

The Socioeconomic Impact of HIV/AIDS in China



by
“The Socioeconomic Impact of HIV/AIDS ”
Research Team

August 2002

The Socioeconomic Impact of HIV/AIDS in China

Project Advisers: Ray Yip, John Stover

Project Coordinators: Liu Kangmai, Charlotte Laurence

Team Members: Yuan Jianhua, Xu Yi, Jiang Tao,
Wang Mei, Li Yaqing, Liu Kejun,
Qu Shuquan, Bai Yue, Wang Lingyun
Lori Bollinger, Neff Walker
He jingling, George Ionita

Collaborative Institutes:

National Center for AIDS/STD Control and Prevention
Chinese Center for Disease Control and Prevention
Beijing Institute of Information and Control(BIIC)
National Health Economics Institute(NHEI)
The Futures Group International(FGI)

Supported by:

Department for International Development, British
UN Theme Group on HIV/AIDS in China
United Nations Children's Fund

August 2002

Content

Abstract	1
The Socioeconomic Impact of HIV/AIDS in China	3
Introduction	3
HIV Epidemic Trend	4
Potential Factors Promoting HIV Spreading	5
Estimates and Projections	7
Socioeconomic Impacts	8
Impact on Individuals and Families	8
Impact on the Health Sector	10
Impact on the Macroeconomy	11
The impacts of AIDS on society	13
Increase the rich-poor gap and leads to the growth of the poor population	13
Cause social instability and panic	13
Bring social problems, damage the government’s image and cause political crisis	14
Summary	14
Policy Recommendations	14
Increase HIV/AIDS investment as early as possible	15
Start intervention programs as soon as possible	15
Increasing the number of surveillance sites	17
Conduct information and education campaigns through every possible means	17
Provide medical and daily-life assistance to HIV/AIDS people as early as possible	17
.....	17
Build a supervisory system with China’s characteristics	18
Reference	20
Acknowledgements	21

Abstract

Great changes have taken place over the last decade in China. While the country's GDP has increased more than four-fold, socioeconomic transformations have also contributed to and accelerated the epidemic of HIV/AIDS in China. The likelihood of an HIV epidemic has increased. Based on the latest characteristics of HIV transmission, we have completed a study on the impact of HIV/AIDS on the economy and society in China. This report is the summary report of this study, consisting of the following parts:

1. Socioeconomic factors contributing to HIV epidemic.
2. The estimation the number of HIV/AIDS cases by the end of 2001 and projection the trend over the next decade.
3. An analysis of the socioeconomic impact of AIDS on three levels: family, health sector and macroeconomics.
4. Recommendations on prevention and control of HIV/AIDS

Studies show that by the end of 2001, China had 820,000 HIV positives (between 600,000-1,000,000), with adult prevalence rate of 0.11% . By 2010, the number of HIV positives is projected at 12 million, 5 million and 2.2 million in the high-, medium- and low-projection scenario respectively.

HIV/AIDS impacts society and economy in three stages. First, on a micro level, it affects individuals and families; second, the impact extends to a sectoral and regional level; and third, it impacts the macro economy and the entire society.

Currently, the impact of HIV/AIDS on individuals and families is already felt. HIV positives, AIDS cases and their families are suffering heavily economically and mentally. An AIDS patient typically spends RMB17,518 on therapy and RMB82,000-104,000 on HAART treatment. Either way, it's a huge amount that far exceeds the annual average income of people. One-third of the HIV positives surveyed said they thought about committing suicide when they learned that their blood tested HIV positive. In addition, children would be severely affected since the hospitalization and death of their parent would mean that they have to drop out of school, their nutrition and health care will decline, and they will be left unattended. We forecast that by 2010, there will be 260,000 orphans due to AIDS in the high level projection.

The impact on health care sector and some regions is also beginning to be felt. In the future, the public health sector will have to increase spending in treatment and intervention activities. Our survey of three provinces shows that at present, the per capita spending is a mere RMB0.06, whereas effective prevention and intervention calls for RMB0.5 a year per capita.

Currently, AIDS has not yet produced a palpable impact on China's macroeconomy and society; however, it is not to be neglected. In the next decade, in the low level projection, China's GDP would record a decrease of RMB22.5 billion compared with a No-AIDS scenario; in the high level scenario, the reduction in GDP would amount to RMB40 billion.

China is now in the stage of concentrated spreading of HIV and facing a potential

threat for epidemic on a wider range. Therefore, this may be the last chance for China to bring the deadly disease under effective prevention. The only way out is to increase investment in HIV/AIDS prevention and control and promote intervention measures that have proven successful domestically and internationally. To this end, we put forward the following recommendations:

1. Invest in HIV/AIDS interventions as early as possible
2. Launch an intervention program as soon as possible
3. Improve HIV/AIDS surveillance system
4. Launch public-awareness campaigns
5. Treat and help HIV positives and AIDS patients
6. Create a supervisory mechanism for AIDS prevention and control in line with Chinese conditions

The Socioeconomic Impact of HIV/AIDS in China

Introduction

The HIV/AIDS epidemic has become a serious global health and development problem. The Joint United Nations Programme on AIDS (UNAIDS) estimates the number of HIV infections worldwide at about 40 million by the end of 2001. In 2001 alone, 5 million people became newly infected with HIV and 3 million died of AIDS-related illness.

Until recently, China has been relatively unaffected by HIV/AIDS. Without effective measures, however, that situation could change rapidly. This research indicates that nearly 12 million Chinese people could be infected by 2010.

HIV is a devastating disease for many reasons:

- It affects primarily the economically active population, those aged 15-49
- Once it has established a foothold in the population, it spreads very quickly
- It is fatal and there is still no cure

If the spread of the disease is not stopped the socioeconomic impacts will be severe. Impacts include loss of economic output, increased health care expenditures, dread to be infected, discrimination against HIV/AIDS patients, and increasing vulnerability of certain populations such as the elderly and children.

Yet the spread of the disease can be halted. HIV can't be contracted through casual contact, mosquito bites, the air or the water. It is transmitted through certain types of human behaviors. It can, therefore, be controlled by changes in those behaviors. China has already piloted some effective programs to control HIV. It is now necessary to expand interventions designed to reduce high-risk sexual behaviors, treat and control other sexually transmitted infections and mitigate the problems of those already affected by HIV.

