Survival and Health Benefits of Breastfeeding Versus Artificial Feeding in Infants of HIV-Infected Women: Developing Versus Developed World

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• Breastfeeding • HIV transmission • Artificial feeding
• Mother-to-child transmission

Artificial feeding has been recommended for HIV-infected women in the developed world since 1985 after an occurrence of HIV transmission through breastfeeding was first described.[1] When the World Health Organization (WHO) initially recommended that HIV-infected women in the developing world continue to breastfeed (1992),[2] the guidance was criticized by some as upholding a double standard. Twenty-five years later, with an HIV epidemic that has established itself with a vengeance in some of the poorest and most vulnerable communities of the developing world, the international community still grapples with this complex issue. There are now considerably more empirical data to inform this dilemma as well as the possibility of antiretroviral and behavioral interventions that change the terms of this debate. This

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review summarizes the data describing the survival and health benefits of breastfeeding versus artificial feeding for infants and young children born to HIV-infected women. The authors conclude that context matters. For most of the developing world, the health and survival benefits of breastfeeding exceed the risks of HIV transmission, especially when antiretroviral interventions are provided.

HIV TRANSMISSION THROUGH BREASTFEEDING

It is now well established that HIV is transmitted throughout the duration of breastfeeding.[3–5] Thus, the major health benefit of artificial feeding in both developed and developing countries is that postnatal HIV transmission is avoided. Pregnancy and delivery transmission cannot be so easily avoided and in the absence of antiretroviral drugs approximately 20% of HIV-infected women transmit the virus via these two routes.[6] Breastfeeding adds further infections with the cumulative rate of breastfeeding-associated infection determined by the nature of breastfeeding practices and the duration of all breast milk exposure. Unqualified statements that breastfeeding adds an additional transmission rate of 14%[3,7] neglect the variability of normative infant feeding practices across communities and across women within communities. It is logical that the postnatal transmission rate increases with breastfeeding duration because infections accumulate with each month of additional exposure.[8] It is more difficult, however, to quantify the instantaneous hazard or force of infection during early or later periods of breastfeeding. A combined analysis of selected studies concluded that hazards were constant over time.[8] But several cohort studies with tighter intervals for determining the timing of transmission have reported declining hazards as a child becomes older.[4,5,9] Estimates of whether or not most transmission occurs early or late depend on the instantaneous hazards and the duration of breastfeeding.

A further complexity in quantifying the magnitude of postnatal HIV transmission is that although breastfeeding is a biologic process, it is also a cultural practice.[10] What is healthiest and what is normative do not necessarily coincide. For example, colostrum is a fluid rich in immunologically active components capable of protecting newborns over the most vulnerable period immediately after delivery. Yet in some societies, colostrum is considered dirty and is discarded.[11] Cultural practices that displace breastfeeding are detrimental to mothers and infants. Non-nutritive herbal supplements deprive infants of essential nutrition as well as the immunologic protection afforded by milk. Inconsistent breastfeeding predisposes women to mastitis and hastens the return to menses, increasing the risk of postpartum anemia as well as pregnancy.[12–14] Yet in some societies, introduction of non-nutritive herbal supplements that displace breast milk is considered essential to infant health.[15]

Quantifying rates of postnatal transmission have to take these cultural variations into account. One parameter that has emerged as a strong influence on the extent of postnatal transmission during the first few months of life is the quality of breastfeeding ascertained by the extent of exclusive breastfeeding.[9,16–18] When breastfeeding occurs without the addition of formula, other nonhuman milks, non-nutritive liquids, and solids and semisolid foods, transmission is lower than when breastfeeding is inclusive of these unnecessary supplements.[9,16–18] Estimates of postnatal transmission gathered from settings where support of exclusive breastfeeding is lacking or in communities with poor uptake of recommendations to breastfeed exclusively are likely to differ from settings more favorable to exclusive breastfeeding. Almost all of these data carefully clarifying risks of transmission under these different circumstances come from studies conducted in developing countries.