1	4 to 1	3 to 1
Male HIV prevalence						
China	<0.01%	<0.05%	<0.2%	<0.5%	-	-
Yunnan	0.02%	0.09%	0.16%	0.27%	0.68%	1.91%
Female HIV prevalence						
China	<0.001%	<0.01%	<0.02%	<0.01%	-	-
Yunnan	0.002%	0.02%	0.03%	0.06%	0.18%	0.69%

Remarks: All figures exclude numbers for the epidemic in Henan Province, which went unreported, but is probably as serious as Yunnan's. Past estimates are based on official estimates by the Ministry of Health (MoH) and the Chinese Academy of Preventive Medicine. Current and future estimates are based on the assumption that the epidemic doubling time is 30 months (annual increase of 30 per cent) and the total estimate in January 2001 was 1,250,000.
The MoH Long Term Plan of 1998 describes a possible total of 10 million people infected with HIV by 2010, if no successful countermeasures are taken.

Surveillance systems

Surveillance and monitoring of HIV in China is carried out through the systematic collection of HIV rates at 101 national and a large number of provincial sites. Groups such as injecting drug users (IDUs), sex workers (SWs), patients with sexually transmitted infections (STIs), and long-haul lorry drivers are targeted. Data are also derived from antenatal screening in high prevalence areas. Surveillance site data are used to calculate and make estimates[2] on HIV distribution and prevalence. However, reported data do not contain results from sentinel surveillance, and prevalence does not include case-reported data, rendering scientifically valid data incomplete.

In addition, sentinel surveillance sites are located in cities, whereas more than two thirds of the HIV cases are in rural areas. Furthermore, surveillance systems were simply not designed for China's unprecedented blood-related epidemic, and so miss localized areas of very high prevalence. Rapid assessments, better use of opportunistic infection data, or use of available data as an early warning system are needed.

Table 2. HIV among the general population in Yunnan from one surveillance site in a general hospital in the provincial capital, Kunming

Year	Patients Tested	HIV-positive cases	Percentage HIV +
1992	2,388	4	0.2%
1993	1,776	9	0.5%
1994	2,048	4	0.2%
1995	795	6	0.8%
1996	800	5	0.6%
1997	807	3	0.4%
1998	800	1	0.1%
1999	800	11	1.4%
2000	805	11	1.4%

Yunnan has the best reporting system in China, which probably explains why it is the province with the majority of reported cases, but data at county level are still poor. Most case reports come from the sentinel surveillance system, which consists of: IDU surveillance sites, set up at compulsory detoxification centres, where the users are incarcerated; sex worker (SW) surveillance sites in female re-education centres; STI surveillance sites at selected STI clinics in various cities; and antenatal surveillance sites set up in the antenatal departments of general hospitals. Finally, there is a general population site, based in one hospital for unlinked serosurveillance, a feature that does not exist in the national system.

Table 3. Yunnan provincial sentinel surveillance sites

Year	Provincial Sentinel Surveillance Sites					
	IDUs	SWs	STI Clinics	Antenatal	General	Total
1992	11	2	9	2	1	25
1993	12	2	10	4	1	29
1994	13	2	10	5	1	31
1995	13	3	12	5	1	33
1996	14	3	17	6	1	40
1997	15	1	16	9	1	42
1998	14	1	15	11	1	42
1999	15	1	17	9	1	43
2000	15	1	15	10	1	42

All blood donors in Kunming and in the 15 prefecture capitals must be screened for HIV but these figures are excluded from provincial sentinel surveillance data.

Modes of transmission

Table 4. HIV transmission in China and Yunnan Province

Variable	1990–1995 %	1996–1997 %	1998–1999 %	2000–2001 %	Estimate 2005 %	Estimate 2010 %
Mode of transmission						
IDU						
China	60.0	75.6	77.0	65.4		
Yunnan	92.4	88.7	80.83	68.9	71	53
Heterosexual						
China	7.4	6.2	6.9	8.6		
Yunnan	5.1	6.3	11.0	14.7	23	38
Homosexual						
China	0.4		0.4	0.3	-	-
Yunnan	-	-	-	-	-	-
MTCT						
China	0.1	0.1	0.1	0.2	-	-
Yunnan	0.1	0.1	0.1	0.2	2	3
Unknown						
China	32.2	18.1	15.6	25.5	-	-
Yunnan	2.5	4.9	8.1	16.2	4	6

Contaminated needles and blood

One of the most frequent modes of HIV transmission across China is contaminated injection needles, used either by drug abusers (accounting for 66.5 per cent of new cases) or by staff collecting blood or giving injections (as many as 200 million people estimated to be at risk from this route).

The five areas with the worst intravenous drug use problems are: Yunnan, Sichuan, and Guizhou provinces and the Xinjiang and Guangxi regions. The United Nations Drug Control Programme (UNDCP) estimates that around 60 per cent of the drugs originate in the Golden Triangle, and despite government efforts, Public Security sources report that less than 10 per cent of drugs are intercepted.

The Public Security Bureau detained 860,000 drug users in 2000, but estimates that the real number is 10 times that. From 1997 to 2000, the number arrested increased 65 per cent (from 520,000). According to national sentinel surveillance, over half the drug users are using drugs intravenously, and approximately one third sharing needles, partly to save money and partly because they see no danger in doing so. Researchers find a 'blind confidence' among drug users when it comes to HIV infections, with studies showing that male drug users are unwilling to use condoms, and female drug users (a small proportion of the total users) often engage in commercial sex activities.

In Yunnan between 50 per cent and 90 per cent of drug users inject intravenously. Moreover, the 1997 data analysis of the 15 drug-abuse surveillance points across the province showed an average incidence of needle sharing of 54.3 per cent.

Table 5. HIV and injecting drug users (IDUs) in Yunnan

Year	Number of surveillance sites	Number of IDUs tested	HIV-positive cases	% HIV-positive
1992	11	1,395	84	6%
1993	12	1,353	72	5%
1994	13	2,016	132	7%
1995	13	2,569	175	7%
1996	14	2,340	524	22%
1997	15	1,630	431	26%
1998	14	1,467	358	24%
1999	15	1,204	335	28%
2000	15	2,985	791	27%

An alarming number of people are contracting HIV either through transfusions of contaminated blood or via unsterilized equipment used when collecting blood. The illegal collection of blood and plasma products has been reported in China for a number of years. The fee of approximately $5 is a powerful incentive for poor farmers who have been known to give blood up to several times a month. The frequency is facilitated by the fact that, after pooling the blood of the same type and separating out the plasma to make gamma globulin and albumin, the remaining components can be re-injected into the farmers. An October 1998 law banning blood donations for pay has helped reduce the scale of this activity but chronic blood shortages and the financial incentives have made it difficult to eliminate entirely. Some Chinese researchers estimate that in Henan province (population of 100 million) alone, there are approximately 1 million people infected with HIV from blood donations. Although in Yunnan the contraction of HIV via blood plasma sales does not appear to represent a major problem, there are a number of other

provinces such as Hubei (pop. of 60 million), Hebei (pop. of almost 70 million) and Shanxi (pop. over 30 million) with villages where up to 62 per cent of the donors are HIV-positive.

Sexual transmission

The spread of HIV through sexual intercourse is gaining momentum, mostly in the eastern provinces. This includes both heterosexual (particularly via 4–5 million female SWs who have as clients an estimated 1 per cent of all men in China) and homosexual (an estimated 8 million men practise male-to-male sex).

STIs are increasing at an alarming rate (see figure 6), especially in the wealthier parts of China, such as the cities of Shanghai and Beijing, and Zhejiang, Jiangsu, Guangdong and Hainan provinces, where the number of cases quadrupled from 1994 to 2000 (US Embassy 2000). The national reported prevalence for 2000 was 1 million, estimated to be only one tenth of the actual figure.

The infection is also beginning to move beyond drug users in Yunnan. The proportion of HIV carriers who were drug users fell from 87 per cent in 1997 to an estimated 70 per cent in 2002, with 14 per cent of HIV infections being ascribed to sexual activity. In Yunnan, sexual transmission started to increase in mid-1997 and reached 15 per cent in 2000. In 2000, HIV prevalence among male STI patients averaged 2.7 per cent, and increased rapidly in Binchuan, Gengma, Chuxiong and Kunming. Sex workers in Kunming have HIV prevalence of 2.9 per cent, while female STI patients averaged 1.9 per cent. Many women, particularly those in rural areas, also suffer from reproductive tract infections (RTI); according to numerous studies, as many as two thirds have some type of RTI. These can serve as a reliable proxy for STIs, which in turn serve as a reliable proxy for HIV (UNAIDS and WHO 2000).

