HIV Transmission Through Breastfeeding
A Study in Malawi

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Context Understanding the risk of human immunodeficiency virus (HIV) transmission through breastfeeding is essential for advising HIV-infected mothers and formulating public health policy recommendations.

Objective To measure the frequency, timing, and risk factors of HIV transmission through breast milk.

Design Prospective cohort study conducted between 1994 and 1997, with follow-up of infants through 24 months of age.

Setting Postnatal clinic of tertiary care hospital, Blantyre, Malawi.

Participants A total of 672 infants (HIV-negative at birth) born to HIV-infected women who had not received antiretroviral drugs during or after pregnancy.

Main Outcome Measure Incidence of HIV in breastfed infants by age and maternal and infant risk factors for HIV transmission, using proportional hazard models to derive risk ratios (RRs) and 95% confidence intervals (CIs).

Results Forty-seven children became HIV-infected while breastfeeding but none after breastfeeding had stopped. The cumulative infection rate while breastfeeding, from month 1 to the end of months 5, 11, 17, and 23, was 3.5%, 7.0%, 8.9%, and 10.3%, respectively. Incidence per month was 0.7% during age 1 to 5 months, 0.6% during age 6 to 11 months, and 0.3% during age 12 to 17 months ($P = .01$ for trend). The only factors significantly associated with low risk of postnatal HIV transmission in a multivariate model were high maternal parity (RR, 0.23; 95% CI, 0.09-0.56) and older maternal age (RR, 0.44; 95% CI, 0.23-0.84).

Conclusions Our data suggest that the risk of HIV infection is highest in the early months of breastfeeding, which should be considered in formulating breastfeeding policy recommendations.

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MOTHER-TO-CHILD TRANSmission of human immunodeficiency virus (HIV) can occur in utero, intrapartum, and postnatally.[1,2] Postnatal HIV transmission through HIV-contaminated breast milk is of particular concern in many developing countries, where HIV infection in women is common and breastfeeding is almost universally practiced. Transmission of HIV through breast milk has been documented in many studies,[3-12] and HIV has been found in breast milk samples of HIV-infected women.[13-16]

Ascertaining the transmission risk of HIV at different times during the breastfeeding period has become particularly important, because it has recently been shown that in utero and intrapartum transmission can be decreased by approximately 50% when short-course, oral antiretroviral therapy is used during pregnancy through labor.[17] In breastfeeding populations, however, any decrease in in utero and intrapartum transmission of HIV achieved through such regimens or other methods of prevention will result in a larger number of infants, who, though uninfected at birth, become exposed to HIV through breast milk.

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In this study, we investigated the risk of HIV transmission through breastfeeding in an urban setting in Malawi, where HIV prevalence in nursing women is approximately 30%, and breastfeeding is the recommended method of infant feeding. A revised statement in 1998 by the Joint United Nations Programme on HIV/AIDS[18] recommended that women be offered HIV counseling and testing, that they be informed of risks and benefits of breastfeeding if the mother is HIV-infected, and that they make a decision that takes into account their individual and family situations. A better understanding of the level of risk and the timing of infant HIV infection throughout the breastfeeding period will help to inform women about transmission risks and to assess policy options about breastfeeding by HIV-infected women.

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