There are four purposes of this research: First, to understand and recognize the importance of HIV prevention activities on the national level, such as government's investment and officials' attitudes towards HIV/AIDS; Second, to project the HIV/AIDS situation in the coming decade; Third, to measure the impacts of HIV/AIDS on individuals, families, society and macroeconomy; Fourth, to provide policy recommendations.

To gather data, surveys were conducted from October 2001 to January 2002. These surveys were conducted on three levels -- provincial, prefectural and county. One prefecture and one county were chosen from each of the following three provinces:

- Guangdong: Economic level is high, predominant transmission modes are needle sharing and heterosexuality

- Guangxi: Border area of lower economic status, predominant transmission

mode is needle sharing

Shanxi: Poor area, predominant transmission mode was blood selling

The surveys consisted of both quantitative research and qualitative data, including four sections. First, interview leaders of government departments, such as health department, security bureau, justice department, planning committee, agricultural department, economic and trade department and so on. Second, gather data about government investment and individual spending in the hospital. Third, conduct individual questionnaire surveys about the social and economic impact of HIV positives, government officials' knowledge and attitude towards HIV prevention, and the social and economic impact of hepatitis B patients. Fourth, gather information about local socioeconomic development. In addition, HIV surveillance data and national statistics were used in the study.

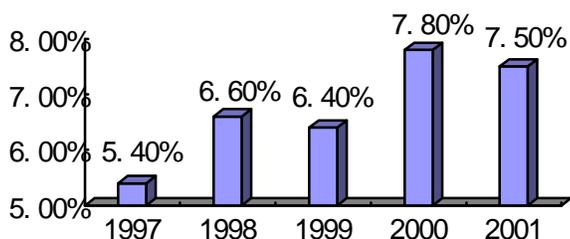
HIV Epidemic Trend

Currently, the spread of HIV in China is still confined to certain population groups and localities. The adult prevalence is only 0.11%. However, it is spreading fast. The number of HIV cases reported has been growing by about 30% in recent years. And, it had been reported in all 31 provinces, municipalities and autonomous regions by the end of 2001. All of the three modes (sexual contacts, bloods and mother-to-infant) for HIV transmission have been found in China. Currently, sharing needles among drug users remains the major mode for HIV infection in China (70%). Following the first breakout among drug users in Yunnan in 1989, HIV began to spread in a concentrated way among drug users in Xinjiang (1996), Guangxi (1997), Sichuan (1997), Guangdong (1998), Gansu (1999) and Jiangxi (2000). The HIV prevalence reached as high as 70-80% in some places of Yunnan, Xinjiang and Guangxi.

In addition, other provinces and municipalities such as Beijing, Fujian, Hunan, Jiangsu, Liaoning and Chongqing are also exposed to HIV spreading with a large number of drug users. Despite a current low HIV prevalence through intravenous injection, all these areas have a percentage of drug users through injection of more than 50%. There is a potential threat for HIV/AIDS spreading in a concentrated way among drug users in these areas in the coming few years. What is certain is that nationwide HIV will continue to grow exponentially among drug users in the coming decade.

Drug users are the "bridge" for HIV spreading among others groups of people. Quite a number of drug users are women who prostitute at the same time for buying drug. Through unprotected sexual contacts, they pass HIV to their clients and these men further pass it to their partners and other sex

Figure 1 ■ percent of new PLW HIV infected from sexual contact among all new reported HIV cases



workers. In Guangxi, 72 sex workers with a history of drug-using were reported to be HIV-positive in 2000. There are reasons to believe that they might contract HIV through drug-using.

HIV transmission through heterosexual behavior has also been growing in the past several years (see Figure 1). In addition, the possibility of HIV spreading among male homosexuals is increasing. Therefore, China will confront a severe HIV/AIDS situation in the future.

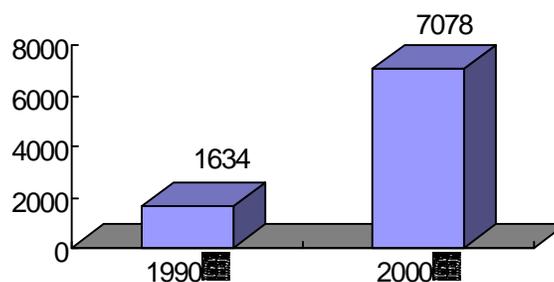
There has been evidence showing that HIV has been spreading in the general population. Without effective prevention activities, the situation will become more serious. The HIV epidemics will change from concentrated stage to generalized stage.

Potential Factors Promoting HIV Spreading

HIV prevalence in China is still relatively low, but social and economic changes are making the population more vulnerable to HIV/AIDS than in the past. Over the last decade, China has experienced enormous economic and social changes. Per capita GDP has increased more than four times, growing from RMB1,634 in 1990 to RMB7,078 in 2000 (Figure 2).

However, the increase in income is not evenly distributed. The growth in urban areas is higher than in rural areas, so the overall gap in income between the two areas is widening. In addition, the number of migrant workers increased from approximately 70 million in 1988 to over 140 million in 2000. There have also been pronounced social changes in China over the last decade, as rates of divorce, premarital sex, and abortion have all increased. There is a danger that these economic and social changes may translate into increases in risky behaviors that contribute to the spread of HIV. The direct factors which promote HIV spreading are listed below:

Figure 2: Per capita GDP in 1990 and 2000 in China (RMB)



Increasing number of drug users and expanding areas of drug involvement. By October 2001, 2,051 county level administrative units had been found drug users. That accounted for 70% of all county level units in China with the total registered number of drug users reaching 900,000 and an annual growth rate of 14% from 1997 to 2001. Currently, the estimated number of drug users has reached 5.4 millions, however, no measures have been taken on a wide range to effectively prevent these people from infecting HIV.

