

INFANT BREASTFEEDING AND HIV: A REVIEW ARTICLE

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ABSTRACT:

Human Immunodeficiency Virus (HIV) and infant feeding is a complex issue, and there are still significant knowledge gaps, including whether antiretroviral prophylaxis for an infant during breastfeeding, or antiretroviral treatment for breastfeeding mother, are safe and effective in reducing HIV transmission. Breastfeeding is the best way to feed an infant. A woman infected with HIV, however, can transmit the virus to her child during pregnancy, labour, delivery or through breast feeding. Children those born to HIV positive women carry high risk of HIV infection. The HIV and Infant Feeding Framework for Priority Action was developed and endorsed by nine UN agencies. The purpose is to recommend governments key priority actions, related to infant and young child feeding, that cover the special circumstances, appropriate feeding practices for all infants, while scaling up interventions to reduce HIV transmission. This review highlights the recent guidelines used in managing infants with HIV.

KEYWORDS: HIV, infant breastfeeding, antiretroviral therapy

INTRODUCTION

There are increasing numbers of children infected with HIV, especially in countries most affected by the epidemic. The overwhelming source of HIV infection in young children is mother to child transmission. Breastfeeding by HIV positive women is major means of HIV transmission. Breastfeeding is vital to the health of children, reducing the impact of many infectious diseases, and preventing some chronic diseases. In the face of this dilemma, the objective of health services should be to protect, promote and support breastfeeding as the best infant feeding choice for all women in general, while giving special advice and support to HIV positive women and their families, so that they can make decisions about how best to feed infants in relation to HIV.

Prevalence of HIV infection in infants and children

By far the principal source of HIV infection in young children is mother to child transmission. The virus may be transmitted during pregnancy, labour or delivery or through breastfeeding. Rates of mother to child transmission range from 14-25% in developed countries¹.

Estimated risk and timing of mother to child transmission of HIV in the absence of interventions²

Timing	Transmission rate
During pregnancy	5-10%
During labour and delivery	10-15%
During breastfeeding	5-20%
Overall without breastfeeding	15-25%
Overall with breastfeeding to 6 months	20-35%
Overall with breastfeeding to 18-24 months	30-45%

HIV transmission may continue as long as a child is breastfed. Among women recently infected with HIV, the risk of transmission through breastfeeding is nearly twice as high as for women infected before or during pregnancy, because of high viral load shortly after initial infection³.

Evidence of HIV transmission through breast milk^{3,4,5,6}:

- The virus has been found in breast milk and women with detectable virus are more likely to transmit infection compared to women who do not have detectable virus.
- HIV infection has occurred in breastfed infants of mothers who were not infected with HIV during pregnancy or at delivery but who became infected while breastfeeding, from

either an infected blood transfusion or through sexual transmission.

- Infants born to HIV uninfected mothers have been infected by breast milk from HIV infected wet nurses or by breast milk from unscreened donors.
- Infants born without infection to HIV infected women and who were diagnosed as HIV uninfected at six months of age, have been found to be infected after this age, with breastfeeding as the only concurrent risk factor.

Risk factors for HIV transmission through breastfeeding^{7,8,9,10,11}

A number of factors increase the risk of HIV transmission through breastfeeding:

- Recent infection with HIV: a woman who has been infected with HIV during delivery or while breastfeeding is more likely to transmit the virus to her infant.
- HIV disease progression: as measured by low CD+4 count or high RNA viral load in plasma, with or without severe clinical symptoms.
- Breast conditions: sub clinical or clinical mastitis, cracked or bleeding nipples, or breast abscess.
- Oral thrush in the infant.
- Longer duration of breastfeeding: infants continue to be at risk of infection as long as they are exposed to HIV contaminated milk.
- Micronutrient deficiencies in the mother: although evidence on this point is weak.

HIV testing

Early in the epidemic, antibody tests to determine the HIV status of infants, such as the enzyme linked immunosorbent assay (EIA or ELISA) with confirmation by Western Blot technique, were inconclusive in infants less than 12 to 15 months of age because of the tests inability to differentiate between maternal and infant antibodies.

The introduction of polymerase chain reaction (PCR), viral culture, and p24 antigen tests has largely overcome this problem because these tests are able to detect the virus itself rather than simply antibodies to the virus. A meta analysis of existing studies that examine the sensitivity and specificity of PCR confirms that it is less accurate for neonates

(under 30 days of age) than for older infants, children and adults^{12,13,14}.