Homosexual transmission

Because of social norms, most homosexuals are married. Studies indicate that 2.2 per cent of rural married men and 0.5 per cent of urban married men have had homosexual sex. Other studies have found up to 5 per cent of men having sex with men (MSM) to be HIV-positive (Li 2001).

A survey among 857 MSM (average age 30 years) from throughout China in 2000 indicated that 59 per cent had also had sex with a woman in the past year, and of the 71 who had taken an HIV test, 3 were positive (Zhang Beichuan 2001).

Mother-to-child transmission (MTCT)

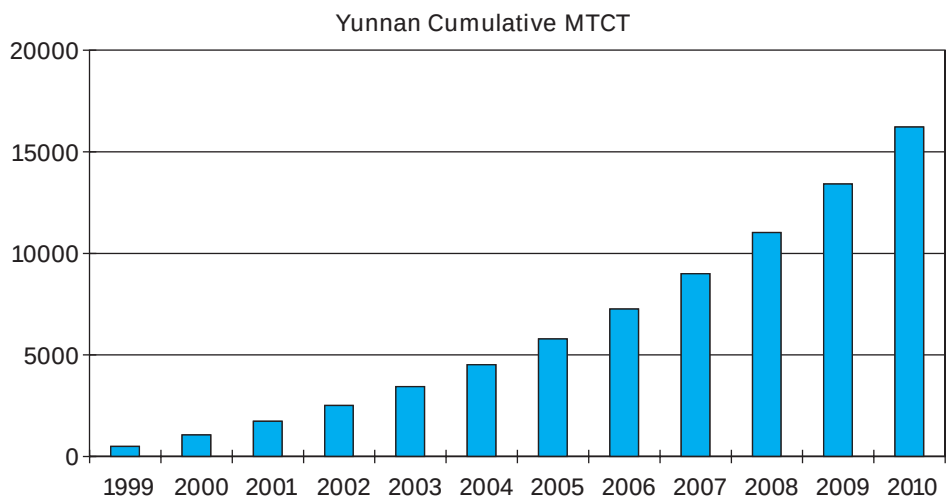
Since 1992, when antenatal screening for HIV was first introduced, the percentage of mothers testing HIV-positive has remained relatively constant at approximately

0.2 per cent. Whether or not the HIV-positive mothers have definitely passed on the virus to their children is not known, but in 2002 there were estimates in Yunnan of 500 children having been infected by their mothers. With an increasing number of women becoming HIV-positive, this number will inevitably rise. Assuming an average three-year survival time for an HIV-positive child, it is estimated that by 2005 almost 6,000 children will be infected, and by 2010 the total figure will have jumped to 16,000 (see figure 2). These children will not only be ill themselves, up to a third probably dying in their first year of life, they are also likely to be orphaned very early in life.

Table 6. Screening for HIV in antenatal clinics

Year	Surveillance sites	Antenatal consultations tested for HIV	HIV-positive cases	% HIV-positive
1992	2	1,240	2	0.2%
1993	4	1,346	2	0.1%
1994	5	2,875	4	0.1%
1995	5	2,896	2	0.1%
1996	6	3,275	8	0.2%
1997	9	5,751	8	0.1%
1998	11	6,521	12	0.2%
1999	9	6,417	14	0.2%
2000	10	8,698	21	0.2%

Figure 2. Projection of children in Yunnan with HIV infection from MTCT

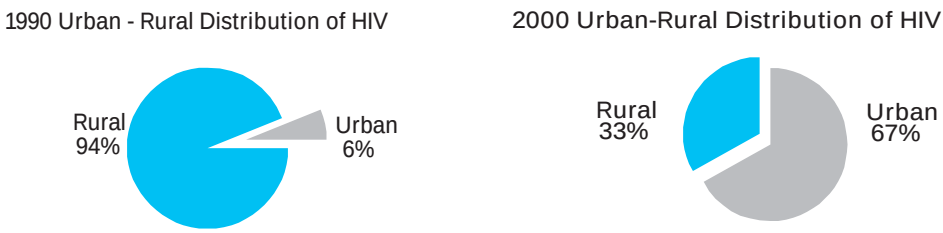


Patterns of infection

Rural/urban

The pattern of infection in Yunnan is also changing from the predominantly rural, ethnic minority people living in border areas, to a more urban setting often far from the borders[3] (figure 3). Of the HIV cases reported in 1990, 93.8 per cent were among peasants and farmers, but in 2000 only 32.9 per cent were among the rural population. The percentage of infected people who were officially unemployed, however, increased from 7.6 per cent in 1990 to 44.1 per cent in 2000. In the same period, the percentage of infected salaried employees rose from zero to 4.7 per cent, sounding a warning that HIV was spreading from the countryside to the cities. The remaining 18.3 per cent were self-employed workers, truck drivers, taxi drivers, etc.

Figure 3. Urban–rural distribution of HIV in Yunnan



The case of Kaiyuan City illustrates how HIV spreads via drug use from rural to urban areas. Kaiyuan is located in the south-east of the province, and has a population of 292,094, consisting of 33 different minority groups. Situated 300 kilometres from the Vietnamese border, on the main Kunming–Hanoi railway, and at the centre of a well-developed road network, it is a focal point for trade with bordering countries. With more than 7,000 long-distance truck drivers living in the city and over 30,000 people passing through it daily, Kaiyuan has become an entertainment centre. There are 34 beauty and massage salons, 61 discos, 124 karaoke bars and 5 saunas, employing over 2,000 female workers. By the end of 2000, 332 people, most of them intravenous drug users, had tested positive for HIV.

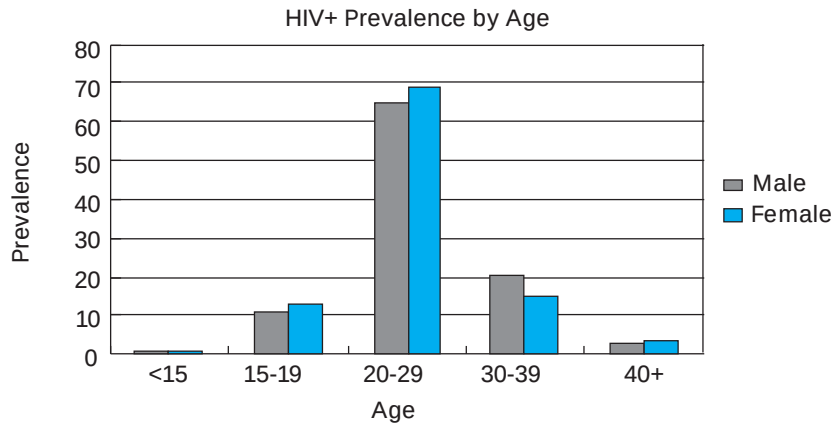
Age group

As shown in figure 4, HIV-positive people are predominantly in their twenties.

Gender patterns

It is mainly males who are HIV-positive in Yunnan, but the ratio of male to female infections dropped significantly in the last decade of the 20th century. In 1990 it was 40:1 and by 2000 there were only six males infected for every one female. Nationally, the ratio is 4:1, but falling.

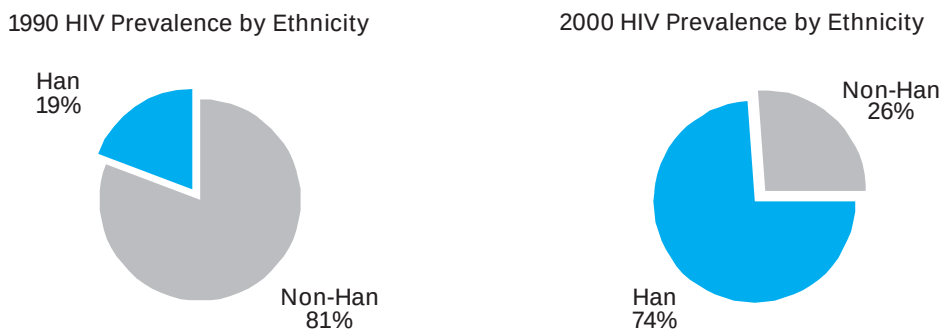
Figure 4. HIV prevalence by age group



Ethnic patterns

The ethnic distribution of the infection changed greatly during the 1990s.

