

# Journal of Human Lactation

<http://jhl.sagepub.com>

---

## Is Pasteurized Mother's Own or Donor Milk an Answer to the HIV Crisis?

Mary Rose Tully

*J Hum Lact* 1999; 15; 345

DOI: 10.1177/089033449901500416

The online version of this article can be found at:

<http://jhl.sagepub.com>

---

Published by:

 SAGE Publications

<http://www.sagepublications.com>

On behalf of:



[International Lactation Consultant Association](#)

**Additional services and information for *Journal of Human Lactation* can be found at:**

**Email Alerts:** <http://jhl.sagepub.com/cgi/alerts>

**Subscriptions:** <http://jhl.sagepub.com/subscriptions>

**Reprints:** <http://www.sagepub.com/journalsReprints.nav>

**Permissions:** <http://www.sagepub.com/journalsPermissions.nav>

**Citations** (this article cites 7 articles hosted on the SAGE Journals Online and HighWire Press platforms):  
<http://jhl.sagepub.com/cgi/content/refs/15/4/345>

## Currents in Human Milk Banking

### Is Pasteurized Mother's Own or Donor Milk an Answer to the HIV Crisis?

Mary Rose Tully, MPH, IBCLC

There is both clinical and research evidence<sup>1-3</sup> to show that breastfeeding is a route of mother to child transmission of HIV. However, human milk is also optimal for infant nutrition and immunologic protection,<sup>4</sup> and this fact is giving rise to discussions among healthcare professionals and policy makers around the world who are looking for the best infant-feeding options when a mother is HIV-positive.<sup>5,6</sup>

Worldwide, more than 33 million people are HIV-infected, and 95% of them live in developing nations, primarily in sub-Saharan Africa and India where breastfeeding is critical to child survival. About 6 million people are infected with HIV each year (16,000 people each day), and half of them are between 15 and 24 years of age. Forty percent of these people are women of childbearing age, and 600,000 are newborns. Annually over a half million children die of AIDS, almost exclusively in developing nations. These overwhelming numbers have frightening implications for whole populations, especially in countries where 20% to 40% of the pregnant women are HIV-positive, poor, and living with few personal or family resources in cultures where failing to breastfeed is considered a public statement that one is HIV-positive. In these resource-poor countries formula is very expensive. For example, in India the extra food required for a breastfeeding mother to get an additional 500 calories per day for 5 days costs about 20 rupees, and a 5-day supply of formula is 6½ times that much, or about 170 rupees.<sup>6</sup> For infants, not breastfeeding adds to the already well-

established risks of diarrhea, respiratory infections, malnutrition, and death. In poverty-stricken populations, these risks and the additional costs of formula feeding, coupled with the social stigma of being HIV-positive are too much for most women to bear, even if they know that their HIV status is potentially exposing their children to HIV/AIDS. On a societal level, it is beyond the healthcare budgets of many seriously affected countries even to consider formula as an option.

Breastfeeding has so many health and economic benefits at both the individual and societal levels that researchers are studying ways of breastfeeding or using human milk safely in areas where HIV is common.<sup>7,8</sup> Because it is known that heat treatment does kill HIV in expressed milk, there has been discussion of providing either a mechanism for mothers to express and heat treat their own milk, or to receive pasteurized donor milk to counteract the risks of not using human milk.<sup>5,6</sup> The lack of refrigeration and affordable fuel for heat treatment of the milk in every home, or even in some communities, and the social stigma of not breastfeeding are important issues still to be addressed.

The generous response received by milk banks in developed countries to news stories and pleas for donations would still be a drop in an ocean of need when one thinks about the number of children born each day who would need donor milk for at least 6 months. The majority of mothers are still HIV free (although the ratio is dangerously close to half in some regions) and could possibly donate for the babies born to HIV-positive mothers. However, many of these mothers are marginally nourished and may not have the capacity to produce extra milk to donate. Furthermore, the resources demanded by a large-scale human milk banking system are considerable.

