

The HIV/AIDS Epidemic in China: History, Current Strategies and Future Challenges

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This article reviews the epidemic of HIV infection and AIDS, the Chinese national policy development in response to the epidemic, and disparities between policies and the need for AIDS prevention in China. The HIV epidemic in China has gone through three phases, and it is now at the rapid expansion phase. Since 1988, HIV/AIDS has been addressed from a legal perspective, but in the early stages laws and regulations actually hindered HIV control efforts. Since 1995 efforts have been made to improve policy decisions. Two major strategic plans were issued in 1998 and 2001, with increased government funding for implementation. Although the challenges facing HIV/AIDS control in China are many, the Chinese government is making a stronger commitment for implementing effective AIDS control measures in the country.

There is a Chinese proverb that says “a good beginning is half the success.” Unfortunately, almost 2 decades have passed since HIV and AIDS entered into China in 1985, and the epidemic continues to spread at an alarming rate (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003; Ma et al., 1990; Shen, 1996; Sun, Nan, & Guo, 1994; Wang, 1998; Wu, 1999a, 2000; Zeng et al., 1988; Zheng, Zhu, Yang, & Zhang, 1989). The number of annual reported HIV infections in China increased steadily at an average rate of 30% every year between 1995 and 2000. In 2001 the increase in the reported number of HIV cases was 58%, almost twice as much as in previous years. During the subsequent years, annual HIV infection rates increased further and reached 122% in the year 2003 (China Ministry of Health & UN Theme Group on HIV/AIDS in China, 2003; Chinese Center for Disease Control and Prevention [CDC], 2004). In 2003 an assessment was carried out by the Chinese Center for Disease Control and Prevention and National Center for AIDS/STD Control and Prevention (NCAIDS), with support from the World Health Organization (WHO), the Joint United Nations Program on HIV/AIDS, and the U.S. CDC. It was estimated that 840,000 people in China are living with HIV, and among them, 80,000 have developed AIDS (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003). Although the overall rate of HIV infection is less than .1%, the epidemic has spread to 31 provinces, municipalities, and autonomous regions, and the

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infection rates in some subgroups such as injection drug users (IDUs) and former plasma donors in rural areas are alarmingly high. The number of reported HIV infections is on the increase as are cases of AIDS-specific morbidity and mortality. Inadequate surveillance of HIV/AIDS makes it difficult to assess the course and the full magnitude of the epidemic in China (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003).

The development of the HIV/AIDS epidemic in a country depends on how the government responds to the epidemic. This article reviews the character spectrum of the epidemic in China, the government response, the development of policy, and the remaining challenges in dealing with HIV/AIDS in China.

EPIDEMICS OF HIV/AIDS IN CHINA

UNIQUE EPIDEMIC PATTERN

A unique pattern of the HIV epidemic has been observed in China. The first HIV infection was probably introduced into China in 1985 (Zeng et al., 1988; Zheng et al., 1989), and the first outbreak of HIV infection was observed among rural IDUs on the border areas between China and Myanmar in 1989 (Ma et al., 1990). Thailand reported both the first HIV infection and the first outbreak of HIV among IDUs about 1 year earlier than China (Wongkhomthong, Kaime-Atterhog, & Ono, 1995); however, China has experienced a very different pattern of HIV spread than that of Thailand. What makes the epidemic in China different is that the epidemic of HIV among IDUs began in the rural areas and then spread to urban areas. In addition, commercial plasma donors have contributed to the epidemic.

