

# *An Overview of the History of HIV/AIDS Transmission and Prevention in China*

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**Abstract:** This article provides a systematic and in-depth overview of the history of HIV/AIDS transmission and prevention in China, including its historical development stages and academic research. From a historical perspective, the article explores the origin and development of HIV/AIDS transmission in China, as well as the government and society's attitudes and prevention measures towards the disease. From an academic perspective, it reviews the research progress in HIV/AIDS prevention and treatment, covering medical, social, political, and cultural aspects. Through these overviews, the article gains a deep understanding of the main content and basic characteristics of HIV/AIDS transmission and prevention in China and also explores the actual situation of research on the history of HIV/AIDS transmission and prevention, providing a reference for HIV/AIDS prevention and control work.

## 1. Introduction

Since the first case of HIV/AIDS was discovered in 1985, the epidemic has rapidly developed. Faced with the serious threat of HIV/AIDS, the Chinese government has taken a series of measures to control and prevent the spread of the disease, and has achieved significant results. Reviewing and organizing research on the transmission and prevention of HIV/AIDS can clarify the research threads, clearly grasp the progress and direction of the research, and reflect on the problems in HIV/AIDS transmission and prevention research. Therefore, the author conducted extensive survey research, and through comprehensive analysis and interpretation of the collected research information, gained an in-depth understanding of various aspects of a specific problem, providing a solid foundation for further exploration. Therefore, this article provides an overview of the survey research obtained, and comprehensively discusses and explains the research results and existing problems.

## 2. Overview of Historical Phases in Hiv/Aids Transmission and Prevention in China

The formulation of HIV/AIDS prevention and control strategies and policies is a dynamic process that is closely related to the epidemic situation. The effectiveness of strategy implementation, disease detection and epidemic monitoring, as well as social awareness and

response, also have a reciprocal effect on the transmission and prevalence of HIV/AIDS. Therefore, HIV/AIDS prevention and control measures need to be continually adjusted and optimized according to changes in the epidemic and society. Therefore, the time period division in this section is primarily based on the epidemic situation and prevalence of HIV/AIDS, and then further divided based on specific characteristics.

## **2.1 Understanding and Research on Hiv/Aids Transmission Routes and Modes**

In the initial cognitive stage (before 1989), China had just discovered HIV/AIDS, and the transmission routes and methods were not yet clear. Some early research focused mainly on the biological characteristics and clinical manifestations of the virus, with less exploration of transmission routes and methods. In 1985, the Ministry of Health officially confirmed the first case of HIV/AIDS infection in China, and subsequent research began to explore modes of transmission, such as blood-borne transmission and mother-to-child transmission.

In the exploration stage (1989-1994), as HIV/AIDS gradually became a public health issue in China in the 1990s, research expanded and deepened. At this time, the study of transmission routes and methods became one of the key areas of research. Research results also began to involve different social groups, and research methods became more diversified, such as traditional Chinese and Western medical diagnosis and treatment methods, large-scale epidemiological surveys, and laboratory research.

In the in-depth research stage (1995-2004), China began to take active measures to prevent and control HIV/AIDS, including HIV/AIDS prevention knowledge dissemination, virus detection, and patient treatment. The research on transmission routes and methods became more in-depth and systematic, and the scope of disciplines involved in research also became more extensive, such as public health, medicine, psychology, sociology, and ethics. In addition, some new research methods and technologies were introduced into the study of HIV/AIDS transmission routes and methods, such as gene sequencing technology and molecular epidemiological methods.

In the comprehensive control stage (2005-2022), research on HIV/AIDS transmission routes and methods in China became more comprehensive and detailed, and research results gradually gained attention from the government and the public. The government implemented a series of measures, such as strengthening prevention knowledge dissemination, increasing detection coverage, and expanding HIV/AIDS treatment coverage.