Table I¹⁵

WHO's Current recommendations for infant feeding

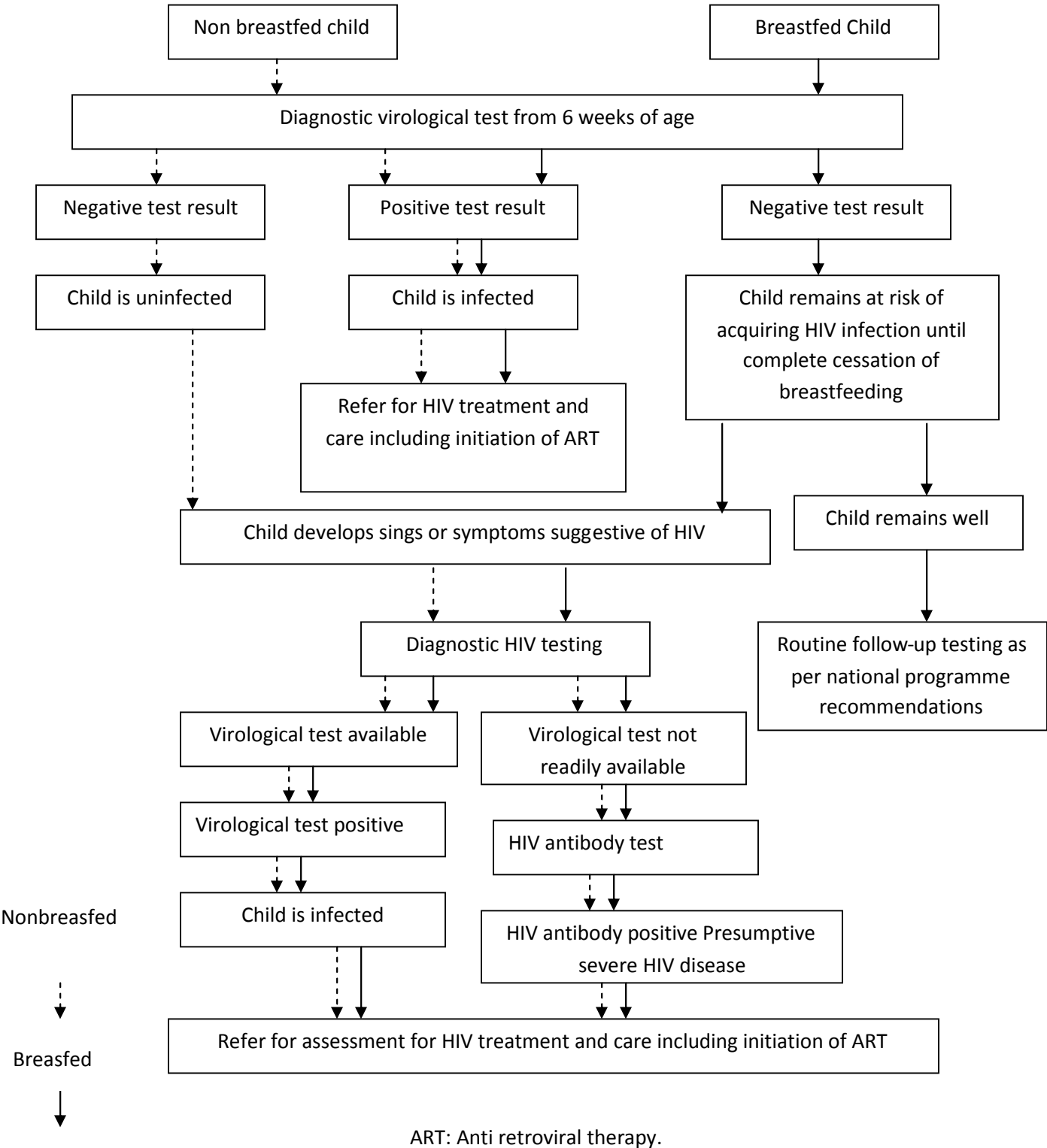
The guidelines state that "when replacement feeding is acceptable, feasible, affordable, sustainable and safe, avoidance of all breastfeeding by HIV infected mothers is recommended. Otherwise, exclusive breastfeeding is recommended during the first months of life" and should then be discontinued as soon as it is feasible¹⁶.