The epidemic began among IDUs in areas of Yunnan Province bordering Myanmar, then spread to IDUs in nearby cities (Cheng et al., 1997; Zhang, Chen, Jia, & Zhang, 1999). It further spread to IDU communities residing along the major drug trafficking roads to Guangxi, Xinjiang, Sichuan, Guangdong, and other provinces (China Ministry of Health and NCAIDS, 2001; Lin et al., 1999; Wang, 1998; Wu, 1999a, 1999b, 2000; Yin, 1998; Zheng, 1999, 2000). The infection soon spread to the sexual partners of IDUs and their infants. From 1993 to 1996, outbreaks of HIV infection occurred among commercial plasma donors in rural communities in several provinces (Liu et al., 2001; USEST, 2001; Wang et al., 2001; Wu, Liu, & Detels, 1995; Wu, Rou, & Detels, 2001; Yan et al., 2000; Zheng et al., 2000). This stems from the practice of drawing blood from impoverished rural people, harvesting the plasma, then reinfusing pooled, packed red blood cells into the donors. In some villages in afflicted areas, more than 70% of the population aged 19 to 49 years were infected with HIV (Liu et al., 2000). Although HIV infection has been reported from all 31 provinces, there is a considerable variation in the transmission routes and infection rates. About 80% of China's estimated 840,000 HIV-infected individuals reside in rural areas (China Ministry of Health, NCAIDS, & Collaboration Group for National HIV Sentinel Surveillance Program, 2000), complicating accurate surveillance and effective intervention.

THREE PHASES OF THE EPIDEMIC

China started HIV/AIDS surveillance in 1986, and official notification of HIV infection became a legal requirement in 1989. In 1995, supported by the WHO, the China Ministry of Health, and NCAIDS established 42 sentinel surveillance sites in 23 provinces. By 2002 the number of sites had increased to 158, encompassing 31 provinces. Based on the national surveillance data, the epidemic of HIV/AIDS has gone

through three different phases: the introduction phase (1985-1989), the spreading phase (1990-1994), and the expansion phase (1995-present) (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003; Wang, 1998). Until 1995, the HIV epidemic was largely confined to Yunnan Province in Southern China (Shen, 1996; Sun et al., 1994; Wang, 1998). In 1995 the number of individuals identified with HIV infection in China equaled the cumulative total of those between 1985 and 1994. The number of infections doubled again in 1996 (Shen, 1996; Wang, 1998). The upsurge in HIV infection is particularly disturbing because the majority of the new infections have been in other parts of China and not in Yunnan, representing the spread to other groups, including commercial sex workers and commercial plasma donors (Shen, 1996; Wang, 1998; Wu, 1999a, 1999b). From 1995 to 2000, the average increase in reported HIV infection was about 30% annually. Actually there are five different HIV epidemics in China.

THE FIVE DIFFERENT EPIDEMICS

Injection Drug Users. The first outbreak in China was reported among IDUs in Ruili, Yunnan Province, in 1989 (Ma et al., 1990, Zhang et al., 1991). The epidemic has spread rapidly among IDUs in southern Yunnan, Xinjiang, Guangxi, and Sichuan since 1995 (Wang, 1998). The proportion of HIV/AIDS cases due to injection drug use occurring in the provinces (autonomous regions) of Guangxi, Yunnan, and Xinjiang was 73.1% in 1996, 80.9% in 1997, and 79.3% in 1998 (China Ministry of Health and NCAIDS, 2001). The provinces and autonomous regions hit hardest by the HIV/AIDS epidemic among IDUs include Yunnan, Xinjiang, Guangxi, Guangdong, Sichuan, and Jiangxi provinces. The spread of HIV among IDUs in the different provinces of China is shown in Table 1. A study by Wu et al. (1996b) indicated that the incidence of new IDUs remains high, ensuring a constant supply of susceptible subjects, and documented that IDUs have more sexual contacts than non-IDUs. Although the proportion of reported HIV among IDUs dropped to 43% in 2003 (Chinese CDC, 2004), it is expected that high levels of transmission will continue within the IDU population, and that HIV spread from the IDU population to other groups will increase.

Commercial Plasma Donors. Although attention has mainly focused on the HIV epidemic among IDUs in Yunnan, China (Sun et al., 1994; Wu, 1999a, 1999b; Wu et al., 1996a, 1996b; Wu et al., 1997; Yin, 1998), the role of unsafe plasma donation practices was recognized more than 9 years ago (Wu, Liu, & Detels, 1995). A survey of 1,517 former commercial plasma donors revealed that 12.5% were HIV-positive, with the number of donations directly relating to the probability of infection (Wu et al., 2001). From the late 1980s to the early 1990s, a vast number of small-scale plasma collection stations were set up in rural areas by blood product companies. Some plasma donors were documented to have donated plasma more than 10 times in 1 week. Procedures varied, but in all cases the blood was taken for plasma, and the blood cells were returned along with a saline solution. In most cases, the tubes were reused. Sometimes pooling of red cells from different subjects occurred, resulting in red cells from other subjects being infused into other plasma donors. Contamination during the collection and reinfusion procedures was the major cause of HIV transmission among this subgroup. HIV infection among former commercial plasma donors was initially reported in Henan Province, but more serious problems were reported later from Shanxi, Shaanxi, Hebei, Gansu, and Hubei Provinces (USEST, 2001).

