

# AnotherLook *at breastfeeding and HIV/AIDS*

## **Breastfeeding 'Style' and HIV**

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### **Breastfeeding definitions**

In the last twenty years the breastfeeding community has re-examined the general biomedical research on breastfeeding. In studies that contrast the health of breast and bottle fed babies, researchers have not been clear or consistent in defining breastfeeding. Some studies compared babies who mostly bottle-fed with babies who mostly breastfed, or babies who had never breastfed with all babies who had had some breastfeeding – from one day to one year. In a 'breastfed' group there might be babies who had one breastfeed a day and babies who had nothing but breastmilk. Clearly this means that comparative health outcomes within these studies and between these studies are difficult to analyse.

A decade ago some clear cut definitions for different styles of breastfeeding were adopted by the World Health Organisation. 'Exclusive' breastfeeding means that the baby has received – from birth – nothing but breastmilk. No commercial or home-prepared milks, no solid food, no juice, no teas, no water. (Medicines and vitamin drops are allowed). Babies who receive a little of any of these things are 'predominantly breastfed', babies who receive some breast milk and some other things regularly are 'mixed fed', and babies who never breastfed or received human milk are 'exclusively replacement fed'.

### **Studies of HIV transmission via breastmilk**

Many research studies on breastfeeding transmission of HIV looked at entire cohorts of HIV+ women whose babies were mainly mixed fed (breast and other fluids or foods). In most of these studies, what the babies were offered, how often and from what age, is not recorded. HIV transmission which was not calculated to have happened during pregnancy or at birth was defined as due to breastfeeding.

The Dunn, et al meta-analysis (Dunn 1992), is most often cited when the recommendation not to breastfeed in a western population is given. This paper combined data from a number of studies (some unpublished), including women in Europe who breastfed for 4 – 6 weeks. They gave birth when western hospitals often gave routine first feeds of glucose water and early supplements. It is unlikely that many of these women exclusively breastfed even for a few weeks. The weighting method used by these authors to calculate a rate of HIV transmission of 14% in (mixed) breastfeeding populations is not given. This is the figure commonly quoted for transmission of HIV through breastfeeding.

Coutsoudis et al (Coutsoudis 1999 and Coutoudis 2001) looked at virus transmission rates in three groups of South African babies: those exclusively replacement fed, those exclusively breastfed and those mixed-fed. The mixed-fed group had the highest rates of transmission at three months of age. Never-breastfed babies had a lower chance of testing HIV+ as did the exclusively breastfed babies. These two groups had similar transmission rates at three months.

At 15 months the rates of HIV+ diagnosis were highest in the mixed fed group, and lowest in the exclusively replacement fed group. For babies exclusively breastfed until at least 3 months, the rate of HIV+ diagnosis remained lower than the replacement fed babies until 6 months. It is not known what effect exclusive breastfeeding until 6 months, as now recommended by the WHO, would have on future HIV transmission rates. Could a longer period of exclusive breastfeeding result in a lowered rate of virus transmission?

In Nairobi, Ndaui et al (Nduati 2000) randomised HIV+ women to either exclusive replacement feeding or breastfeeding. Women in Kenya do not traditionally breastfeed exclusively and this study did not change usual breastfeeding practice. 30% of those allocated to the formula only group in this study also breastfed. This research therefore compares two cohorts which each have a substantial number of mixed-fed babies.

### **What affects HIV transmission when women are breastfeeding?**

There are many unanswered questions about HIV transmission through breastfeeding. For example, even when women mix breast and other feeds, not all babies born to HIV+ mothers become HIV+. Factors which are

thought to increase transmission rates in mixed-fed groups are: nipple lesions, mastitis, low maternal CD4 count, maternal sero-conversion during breastfeeding, and infant oral thrush before 6 months of age (Embree, 2000).

### **How could exclusive breastfeeding make such a difference?**

The mucosal surfaces of the mouth and entire gut are a baby's 'first line defence'. They are moistened with amniotic fluid while the baby is in utero. Once born, receiving breast milk and nothing else ensures normal maturation of the gut and the immune system. Intake of anything else challenges the mucosal surfaces, perhaps causing small fissures. If there is HIV in the milk, this would allow it to penetrate the baby's defenses. Breastmilk also encourages the establishment of beneficial intestinal microflora.

Giving other substances may also interfere with the natural protection of breastfeeding against viral transmission by spacing out feeds. Having longer inter-feed intervals affects:

- The composition of the milk – so that the baby gets less of certain components, such as lactoferrin and other immunoglobulins, which are important in immune protection.
- The mother's body – and could trigger the beginning of 'sub-clinical mastitis'. Several studies have shown a higher rate of HIV transmission to a baby whose mother has mastitis. Mastitis develops when a woman's breasts are not well drained of milk. It can happen because the baby is not feeding well and not getting the milk very efficiently. It can happen because the baby is offered supplements of water, tea, juice, formula, etc and does not take the milk her mother's body is making for her. When a mother's breasts are over-full, the cell junctions lining the milk ducts become 'leaky' and allow other substances through into the milk from the blood. It is theorised that high concentrations of HIV are found in mastitic milk.
- The general 'style' of feeding. The longer the time between feeds, the more likely a woman will experience milk stasis and trigger 'sub-clinical mastitis' changes in the composition of the milk. In many traditional cultures babies are with their mothers all day and night. They have free access to the breast and may latch on for little feeding episodes several times an hour. The human body is flexible within limits about providing milk for babies, but spacing feeds to 3 – 4 hours (and longer at night) as soon as possible, probably represents one end of what is biologically possible for breastfeeding. This style is often desired in the west, and complementary or supplementary fluids are given to achieve longer inter-feed intervals, triggering sub-clinical mastitis changes.

Exclusive breastfeeding means both mother and baby are in physiologically different states than if they are mixed feeding. In our current state of limited understanding of the possible mechanisms of HIV transmission through breastfeeding, exclusive breastfeeding provides an option which offers lower transmission rates than mixed feeding and which does not invite the many health risks for mother and baby associated with replacement feeding. These risks are higher in resource-poor settings, but still real in every part of the world

The possibility of HIV transmission through breastfeeding has had effects on policy and shaped research, but many studies have not paid close attention to breastfeeding style. In future studies, it should no longer be considered ethical to report on HIV transmission through breastfeeding without specifying whether breastfeeding was exclusive or mixed, and without follow-up to determine the health status of both mothers and babies. Babies of HIV+ women who breastfeed exclusively may be at no higher risk of HIV transmission than if they were never breastfed. Exclusive breastfeeding can be promoted and supported for all women, whatever their HIV status, and where HIV status is not known.

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