Figure 5. Changing pattern of HIV distribution among ethnic groups in Yunnan



Facilitating factors

Drug abuse

The main characteristics of drug use in Yunnan are:

1. **Number:** 100,000 to 150,000 (2002 estimate).
2. **Age:** Drug users are mainly young people. Most begin by smoking drugs and then convert to injection after six months to a year.

3. **Sex:** Males outnumber females, but there is a steady increase in the number of females becoming addicted.
4. **Occupation:** Young peasants are the main group in rural areas, while in towns and cities it is predominantly people with unstable jobs.
5. **Location**, rather than ethnic origin, is the major factor.
6. **Levels of education:** Drug users in general have low levels of education.
7. **Drugs used:** Heroin has gradually overtaken smoked opiates as the major drug, especially in urban areas. In poor and remote mountain areas, however, opium smoking is the main addiction among older people. The use of stimulants has been gaining popularity among adolescents, usually in poor rural areas, the most commonly used stimulants being ecstasy and 'ice' (methamphetamine).
8. **Social impact:** Estimates show drug users are responsible for 70–80 per cent of robberies, thefts and drug dealing.
9. **Relapse rate:** More than 90 per cent of drug users relapse after going through detoxification.

A survey of 843 intravenous drug users in two counties and one city of Yunnan showed that they engaged in high-risk sexual behaviour, with several partners and a very low condom use rate (2.5 per cent). There were similar findings from a survey of 364 heroin users in Kunming: 41 per cent had more than five sex partners and 85.2 per cent never, or only occasionally, used condoms.

Sexually transmitted infections

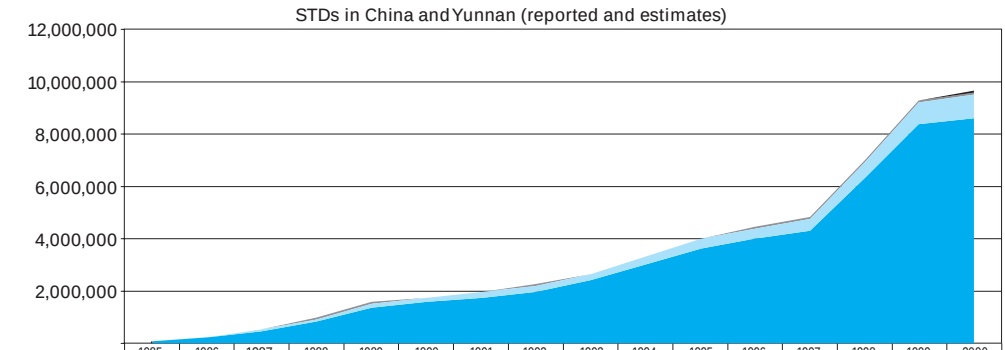
As seen in figure 6, a cumulative total of 49,955 STI cases were reported from 1985 to 2000 from 26 STI surveillance sites in Yunnan. In 2000, there were 12,290 reported STI cases, an increase of 61.05 per cent over 1999, although this figure is believed to be well below the real prevalence level. In a 1999 survey conducted by the Yunnan STD Prevention Monitoring Centre in 135 state-owned hospitals and health institutions, and 167 clinics in eight prefectures in Yunnan province, the percentage of unreported cases was 19.1 per cent in state-owned institutions, 62.4 per cent in health centres, 79.3 per cent in medical institutions, and 100 per cent in private-owned hospital and clinics. A survey of 222 people with STI symptoms visiting a doctor for the first time shows that 41 per cent visited public health STI clinics, 42 per cent visited private hospitals and clinics, and 17 per cent clients went to pharmacies for self-treatment (Zeng Yong 1997).

Table 7. Profiles of registered drug abusers in Yunnan by year

			1998) Number (%)	1999 Number (%)	2000 Number (%)
Number of drug users	Male		40,253 (90%)	39,482 (89%)	39,293 (89%)
	Female		4,656 (10%)	5,074 (11%)	4,949 (11%)
	Total		**44,909**	**44,556**	**44,245**
Type of drug abuse	Heroin		18,630 (64%)	19,763 (67%)	19,910 (69%)
	Opium		10,581 (36%)	9,855 (33%)	9,026 (31%)
	'Ice'		0 (0%)	44 (0.1%)	37 (0.1%)
	Total		**29,211**	**29,662**	**28,973**
Injecting heroin users	Number of People		15,662	14,872	15,247
	Percentage among heroin users		84	75	77
Age distribution	Below age 17		813 (2%)	956 (2%)	961 (2%)
	Between ages 18–25		14,207 (32%)	14,755 (33%)	14,707 (33%)
	Between ages 26–35		16,669 (37%)	16,254 (36%)	16,789 (38%)
	Between ages 36–60		10,435 (23%)	10,032 (23%)	9,572 (22%)
	Over age 60		2,765 (6%)	2,559 (6%)	2,216 (5%)
	Total		**44,889**	**44,556**	**44,245**
Occupation distribution	Workers		3,409 (8%)	3,280 (7%)	3,113 (7%)
	Peasants		27,255 (61%)	27,079 (61%)	27,325 (62%)
	Cadres*		214 (0.5%)	212 (0.5%)	209 (0.5%)
	Self-employed workers		1,378 (3%)	1,446 (3%)	1,238 (3%)
	Unemployed		12,143 (27%)	12,163 (28%)	11,973 (27%)
	Total		**44,399**	**44,180**	**43,858**
Levels of education	Illiterates		10,270 (23%)	9,532 (21%)	8,576 (19%)
	Primary school		14,826 (33%)	15,161 (34%)	15,781 (36%)
	Junior high		16,958 (38%)	16,980 (38%)	17,017 (38%)
	Senior high		2,768 (6%)	2,762 (6%)	2,765 (6%)
	College		87 (0.2%)	121 (0.3%)	109 (0.2%)
	Total		**44,909**	**44,556**	**44,248**
Consequences	**Disease**	HIV	1,706	1,415	1,507
		STIs	519	609	482
		Other related diseases	962	858	839
		Handicapped	64	54	51
	Deaths	Deaths caused by drug use	157	117	182
		Other deaths	59	60	115
	Drug-related crimes		2,420	2,399	2,252

* Cadres: civil servant leaders of factories, institutions, communities, police and military.

Figure 6. Sexually transmitted infections in China and Yunnan Province



	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000
Yunnan STD Reported	46	275	686	2,274	2,876	2,401	1,341	2,017	1,040	2,108	3,406	3,518	2,858	5,197	7,631	12,290
Yunnan STD Estimate	460	2,750	6,860	22,740	28,760	24,010	13,410	20,170	10,400	21,080	34,060	35,180	28,580	51,970	76,310	122,900
China STD Reported	5,838	23,534	49,234	85,977	139,724	157,108	175,528	199,733	240,848	300,466	362,654	398,512	432,626	632,307	836,655	859,040
China STD Estimate	58,380	235,340	492,340	859,770	1,397,240	1,571,080	1,755,280	1,997,330	2,408,480	3,004,660	3,626,540	3,985,120	4,326,260	6,323,070	8,366,550	8,590,400

Table 8. HIV among patients consulting on STIs in Yunnan

Year	Surveillance sites	Number of STI cases tested for HIV	HIV-positive cases	% HIV-positive STI patients
1992	9	2,040	1	0.0
1993	10	2,112	2	0.1
1994	10	2,170	4	0.2
1995	12	3,595	5	0.1
1996	17	4,316	53	1.2
1997	16	3,927	126	3.2
1998	15	3,658	57	1.6
1999	17	4,430	84	1.9
2000	15	4,245	103	2.4

Table 9. Survey on the behaviour of young people in Yunnan

Menglian county	Have a boy/girlfriend	Have sex with their boy/girlfriend
Boys (207)	51%	43%
Girls (191)	59%	40%
Kunming		
Boys (101)	29%	38%
Girls (64)	28%	56%
	Have an extramarital sexual partner	
Married men (149)	12.5%	
Married women (149)	10%	

The reasons for the rise in STIs are complex and various, but they include increased mobility, social change and the deterioration of the health system. Commercial sex is rising, and experts estimate that about 0.5–1 per cent of all adult males visit sex workers. As shown in table 9, Yunnan young people's attitudes towards sex are relatively relaxed, with from over a third to half engaging in premarital sex.

A survey of 222 STI patients in Yunnan revealed their socioeconomic status.