TABLE 1. Provinces and Years When HIV Was First Reported among Injection Drug Users

Year	Provinces
1989	Yunnan
1995	Sichuan, Xinjiang
1996	Guangdong, Guangxi, Beijing, Shanghai, Guizhou
1997	Inner Mongolia, Liaoning, Zhejiang, Gansu, Chongqing
1998	Hunan, Qinghai, Jiangsu, Tianjin, Shanxi, Fujian, Jiangxi
1999	Hebei, Shandong, Hubei, Hainan, Ningxia
2000	Shaanxi
2001	Tibet, Heilongjiang, Henan
2002	Jilin, Anhui

Note. Data from China HIV/AIDS case report.

Heterosexual Transmission. The national HIV sentinel surveillance results showed that the prevalence rate among sex workers had increased from 0.02% in 1995 to 2% in 2000 (Ministry of Health and NCAIDS, 2001). Similarly, among 36 sentinel sites for sexually transmitted disease (STD) patients, 16 sites recorded HIV-infected persons. The sentinel surveillance results have also identified HIV infection among low-risk women attending antenatal clinics (China Ministry of Health & UN Theme Group on HIV/AIDS in China, 2003).

Mother-to-Child Transmission. Since the first case of mother-to-child transmission was reported in 1995, the proportion of mother-to-child transmission has increased each year. The case report data show that the proportion of mother-to-child transmission increased from 0.1% in 1997 to 0.4% in 2002 to 0.5% in 2003 (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003; Chinese CDC, 2004). In Yunnan and Xinjiang, the HIV prevalence among pregnant women in certain areas has reached 1.3% and 1.2%, respectively, similar to the levels of high prevalence in several neighboring countries (China Ministry of Health and UN Theme Group on HIV/AIDS in China, 2003).

Homosexual Transmission. Although the number of men who have sex with men (MSM) is believed to be large, not much is known about this community. A small survey suggested that the HIV infection rate among a subgroup had reached 17.7%. Since the national HIV sentinel surveillance program was officially set up in 1995, MSM has been the only risk group that has not been successfully recruited for HIV surveillance.

In summary, although sharing injecting equipment among IDUs remains the main mode of transmission, the available data suggest that the HIV/AIDS epidemic is spreading beyond IDUs. The HIV epidemic is established in China and is spreading fast from the core groups to the general population. Based on experiences elsewhere in Asia, it is expected that heterosexual transmission will become the dominant mode of transmission.

POLICY DEVELOPMENT AND RESPONSE TO AIDS

EARLY STAGES

After the AIDS epidemic was reported in the Western world, the Chinese government assumed that the epidemic could be prevented in China by banning HIV-infected persons from entering the country. Based on this assumption, legislation was imple-

mented in *Regulations Concerning the Monitoring and Control of AIDS* in 1988 (China Ministry of Health et al., 1988). The regulation stipulated that all foreigners infected with HIV or who had AIDS would not be allowed entry into China. The Border and Quarantine Law of the People's Republic of China stated that those infected with HIV would be denied entry into China.

The same rule was applied to some extent between the provinces. When anyone was found to be HIV-positive, he or she was sent back to his or her province of residence. In 1996 a large number of HIV-infected migrants were identified while they were donating blood in Guangdong Province. They were all sent back to their home provinces by the health authorities and armed policemen. It has since been recognized that the send-back policy was not effective.

The Law of Infectious Diseases Prevention and Control was passed by the People's Representative Committee in 1989 (People's Congress, 1989a), and the *Methods of Implementation of the Law of Infectious Diseases Prevention and Control* was issued by the Ministry of Health in October 1991 (China Ministry of Health, 1991). These declared AIDS to be a notifiable disease. The law stated that diagnosed AIDS cases must be reported to the local health authority within 6 hours in cities and 12 hours in the countryside. Article 24 under Chapter 4 of the Law of Infectious Diseases Prevention and Control states that AIDS patients must be quarantined, and the period for quarantine depends on the results of a medical examination.