One donor milk bank in France does lyophilize (freeze-dry) milk,<sup>9</sup> which allows for storage and shipping without refrigeration while also significantly decreasing shipping weight. If the volume of donors were sufficient, this could allow for economical donation of pro-

---

**Mary Rose Tully** is coordinator of the Lactation Center and Mothers' Milk Bank at WakeMed, Raleigh, NC, USA, and an adjunct clinical instructor in the Department of Pediatrics, School of Medicine, University of North Carolina at Chapel Hill. She is also the current Chair of HMBANA and editor of *Guidelines for Establishment and Operation of a Donor Human Milk Bank*. Address correspondence to: MRT, Lactation Center and Mothers' Milk Bank, WakeMed, 3000 New Bern Ave., Raleigh, NC 27610 USA.

**J Hum Lact** 15(4), 1999

© Copyright 1999 by International Lactation Consultant Association. All rights reserved.

cessed human milk from developed nations, but the major drawbacks would be similar to that of distributing powdered formula. Although the donor milk would supply the superior nutrition and other important properties of human milk, there would still be the potential for contamination of water used to reconstitute the milk and the possibility of incorrect measurements for mixing.

Donor milk banking is quite labor-intensive and does require resources to do serum testing of donors, refrigerate or freeze the milk if sufficient quantities are available, and heat treat the milk before distribution. The equipment used in current milk banks is only slightly more sophisticated than a home canning process, but it does require electricity, time for the processing, and a way to store the milk frozen before and after processing (unless it is going to be used within 48 hours of pumping, in which case refrigeration would be adequate).

Providing HIV-positive mothers with effective breast pumps to express their milk over an extended period of time, and the facilities to heat treat their own milk before feeding their babies is another option. Again, the cost in equipment and fuel for the heat treatment and for refrigerated storage until the baby is fed would prove prohibitive in many countries.

Although there is most definitely a place for donor milk in the care of HIV-infected infants (some departments of social service in the US and Denmark are already ordering donor milk for these children), donor milk banking is more suited to short-term therapy in the majority of cases.

It is quite exciting to see that some researchers<sup>7,8</sup> are actively investigating the means to make breastfeeding less risky for babies of HIV-infected mothers. At the same time, the availability of donor human milk in most developed countries provides an ideal situation for exploring the possible therapeutic use of donor human milk

for infants who are HIV-infected or sick with AIDS. It is also appropriate to consider donor milk as the first alternative to breastfeeding for the baby whose mother is HIV-positive and who feels strongly about using human milk.

## References

1. Miotti P, Taha ET, Kumwenda N et al. Risk of HIV transmission from breastfeeding—A study in Malawi. *JAMA* 1999; 282:744–49.
2. Ruff A, Halsey NA, Coberly J et al. Breastfeeding and maternal-infant transmission of human immunodeficiency virus type 1. *J Pediatr* 1992; 121(24):325–29.
3. Tess BH, Rodriguez LC, Newell M-L et al. Infant feeding and risk of mother-to-child transmission of HIV-1 in Sao Paulo State, Brazil. Sao Paulo collaborative study for vertical transmission of HIV-1. *J Acquir Immune Defic Syndr Hum Retrovirol* 1998; 19:189–92.
4. American Academy Pediatrics Work Group on Breastfeeding. Breastfeeding and the use of human milk. *Pediatr* 1997; 100:1035–39.
5. Gilada IS. Community's response in the successful implementation of an intervention strategy to prevent perinatal transmission. In: First Round Table Conference on Prevention of IHIV Transmission from Mothers to Infants—Strategies for India. 1998. Chennai (Madras) India: Dept. of Experimental Medicine and AIDS Resource Centre at Tamil Nadu. Dr. MGR Medical University.
6. Holmes W. Breast-feeding promotion in India in the context of the HIV epidemic. In: First Round Table Conference in Prevention of HIV Transmission from Mothers to Infants—Strategies for India. 1998. Chennai (Madras) India: Dept. of Experimental Medicine and AIDS Resource Centre, Tamil Nadu. Dr. MGR Medical University.
7. Coutsoydis A, Pillay K, Spooner E et al. Influence of infant feeding patterns on early mother-to-child transmission of HIV-1 in Durban, South Africa: A prospective cohort study. *Lancet* 1999; 354:471–76.
8. Semba RD, Kumwenda N, Hoover DR et al. Human immunodeficiency virus load in breast milk, mastitis, and mother-to-child transmission of human immunodeficiency virus type-1. *J Infect Dis* 1999; 180:93–98.
9. Arnold LDW. The lactariums of France: Part 1, The Lactarium Docteur Raymond Fourcade in Marmande. *J Hum Lact* 1994; 10:125–26.