Table 10. Profile of 222 patients attending STI clinics in Kunming, 1997

Age distribution	Between 15–19 years	5%
	Between 20–29 years	46%
	Between 30–39 years	32%
	Between 40–49 years	11%
	Over age 50	5%
Occupation distribution	Workers	14%
	Peasants	28%
	Cadres	14%
	Self-employed workers	13%
	Drivers	4%
	Promoters	2%
	Students	1%
	Other	10%
	Jobless	14%
Levels of education	Illiterate	3%
	Primary school	18%
	Middle school	70%
	College	9%

Source: Zeng Yong, 'Health Seeking and Reproductive Health Behaviour of Persons with STDs'.

Commercial sex

China's rapidly expanding commercial sex trade increases the risk of HIV infection for urban populations. From 1996 to 2000, the number of sex workers arrested increased by 43 per cent to 600,000. However, the Public Security Bureau (PSB) estimates the total number of sex workers to be five or 10 times higher, with some Chinese researchers estimating as many as 20 million.

Most experts say that some sex workers are IV drug users, and that the two populations have begun to intermingle, spreading HIV outside the circle of drug users.

In the 2000 HIV monitoring report by Yunnan province, the seroprevalence of HIV among women sex workers was 2.9 per cent, but among female drug users arrested for commercial sex activities it was as high as 10.3 per cent. Sex work and drug use are both considered to be crimes, and offenders are sent to rehabilitation camps and centres. Ironically, these centres offer a further risk as inmates commonly tattoo themselves with non-sterilized needles.

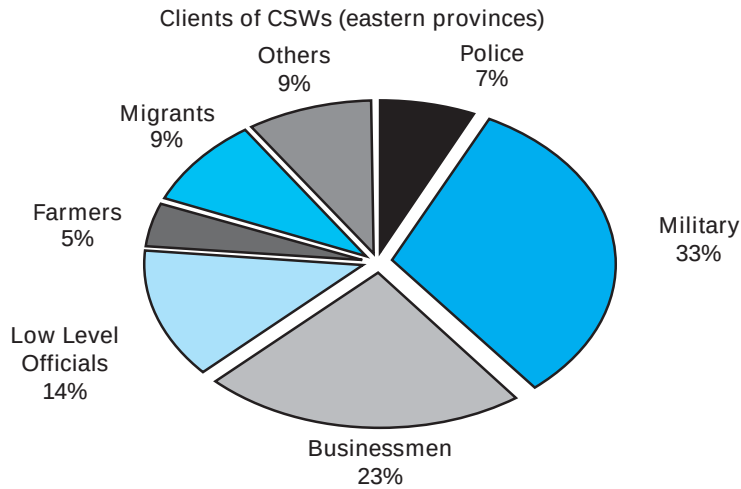
SWs are especially at risk, since most have little access to health information, health services or counselling. Although HIV infection rates among SWs are still thought to be low, the Government reports that an average of 30 per cent of the SWs in women's custody and education centres were infected with STIs. Testing for STIs and HIV is not available free of charge. A study conducted by the National STD Control Centre in Nanjing for the European Union indicated an average cost of 400–500 Yuan, and treatment often costs thousands of Yuan. In some women's custody and re-education centres in the south, treatment for STIs is only provided to those inmates who are able to pay (Human Rights in China 1998).

Wang Yanguang of the Chinese Social Sciences Academy's Philosophy Institute, in an April 2000 article titled 'Strategy of Tolerance and HIV/AIDS Prevention in China', stated: 'The rapid growth of China's sex industry is not simply a matter of the moral fall of those women who sell themselves. The context of this problem includes rapid economic development, a growing gap between rich and poor, in both cities and countryside, unemployment, poverty, and a big buyer's market. Under these conditions, there are no simple solutions that could make the sex trade disappear in a short time.'

Table 11. HIV among SWs in Yunnan

Year	Nr surveillance sites	Total SWs tested	HIV-positive SWs	% HIV-positive SWs
1992	2	426	0	0.0%
1993	2	126	0	0.0%
1994	2	83	0	0.0%
1995	3	1,050	5	0.5%
1996	3	824	12	1.5%
1997	1	588	9	1.5%
1998	1	575	14	2.4%
1999	1	847	19	2.2%
2000	1	820	24	2.9%

Figure 7. Clients of SWs in eastern Chinese provinces



So, whereas in Yunnan clients are from lower classes (inferred from STI clinic attendees table 10), in the east, clients come from higher social classes.

Low condom use

Although the Government purchases 1.2 billion condoms a year from domestic sources for free distribution, primarily as contraceptives, the use of condoms remains very low throughout China. In Yunnan, research conducted mainly by the Australian Red Cross found that, while levels of knowledge about condoms was generally good in cities (95 per cent of the 524 young people surveyed in Kunming could tell where to buy condoms), usage rates were low, and in rural areas over 40 per cent of the 397 young people surveyed (in Menglian county) did not know what a condom was and another 40 per cent had no idea where to buy them.

Some research shows ethnic minority groups seem to regard the use of condoms as 'taboo'. For example, the Dai people would not want to use condoms and the Dai women said they never used them, as did most of the Naxi women. Usage levels are generally low, but are related to socioeconomic factors.

Many SWs find it difficult to persuade clients to use condoms. In a survey conducted by Xu Yansheng and her group in a re-education camp for women in Kunming, although 91.4 per cent of the women knew that condoms were used to prevent disease, 61.1 per cent had clients who refused to wear them and only 33.3 per cent used the protection every time they had sex with clients. In a 1997 survey conducted by Wu Zunyou and his group among 40 service girls in 52 bars and hair

salons in Luxi, Ruili and Longchuan, Dehong prefecture, only 10 per cent, all in Ruili, said they used condoms every time. In 2001, Li Jianhua and his group interviewed 40 'street' sex workers with an average age of 27.54±5.32 in Kunming city, Menglian county, Jinhong county and Ruili city. The number of visitors they received varied from day to day with a maximum of three clients and a minimum of one visitor per night, each paying RMB 20–50. All 40 interviewees had condoms with them all the time and most of them would ask their clients to use them, but 92.5 per cent would not insist if the visitors refused. They said, however, they would refuse sex if the client had an STI, which they thought they could determine visually. None of them used condoms with their long-term partners.

Police practices in some parts of the country actually discourage the use of condoms. As an official told researchers:

The main reason prostitutes give for why it is 'inconvenient to carry' condoms is that police consider carrying condoms as legal evidence of prostitution. This demonstrates that our policy of attacking prostitution has a threatening effect, since most prostitutes feel more threatened by the law than by STIs. It is very difficult to determine if someone is involved in prostitution. When you detain a woman and take her in for investigation, the most important evidence is whether or not she is carrying condoms. If you don't discover any condoms, you can only prove she is a prostitute if she admits to soliciting customers.

In 1998 and 2000, surveys were conducted on the state of condom use by drug abusers. In Yang Fang's 1998 survey of 364 drug abusers, 94.5 per cent knew something about condoms, but 48.26 per cent (36.33 per cent men and 60.08 per cent women) said they did not know how to use them, and only about half knew that condoms could reduce the risk of STIs (55.2 per cent) and HIV (44.8 per cent). In Wu Zunyou's 2000 survey, high-risk behaviours were very common, particularly among the female drug abusers: 50 per cent engaged in sex work and 66.2 per cent never used condoms with their clients or partners.

Unsafe injections

WHO estimates that 50 per cent of the curative injections in China are unsafe. Certain studies have found 88 per cent to be unsafe because of improper sterilization of equipment (17 per cent) and unsafe injection practices (40 per cent), or both (43 per cent). In one study, fewer than half the medical workers knew how to sterilize properly and 56 per cent said they only changed needles when they noticed blood on the syringe (Journal of Epidemiology 1999).

On average, rural Chinese receive seven prescriptions per year, 70 per cent of which involve injections. If 50 per cent of these were unsafe, there would be 3,347

new HIV infections per annum in Yunnan's rural population, three times the number of infections from MTCT. WHO modelling from 2001 suggests that 2 per cent of HIV infections can be traced to injections.

