

Prevention of mother-to-child transmission (PMTCT) continues to play a vital role in the response to HIV/AIDS: Current status and future perspectives

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Summary

Prevention of mother-to-child transmission (PMTCT) program offer a range of services for women of reproductive age living with or at risk of contracting the human immunodeficiency virus (HIV) in order to maintain their health and to protect their infants from acquiring HIV. The program has made significant progress in eliminating HIV. Thanks to the provision of PMTCT services, around 1.4 million HIV infections among children were prevented between 2010 and 2018. PMTCT program in China has developed substantially over the past few years, highlighting the national response to HIV/AIDS. Although huge strides have been made in PMTCT, a number of important issues, such as prevention at each step, monitoring of PMTCT services, and early infant diagnosis, need to be addressed in the future.

Keywords: Mother-to-child transmission, pregnant women with HIV, HIV infections among children, HIV/AIDS response

In September 2015, the World Health Organization (WHO) released guidelines recommending that all pregnant women living with human immunodeficiency virus (HIV) be immediately provided with lifelong treatment, regardless of their CD4 count; this resulted in 91% of 1.1 million women starting lifelong antiretroviral therapy (ART) (1-2). A year later, the WHO released guidelines recommending a "treat all" approach that increased the number of women of reproductive age who are receiving ART, regardless of whether they are pregnant or not (3). Prevention of mother-to-child transmission (PMTCT) program offers a range of services for women of reproductive age living with or at risk of HIV in order to maintain their health and

protect their infants from acquiring HIV. The program has made significant in eliminating HIV.

1. Definition of PMTCT

HIV can be transmitted from an HIV-positive woman to her child during pregnancy, childbirth, or breastfeeding. MTCT, which is also known as "vertical transmission", accounts for the vast majority of infections in children (0-14 years of age). A pregnant woman with untreated HIV infection has a 15% to 45% chance of transmitting the virus to a newborn. However, ART in combination with other interventions can reduce this risk to less than 5% (4).

PMTCT program provides a range of services to both women and infants. These include preventing HIV infections among women of reproductive age (15-49 years), preventing unwanted pregnancies among women living with HIV, and providing women living with HIV with lifelong ART to maintain their health and prevent transmission during pregnancy, labor, or breastfeeding. In addition, PMTCT services should also include early infant diagnosis at 4 to 6 weeks after birth, testing at

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18 months and/or when breastfeeding ends, and ART initiation as soon as possible for HIV-exposed infants to prevent HIV acquisition.

2. Current status of PMTCT

The Joint United Nations Programme on HIV/AIDS (UNAIDS) launched Start Free Stay Free AIDS Free in 2017; this initiative is committed to the dual elimination of mother-to-child transmission of both HIV and congenital syphilis (5). Targets for 2020 include reducing the number of new HIV infections among children to fewer than 20,000, reducing the number of new HIV infections among adolescent girls and young women (aged 10-24) to fewer than 100,000 by 2020, as well as providing 1.4 million children and 1 million 15-19-year-old adolescents with ART (6). Although meeting these targets may be difficult, such initiatives have led to substantial progress in tackling the HIV epidemic.

2.1. Global PMTCT response

Around 1.4 million HIV infections among children were prevented between 2010 and 2018 thanks to the provision of PMTCT services (7).

In 2017, 80% of pregnant women living with HIV were receiving ART, indicating a significant increase from 51% in 2010 (7). However, just over half (52%) of the 1.8 million children living with HIV were receiving ART. Among those without access to effective treatment, 110,000 died due to AIDS-related illnesses (8). Moreover, 180,000 children were newly infected with HIV that year, half of whom were infected during breastfeeding (5).

2.2. PMTCT response in China and especially in East China

PMTCT program in China has substantially developed over the past few years, highlighting the national response to HIV/AIDS. This has resulted in a reduction in the rate of MTCT from 7.4% in 2001 to 6.1% in 2014 (9).

Extensive records have been kept in Shanghai, which is one of China's largest municipalities. The Shanghai Public Health Clinical Center (SPHCC) is the only designated hospital providing comprehensive care including PMTCT for people living with HIV/AIDS in Shanghai. HIV-seropositive women receive comprehensive services at the Center, and viral suppression is achieved with ART before, during, and after pregnancy. Pregnant women who are diagnosed with HIV at a hospital before giving birth are referred to the Center and start ART as soon as possible. Some of the HIV-infected pregnant woman with a relatively high viral load (> 1,000) are encouraged to undergo a

cesarean section, while others are given the opportunity of a vaginal delivery. In fact, most women ultimately undergo a caesarean section because they worry too much about the possibility of mother-to-child transmission. Children born to HIV-infected mothers are given standardized prophylaxis and artificial feeding. Since 2006, no case of HIV infection among children born to pregnant women with HIV registered in Shanghai have been reported (10).

3. Perspectives on PMTCT

Although great progress has been achieved in PMTCT, a number of important issues still need to be addressed.

Prevention at each step Over the past few years, half of HIV-infected infants were infected during breastfeeding (11). Breastfeeding should be avoided regardless of whether or not viral suppression has been achieved in the mother. However, in some areas where resources are extremely limited, artificial feeding presents specific difficulties. Inappropriate artificial feeding may cause many problems and even increase perinatal mortality. In the case of exclusive breastfeeding, the sustained suppression of the virus is crucial to avoid mother-to-child transmission of HIV. Of course, guidance on proper breastfeeding is also essential. Breastfed infants should be monitored during the entire course of exposure for potential acquisition of HIV.

Monitoring of PMTCT services Healthcare providers should pay attention to the importance of viral testing, and particularly early infant diagnosis. Mothers and their infants should be followed up in pairs rather than separately. Some mothers living with HIV are lost to follow-up when they change healthcare providers, so better data systems are needed to enable the provision of appropriate services after transfer (5).

Early infant diagnosis The rapid expansion of point-of-care early infant diagnosis should become a key focus of PMTCT (8). Intensified efforts to identify infants and children living with HIV by incorporating testing in other healthcare services, such as immunization and nutrition, are also needed (5).

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