## **2.2 Societal Perceptions and Responses in Each Phase**

Early stage (1985-1988), Due to the lack of knowledge about AIDS and limited channels for dissemination, most people had very limited understanding of AIDS and thought that it was only a viral disease that existed overseas or in specific populations. The government's understanding of AIDS was also relatively vague. Due to the unknown transmission routes and degree of harm of the disease, there was discrimination and stigma against AIDS patients in society.

Turning point stage (1989-1994), With the promotion and information of AIDS from the international community, the government and academic circles began to pay attention to and attach importance to AIDS, established corresponding research institutions and scientific research projects, and began to formulate corresponding laws, regulations, and policies, vigorously promoting AIDS prevention knowledge. High-risk populations became the focus of research, and communication and interaction with them promoted a change in social attitudes. The attitude of society towards patients also changed to a certain extent, but there were still misunderstandings and prejudices about AIDS.

Development stage (1995-2004), the government's investment and attention to AIDS continued to increase, vigorously carrying out propaganda and education activities, and promoting prevention

and treatment knowledge. The government and academic circles began to strengthen their focus and intervention on high-risk populations, effectively controlling the spread of AIDS in high-risk populations. The public had a deeper understanding of AIDS, and their attitude towards patients improved, but prejudice and discrimination still existed.

Mature stage (2005-2022), AIDS social cognition and response research entered a mature stage. The government has continuously improved the level of AIDS prevention and control through various measures such as enacting laws and regulations, increasing investment, and establishing sound mechanisms. The public's understanding of AIDS has also made significant progress, and only a few groups discriminate against and exclude patients. At the same time, professional research institutions have made significant progress in the field of AIDS prevention and treatment, continuously updating and improving treatment plans and drugs, resulting in a significant improvement in treatment efficacy.

### **2.3 Disease Detection and Epidemic Monitoring in Each Phase**

In the initial stage (1985-1994), the main task was to establish AIDS testing technology and a case reporting system. In 1985, China became one of the first countries to implement blood product screening, and in 1986, AIDS testing began and an AIDS reporting system was established to comprehensively understand the epidemic situation in various regions. At this time, China's AIDS testing technology was still in its infancy, and mainly used enzyme-linked immunosorbent assay (ELISA) for serological screening. The National Health Commission established an AIDS prevention and control group, which began to carry out epidemic monitoring and established a preliminary detection system mainly based on case reporting.

In the development stage (1995-2004), the focus was mainly on improving testing technology and monitoring system. In 1997, the first edition of the “National AIDS Testing Technical Specification” was promulgated, gradually upgrading the antibody testing technology to third-generation ELISA, Western blotting technology, and polymerase chain reaction (PCR) technology and other more accurate testing technologies. In addition, the first national epidemiological survey of AIDS was completed, forming a comprehensive monitoring system mainly based on epidemiological surveys, and establishing an AIDS epidemic dynamic monitoring and reporting system that was networked and strengthened information sharing.

In the improvement stage (2005-2012), the work of AIDS prevention and control continued to be strengthened, with a focus on strengthening epidemic monitoring and health education. New technologies such as “rapid testing technology” and “prospective testing technology” were explored to improve testing efficiency and accuracy. In addition, the national AIDS testing laboratory network was established, forming a unified national testing system. The “Notice of the State Council on Further Strengthening the Prevention and Control of AIDS” (State Council Document No. [2010] 48) was issued, proposing the goals and requirements of accurate testing and response in universities.

In the deepening stage (2012-2022), research on AIDS testing technology and monitoring system was further deepened and refined. Some new AIDS testing technologies began to be researched and developed, such as the CRISPR-Cas13 system-based detection method using RNA gene editing technology and the serum testing method based on artificial intelligence. In addition, the national online monitoring system for AIDS epidemic was launched, realizing real-time online monitoring and analysis of AIDS epidemic data.

### **2.4 Formulation and Implementation of Policies in Each Phase**

Early stage (before 1985), The Chinese government gradually began to pay attention to AIDS

and established the AIDS Research Collaboration Group. However, due to a lack of domestic and foreign literature and opaque epidemic data, China's understanding, research, and publicity work on AIDS were very limited.