The potential risk for children is equally high: If one considers that 50–88 per cent of rural injections are unsafe, with Yunnan's general seroprevalence of 0.2 per cent, and the risk of HIV transmission through each injection being 3 per cent, for the average child below the age of five receiving six injections a year, the risk of contracting HIV each year would be 0.03 per cent. Over a six-year period, the child therefore has a 2-in-1,000 chance of becoming infected with HIV, twice the chance that a man has of contraction through unprotected sex (1 per 1,000 sexual encounters with HIV-positive women, according to WHO WPRO). Yunnan has an under-five child population close to 4 million. Given the above, this would lead to 1,267 new infections each year in children below the age of five, 15 per cent more than the estimate of HIV infections derived from MTCT (1,103) in the year 2000.

Health care system

Mortality rates have increased in some areas since the early 1990s, particularly in the less-developed western part of the country. The fundamental cause is that there has recently been a substantial erosion in the quality and efficiency of health care (UN Country Team 2000). The past two decades have seen a shift from a low-cost socialized health care system to a market-oriented one, with charges that are prohibitively high for many citizens. This change has come about without a corresponding updating of policies or laws to regulate payments and operations. Few have insurance, so the rapid escalation of costs has meant reduced personal spending on other service sectors such as education (UN Country Team 2000), and in 40 per cent of rural households, the cause of their descent below the poverty line was said to be recent medical expenditure.

From 1990 to 1997, outpatient and inpatient costs increased 400–500 per cent. Medications accounted for the bulk of expenditure (70–80 per cent of all expenses in 1994), due mainly to their overuse. In order to make a living, rural health practitioners often over-prescribe treatment. Medical cost increases far exceed income and GDP growth (average of 8–10 per cent per year). The rapid rise in user costs correlates directly with decreased utilization. A 1992–1993 survey found that, of those who had been referred to a hospital for care, 40.6 per cent did not go, on grounds of excessive costs and inability to pay. The average hospital cost is RMB 1,273 at the county level and RMB 6,244 nationally; average annual income in 1997 was RMB 6,079. This is particularly disturbing in a country where insurance coverage is so rare.

Preventative and primary services such as immunizations and prenatal care have also declined. Maternity and childcare clinics tend to lack funds for personnel expenses or operating costs, and therefore cut services that do not produce income. Only 29 per cent of mothers in poor counties can afford prenatal exams, and only 6 per cent can afford a hospital delivery, with only 36 per cent of deliveries meeting basic hygiene standards. This problem is known to contribute to higher IMR and MMR. In fact, fieldwork data suggest that the high costs and lack of specialists, female doctors and postnatal care place women at particular risk. Their health is already compromised by overwork and malnutrition and female workers and health officials in Yunnan have emphasized that women are the most likely to become seriously ill (Human Rights in China 1998).

Access is often a matter of geography as well as cost: there are city hospitals, hospitals for ethnic minorities and farm hospitals at the municipal level, as well as private clinics in villages and townships, but villages are often over 10 kilometres away from the nearest health centre.

For people seeking to treat themselves in pharmacies, there is the added risk of counterfeit medicines. According to Chinese health authorities, 194,000 died of reactions to bad medicines in 1998, far higher than the number who died that year of communicable diseases. A drug market sampling by the State Drug Administration on February 6, 1999 reported that the proportion of impure drugs is highest in Chinese traditional medicine. Of 387,000 drug products sampled, 13 per cent failed to meet standards (Cai Jianwen 2000).

The situation is particularly acute for people suffering from HIV-related illnesses. First of all, there are few HIV-related health services available in China. Those that do exist come under the system for treating infectious diseases – a system that is known to be weak, particularly in dealing with STIs. There are fewer than 200 doctors who have specialized skills in diagnosing or treating HIV-related illnesses (UNAIDS 2004) and there is little or no provision for counselling those who test positive. Furthermore, discrimination against PLHIV by health workers is widespread, most seriously in urban areas. Thus, some general hospitals, and even AIDS hospitals in Beijing, refuse to perform surgery on patients with HIV-related illness. A study of HIV-positive families in Ruili, Yunnan (Zhang Jiapeng 1999), found that medical workers at the township and village levels were more sympathetic to patients with HIV-related illness than those in cities and provided necessary medical services even if they knew the patient's HIV status.

Tuberculosis epidemic

MoH experts say that the tuberculosis (TB) situation in China has become critical (Beijing Youth Daily 2001). China ranks second in the world (after India) in the

total number of people with TB. A third of the population, more than 400 million, have been exposed to the TB bacillus, 6 million have active TB, and 2 million are contagious carriers. Over 150,000 die from TB each year, twice the number of deaths in China from all other contagious diseases combined. The rate of TB in the Chinese countryside is 2.4 times that in urban areas.

The official figures may, in fact, be low, because a survey found that about half of the people who were TB-positive had not been registered, while 65.9 per cent of the people with symptoms were not diagnosed. Three quarters of the active TB cases are aged 15–34, meaning that China loses 360 million working days each year to the disease.

The overlapping of the HIV and TB epidemics poses a significant threat because of the following:

- TB is the leading cause of death among people living with HIV (PLHIV); a third of PLHIV die of TB.
- TB accelerates the course of HIV infection and enhances HIV replication in vivo; long-term survival is reduced by half compared to PLHIV who never develop TB.
- Populations vulnerable to HIV are traditionally the same as those vulnerable to TB (WHO China 2001).

Low awareness of HIV and STIs

A Chinese proverb says that one can do anything in China, as long as one does not talk about it. Although the average age of first sexual encounter is dropping and the frequency of premarital and extramarital relations rising, there is little open discussion about the trend.

A UNICEF-sponsored State Family Planning Survey of 7,000 people in six provinces (December 2000) indicated that nearly 20 per cent of respondents had never heard of HIV and AIDS; 71 per cent said they knew HIV was highly infectious, but most of them had no clear idea of how the virus could spread; 62 per cent said they knew they could take precautions to prevent being infected but did not know how to do so.

Another UNICEF survey of 10,000 young people in 17 Pacific-East Asia countries (2001) revealed that Chinese adolescents (9–17 years) were ‘woefully unprepared’ to handle HIV, since 48 per cent said they knew “absolutely nothing” about HIV and AIDS or “only knew the name”.

There is likely to be even less awareness of the dangers of HIV among minority groups, as their members tend to be poor with lower levels of education and literacy. Moreover, their poverty restricts their ability to adopt safer practices.

Unprecedented migration

Many of China's HIV-infected people come from the 100 million migrants, up to one third of the workforce, who move around the country looking for work opportunities. It is relatively difficult to study this group, but in an October 2000 article, the Shanxi Province Epidemiology Station reported that, out of 176 HIV cases, two thirds were migrant workers, nearly half of whom were from outside the province (US Embassy 2000).

In Yunnan, approximately 1 million migrate to the provincial capital and many others leave Yunnan for Guangdong, the prosperous province to the east. Many migrants, especially those travelling short distances, are men on their own, and are presumed to visit SWs. Long-distance lorry drivers are also considered at risk, since many rest stops and restaurants are associated with commercial sex.

National and provincial government responses to HIV and AIDS

National government response

Since 1994, when the Government signed the Paris Declaration at the International AIDS Summit, some progress has been made in updating national policies, laws and regulations in a number of areas pertaining to HIV and AIDS. However, an effective response in China is still hampered by such factors as insufficient political commitment or resources at many levels and a lack of effective policies and determination to carry them out.

Despite the image of a centralized command economy, budgets in China are dependent on the local ability to raise funds. Therefore, although there is a central budget for HIV, it only applies to central level activities – provincial and county initiatives have to be funded locally. In 1995, the central funding level was RMB 5 million ($600,000). From 1996 to 2001 this was increased to the equivalent of $1.8 million. Then in 2001, the Government set the annual budget at $12 million for HIV prevention and control, and over $117 million to improve blood safety (UN Country Team 2001).

Awareness of the full implications of HIV is still insufficient, even among decisionmakers, and the response remains overly medical, a constraint that is

exacerbated by the state of the health system. There is an urgent need, for instance, to improve the situation with regard to the diagnosis and treatment of STIs. But in order to curb the potentially widespread epidemic, all relevant sectors at all levels need to be involved, together with the people currently living with HIV, so that there can be improved levels of knowledge about HIV and care for those with HIV-related illnesses. Raising HIV awareness and increasing behavioural change will entail capacity building, training and information dissemination to promote life skills and healthy habits among vulnerable young people. Policies and strategies are also needed to facilitate community care and protection of the rights of PLHIV (UN Country Team 2001).

Provincial government response

Yunnan province has responded to the challenge of the HIV epidemic by implementing a series of central government laws and regulations on the control and prevention of HIV and STIs, and by carrying out its provincial level policies.