Increasing number of prostitutes and clients. With the widening gap between rich and poor and changing thinking about prostitution, visiting prostitutes has become a lifestyle for some people. The high income lures rural women as well as the urban

jobless to go for it. Estimates show that China has underground prostitutes of no less than six million. Reports from nationwide surveillance sites show that in 2001 the condom use rate was less than 10% among sex workers.

Inadequate intervention programs targeted at male homosexuals. As a sexual preference, homosexuality is not illegal in China. Estimates show that in China 2-5% of male adults are gays, numbering 10-30 million. Four surveys conducted during 1998-2001 (Zhang Beichuan, et al) showed a HIV prevalence of 2.5-17.7% among homosexuals. A survey of 400 male homosexuals in Beijing (Liu Hui, 2001) suggested an overall HIV prevalence of 5% and over 10% for those having lived in Beijing for more than five years. For some reason, many homosexuals have heterosexual partners at the same time, making HIV infection as possible between heterosexual partners as between homosexuals. Generally speaking, condom use among homosexuals is less than 15%.

Unsafe injection a hidden risk for HIV spreading. The World Health Organization (WHO) estimates that half of injections in China are unsafe. There have been reports about repeated use of unsterilized needles in recent years. In some regions, the incidence of hepatitis B reaches 30% among primary school students. There is a certain amount of HIV children aged less than 10 years in some areas. The existence of unsafe injections in these areas may give rise to HIV spreading among children.

Lack of IEC campaigns about HIV/AIDS for high-risk groups and the general public at large. It has been more than ten years since the first AIDS case was reported in China. However, no effective measures have been taken nationwide to target high-risk groups. On local level, the efforts only focus on publicity and it is limited only to urban areas. Behavior intervention is only conducted in some pilot areas. A 2001 survey of officials showed that only 34% of them knew the correct knowledge about AIDS. A major problem with the publicity campaign is that it is usually conducted without linking to local HIV/AIDS situation. Many people have no knowledge about the local HIV/AIDS situation, thinking that AIDS is a thing far away from them, thus paying little attention to the education program.

Lack of inter-departmental cooperation. Currently, the task falls solely on the shoulder of the health department. Other relevant departments don't realize their shared responsibility and consequently are reluctant to invest either human, material or financial resources in the anti-HIV/AIDS campaign.

Lack of awareness on HIV/AIDS among leadership. Attention and support from the leadership are key to the success of various IEC programs. The level of knowledge about AIDS among officials at all levels has a direct bearing on the extensiveness, depth and strength of measures for AIDS prevention. Therefore, future emphasis should be placed on enhancing the awareness of the leadership about AIDS and increase their participation in anti-AIDS campaigns.

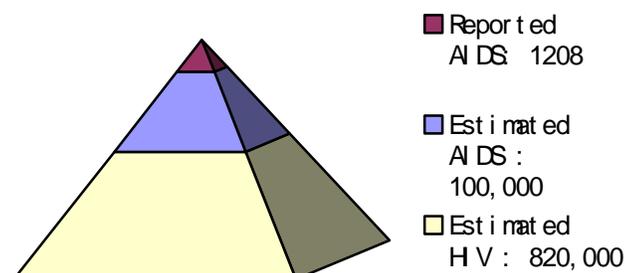
In a word, the HIV/AIDS epidemic is at the brink of generalized spreading in China. We need to be vigilant about the potential threat in view of the increasing numbers of various high-risk groups and the existence of all possible ways for HIV transmission.

Estimates and Projections

Although HIV/AIDS is spreading rapidly in China, the epidemic is still largely confined to certain population groups and localities. Under such circumstances, it is difficult to estimate the total number of people infected nationwide. Even though China has expanded the system for HIV surveillance, it cannot cover all risk groups in all parts of the country.

Information from the sentinel surveillance system is combined with international levels of experience with sizes of risk groups and saturation levels of infection to derive both estimates and projections of HIV/AIDS through 2010. Since the epidemic in China is concentrated in certain population groups, the estimate is prepared by estimating the number of infections in each population group and summing them to get a national total. Utilizing data on size and prevalence rates of each high risk group and low risk group, the working group estimated that the number of HIV positive people in China in 2001 ranged between 600,000 and 1,000,000 people, with 820,000 representing the best estimate overall. This translates into an adult HIV prevalence rate of 0.11% and 240,000 new HIV infections in the year 2001. The total cumulative deaths from AIDS since the beginning of the epidemic are calculated to be 100,000 (Figure 3).

Figure 3 HIV/AIDS pyramid

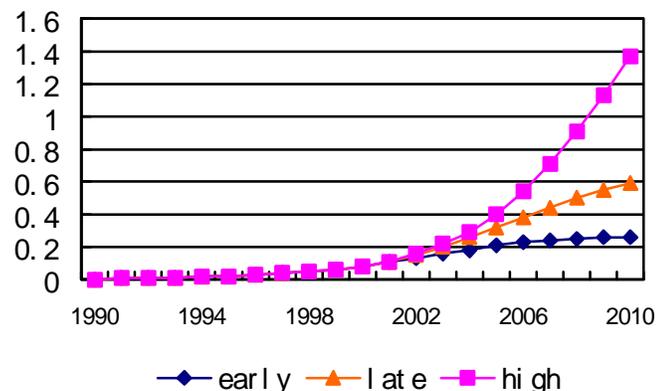


Three different projections were calculated, based on three different scenarios regarding future programmatic efforts by the Chinese government:

- **High:** In this scenario, no further more intervention programs are implemented. The HIV prevalence reaches the highest level in 2010.
- **Early:** In this scenario, intervention measures are taken in the early stage and the HIV prevalence stops increasing as of 2004. This is the most optimistic scenario.
- **Late:** In this scenario, measures are taken in the late stage and the HIV incidence does not level off until 2007.

