

Published in final edited form as:

Sex Transm Infect. 2012 March ; 88(2): 116–119. doi:10.1136/sextrans-2011-050135.

HIV testing and care systems focused on sexually transmitted HIV in China

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Abstract

Background—Over three-quarters of new HIV infections in China during 2009 were estimated to be from sexual transmission. Over half of those living with HIV do not know their serostatus and identifying and treating individuals with sexually transmitted HIV infection has been challenging.

Objective—This global assessment explores Chinese systems for detecting and treating those with HIV infection with a particular focus on groups at increased risk of sexually transmitted HIV.

Methods—Published literature, grey sources and non-governmental reports were reviewed to describe HIV testing and care systems in China.

Results—HIV testing and care in China involve several parallel health systems and have been largely successful in reaching large numbers of vulnerable individuals. Provider-initiated testing and counselling has been more effective than voluntary counselling and testing programmes for expanding HIV testing efforts in China. Individuals with sexually transmitted HIV infection are underrepresented in the antiretroviral care system compared with other high-risk groups.

Conclusions—Comprehensive HIV testing and care bring together a number of Chinese health systems, but there are still gaps and challenges. Research and programmes focused on HIV testing and care for those with increased sexual risk are needed.

Over the past few years sexual transmission has become the dominant mode of HIV transmission in China, accounting for an estimated 74.7% of all new HIV infections in 2009.¹ Several molecular epidemiology studies have confirmed the expansion of sexually transmitted HIV infection in China.^{2–4} While HIV prevalence among the general population in China remains low and a generalised HIV epidemic is unlikely,⁵ ulcerative sexually

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Competing interests None.

Contributors JDT, FYW and FJZ conceived of the idea, JDT drafted the manuscript, FYW, EJN and FJZ commented on the draft, and all authors were actively involved in the revising of the manuscript and approval of the final version.

Provenance and peer review Commissioned; externally peer reviewed.

transmitted infections (STI) are known to increase the likelihood of HIV acquisition and transmission.⁶⁷ In particular, the increase in primary and secondary syphilis cases observed in many regions of China⁸⁹ may portend the expansion of sexually transmitted HIV in the same regions.¹⁰

Responsive health systems are an essential part of HIV/STI control,¹¹ and China has leveraged considerable resources for HIV testing and care systems.⁵ HIV testing and treatment are key components of a comprehensive HIV response,¹² because these two components, respectively, identify infected individuals and initiate antiretroviral therapy (ART) that has substantial clinical and public health benefit.¹³ The establishment of appropriate HIV testing and care systems in the Chinese context has important implications both because it is home to one-fifth of the world's population and because models developed there may be applied in other low and middle-income nation settings. This article provides a descriptive overview of the HIV testing and care programmes in China, focusing on individuals at increased risk of sexually transmitted HIV infection. While HIV prevention is a critical component of successful control systems, there has been a recent review of HIV prevention among those at increased risk of sexually transmitted HIV,¹⁴ so this will not be included in this assessment.

METHODS

This global assessment focused on HIV testing and care systems that serve individuals at increased sexual risk. A combination of published research, grey literature, surveillance documents and official policies were examined. We searched PubMed, Medline, Ovid and Chinese National Knowledge Infrastructure (CNKI) databases using the keywords 'health systems', 'HIV', 'STI', 'infrastructure', 'sexual health' and 'China'. Relevant documents were organised into three main categories that provide the organisation for the subsequent assessment: (1) overview of the HIV/STI systems in China; (2) HIV testing systems; (3) HIV care systems.

HIV/STI systems in China

The China Centers for Disease Control and Prevention (CDC) orchestrates HIV testing, care and control strategies for the nation.¹⁵ This focal organisation has close horizontal connections to medical, academic, scientific and related structures in China as well as vertical connections to the Ministry of Health above and provincial and other local CDC below. Each province, special autonomous region and province-level city in China has a corresponding CDC that reports upwards to the national CDC while overseeing local CDC activities, notifiable disease reporting and related HIV activities.

