

# Time to consider elimination of HIV in China

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In *The Lancet Regional Health - Western Pacific*, Jin and colleagues<sup>1</sup> present a mathematical model of the costs and benefits of expanding pre-exposure prophylaxis (PrEP) and antiretroviral therapy (ART) coverage while considering HIV drug-resistance among men who have sex with men (MSM) in Jiangsu Province, China. They concluded that expanding PrEP and ART is cost-effective among MSM even with drug-resistance, but expanded ART alone may be the most cost-effective policy. This study offers important new evidence about the benefits of PrEP as the next phase of China's HIV control policy. However, they may have underestimated the benefits of PrEP by modelling its expansion to all MSM, since empirical<sup>2</sup> and modelling studies<sup>3</sup> have shown that PrEP would be more cost-effective if offered to high-risk MSM only. In resource-constrained settings, more research is needed on the targeting and coverage required to derive the best value from PrEP, and in particular comparing targeted vs broad-based PrEP. Here Jin et al's modeling strategy, which includes drug resistance, provides an important additional dimension to consider when comparing implementation strategies. However, risk compensation should also be considered in future research, which may reduce the cost-effectiveness of the program as well as the likelihood of increasing drug resistance.

Given the evidence supporting PrEP and ART expansion, research is now needed to help the Chinese government develop a precise implementation strategy and guidelines to target high-risk populations before – or while – scaling up PrEP. Attention should also be paid to the

intention-behavior gap among MSM, who have high awareness of PrEP but low uptake,<sup>4</sup> giving low willingness to pay<sup>5</sup> and lack of official channels to access. PrEP motivational cascade and theory-based implementation studies must be clearly mapped, with coordination and consultation with all stakeholders, including community groups, health facilities, the National Health Commission, Chinese Center for Disease Control and Prevention, and non-government organizations, to identify and scale up effective and sustainable PrEP strategies in China while minimizing the risk of drug resistance. Official approval and national guidelines for PrEP are also needed to mitigate the health, drug resistance and ethical issues associated with informal PrEP use.

In many Asian countries including China, MSM face discrimination, self-stigma and social stigma related to same sex behaviors and HIV. Further efforts are needed at civil and political levels to remove these social-structural barriers to improve access to and the use of services throughout the HIV care continuum. More supportive environments and policies will encourage trust among sexual minorities and other hard-to-reach populations, and improve uptake of HIV prevention and treatment services. We recommend establishing an enhanced network of anonymous and LGBT-friendly sexual health clinics to improve prevention, testing and treatment services. We also suggest professional training for healthcare providers, peer educators, and public health specialists on confidentiality protection and communication skills related to sensitive topics. This will be particularly important as PrEP and ART are expanded, since such expansions are often associated with mainstreaming of routine HIV management services,<sup>6</sup> which is challenging while ignorance, stigma and discrimination remain prevalent.

Previous research has shown that HIV incidence among MSM in urban settings in China with well-run and well-accepted behavioral and testing programs is already declining.<sup>7</sup> Jin et al's study is not only the latest in a growing body of evidence that HIV can be controlled in China by expanding ART or implementing PrEP,<sup>8</sup> but also establishes a clear roadmap to the elimination of HIV in China. While scaling up ART or implementing PrEP is sufficient to prevent an increase in annual new infections, Jin et al found that a combination of ART expansion with modest PrEP coverage will lead to a sharp decline in annual

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incidence rates. With sufficient funding and coordination, China can move from discussing the cost-effectiveness of containment strategies to the broader elimination goal. Future mathematical modeling will need to adapt to different goals and take into account a combination of a full range of behavioral, biomedical and novel strategies.

The results of this study, and China's success in containing HIV since the mid-2000s, provide lessons for other low- and middle-income countries (LMICs) that are considering new strategies for HIV prevention in concentrated epidemics. In the future, the Chinese government and Chinese HIV/AIDS experts should participate more actively in global forums, and provide their expertise and experience to other LMICs considering expanding their HIV prevention goals. Early action on harm reduction policies, continued progress in the rights and status of sexual minorities, and advances in health financing and health systems strengthening have worked together to bring China closer to a new phase in the fight against the disease. Over the past decade, China has eliminated malaria and extreme poverty; let us achieve the goal of eliminating HIV within the next decade.

### Contributors

SG and JL conceived of the study. All authors contributed to writing the article. All authors provided critical and scientific discussion, edited the article, and approved the final draft.

### Declaration of interests

The authors have no conflicts of interest.

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