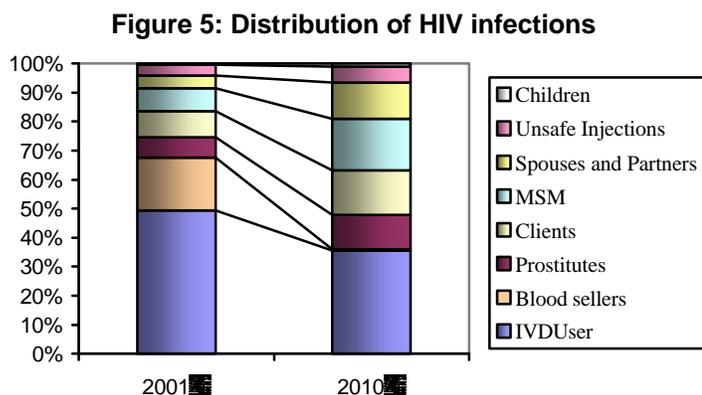
Figure 4 shows the trend of HIV prevalence in each of the three scenarios. The total number by 2010 ranges from a

Figure 4 The adult prevalence (%)



low level of 2.2 million people in the Early projection, through a medium level of five million people in the Late projection, to a high level of approximately 11.7 million in the High projection. This translates into an adult prevalence rate of 1.38, 0.59 and 0.26 percent for the High, Late, and Early projections respectively, and a cumulative number of AIDS deaths of 2 million, 1.4 million and 1 million for the three scenarios.

Figure 5 compares the distribution of HIV infections through different channels in 2001 and 2010 in the high projection. In 2001, most HIV infections are found in the



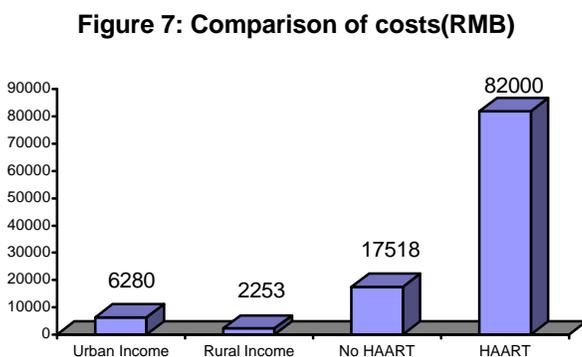
IDU population, followed by blood sellers. By 2010, using **conservative** assumptions regarding the transmission of HIV from high-risk to low-risk groups, the distribution of infections will have changed dramatically. The percentage of infections in the IDU

population will decrease by 30%, while those of other high-risk groups such as sex workers and male homosexuals increase. In addition, there is a high percentage of HIV infection among partners of the high-risk population, as shown in Figure 5. As noted above, the projections assume that blood products have become safe, and as such the percentage of infections caused by this factor almost disappears.

Socioeconomic Impacts

In this survey, we integrate qualitative and quantitative analysis and combine the survey data with the AIDS Impact Model in AIM to assess the macroeconomic impacts of HIV/AIDS in China. HIV/AIDS impacts the society and economy in different aspects and on different levels:

Impact on Individuals and Families

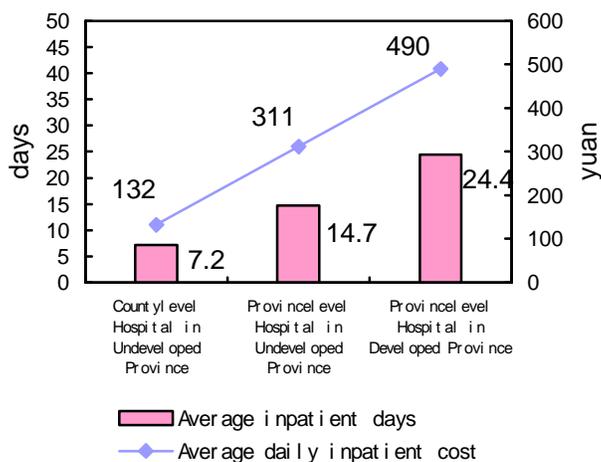


The major impacts of HIV/AIDS on individuals and their families are income loss and high medical and health expenses. Interviews with HIV infections indicated that more than half of them had to quit job after getting infected with the disease. Only 21% still did the same work while 2% had to change their job. Another 20% declined to answer the question.

A survey of 274 HIV/AIDS patients in Beijing and eight other provinces (Liu Kangmai, 2000) showed that the family lost 30% of its annual income after the family member got infected with AIDS. Some lost the capability to work after getting infected. Others lost their jobs because of the discrimination from people around.

The cost of care also seems to be resting primarily on the family. Data indicates that an AIDS patient spends an average of 1.2 times in hospital each year. In economically developed areas, one patient spends an average of 24.43 days in hospital and a daily expense of RMB490. In economically underdeveloped areas, it is 14.7 days and RMB311 respectively in provincial hospitals and 7.2 days and RMB132 respectively in county-level hospitals (see Figure 6).

Figure 6: Average inpatient days and average daily inpatient cost

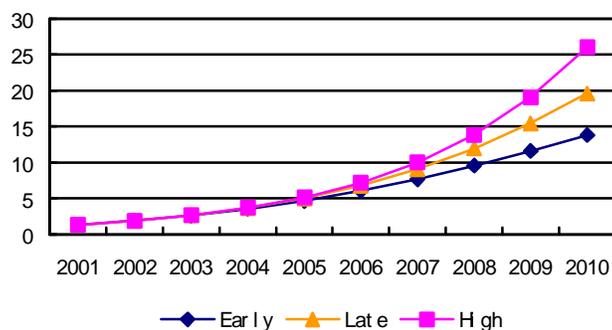


Plus the out-patient expenses, an AIDS patient will spend an average of RMB17,500 a year (excluding HAART treatment). If including HAART treatment, the annual spending for one patient will amount to RMB82,000-104,000. Either way, the medical expenses of an AIDS patient far exceed the per capita annual income of local residents (RMB6,280 for urban and RMB2,253 for rural residents)(Figure 7).

A recent study showed 75.5% of AIDS patients paid the medical bill themselves, while 10.3% by the public medical care system and 7.9% by insurance companies. This indicates that care for AIDS patients remains a substantial burden for the households. Many families used up their savings, some even borrowed money or sold their estate so as to provide funds for their treatment.