A few articles in the law were hard to follow in the practice of AIDS control programs, because the law was passed before the epidemic of HIV/AIDS took hold in China. Sporadic reports of HIV infection and AIDS cases did generate awareness of AIDS among some lawmakers, but their knowledge of the real implications of the HIV/AIDS epidemic was limited. Therefore, they did not know how to take appropriate action from a legal point of view.

Obviously, it is neither feasible nor necessary to report AIDS cases within 6 hours in cities and 12 hours in the countryside. AIDS is not an acute infectious disease. It does not cause an outbreak unless contaminated blood or blood products penetrate another person's body or are transmitted through unprotected sex. Furthermore, existing communication facilities, particularly in rural areas, are inadequate for the purpose of immediate reporting. In addition, testing for HIV antibodies and diagnosis of clinical AIDS cases are not readily available at the prefectural and county levels. The most important issue in reporting is confidentiality or anonymity. Because discrimination and stigmatization are often associated with AIDS, releasing the identities of infected individuals caused serious problems for those individuals and discouraged people from seeking HIV testing or health care at established health facilities.

Quarantine of AIDS cases is not feasible and created problems for the hospitals caring for AIDS patients. The law has been rather ambiguous on quarantine procedures. The period for quarantine depends on the results of a medical examination, and because the majority of the examining physicians recommended universal precautions rather than quarantine when dealing with HIV-infected individuals, only a few HIV-infected persons were quarantined.

The process of lawmaking is complicated. Lawmakers do not understand the complexity of AIDS issues, and people who have sound knowledge of AIDS have not had the opportunity to be involved in the lawmaking processes. To protect the rights of mothers and infants, the Law for Protection of Mother and Infant was issued in June 1995 (People's Congress, 1995). Article 8 of this law states that the premarital health examination must include testing for specific contagious diseases such as AIDS,

gonorrhea, syphilis, leprosy, and other infectious diseases that affect marriage and/or giving birth. Article 9 further states that individuals diagnosed with these diseases should delay their marriage until they are not contagious. The revised Law of Marriage also states in Article 6 that individuals may not marry if they suffer from leprosy or other contagious diseases that are considered inappropriate for marriage until they are cured (People's Congress, 1989b). Thus, based on these laws, AIDS patients may not marry. Neither the Law of Marriage nor the Law for Protection of Mother and Infant stipulate anything about HIV-infected individuals. In some large cities, when marriage involves one partner who is from another country, an HIV antibody test must be undertaken in the premarital health examination. If the foreigner or the Chinese or both are HIV-positive, they may not marry.

Although the role of condoms in HIV/AIDS prevention is internationally acknowledged, they cannot be advertised on national television or in the printed mass media. However, condoms can be easily obtained at large department stores, but they may not be sold to patients at STD clinics. The reason is that condoms are taxable but drugs are not. That policy has now been changed in Kunming, Yunnan Province, but more work needs to be done to remove the ban on distributing condoms in STD clinics throughout China.

The law requires reporting the name and address of a person with a notifiable disease. This is applicable to people with STDs and HIV/AIDS. This drives most STD patients underground, and they receive treatment at unlicensed private clinics or pharmacies or from traditional healers. As a result, STDs are not adequately treated, resulting in further spread and the development of multidrug-resistant pathogens. To address this issue, anonymous STD treatment was initiated by a local regulation in Shanghai in 1995. The new strategy has resulted in an increased number of STD patients attending public clinics, with a consequent reduction in the prevalence rate of STDs. With assistance from the European Union, anonymous STD treatment and the syndromic approach are now being implemented in most large cities. More efforts are needed to promote this strategy at the prefectural and county levels.

A considerable number of HIV-infected persons such as commercial sex workers and repeat drug addicts are categorized as criminals. Because of overcrowded jails and misinformation about HIV/AIDS, HIV-infected prisoners are released if they test positive for HIV. This practice is based on the *Regulation of Jail Management* by the High Court and Ministry of Public Security. Thus, although other prisoners are protected from HIV infection, the general public is not.