Yunnan has been very active in courting outside support for all development activities, including in the area of HIV and AIDS. A listing of international partners (DFID, UNICEF, UNAIDS, SCF-UK, Red Cross-Australia, Oxfam-HK, Salvation Army-HK, MSF Holland, Ford Foundation) illustrates the international nature of the partnerships for activities that include surveillance, planning, monitoring, education/communication and advocacy. Of all provinces in China, Yunnan has the widest variety of interventions, including training multiple sectors to respond to HIV, screening of blood, reproductive health care, school health education and working with drug users and sex workers. So far, the HIV prevalence is relatively low, but any predictive model will need to identify possible bridges between high-risk and general populations. Otherwise, the likelihood of a swift transition to infection of the general population is high.

Yunnan began budgeting funds for prevention and surveillance of HIV from 1990 onwards and then halfway through the decade increased the budget to RMB 2 million for prevention and RMB 3 million for infrastructure and equipment. By the end of the decade, the annual prevention budget had doubled, bringing the total to RMB 22 million for prevention and RMB 18 million for infrastructure. Between 1996 and 2000, international organizations contributed over RMB 33 million to Yunnan's HIV prevention efforts (table 12). A further $7 million was allocated by the Department for International Development (DFID UK).

Table 12. Input by international/national organizations and NGOs for HIV programmes in Yunnan

International organization	Provincial counterpart	Project title	Timeframe	Funding
UNICEF	YAPCO	Yunnan AIDS Prevention, Control and Care	1996–2000	RMB 16.54 m ($2 million)
	YCDC	Yunnan Women's Federation Training on HIV/AIDS Control and Care	1999–2000	RMB 534,000
ADB /UNDP	YAPCO	Yunnan AIDS Prevention, Control and Care	1997–1998	RMB 827,000 ($100,000)
Amity Foundation	YAPCO	Yunnan AIDS Prevention, Control and Care	1998–2000	RMB 3.23 m (DM 860,000)
WHO	YAPCO	Yunnan Pilot Sites for China's Medium and Long-term Plan for AIDS Prevention and Control	1994–1996	RMB 2,646,400 ($320,000)
UN-ESCAP	YIDA	Community-based Drug Abuse and HIV/AIDS Prevention	1991–1998	RMB 661,600 ($80,000)
Save the Children (UK)	Department of Education of Yunnan	School-based AIDS Prevention	1996–2000	RMB 1,550,625 (125,000 BPS)
		Education & Puberty Health Ed		RMB 210,000
		Developing Training Programmes for SWs and IDUs in Ruili	1999–2000	RMB 160,000
		Development Centre for Women and Children Education		RMB 240,000
Ford Foundation	Yunnan Reproductive Health Research Association	'Healthy Lives' Project for Middle School Students	1998–1999	RMB 20,000
		Gender and AIDS	1999–2000	RMB 50,000
		Survey of Women in Fumin County on AIDS KAP	2000	RMB 3,000
		Peer Education on AIDS Prevention among Students in Kunming Medical School	2000	RMB 9,000
Oxfam (HK)	YIDA	Peer Education on Harm Reduction among IDUs	1999–2000	RMB 93,000
The Salvation Army (HK)	YCDC	HIV/AIDS Prevention Education Training for Women Carers in 16 Prefectures	2000	RMB 23,000
MSF Holland	YAPCO	HIV/AIDS Awareness Campaign in Yunnan Province	2000	RMB 80,000
Australian Red Cross	Yunnan Red Cross	Youth Peer Education on HIV/AIDS Prevention	1996–2000	RMB 6 million
Total*				RMB 33.4 million

YAPCO = Yunnan AIDS Prevention and Control Office
YCDC = Yunnan Child Development Centre
YIDA = Yunnan Institute for Drug Abuse
Excludes DFID funds of $21 million for China, of which $7 million was for Yunnan.

Current and projected impact on child well-being

Macro-level impact

The official macro-level data presented in the following table do not indicate any particular impact on children in Yunnan, the province with the highest prevalence of HIV. There are as yet no significant differences between the national data on children's well-being and Yunnan's aggregate data, but that may change as prevalence rises.

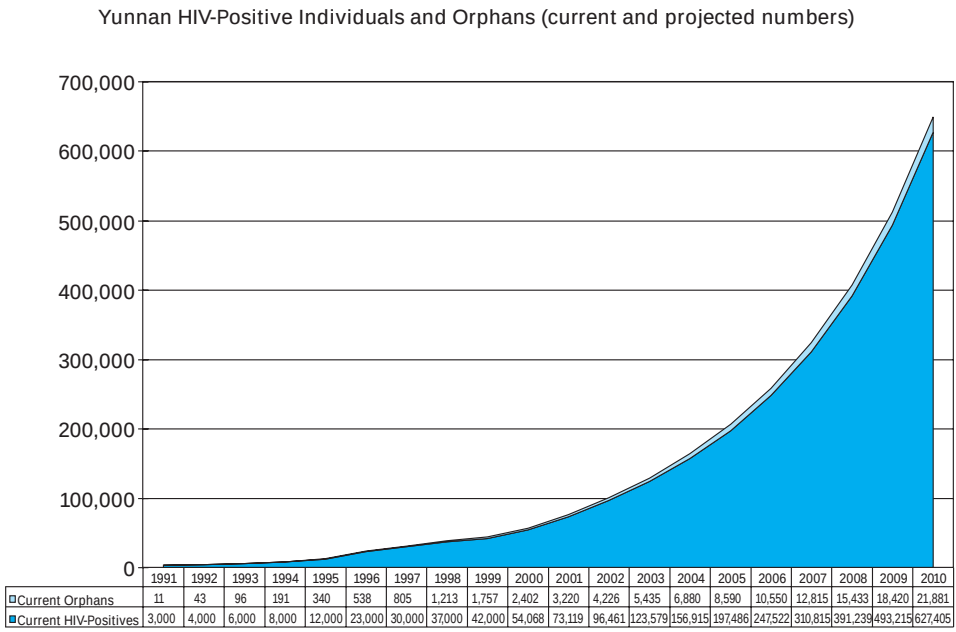
Table 13. Summary data of child well-being in China and Yunnan province

		90	95	99	00
Infant mortality rate	China	50.2 (91)	36.4	33.3	32.2
	Yunnan	66.4	53.1	37.1	33.1
Under 5 mortality rate	China	61.0 (91)	44.5	41.4	39.7
	Yunnan	87.3	66.9	46.6	42.1
Percentage of infants with low	China			5.9 (98)	
birth weight (under 2,500 grams)	Yunnan	—		3.5	3.5
Percentage of children under 5 suffering from moderate–severe wasting	China	8	5	3 (98)	
Percentage of children under 5 suffering from moderate–severe malnutrition	Yunnan	29.0	17.7		15.9
DPT3 immunization coverage	China	97	92	97	
	Yunnan	93.1	85.0	95.4	97.6
Measles immunization coverage	China	98	93	98	
	Yunnan	95.0	85.0	95.3	97.8
Percentage of mothers receiving prenatal health checks	Yunnan	12.7	55.5	81.4	82.9
Percentage of births attended by skilled health personnel	Yunnan	29.6	59.6	82.3	84.2
Primary school female	China	96.3	98.2	99.0	99.1
net enrolment	Yunnan	91.3	96.5	98.8	98.9
Primary school male	China	99.2	98.9	99.1	99.1
net enrolment	Yunnan	97.6	98.2	99.2	99.1
Pupil–teacher ratio	China	21.9	23.3	23.1	22.2
	Yunnan	25.7	25.5	23.9	22.4

Children orphaned by AIDS

There will be increasing numbers of children who are not HIV-positive themselves but one or both of whose parents die from an HIV-related illness. The magnitude of the problem will be less than in countries with higher fertility rates, but for China, a large number of children without either parent is unprecedented and will create internal difficulties where there are few specific policies and financial protections in place. Some provinces are, however, already taking steps: Henan province decreed that for such children living with their extended families, primary and secondary schooling would be free and there would be financial support for further studies (UNAIDS 2004).