The survey also found that there were significant social impacts felt by the individuals and families affected by HIV/AIDS. Because the majority of those who die from AIDS are in their most productive work years, both the children and the elderly who are left behind will suffer. In 2001, UNAIDS estimates that 13,000 children have lost their mother to AIDS. By 2010, the number is estimated to reach

Figure 8: Maternal AIDS Orphans (10 thousand)



300,000 in the high projection scenario. In addition, selling assets and borrowing money results in a loss of savings, which further results in a lack of support for the elderly as well as children (Figure 8).

The surveys also examined the psychological responses of the HIV positive individuals. AIDS spread generates impacts, first of all, on the mental pressure of the HIV infected persons. On learning that they have become infected, 66.67% of them will feel sorrowful, distressed and afraid, 38.10% become shocked and puzzled and 21.43% feel disgraceful. Of all the HIV infected persons, 33.33% think of suicide and 9.25% have actually committed suicides.

After telling relatives and friends of the HIV status, most of the spouses and parents give sympathy and assistance to them. Friends respond in a less positive fashion; only 19 percent of friends give some assistance, while 38 percent cut relations with the HIV positive person.

Most of the HIV infected persons are unwilling to make open their identities as HIV infected persons because they will otherwise be subject to a social pressure from where they live. Survey findings show that 33.3% of the HIV infected persons have made open their identities as HIV infected persons. After making open their identities, only 7.14% of the HIV infected receive concern but no assistance, 28.56% are treated with indifferent attitude from people around him, 28.56% are given a cold shoulder from people nearby, and 64.3% come across with people who keep a distance away.

Impact on the Health Sector

The increase of AIDS patients brings about an unprecedented pressure on health departments in areas where HIV-infection is very serious. In these areas, the need for the training of medical workers and for more beds are seriously challenged. The expenditure of public health departments on AIDS prevention and control will generate a tremendous pressure on the need for more input from local governments. Survey findings show that 79% of the government officials interviewed hold the view that AIDS spread brings about negative impacts on health departments.

To prevent and control HIV/AIDS spread, health departments need to input a large sum in the information, education and communication program, in the monitoring of AIDS spread, in the training of medical workers and in the development and research on AIDS vaccine and medicines to cure AIDS patients. Incomplete statistics show 30 million Yuan spent by governments at all levels in China and some international organizations on AIDS prevention and control before 1993, while the Ministry of Health of China spent 54.9 million Yuan on HIV/AIDS prevention and treatment of AIDS patients from 1993 to 1998.

From 1993 to 2001, the sum of input for the HIV/AIDS control program funded by some international organizations was about 62 million Yuan. The 'Action Strategy Plan to Control the HIV Spread (2001-2005)' worked out by the State Council has made specific arrangements for the implementation of the Program of Action. The Central Government has earmarked a special fund of 100 million Yuan each year

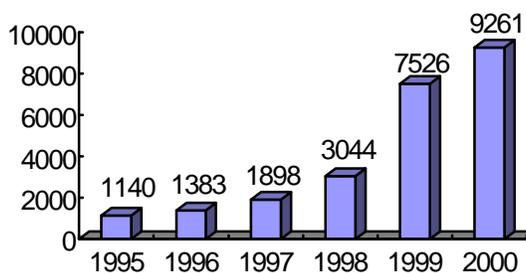
during the 10th Five-Year Plan for HIV/AIDS prevention and treatment. That is to say, the Central Government will appropriate a total sum of 500 million Yuan for AIDS prevention and treatment.

Some intervention programs targeted at high-risk groups are very successful. Research shows that it will cost RMB200-400 for each person in a six-month program aiming at increasing people's awareness rate by 30-50% and condom use by 30-50%. If the program is to cover 10% of the current high-risk groups, a total of RMB100-200 million will be needed annually. If the program is to be effectively implemented nationwide (at least 60% of the target population is covered), it will cost at least RMB720-1440 million. Therefore, the government appropriation of RMB500 million during the 10th Five-Year Plan period is far from sufficient.

According to estimates by B. Schwartländer and J. Stover, China will need US\$395 million (RMB3.24 billion) by 2005 to achieve reasonable coverage of prevention interventions. This indicates that China needs to invest more in HIV/AIDS prevention programs.

We learned from the surveys in the three provinces that even the funding for AIDS prevention was increased from RMB11.4 million in 1995 to RMB92.61 million in 2000 (Figure 9), the per capita amount was merely RMB0.06 in 2000. To reach the goal of investing a total of RMB3.24 billion in five years, or an annual investment of RMB650 million, the per capita amount needs to be increased to RMB0.5. This will be a challenge to the health departments. Due to the fact that the funding for HIV/AIDS prevention and control is far from meeting the demands, it may inevitably occupy the prevention funding for other diseases.

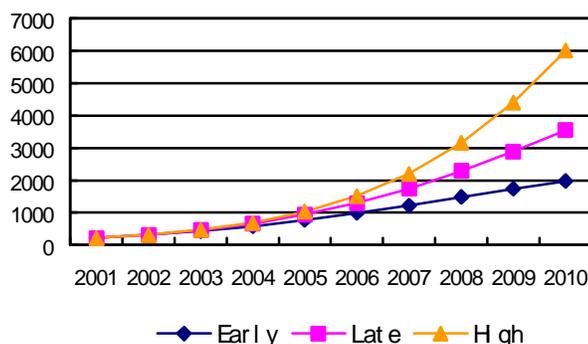
Figure 9: HIV/AIDS investment in three provinces(10 thousands)



Impact on the Macroeconomy

The epidemic of HIV/AIDS has both direct and indirect impacts on the macro - economy. Direct impact refers to the medical expenses (see Figure 10). The medical cost for the total AIDS patients was 215 million RMB in 2001. In 2010 the cost will reach 1.98 billion RMB, 3.55 billion RMB and 6.01 billion RMB in Early, Late and High projection

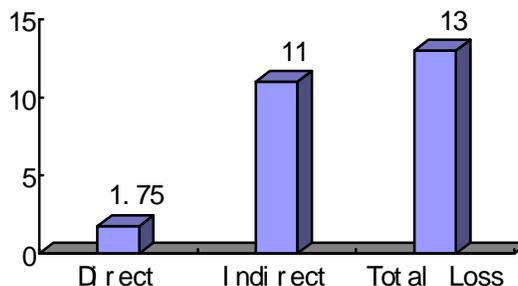
Figure 10: Total Direct Costs (million RMB)



respectively.