While the CDC system has close connections to medical centres at all levels, the CDC system is primarily focused on public health. Medical settings primarily responsible for clinical patient care, including HIV clinics and STI clinics, represent analogous parallel systems in China. It is also important to note that while HIV and STI care have many common themes, the Chinese system has mostly (although not entirely) separate systems for delivering STI and HIV clinical services. At the same time, those with primary sexual health complaints in China often seek treatment at a range of local clinics, including public STI clinics, private STI clinics, gynaecological clinics and other clinics.¹⁶ Generally, the national HIV testing and care systems have focused on public clinics where there are typically better laboratories, more trained personnel and greater implementation capacity.¹⁶ Health systems research suggests that a substantial minority of individuals with sexual health problems initially seek care at private clinics in China.¹⁷⁻¹⁹

HIV/STI systems in China show a large degree of geographical heterogeneity. Some provinces in China have integrated STI control programmes at the local CDC, while other provinces have independent STI control centres that collaborate with local CDC. In addition, there is further heterogeneity in systems at the local and regional levels. Some local STI clinics have very strong collaborative relationships with local CDC while others are more independent.

HIV testing systems

Expanding HIV testing is a key priority in China because approximately 70% of those with HIV infection do not know their serostatus.²⁰ HIV testing systems have evolved over time in China, moving through several stages and incorporating elements of three distinct testing paradigms: voluntary counselling and testing (VCT); high-risk group testing and provider-initiated testing and counselling (PITC). While some individual research studies have tested general populations in China, routine HIV testing of all adults has not been a primary goal. Each of these three HIV testing schemes—VCT, high-risk group testing and PITC—has unique clinical and community sites, organising infrastructures, human personnel and theoretical underpinnings.

HIV VCT testing systems represented some of the first systematic efforts to promote HIV testing in China. Typically, VCT sites are stand-alone clinics or separate rooms within a CDC or public STI clinic, offering free HIV testing to anyone willing to complete a short form. Individuals are offered pre-test counselling from a trained counsellor, have blood drawn for an HIV enzyme-linked immunosorbent assay test, and then receive post-testing counselling in tandem with their test results.²¹ Individuals with a positive HIV enzyme-linked immunosorbent assay test are then referred to the nearby CDC for a confirmatory western blot test, but HIV VCT sites have been slow to recruit individuals^{22,23} and several studies of men who have sex with men (MSM),²⁴ female sex workers (FSW)^{25,27} and migrants^{28,29} have noted infrequent attendance and poor HIV test uptake at VCT sites.

Recognising the persistence of undiagnosed HIV-infected individuals following HIV VCT testing, the focus in China shifted to high-risk group testing in the early 2000s. The approach focuses on opt-out testing of individuals with greater HIV risk.³⁰ These include sex workers, intravenous drug users, MSM, and those detained for selling sex or using drugs.¹⁵ The largest campaigns of high-risk group HIV testing in China were undertaken in 2004 and 2005 as part of interdisciplinary efforts to expand HIV testing.³⁰ In contrast to VCT systems that required a high-risk individual to reach a VCT site and opt in for testing, high-risk group testing has largely been accomplished through opt-out testing in a number of settings, ranging from detention centres to STI clinics. In terms of optimising the capture of sexually transmitted HIV cases, several of the major HIV risk groups would still be difficult to reach using this type of system, namely MSM, FSW and clients. Subsequent research has confirmed that many MSM in China receive infrequent HIV testing.^{31,32}

PITC HIV testing has emerged as a new paradigm for expanding HIV testing in China. China issued draft PITC guidelines and launched several pilots focused on the integration of HIV testing with other routine medical care. Successful integration of HIV testing has occurred in various settings, including maternal and child health,³³ STI³⁴ and tuberculosis.³⁵ Operational research at public STI clinics in south China suggests that the laboratory capacity, human resources and related foundation for more widespread PITC testing are already largely in place.¹⁶ As PITC HIV testing relies more heavily on providers to offer testing and clinics to support the policy, more research about provider attitudes, behaviours and practices is essential for scaling up HIV testing in this fashion. From a systems perspective, PITC would appear the most decentralised, offering testing to a large swath of individuals within many clinical settings.

The PITC HIV testing approach combined with quantitative CDC targets³⁶ holds great promise for expanding HIV testing among those with increased sexually transmitted HIV risk in China. The next generation of CDC HIV testing targets prioritises not only testing individuals, but case detection of HIV-infected individuals.

HIV treatment systems

In addition to HIV testing systems, China has a comprehensive HIV treatment system. Free HIV care in China has been supported by the nationwide Four Frees and One Care policy since 2003.³⁷ Up to early 2011, a total of 106 613 adults received free ART through this programme. The programme includes free testing, ART and school fees for HIV-infected individuals' children to all those who cannot afford ART. Rural-to-urban migrants, foreigners and others who seek HIV care away from their official residence in China have greater challenges to accessing this system.