Figure 8. Children in Yunnan who have lost one or both parents due to AIDS



	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Current Orphans	11	43	96	191	340	538	805	1,213	1,757	2,402	3,220	4,226	5,435	6,880	8,590	10,550	12,815	15,433	18,420	21,881
Current HIV-Positives	3,000	4,000	6,000	8,000	12,000	23,000	30,000	37,000	42,000	54,068	73,119	96,461	123,579	156,915	197,486	247,522	310,815	391,239	493,215	627,405

Economic impact

As noted above, medical costs have escalated in recent years and this poses particular problems in Yunnan, which has not matched the national economic growth rates. For example, in the rural part of Ruili City, an average patient with HIV-related illness spends RMB 800 on medical treatment and RMB 2,500 on funeral costs, when the province's average annual per capita income in rural areas was only RMB 1,478 in 2000. In fact, the income for those who are HIV-positive is likely to be below the provincial average, because studies have shown that, over a period of eight and a half years after diagnosis, PLHIV in Yunnan lost an average

of 87 working days to illness, and family members lost an average of 30 working days to care for them.

Those with HIV-related illnesses predominantly consult private, outpatient health care services (averaging 4.28 visits in the year preceding their death), as they are the least expensive (around RMB 40 or approx. $5 per consultation). If public health centres are used, preference is given to cheaper village facilities (RMB 10–20 or $1.21–2.42), over township health centres (RMB 100 or $12.50). The minority able to afford hospitalization (average 0.36 hospital visits for 77 PLHIV in their last year of life) stayed an average of three days, costing RMB 1,000–4,000 ($121–484).

In Yunnan, due to poverty and lack of economic access, many social services such as clinics, schools, kindergartens, water systems and training institutions, are underutilized. Those who are HIV-positive are even less able to avail themselves of the services, partly because of discrimination; for example, some schools refuse to enrol children from households with HIV-positive family members because they consider their families will not be able to pay for books and incidentals.

The micro-level impact of HIV on families and children is illustrated by the results of qualitative interviews with 31 households with HIV-positive family members in rural areas of Ruili. In the decade 1989–1999, Ruili reported a total of 794 HIV-positive cases, 411 (51.76 per cent) of whom died during this period (Zhang Jiapeng et al. 1999). Zhang Jiapeng and his group conducted qualitative interviews with 31 households with HIV-positive members. They were identified from records in the local epidemic prevention station. The main findings were as follows:

- The health of the HIV-positive family members had deteriorated, and 19 of them had developed HIV-related illnesses such as diarrhoea, fever, weight loss, coughing and skin ulceration. Their families felt helpless when the illness reached an advanced stage.
- Most families felt that their economic conditions were worse than families with no HIV-positive members, because they had to stay at home to take care of the patients 4–8 days per month. It was hardest for families with both husband and wife infected: they had to take drastic measures such as selling their land illegally or renting it out at a reduced price. Fourteen children from seven households dropped out of school to sell their agricultural produce.
- The PLHIV maintained a good relationship with their families, who in general cared about them and hoped they would recover. There was no obvious discrimination against HIV-positive family members within the household, but some of their neighbours appeared to be nervous and some of the children had been refused entry to school because their HIV-positive parents could not pay their tuition.

- Among the 21 infected couples, 2 wives returned to live with their parents and 5 spouses died of AIDS. Among the 14 couples who lived together, 6 used condoms under the instructions given by epidemic prevention centres, 6 did not use condoms and one husband used condoms only when he had sex with sex workers. The 14th person had no sex.
- Some continued using drugs, but most switched from heroin to opium, a few continued injecting heroin and sharing needles with other drug users.
- Among 16 wives, 4 had already taken the HIV test and 3 were then found to be HIV-positive. Of the remaining 12, 10 said they would not mind taking the test, but the other 2 said they would not want to do so.

What they feared most at the time of the interview was the onset of HIV-related illnesses, because they were too poor to pay for medical treatment. They worried about housing for their parents, wives and children and were afraid their children would suffer from discrimination, drop out of school, abuse drugs and become infected after their death.

Also, 10 per cent (3/31) were able to use village health centres and clinics, but most used private clinics for treatment because they were more convenient and cheaper (RMB 10–20 for each clinical visit). Three who were in more serious condition went to township health centres and paid approximately RMB 100.

The expected impact on children by the year 2010

It is estimated that by 2010 there will be a cumulative total of 16,000 children who have contracted the HIV virus from their mothers and there will be over 21,000 children under the age of 15 who will have lost one or both parents due to HIV.

Projected medical costs related to HIV

Predictions of potential medical costs for Yunnan are imprecise, given the number of variables, but based upon 2002 medical costs, and assuming that, of an estimated total of 1,982 HIV cases, 75 per cent in rural areas and 90 per cent in urban areas will seek medical treatment costing RMB 5,000, the costs (medical + funeral) for patients with HIV-related illness would reach a total of RMB 181 million in 2010.

Projected loss of GDP and rising poverty related to HIV

Medical and funeral costs contribute to GDP, but the loss of labour output will cause a fall in the rate. Combining the GDP gain from the medical and funeral sector with the loss due to both temporary and permanent non-participation in the labour market, the net loss to Yunnan's GDP will rise to 0.43 per cent (RMB 828 million) in

2010 (assuming average growth of 4 per cent per year from 2000 to 2010). This is in line with the results of a World Bank study showing that low- and middle-income countries with serious HIV problems may experience a 0.5 per cent decline in GDP (Ainsworth and Over 1999).

Table 14. Projection of number of children in Yunnan with at least one parent dead from an HIV-related illness

Year	0–4 years old	5–9 years old	10–14 years old	Total
1991	11	0	0	11
1992	43	0	0	43
1993	96	0	0	96
1994	190	0	0	190
1995	339	0	0	339
1996	498	40	0	537
1997	682	121	0	802
1998	984	255	0	1,239
1999	1,335	483	0	1,818
2000	1,637	799	0	2,437
2001	2,038	1,129	51	3,219
2002	2,525	1,513	152	4,190
2003	2,777	2,248	314	5,339
2004	3,169	2,944	585	6,699
2005	3,766	3,588	954	8,307
2006	4,474	4,354	1,332	10,160
2007	5,317	5,226	1,774	12,317
2008	6,317	5,854	2,661	14,832
2009	7,506	6,764	3,466	17,736
2010	8,918	8,037	4,184	21,140

An estimated 100,000 families will have at least one member living with HIV by 2010 and the incomes of at least 300,000 will be reduced below the poverty line (a 15 per cent increase) as the HIV-positive cases contract HIV-related illnesses.

Medium-term measures

Control of HIV will require a significant increase in the quality and extent of government commitment and funding and the promulgation of specific relevant policies. In line with suggestions by the UN Theme Group on HIV/AIDS in China, recommendations for action in three areas are given below.

Mitigation of the effects of HIV infection: Due to the lack of access to health care discussed above, the HIV epidemic is unlikely to overwhelm the health services. It may, however, severely stretch the capacity of communities to cope. Solutions will require linkage to health care reforms, although these will probably not be able to deliver all the required services in the medium term. In the short and medium term, NGOs will need to run care projects in the worst-affected areas.

Needs assessment data from Yunnan indicate that medical staff have low levels of knowledge about HIV and opportunistic infections. Training in care, especially of opportunistic infections, would significantly improve the health situation.

The MoH has held discussions with pharmaceutical companies about the possibility of reductions in costs of antiretroviral drugs. However, it is unlikely this will lead to widespread access. Chinese production of generics would be feasible, but this is not currently an explicit objective of AIDS agencies.

Mitigation of poverty impact on HIV-infected/affected families: China's success in reducing poverty is exemplary and hundreds of millions of families have been lifted out of poverty in the last decades. But there are no specific anti-poverty mechanisms for people with HIV. It will be essential in future to link the provision of HIV care work to the Bureaus of Labour, Social Security and Civil Affairs. Possible initiatives might include microcredit and child allowances, as well as occupational training.

Mitigation of the impact of HIV on the demand and supply of education: Chinese law stipulates that schooling is compulsory and should be free. However, schools charge user fees for books, school-related activities, etc. This amounts on average to RMB 300 per child per year in rural areas. Rural income in Yunnan is under RMB 1,600 per year, and in some villages as low as RMB 1,000. Given that many rural residents have two children, school fees would represent approximately half of a family's annual income, even without losses due to HIV.

Orphan policy: Orphans are provided for by family and neighbours. The Ministry of Civil Affairs gives a small amount of support, based upon criteria for people living in difficulty (but not under the poverty alleviation effort). Although there are orphanages in Yunnan (including for the purpose of overseas adoptions), they are limited in number and scope and specific policies for children orphaned by AIDS have not yet been developed.