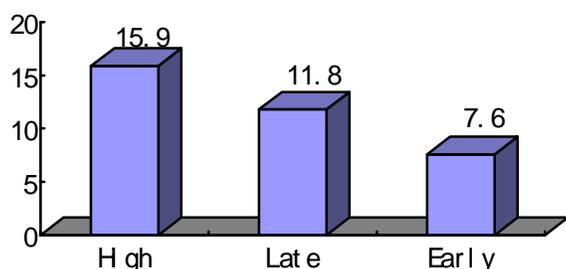
The indirect impact refers to the loss to the economy due to productivity losses. The productivity losses, in turn, are due to the fact that most of the people dying from AIDS are in their most economically productive years, and thus their early death cuts off their productivity, and their economic contributions to society. A study showed that the mean age of death was 28.4 years old from 239 AIDS patients in Yunnan. And another Yunnan's research found that the mean age of death was 35.17 years old from 107 AIDS patients. Our survey finding indicated the median age of death was 38 years old from 166 history cases in hospital. In the model below, it is assumed that an AIDS patient will live to be 35 years old and then die, losing approximately 25 years of productive life, or income contribution to GDP. Using appropriate discounting, the total indirect, or productive loss, per AIDS patient is approximately 110 thousand Yuan. Since the average life span of an AIDS patient is between 3 and 12 months, the average annual direct loss of 17,500 per AIDS patient can be combined with the total indirect loss. So that the total loss to society per AIDS patient for both medical costs and indirect costs is 130,000(Figure 11).

Figure 11. Total, Direct and Indirect Cost per AIDS patient (10 thousands)



Using the macroeconomic component of the AIM model in Spectrum, the loss to GDP

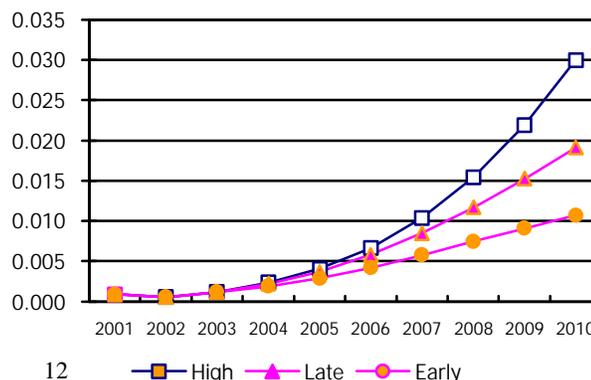
Figure 12. Loss to GDP In 2010 (Billion RMB)



is estimated to be RMB7.6 billion in 2010 in the Early scenario, a cumulative loss of RMB22.5 billion in ten years. In the High scenario, the GDP lost to AIDS will reach RMB15.9 billion in 2010, a cumulative loss of RMB40 billion in ten years (see Figure 12).

In the above scenarios, the cost of HAART therapy is not included. If considering such treatment which costs RMB100,000 annually (recently drops to about RMB30,000) and the percentage of users remaining the level (0.024%) in this survey, the GDP lost will amount to RMB 16 billion in

Figure 13: AIDS impact on GDP growth rate (%)



2010, a cumulative loss of RMB40.2 billion in ten years in the High scenario. If the percentage of HAART therapy users increases to 10% in 2010, the loss of GDP will reach RMB22.5 billion in 2010, a cumulative loss of RMB57 Billion in ten years.

Figure 13 shows the AIDS's impact on economic growth. During 2000-2010, the decline of GDP growth rates is not obvious in the beginning in each of three scenarios. But the GDP growth rates would drop by 0.01, 0.019 and 0.03 percentage points in the Early, Late and High scenarios in 2010 respectively.

For those countries with nation HIV/AIDS prevalence rates of 20%, annual GDP growth has been estimated to drop by an average of 2.6 percentage points. More recent calculations have suggested that the rate of economic growth has fallen by 2-4% in sub-Saharan Africa as a result of AIDS. Currently, the HIV/AIDS prevalence is very low in China. And AIDS has not yet produced a palpable impact on China's macroeconomy. But the epidemic of HIV/AIDS would restrict China's economic growth and social development if it is not to take comprehensive and effective measures to prevent the wide spreading of HIV now.

The impacts of AIDS on society

Increase the rich-poor gap and leads to the growth of the poor population

Currently, most HIV positives and AIDS patients are living in economically underdeveloped areas where natural resources are scarce, as well as social resources such as health and education, but poor population is large in number. Many people turn to blood selling and prostitution for a source of income. To cut spending, needles have been used repeatedly that makes it easy for HIV spreading in these areas. Reduction of family income and increase of medical expenses, in turn, make these people even poorer, thus widening the gap between the rich and poor.

Cause social instability and panic

All kinds of rumors about AIDS have caused panic among the public and threatened social stability. For instance, the Liaoshen Evening News carried a report on July 26, 2000, saying that HIV infected persons injected their blood into watermelons. The rumor had been spread about eating watermelon causing AIDS, which made consumers hesitate to take watermelon. They would rather believe that it's true than not. As a result, watermelon was sold not so well as previous years and small peddlers suffered losses to some extent. Moreover, since the end of 2001, rumors have been spreading in Tianjin, Beijing and Shijiazhuang that some AIDS patients took revenge on the society by randomly pricking people with syringes filled with HIV blood. Due to lack of knowledge about AIDS, such rumors are often exaggerated and spreading fast, causing panic among the public.

Bring social problems, damage the government's image and cause political crisis

In the years around 1995, nonstandardized blood donation and illegal underground plasma taking in Henan and its neighboring provinces led to HIV/AIDS spreading among commercial blood sellers, which has attracted wide concerns from China and abroad. On November 17, 2001, the Beijing-based Reference News carried a report from a foreign news agency that openly accused that the Henan health departments should be held inescapably responsible for the spreading of AIDS in local areas and these departments have seriously damaged local government's image. In some areas, serious protests were staged by some HIV-infected persons and clashes happened between local people and officials, which had generated very bad consequences.