Policy formulation and research stage (1985-1994), China began to increase investment in AIDS prevention and control work and carried out a series of studies and investigations. Relevant policies were formulated, clarifying the work priorities and measures for AIDS prevention and control. Multiple research institutions were established, such as the National Center for STD/AIDS Prevention and Control, the National AIDS Prevention and Control Working Group, the China AIDS Prevention and Control Foundation, and the National Expert Committee on AIDS Prevention and Control, etc. In-depth research was conducted on the transmission routes, prevention and control methods, and social attitudes towards AIDS.

Peak stage (1995-2004), The AIDS epidemic in China showed a rapid growth trend. In order to better respond to the epidemic, the Chinese government increased investment in AIDS prevention and control research and launched multiple important research programs, including epidemiology and transmission routes of AIDS, prevention, drug development, etc. These research results provided important scientific basis and technical support for China's AIDS prevention and control work.

Comprehensive prevention and control stage (2005-2022), the strategic goal of comprehensive prevention and control of AIDS was proposed, and investment in AIDS prevention and control research was increased. First, a series of innovative research was implemented in the field of AIDS prevention and control, including basic and translational research on AIDS virus, prevention and control technology research, comprehensive prevention and patient management, etc. In particular, emphasis was placed on technological innovation in AIDS prevention and control, such as antiviral treatment, drug substitution treatment, vaccine research, etc. Second, active promotion of participation by the whole society was carried out, promoting social coordination in prevention and control, such as strengthening AIDS publicity and education, enhancing public awareness and prevention of AIDS, encouraging various organizations to actively participate in AIDS prevention and control work, establishing national AIDS prevention and control institutions, and creating international cooperation and exchange platforms, etc. This aims to comprehensively prevent and control the spread and prevalence of AIDS.

### **3. Overview of Academic Research on the History of HIV Transmission and Prevention in China**

The academic research on the history of the spread and prevention of AIDS in China is a complex and multifaceted topic that requires interdisciplinary cooperation and comprehensive research, involving medicine, society, politics, culture, and other aspects. It can be roughly divided into the historical study of transmission routes and methods, policies and regulations, social behaviors and psychological characteristics of high-risk groups, epidemic monitoring and prevention and control system construction, intervention in social culture, knowledge, attitudes, and behaviors, and medical intervention measures. Xu Lianzhi's "Introduction to AIDS" (2002), Wang Longde's "AIDS Studies" (2009), and Liu Huijun and Xiao Qunying's "Cross-Regional Spread and Comprehensive Governance of AIDS" (2014) all explore the epidemic stages, characteristics, and different virus strains in different regions of China. Based on existing literature, they have reorganized, analyzed, and improved the latest trends and features of AIDS. Liu Dechun has reviewed and analyzed the spread of AIDS in China during the first 30 years[1], summarized the different stages and characteristics of the epidemic trend, the distribution of infection routes in different regions, and proposed suggestions such as enhancing public awareness, strengthening prevention efforts, and improving the monitoring and control system. Based on the reorganization