The CDC system has made great strides in expanding ART systems for those at risk in China.^{38,39} The integration of HIV care with rural township health systems in a number of provinces has expanded access to the Four Frees programme.³⁹ Yet while the HIV treatment system is nationwide in scope, an estimated 38.3% of those eligible for ART who acquired HIV from sexual transmission do not receive ART through the national programme.⁴⁰ This gap may be due to stigma associated with receiving HIV treatment,³⁷ high mobility and movement among HIV-infected individuals²⁰ and lack of trust among vulnerable groups. Like many other parts of the world, retaining HIV-infected individuals in care can be especially difficult among marginalised groups.³⁶

In order to increase retention in HIV care, the China CDC has been working in close collaboration with non-governmental organisations (NGO), especially groups advocating for MSM. NGO and related civil society organisations have played an essential role in organising HIV programmes in other parts of the world.^{41,42} While NGO in China are still evolving,⁴³ there has been a notable trend in the past few years towards greater functionality and responsibility for HIV support services.⁴⁴ Unregistered NGO and informal grassroots groups provide valuable counselling, support and related psychosocial services for HIV-infected individuals in China.⁴⁴ A growing global evidence base shows how NGO can play fundamental roles in enhancing sexual health services for high-risk individuals.⁴⁵⁻⁴⁷

STRENGTHENING HIV SYSTEMS

This review identified three mechanisms whereby HIV systems could be strengthened to expand HIV testing and care of individuals at increased sexual risk. First, further expanding programmes linking HIV and STI systems is essential. This includes the integration of HIV/STI programmes at several locations: at clinics focused on HIV testing/treatment and those focused on STI testing/treatment; at community-based sexual health outreach programmes; at NGO serving high-risk groups; at family planning, maternal health and other systems that intersect with sexual health provision. Integration of HIV/STI programmes may help to decrease the stigma associated with HIV testing and care,³⁴ and ensure the sustainability of these programmes over a longer period of time. Second, expanding NGO-based health programmes that have been implemented among MSM in China to FSW and clients are important priorities for responsive sexually transmitted HIV systems. Existing services (including improving linkage to care to conform to national guidelines), new social services (behavioural and preventive health), and new biomedical advances (rapid STI testing, pre-exposure prophylaxis) could be embedded at NGO and related sites in China. Third, designing effective HIV systems demands a broad concept of sexual health that reaches beyond individual diseases to the syndemics (syphilis, hepatitis viruses, etc.), which disproportionately affect those at higher sexual risk.

CONCLUSION

Health systems are a critical component of any comprehensive HIV control strategy, and China's nationwide systems for testing and treating those with HIV infection may be an instructive model for many low and middle-income states. As sexual transmission has become the dominant HIV transmission route over the past few years, HIV testing and treatment systems have evolved to address these new priorities. Designing high quality sexual health services for those at increased sexual risk (MSM, FSW, clients) are challenging but critically important health services issues. Further operational research and expansion of pilot programmes to larger scales are needed in order to confront sexually transmitted HIV infection in China. More specifically, comparative effectiveness research on the optimal integration of HIV testing and care with other health systems (STI clinical, maternal health, family planning, etc.) could help distinguish the most effective mechanisms for integration. Decision analysis and cost-effectiveness analysis have been widely used in other HIV systems contexts, and hold great promise for informing policy decisions about expanding HIV testing and care.⁴⁸⁻⁵² The existing platform of HIV services and strong commitment to high quality HIV care in China reveal momentum that can be used to improve HIV systems further.

Acknowledgments

Funding Financial support for this research came from an NIH Fogarty K01 award (US NIH 1K01TW008200-01A1), the UNC Fogarty AIDS International Research and Training Program (NIH FIC D43 TW01039), the UNC Social Science Research on HIV/AIDS in China (NIH NICHD R24 HD056670-01), the UNC Center for AIDS Research and the Emory Center for AIDS Research (P30 AI050409).

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Key messages

- ▶ Sexual transmission is the most common route of HIV transmission in China, increasing the importance of integrated health systems for HIV testing, linkage to care, treatment and retention.
- ▶ PITC provides a decentralised approach to HIV testing that has shown promise in expanding HIV testing systems.
- ▶ Enhanced systems integration between government and NGO may help to expand the breadth and depth of antiretroviral programmes in China.
- ▶ Further health systems research is instrumental for improving sexual health services among those with HIV infection in China.