In fact, the impact of the tragedy in Henan has gone far beyond local health departments. It has influenced the whole province and the whole country at large.

Potential problems in the health system such as unsafe injection in rural medical and health system and safety of vaccine injection for children, if causing serious problems like the tragedy in Henan, will seriously damage the image of the government and jeopardize social stability. If not handled properly, they will lead to a political crisis.

Summary

The process of the impact of HIV/AIDS can be described as having three stages: first, the impact is experienced at the micro level; second, at the sectoral level; and finally, at the macro level. The impact has begun to be observed in China at the micro, or household level, and will be observed in the future at the sectoral level. Individuals and families are bearing both the economic and social costs of the disease, and the poverty of those affected may increase substantially. Expenditures for the health sector will increase, for both treatment and prevention interventions. There is almost no impact on macro level. But if without effective prevention action and the HIV spread in the general population at large, the macro level impact will happen as in the some countries in the Africa..

Policy Recommendations

In the past two decades' battle against AIDS, many countries have accumulated useful experiences. Solutions include governments' commitments, a national practical strategy and action plan, inter-departmental and multi-level cooperation, community-based countermeasures, long-term and consistent measures, specific measures for high-risk groups and integration of AIDS with STDs prevention.

China is now in the stage of HIV concentrated epidemic and subject to HIV spreading on a wider range. Therefore, this may be the last chance for China to bring the deadly disease under effective control. The only way out is to increase investment in HIV/AIDS prevention and control, and to promote the successful domestic and international practices. To this end, we put forward the following recommendations:

Increase HIV/AIDS investment as early as possible

The prevention is better than the treatment is a consensus reached by medical workers as well as policymakers. However, to implement the interventions in the early stage of HIV epidemic where a few cases has been reported, will depend on the sagacity of high level decision makers.

The treatment of HIV is still in the stage of exploration. But the education and interventions are the successful ways to prevent HIV spread. If put more investment on interventions in the early state of HIV epidemic, that will avoid the future situation which most of the health recourse will be used in the treatment of AIDS patients. The experiences of other countries teaches us that the health resources has been almost exhausted when these countries did not invest interventions in the early HIV epidemic stage. The government had to put more treatment expenditure which was more than 10 times of early investment. If it were like some African countries where 20% of the pregnant women were found HIV-positive in pre-natal health exams, the situation would run amok no matter how much money was spent. Thailand experience showed that in the height of HIV spreading, treatment and care of AIDS patients alone cost more than 70% of the overall budget for AIDS prevention.

The investment of interventions and treatments has increased from central government in the recently years in China. There has been a mere RMB100 million Yuan each year. But is still not enough to implement surveillance, education and interventions et al. That is a big obstacle to implement HIV/AIDS prevention and control now. This research indicates almost 10 millions HIV positives would avoid to be infected from comparing with early action(early scenario) and keeping current prevention(high scenarios) during 2001 - 2010. And 6.9 HIV positives would avoid to be infected from comparing with late action(late scenarios) and high scenarios. If only the impact on macro-economy is taken into account, the economic losses reduced will reach RMB17.5 billion and RMB8.1 billion respectively. Therefore, the earlier the investment, the better the effect.

Start intervention programs as soon as possible

At present there is some contradictions between policy, law, regulations and ways which should be used in HIV prevention. It is impossible to implement interventions for the high risk groups if we don't escape the contradictions. There is a common purpose for policy, law, regulations and HIV interventions – to ensure the stability and development of the society. We can't afford time to coordinate the policy, law, regulation and HIV interventions. That will asleep at the switch and will bring a disaster to the country. Therefore, we should base on the principle of “treating the principal and secondary causes at the same time” set by the State Council in the Comments on Strengthening Prevention and Control of HIV/AIDS and the Medium-and Long-term Plan for AIDS Prevention and Control in China (1998-2010) and solve specific problems in a realistic way and on a case-by-case basis.

From a long term, it is necessary to promote the revision of law and regulations to make the consistency among the policy, law, regulation and HIV interventions. But

now it is necessary to escape the sensitive problems in the implementation. From the experiences in some places of China and other countries, we suggest to use the ‘three no’ strategies in the sensitive interventions. First, not to make publicity before implementation of interventions. Second, not to act in the sensitive regions(such as big city). Third, not to execute by sensitive departments(such as Security Bureau).

Interventions to the high sexually risk groups

Interventions specific to certain risk groups should be implemented. Although about half of infections to date have been found in the IDU population, the mix of risk group infections is changing (see Figure 5 above). The heterosexual transmission of the virus will become the most prevalent mode of transmission, among the risk groups of CSWs, MSMs, and those with multiple partners

Interventions targeting high sexually risk groups should include information, condom promotion, and STI treatment. In Thailand and Cambodia, the introduction of a policy requiring 100 percent condom use in commercial sex settings has proven to be extremely effective in slowing and even reducing the HIV/AIDS epidemic. In China, 100 percent condom policies for commercial sex have been introduced recently in both WuHan and NanJing; these programs should be expanded to other areas in China.

Interventions to the IDUs

Harm reduction programs should still be undertaken, however; current information and reduction of needle sharing programs should be expanded in order to increase access to services and information. In addition, other interventions to reduce the proportion of drug users using injecting drugs could be effective in decreasing transmission rates.

Interventions to the MSM

Targeted information campaigns directed at men having sex with men (MSMs) in Australia, the United Kingdom, and the United States have been effective in reducing HIV incidence over the last two decades. These types of campaigns should be introduced in China, as well. In addition, it is important to reduce the stigmatization of homosexuality in China, in order to improve the uptake of services offered to reduce the probability of HIV transmission.

Interventions to the floating population

Finally, the prevention needs of the floating population should be considered. As noted above, this population has increased tremendously over the last decade, from approximately 70 million in 1988 to over 140 million in 2000. This population is predominantly young, male, and is away from their families for an extended period of time, thus representing a risk for HIV transmission from commercial sex workers. In addition, upon their return to their villages, there is a risk of transmitting the newly acquired virus to their original partners. This group should also be targeted with information about HIV/AIDS, increased access to condoms, and other clinical services.