HIV infection is known to spread through repeated use of contaminated needles; nonetheless, needle exchange is thought to promote drug use rather than serve as an effective HIV control method. Therefore, government policies discourage implementation of needle exchange programs.

TURNING POINT

In many aspects, the existing laws are impediments to controlling HIV in China. China is in need of appropriate and effective laws that would promote action to control and prevent HIV/AIDS. An example of progress by the government to rectify this situation is the adoption of *Recommendations on Strengthening AIDS Prevention and Control*, with approval from the China State Council and the Ministry of Health in 1995. The document focuses on several issues, but the most relevant one is developing and reviewing laws and regulations and establishing or improving the system for their enforcement.

Another effort to correct this situation was initiated with the implementation of the Workshop on Control of HIV/AIDS in China in December 1997, which was attended by Chinese and foreign leaders in HIV/AIDS control. The workshop made a series of recommendations to the Ministry of Health for promoting control of HIV/AIDS in China. A positive step in this process has been the increasing willingness of the government of China to acknowledge the magnitude of the HIV epidemic and its potential for even greater spread. This openness will facilitate prevention and control efforts.

A wide range of issues relevant to the control of HIV/AIDS in China, many of which are very controversial, were discussed in the 1997 workshop. No limitations were placed on the discussions or on the recommendations that were developed covering all the major issues. The success of the workshop will ultimately be measured by the extent to which the recommendations made to the Ministry of Health are considered and implemented.

The state government has also taken many positive steps. To control HIV spread from commercial blood and plasma donation, the Law of Blood Donation was issued in 1997. To mobilize all government departments and sectors to participate in AIDS control programs, the *Responsibilities of Ministries and Departments of State in AIDS Control and Prevention* was issued in 1997. Twenty-one ministries and departments have their own responsibilities in AIDS prevention and control, and activities are coordinated by the state council meeting. Significantly, AIDS is listed in the state government's China 21st Century Agenda.

It is recognized by the China State Council that early investment in AIDS control programs will save lives and resources. It is also recognized that China has limited time to take action to avert an AIDS disaster of the magnitude already confronted in many African countries and in some Asian countries such as Thailand, India, and Cambodia. It should be noted that the monetary input made by state government is very low, considering that China is the world's largest country with one fifth of the world's population. It is proposed that from 1995 on, the Ministry of Finance will allocate at least 15 million CNY (U.S.\$1.8 million) for AIDS control each year.

Education and prevention have been emphasized as priorities for AIDS control since AIDS was first reported in China in 1985. However, in practice, they were not given adequate attention. The support for laboratory and epidemiological research was also low. Furthermore, education and prevention were interpreted by the majority of those involved as mere dissemination of educational folders, pamphlets, and fliers. Few effective educational intervention measures targeting high-risk groups have been implemented. It has now been recognized that education and prevention alone have not been effective. To rectify this situation, the *Principles for STD/AIDS Education and Prevention Messages* was issued in early 1998 jointly by the Ministry of Health, the Ministry of Publicity, the Ministry of Education, the Ministry of Public Security, the Ministry of Justice, the Ministry of Culture and Civilization, the Ministry of Radio, Film and Television Administration, the National Family Planning Committee, and the Ministry of Information and Publication for media reporting news and events on STD/AIDS. The distinction between long-term need and immediate need was made clear. The long-term need to eradicate commercial sex and drug abuse is unlikely to occur in the near future; therefore, effective measures to stop HIV spread among IDUs, such as clean needle programs, and among sex workers, such as condom promotion and STD treatment, must be implemented as soon as possible. The principles also say that reporting a condom as evidence of sex work must be banned in all

news reports. The principles encourage dissemination of knowledge in the mass media on the important role of condoms in preventing pregnancy and STDs such as hepatitis B and C, gonorrhea, syphilis, and HIV.