of literature on the history of AIDS prevention and control in China, Zheng Lingqiao analyzed the formation and development of prevention and control policies and strategies, the relationship between the epidemic situation of AIDS and social and economic development, and categorized each stage with its characteristics. Additionally, the AIDS prevention and control policies and strategies in China were divided into seven themes: scientific prevention and treatment, legal management, publicity and education, testing and monitoring, behavior intervention, care and support, and resource integration, and the impact of each theme on AIDS prevention and control was discussed.[2]Sun Jinming used the theory of advocacy coalition framework to logically review the large amount of public policies for HIV prevention and control targeting universities issued by various levels of government in China, and retrospectively analyzed the policy evolution process. The ethical issues existing in current policies were analyzed, the reasons were explored, and countermeasures were proposed, such as changing policy concepts, strengthening the responsibilities of all parties, and establishing an evaluation and supervision system. [3]Wang Qiang summarized the development history of the free antiretroviral therapy drug supply guarantee system for HIV/AIDS patients from the central to local governments in China, and concluded that the procurement and supply of free antiretroviral therapy drugs for HIV/AIDS patients is an experience and inspiration for a livelihood project, a benefit project, a sunshine project, and a system project, which is conducive to the better implementation of China's "four frees and one care" policy.[4]Li Dongmin and his team conducted a systematic review of the development of China's HIV sentinel surveillance system. They divided the period from 1984 to 2008 into three stages: passive surveillance stage (1984-1994), active surveillance stage (1995-1988), and comprehensive surveillance stage (1999-2008). They elaborated on the development characteristics and constituent elements of the surveillance system in each stage. Based on the challenges and problems at that time, they proposed several recommendations, including developing a unified monitoring plan, focusing on national and provincial sentinel monitoring, improving the professionalism of monitoring personnel, and strengthening the integration and utilization of information resources. [5]In the article "The Influence of Social and Cultural Factors on HIV Transmission among Men Who Have Sex with Men," He Huijing and Lü Fan pointed out that the social concepts and behavior patterns of men who have sex with men differ significantly from those of the general population and belong to a subculture group. Therefore, social identity, social norms, and social development and changes may all affect the spread of HIV among this group. They suggested increasing research on this group and evaluating existing prevention and control strategies from a social and cultural perspective, as well as exploring new intervention strategies and measures based on the characteristics of the target population.[6]Liu Ying and others summarized the methods and techniques of traditional Chinese medicine (TCM) in treating HIV/AIDS with Chinese characteristics and advantages. They believed that over the past 30 years, with the continuous increase of treated patients, the improvement of the quantity and quality of literature, and the expansion of research teams, the involvement of TCM in the treatment of HIV/AIDS has gradually increased, and can provide safe, effective, high-quality, and accessible medical services for more patients.[7] Through these academic studies, it is possible to gain a deep understanding of the current situation and problems of HIV/AIDS prevention and treatment in China, and propose some solutions and suggestions to contribute to the improvement of public health.

#### 4. Discussion

China has made significant achievements in the prevention and control of HIV/AIDS transmission. The nationwide HIV/AIDS prevention and control work has received high attention and support from the government. Since 2003, the Chinese government has implemented a series of prevention and control measures nationwide, including strengthening management and services for HIV-infected individuals, implementing HIV prevention and control measures, and providing free

HIV/AIDS treatment services. As a result, the national HIV/AIDS epidemic is under low prevalence. [8]However, the work of prevention and control is still arduous. According to the “China Statistical Yearbook 2022” released by the National Bureau of Statistics, in 2021, the number of deaths due to HIV/AIDS in China was nearly 20,000, ranking first among reported deaths by disease. China still faces some challenges in the prevention and control of HIV/AIDS, and the government and society should strengthen propaganda and education to enhance people's awareness and take measures to strengthen supervision and management of high-risk populations to control the spread of the epidemic. In summary, the future direction of research on the history of HIV/AIDS transmission and prevention in China can be roughly summarized in the following aspects: policy and economic research, analyzing policy effects and cost-benefit from the perspective of policy and economics to provide a basis for formulating more effective policies and investment decisions; research on the relationship between social mobility and disease transmission, exploring in-depth the impact of social mobility on disease transmission; research on the development of medical technology and treatment effects, evaluating the advantages and disadvantages of different treatment methods through clinical trials, community population trials, etc., and evaluating the effects of new drugs and vaccines; interdisciplinary cooperation and innovation, strengthening the intersection and integration of various disciplines such as medicine, sociology, economics, political science, and ethics, and using modern technologies such as computer technology and artificial intelligence to conduct more systematic, comprehensive, and in-depth research on the history of HIV/AIDS transmission and prevention; research on social psychology and prevention awareness, exploring the relationship between social psychology and prevention awareness to eliminate social bias and discrimination[9]. In short, future research on the history of HIV/AIDS transmission and prevention in China requires interdisciplinary cooperation, advanced technology and research methods, and in-depth exploration of issues from different perspectives to provide a scientific basis for formulating more effective prevention, treatment, and policy measures.

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