Stigmatization of people living with HIV: In order to reduce the heavy stigma against HIV and strengthen prevention programmes, PLHIV should be encouraged to join in broad community education efforts so that communities can learn from their personal experience.

Prevention: The overall levels of funding need to be increased and the funds allocated more efficiently if a significant impact is to be made on HIV. A great deal of work has been done in the areas of HIV surveillance and public awareness campaigning in Yunnan, but funding and policy support from the Yunnan Provincial Government still falls short of the actual amount required to control the rapid spread of HIV in the province.

Programmes to prevent HIV have hitherto worked on the assumption that an increase in knowledge will automatically result in a change in behaviour. But it is now recognized that in order to change behaviour there needs to be more concentration on attitudes and skills. However, the fact that some of the key risk groups for HIV infection (such as drugs users and SWs) are marginalized makes expanding such programmes particularly difficult. More use should be made of the media to raise public awareness. Projects such as promotion of 100 per cent condom use among SWs and homosexuals, methadone treatment programmes and needle exchange projects, as well as large-scale prevention of mother-to-baby transmission, are needed.

Prevention of mother-to-child transmission: Although infection from mother to child is an established route in Yunnan and elsewhere in China, most mothers are not aware of their status. Major constraints to limiting the transmission of HIV from mothers to children are:

1. The various levels of administration within the province (provincial, prefecture, county, township and village) are not well coordinated. This has implications for all six PMTCT interventions.[4] Due to this lack of coordination, international organizations in Yunnan are finding it difficult to manage projects and standardize approaches.
2. The vast majority of people do not have access to confidential testing services.
3. The MCH (maternal and child health), FP and EPS (extended programme of surveillance) systems are uncoordinated at best and antagonistic at worst.
4. There is little, if any, MCH data collected or analysed at the county, township or village level (especially with regard to antenatal services, the cornerstone of PMTCT).
5. HIV treatment and care are poor at all levels.
6. Social support is virtually non-existent for PLHIV.

Need for life skills education among vulnerable groups, especially young people: International experience has taught that well-presented sex education in schools can become a powerful factor for convincing young people to engage in safer sexual behaviour and to postpone the start of their active sex life.

In China, traditional approaches to 'education' involve older people and people in authority lecturing young people about morality. Strategies that have elsewhere proven effective in HIV education, such as participatory education, youth-to-youth education, and developing decision-making skills have been practised very little. Numerous successful small-scale peer-education projects have repeatedly shown that this is a very appropriate teaching method in the Chinese context and this needs to be scaled up to those in middle school as well as young people out of school.

Furthermore, there is a great need to target minority populations with easy-to-read material in native languages and non-written messages through pictures, theatre, participatory drama, singing and dancing. Also important is enhancing minorities' participation in the process of designing, implementing and evaluating prevention techniques.

Urgent need for control of STIs: The STI incidence needs to be tackled urgently and given priority attention nationwide, since international evidence indicates that the co-factor effect of STIs for promoting HIV spread is highest at the beginning of a sexual HIV epidemic. This will entail promoting modern and comprehensive public health systems to prevent and treat STIs.

Policy and institutional measures

Despite (and sometimes because of) legislative measures, STI/HIV prevention and care have made little progress in China, particularly at provincial and local levels.

- Institutional structures and practices make it hard for the central government to enforce laws and regulations and control situations locally.
- Many local governments do not want to research HIV in their area for fear that results will reflect poorly on the locality and its officials.
- Information flows slowly between village, county, provincial and national levels.
- The drug control policy is focused on supply and demand reduction through strict criminal punishment, causing drug users to fear seeking help. Harm reduction, which is the focus for HIV prevention, is not a priority.
- Several provincial and local laws are contradictory to the national MoH guidelines on treatment and care of patients with HIV-related illness. One of the Ministry's guiding principles is 'maintenance of confidentiality and the guarantee of individual legal rights'. The document says only that PLHIV should delay marriage and 'seek a medical opinion' before getting married. In November 2000, the Ministry issued another document stressing that HIV testing before marriage should be voluntary.

To summarize, there is a worrisome tendency towards restrictive and punitive lawmaking, despite the fact that international experience has shown restrictive laws have little effect on curbing the epidemic, and in actual fact can have clear-cut negative impacts on HIV prevention and care. Necessary measures include analysis of the effects of current policy as well as better monitoring of the implementation of national policy.

References and Bibliography

Ainsworth M. and M. Over. 1999. *Confronting AIDS: Public Priorities in a Global Epidemic*. Policy Research Report. New York: World Bank.

Beijing Youth Daily. March 2001. Chinese tuberculosis epidemic worsening again – destroys families, hinders economic progress. (in Chinese) www.bjyouth.com.cn/Bqb/20000324/GB/4197, (in English) www.usembassy-china.org.cn/english/sandt/index.html.

Cai Jianwen. 2000. *Human Life is Most Precious [Renming Guantian] – a Report on Medical Accidents*. Harbin. English language synopsis in Beijing Environment Science & Technology Update, 30th March 2001 (weekly update by US Embassy, Beijing, www.usembassy-china.org.cn).

Chin, Dr. Daniel. 2001. *The Co-epidemics of TB and HIV/AIDS in China: Risks and Opportunities*. Beijing: WHO China.

Gil, Vincent E. et al. 1996. Prostitutes, prostitution and STD/HIV transmission in mainland China. *Social Science & Medicine*, vol. 42(1).

Human Rights in China. 1998. Report on implementation of CEDAW in the People's Republic of China. *China Labour Bulletin*. Hong Kong Christian Industrial Committee, Asia Monitor Resource Centre.

Journal of Epidemiology. December 1999. China.

Li, Raymond. 2001. Gay community left on sidelines in AIDS prevention plan. http://china.smp.com/today/ZZZMS4ZEQC.html.

United Nations Country Team, China. 2000 and 2001. *Common Country Assessment*. Beijing: UN China.

UNAIDS. 2004. *2004 Report on the Global AIDS Epidemic*. July 2004. Geneva: UNAIDS.

UNAIDS and WHO. 2000. *Consultation on STD Interventions for Preventing HIV: What is the Evidence?* WHO/HIS/2000.02

US Embassy. 2000. *From Drugs to Blood to Sex*. Beijing: US Embassy.

World Bank. 2001. *China – Overcoming Rural Poverty*. Country study. Washington DC: World Bank.

Zeng Yong. 1997. *Health Seeking and Reproductive Health Behaviour of Persons with STDs*.

Zhang Beichuan. 2001. A surveillance investigation report on male homosexual/bisexual behaviours in the year 2000. *Friends Exchange*, vol. 19/20 (in Chinese).

Zhang Jiapeng, Cheng Hehe and Jia Manhong. 1999. 1989–1998 study of AIDS prevalence and control in Yunnan. *Chinese Journal of Epidemiology*, vol. 1999.20 (6), pp. 377–380.

Notes

1 In Yunnan, new reported HIV infections detected through case reporting between 1989–2000: 146 (1989), 251 (1990), 160 (1991), 142 (1992), 176 (1993), 353 (1994), 581 (1995), 1,480 (1996), 1,145 (1997), 793 (1998), 1,517 (1999), 1,229 (2000). These numbers exclude data from sentinel surveillance.

2 Estimation methodology of the National Center for AIDS Prevention and Control goes thus: in province x, 40,000 drug users (according to Public Security, which estimates that there are 10 times as many drug users who are not detained), of which 10 per cent have HIV (from Epidemic Station tests in selected sentinel sites of drug users detained) = 40,000 HIV+ drug users.

3 With the number of facilities doing HIV tests increasing, figures show an increase in the number of areas reporting HIV infections, following highway routes from the border. If each county or city is taken as one unit of reported infection, the number of infected units among the province's 125 counties and cities (109 counties, 13 cities, 3 municipalities) in the 1989–2000 period was: 3 in 1989, 11 in 1990, 14 in 1991, 15 in 1992, 17 in 1993, 22 in 1994 and 36 in 1995; from there it jumped to 66 in 1996, and hit 99 in 1997; it continued to rise until it reached 102 in 1998, 111 in 1999, and 115 in 2000.

4 (1) Strengthening the antenatal care (ANC) system; (2) Voluntary counselling and testing (VCT); (3) Optimizing infant feeding practices; (4) Obstetric care; (5) Family planning (FP) counselling and services; (6) Antiretroviral therapy (ARV).