The Chinese government now recognizes the seriousness of the HIV epidemic and the threat it poses to the country's social and economic development, particularly in impoverished rural areas. Therefore, the government has placed a high priority on HIV/AIDS prevention and control. In 1998, an HIV/AIDS coordinating committee chaired by Vice Premier Li Lanqing was established to coordinate and mobilize all government sectors to put forth a national response to the HIV/AIDS epidemic in China. In November 1998 the China State Council issued the *China's Medium- and Long-Term Programme for the Prevention and Control of AIDS (1998-2010)* (China Ministry of Health, State Development Planning Commission, Ministry of Science and Technology, & Ministry of Finance, 1998), which serves as the blueprint for the HIV/AIDS prevention and control strategy in China. Priorities include but are not limited to ensuring a safe blood supply, implementing health education and behavioral interventions, and providing care to HIV/AIDS patients and their families. This plan, however, does not adequately address the most appropriate actions needed in the short term to deal with the seriousness of problems already at hand. Furthermore, no immediate solutions are available to effectively treat patients, due to a lack of funds and expertise.

STRONGER COMMITMENT AND ACTION ARE REQUIRED

Six years have passed since *China's Long - and Medium-Term Programme for HIV/AIDS for the Prevention and Control of AIDS (1998-2010)* (China Ministry of Health et al., 1998) was issued. Since then, not much action has actually taken place. HIV infections, AIDS cases, and AIDS deaths continue to increase. In the spring of 2001, officials from more than 10 major ministries worked together to develop the *China Plan of Action for Containment and Control of HIV/AIDS (2001-2005)* that was issued in May 2001 by the China State Council (China State Council, 2001). The policy paper first highlighted effective strategies for control of HIV, including condom promotion, methadone maintenance, and needle social marketing for IDUs.

A stronger commitment was demonstrated by increased government funds for AIDS control programs and the government's stating that government funding should be the major resource, but that resources should also be obtained through various channels. In 1996 the Ministry of Finance set up a special fund for HIV/AIDS prevention and control. The first contribution was 5 million CNY. Between 1998 and 2000 the contribution increased to 15 million CNY per year. Since 2001 this contribution has further increased to 100 million CNY per year.

In 2001 the State Development and Reform Commission (SDRC) transferred 1.25 billion CNY from national bonds, combined with 1 billion CNY from local governments, to improve the basic construction and equipment of blood banks in mid-western China. In 2002 the SDRC allocated a further 2.9 billion CNY from national bonds to support the capacity-building of the Chinese CDC at the provincial, prefectural, and county levels in midwestern China.

The central government is considering the possibility of providing free antiretroviral (ARV) drugs to AIDS patients who are not covered by health insurance. At the high-level HIV/AIDS meeting of the United Nations General Assembly in September 2003, Executive Vice Minister Gao Qiang declared that China will provide free ARV drugs to impoverished AIDS patients. In cities the government will provide

free ARV drugs to AIDS patients with low incomes, and in the rural areas, free ARV drugs will be provided to farmers. At the same time, the central and local governments will invest more than 10 billion CNY to strengthen the health care system and professional capacities on HIV/AIDS prevention and control.

CHALLENGES

Although a supportive policy environment has developed and funds have increased dramatically for control of AIDS, the Chinese government still faces many challenges in getting the epidemic under control. First, given the population of the country, there is a paucity of trained manpower at all levels, from central to provincial to county to township to villages and communities. This is a major barrier for implementation of effective prevention and care programs.

Second, the stigma surrounding HIV/AIDS provides another barrier for effective programs in China. There are three dimensions of stigma: (a) given limited resources and lack of vision among government officials, it is very difficult to commit sufficient funds for implementing effective programs among high-risk groups; (b) marginalizing high-risk groups makes service staff reluctant to work with them; and (c) stigma from the general public makes it difficult to deliver services to high-risk groups and others who are infected with HIV.

Third, a large number of HIV-infected people have not been tested and thus are not aware of their HIV status. Therefore, they continue to spread HIV to their sexual partners and needle-sharing partners. Among the 840,000 people living with HIV/AIDS in China, fewer than 6% have actually been tested. This leaves more than 94% untested. These untested HIV-infected individuals are the major reservoir of HIV transmission in the population.

Finally, management and evaluation of the prevention and care programs in China itself is a very large challenge, given the enormous size of the country; the variation in patterns of HIV infection among provinces, municipalities, and autonomous regions; and the concentration of HIV-infected persons in rural areas.

Precious time has been wasted in the past. We need to act now collectively to stop the epidemic from spreading further.

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