

CONTRACEPTION COST-EFFECTIVE FOR PREVENTING MOTHER-TO-CHILD TRANSMISSION OF HIV

KEY POINTS

Contraception has an important role to play in HIV prevention.

Contraceptive use among sexually active women who wish to avoid pregnancy can prevent mother-to-child transmission of HIV by preventing unintended pregnancies.

For preventing HIV-positive births, increasing contraceptive use is at least as cost-effective as increasing access to traditional PMTCT services offered at prenatal clinics, including HIV counseling and testing and provision of nevirapine to HIV-infected mothers and their newborns.

Contraceptive services are as important as traditional PMTCT programs for preventing HIV and, therefore, deserve more support.

SUMMARY

Most efforts to reduce mother-to-child transmission of HIV focus on increasing HIV counseling and testing services and services that provide antiretroviral drugs, like nevirapine, to HIV-infected mothers and their newborns. But another strategy is to increase contraceptive use among sexually active women who wish to avoid pregnancy. Family Health International has developed a model to assess the cost-effectiveness of this strategy—preventing unintended pregnancies—as an HIV prevention approach. When the model was applied to a hypothetical population in sub-Saharan Africa, reducing unmet need for contraception was more cost-effective for preventing HIV-positive births than was the current programmatic emphasis on HIV counseling and testing coupled with nevirapine provision. These results emphasize the central role that contraception can and should play in HIV prevention.

OVERVIEW

As the HIV/AIDS epidemic persists throughout the world, prevention of mother-to-child transmission (PMTCT) programs are rapidly being implemented in many developing countries. The United Nations PMTCT strategy outlines four approaches necessary for reducing mother-to-child transmission: 1) preventing HIV infection among individuals planning to have children, 2) preventing unintended pregnancies among HIV-infected women, 3) providing HIV counseling and testing to expectant mothers and providing antiretroviral drugs like nevirapine to HIV-infected mothers and their newborns, and 4) supporting HIV-infected mothers and their families, in part by recognizing their continuing needs following HIV diagnosis and childbirth.¹

Most PMTCT efforts focus on the third approach: providing HIV counseling and testing coupled with antiretroviral prophylaxis. But, many pregnant women will never be tested for HIV or know their status at the time of their infants' births. And, even if they do, access to antiretroviral drugs can be limited. Nonetheless, this programmatic emphasis persists despite consensus that international development goals cannot be reached without stronger linkages between family planning and HIV prevention programs.²

The second approach—preventing unintended pregnancies among HIV-infected women—has great potential as a PMTCT strategy. Researchers from U.S.-based Johns Hopkins University and the World Health Organization have found that only moderate reductions (a mean of 16 percent among eight countries studied) in unintended pregnancy rates among HIV-infected women would reduce rates of HIV-positive births as much as would current PMTCT efforts.³

DEVELOPING A MODEL

Researchers from Family Health International have created a model that estimates how many HIV-positive births can be averted by increasing contraceptive use among women who may or may not know their HIV status but who wish to avoid pregnancy. The model also compares the cost-effectiveness of this strategy with that of traditional HIV counseling and testing coupled with antiretroviral prophylaxis, thereby providing at least one measure of how easy or difficult it may be for programs to implement these strategies.⁴

The model has been designed for use in sub-Saharan Africa but could easily be adjusted for other regions, as it is based primarily on local HIV prevalence, rates of contraceptive use, and rates of use of PMTCT services offered at prenatal clinics.

Three steps are used to build a framework for the model. Researchers first estimate the number of HIV-positive births expected in a hypothetical group of 100,000 sexually active women of reproductive age. Next, they estimate the number of HIV-positive births averted by the successful use of either prevention strategy. While they keep all other rates constant during calculations, the rate of contraceptive use among women who wish to avoid pregnancy and the rate of use of PMTCT services offered at prenatal clinics can vary. As these rates increase, so do numbers of HIV-positive births averted. The third and final step in the model is to approximate the costs of averting one HIV-positive birth using each of the strategies. This way, the cost-effectiveness of the two strategies can be easily compared.

RESULTS OF MODELING EXERCISE

When all variables for a hypothetical sub-Saharan African population were applied to the model, increasing contraceptive use among sexually active women who wish to avoid pregnancy was more cost-effective than was increasing access to PMTCT services, regardless of contraceptive prevalence. Considering operating costs both for HIV counseling and testing and for nevirapine services, the model predicted it would cost U.S. \$857 to avert one HIV-positive birth using the traditional PMTCT strategy. Including first-year costs of providing particular contraceptive methods, U.S. \$663 would be needed to avert one such birth using the contraceptive strategy.

Results also showed that for any given amount of money, increasing contraceptive use averted more HIV-positive births than did the traditional PMTCT strategy. If, for instance, U.S. \$20,000 were spent increasing access to PMTCT services, 23 HIV-positive births would be averted. If the same amount of money was spent increasing contraceptive use, 30 such births—22 percent more—would be averted (Figure 1). Although improving the effectiveness of nevirapine or increasing or decreasing the costs of crucial HIV counseling and testing, nevirapine, or contraceptive services could affect relative cost-effectiveness, contraceptive services are at

least as cost-effective as the traditional PMTCT strategy under reasonable assumptions.

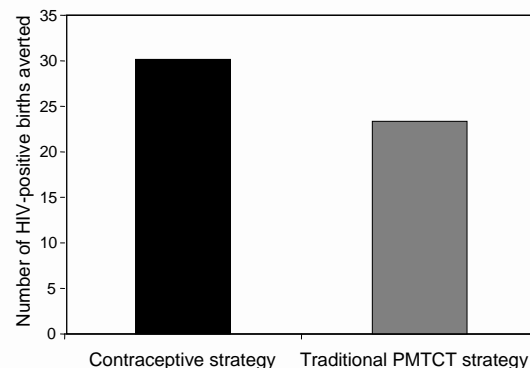


Figure 1. Number of HIV-positive births averted by each strategy, given U.S. \$20,000 in program costs.

IMPLICATIONS

Overall, results of this modeling exercise emphasize the importance of contraception in HIV prevention. Contraceptive services are as important as traditional PMTCT programs for preventing HIV and therefore deserve more support.

¹ World Health Organization (WHO). *Strategic Approaches to the Prevention of HIV Infection in Infants: Report of a WHO Meeting, Morges, Switzerland, 20-22 March 2002*. Geneva, Switzerland: WHO, 2003.

² United Nations Population Fund (UNFPA). *The Glion Call to Action on Family Planning and HIV/AIDS in Women and Children 3-5 May 2004*. New York, NY: UNFPA, 2004.

³ Sweat MD, O'Reilly KR, Schmid GP, et al. Cost-effectiveness of nevirapine to prevent mother-to-child HIV transmission in eight African countries. *AIDS* 2004;18(12):1661-71.

⁴ Reynolds H, Janowitz B, Homan R, et al. The value of contraception to prevent perinatal HIV transmission. *Sex Transm Dis* 2006;33(6):350-56.

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