Increasing the number of surveillance sites

The number of HIV surveillance sites should be increased, particularly among high-risk groups and in areas with a potential threat for HIV spreading. Currently, there are only over 100 sites nationwide. Aside from increasing the number of sites among the floating population, male homosexuals and prostitutes in special economic zones, efforts also need to be made to make these sites more representative.

240 HIV surveillance sites have been built to monitor the HIV spreading in Thailand. There were only 42 HIV surveillance sites in 1995 in whole China. The number was increased to 60 and 100 in 1997 and in 2000 respectively. It is necessary to increase the number of HIV surveillance sites.

Conduct information and education campaigns through every possible means

Information campaigns about HIV/AIDS should be made available to the general public through various media channels, including print, radio, and television. The campaign should be linked to local HIV/AIDS situation and the public should be informed of the actual HIV spreading situation in a timely manner. Because some of the local government leaders were afraid that the publicity of HIV epidemic would influence the local economy development. Information about AIDS should also include contents regarding reproduction and health care such as where to buy condoms (or get free), and where to receive treatment for STIs and counseling and treatment for AIDS. Efforts need to be made to reduce the possible psychological obstacles encountered by people seeking services. The teenagers should be educated on puberty sexual health. Meanwhile, the reduction of discrimination and stigma is the part of public campaigns.

Provide medical and daily-life assistance to HIV/AIDS people as early as possible

According to our estimates, AIDS patients in China will amount to 1.1 million (low scenario) and 2.2 million (high scenario) in the decade from 2001 to 2010, and at least RMB10 billion will be needed in medical expenses. In addition to strengthening the management of these people, it is also very important to provide them with care and assistance in order to ease their mental pressure and ensure they live a normal life as others. Meanwhile, the prices for AIDS medicines and testing should be reduced to keep the cost of HAART therapy no more than the current level of US\$400 per person per year in many countries.

Considerably cut the prices of AIDS medicines and testing

Specific measures include: (1) free imported medicines and testing reagents from custom duties and value-added tax; (2) impose a ceiling for profits from distributing AIDS medicines and testing reagents; (3) suggest the establishment of a “speedy channel” for the registration of imported AIDS medicines by the State Drug Administration. Considering that the pharmaceutical factories desire to decrease cost,

it is necessary to reduce the cost of packaging in order to decrease manufacture's price of medicines farther.

Provide subsidies for AIDS patients in economically underdeveloped regions

It is estimated that about 70% of HIV/AIDS patients are living under the poverty line. The expensive medical and testing expenses are far beyond their capabilities. We suggest that the government provide subsidies to the HIV/AIDS patients living in poverty-stricken areas and more financial support provided to areas hard hit by the disease.

Speed up the pace of localization of AIDS medicines

Because of China's entry WTO, suggest that using 'Declaration on Intellectual Property and Public Health' to support capable pharmaceutical units conduct researches on homemade anti-retroviral medicines, and imitate patent expired or expired-to-be-soon anti-retroviral medicines abroad. Suggest, at the same time, that reducing and shortening application procedures for anti-HIV medicines in order to achieve AIDS treatments homemade in 2~5 years and meet clinic treatment demands.

Provide financial assistance to HIV/AIDS patients with difficulties

For HIV/AIDS infections with practical difficulties, their children should be exempted from tuition fees. Households with AIDS patients living in poverty should be exempted from various taxes and fees. Mutual-aid organizations should be established at the village level to help these households with the fieldwork. Dependents of AIDS patients should be supported by local civil departments. In addition, measures should be taken to ensure an average living standard for AIDS patients and their families. Training sessions should be given to these people in practical skills so that those with working capabilities can work to support themselves and their families. A mechanism needs to be established to institutionalize the various policies and assistance and ensure supervision on a regular basis.

Build a supervisory system with China's characteristics

The key to curbing AIDS spreading is the effective implementation of various measures and blocking channels for AIDS transmission by changing the risky behaviors of society and individuals. To prevent and control AIDS, China set up a state coordinating meeting system for AIDS/STDs prevention and control and formulated a Medium- and Long-term Plan for AIDS Prevention and Control (1998-2010) and an Action Plan for Preventing and Controlling HIV/AIDS (2001-2005). These plans identified the strategic objectives and responsibilities of relevant departments and local governments. However, the implementation of these plans has not been satisfactory so far, especially in some areas where AIDS situation is severe. In these areas, AIDS prevention was not given due attention and no consensus was reached among the leadership.

To ensure an all round and effective implementation of all measures, a system must be established to cater to the new conditions under the reform and opening up policy. One of the most important experiences summed up by Thailand is the consistent attention from the top leadership of the country. AIDS prevention is a long-term task

of paramount importance and involves all government departments and NGOs (non-governmental organizations). Therefore, it must be included in the overall plan of the country and put on the top of agenda for all departments concerned. We suggest that a leading group participated by multiple departments be formed at the national level to supervise the implementation of the plans.

Reference

- 1 ■ Department of Disease Control, Ministry of Health of China(2001), *Action Plan for Preventing and Controlling HIV/AIDS (2001-2005)*
- 2 ■ World Bank(1999) ,*Confronting AIDS :Public priorities in a global epidemic*, Oxford: Oxford University Press for the World Bank
- 3 ■ B Schwartlander, J Stover, N Walker , L Bollinger et al (2001) *Resource Needs for HIV/AIDS Science* 29 June 2001, Volume 292
- 4 ■ Tony Barnett and Alan Whiteside(2000),*Guidelines for studies of the social and economic impact of HIV/AIDS*, UNAIDS Geneva, Switzerland, 2000
- 5 ■ Liu Kangmai(2001), *The living condition and requirement of HIV/AIDS infections* ■ Research Report
- 6 ■ UNAIDS(2002) ■ *Report on the global HIV/AIDS epidemic*
- 7 ■ State Statistical Bureau(2002), *2001 China Statistical Year Book*, China Statistical Press

Acknowledgements

The research would not have been possible without the support of Center for Disease Control of Guangdong province, Center for Disease Control of Guangxi province and Center for Disease Control of Shanxi province. The colleagues in these institutes deserve our special gratitude.