Issues related to infant feeding options¹⁷

The following are the main issues that need to be considered about infant feeding options for HIV positive mothers:

- Nutritional requirements: breast milk has all the nutritional requirements of a child for the first six months of life. Replacement feeding must provide the infant's nutritional requirements as completely as possible.
- Bacterial infection: breast milk substitutes lack the breast milk properties that protect against infections and reduce their severity. During preparation, bacteria may contaminate breast milk substitutes and heat treated expressed breast milk.
- Cost implications: much of family income go on buying enough of breast milk substitutes.
- Family planning or child spacing: exclusive breastfeeding delays the return of fertility, thus having a contraceptive effect. Women who do not breastfeed lose this contraceptive effect.
- Psychological stimulation: not breastfeeding can have a harmful effect on mother-infant bonding, resulting in lack of, or reduced, care and stimulation for the infant.
- Social and cultural factors: women who choose to either exclusively replacement feed or exclusively breastfeed may be stigmatized if these practices are not common locally.

Table I: HIV Infection Testing methods for breastfeeding infants



Source: www.int/hiv/pub/guidelines/WHOPaediatic.pdf.^{14,15}

WHO guidance on HIV and breastfeeding**1. Mothers whose HIV status is negative or unknown**

For women with unknown status, WHO's recommendation is to encourage exclusive breastfeeding and to offer the same counseling as for HIV negative women, including the benefits of breastfeeding and how to do it effectively, feeding on demand, correct positioning, and avoiding all artificial feeding, bottles, and pacifiers. Exclusive breastfeeding, as opposed to mixed feeding, supplements, including formula, juices, water, tea, cereals, and other foods, that might contaminate and injure the immature gastrointestinal tract, making transmission of HIV more likely.

2. Choices for mothers who are HIV positive
Infant feeding options for HIV positive mothers^{13,17}

- Commercial infant formula: formulated powdered milk made specifically for infants.
- Home modified animal milk: can be made from fresh animal milks (cow, goat, camel, sheep and buffalo), dried milk powder, or evaporated milk. All of these lack different micronutrients that are important to infant development, especially the long-chain fatty acids. The animal milks should be diluted with water and sugar added. Cow, goat and camel milks are very similar: per 100 ml milk add 50 ml boiled water and 10 gm (2 tea spoon) sugar. Sheep and buffalo milks have more fat, energy and protein (50 ml each, milk and water, plus 5gm sugar).
- Exclusive breastfeeding followed by early cessation by 6 months reduces exposure and hence the risk of transmission through breastmilk, while not eliminating the risk entirely. WHO recommends this strategy because the risk of infection and protective effects of breastfeeding, are highest in the early months.
- Wet nursing: having another HIV negative tested woman breastfeed the baby.
- Expressing and heat treating breast milk: removing the milk from the breasts manually or with a pump, then appropriately heating it to kill the HIV. There is some mention of scalding breastmilk, but the Holder pasteurization method of heating the

milk to 62.5C for 30 minutes and cooling is a viable method of killing the virus. Cup feeding is strongly recommended over bottles and nipples.

- Breast milk banks: places where donor milk is screened for HIV, pasteurized and made available for infants.

Health risks for non breastfed infants

- Malnutrition
- Life threatening infections
- Lack of immunity
- Insufficient feed
- Stunted growth

Counseling HIV positive women on infant feeding

Health systems must develop programs to help HIV positive women feed their babies in the safest possible way and find the money and the will to do this effectively. Counseling guidelines for health workers and policy makers are needed to help women with HIV in decision making about infant feeding choices. Investing in preventing transmission to babies (providing testing, infant feeding counseling and education, replacement infant food formula, fuel, heat source, breast pumps, health services, etc.) will avoid the enormous costs of caring for sick babies later, as well as preventing the loss of human lives¹⁸.

Conclusion

Promoting improved infant and young child feeding practices among all women, irrespective of HIV status, brings substantial benefits to individuals, families and societies. Implementing the priority guidelines will contribute to achieving the declared governmental goals of reducing child mortality and HIV transmission, while enhancing support for breastfeeding among the general population and promoting the attainment of other child health related goals.

Although future research will provide more detailed information on relative risks and ways to further reduce HIV transmission through breastfeeding, immediate action is required. There is adequate knowledge of general risks and appropriate programme responses to support HIV positive mothers and their children in relation to infant feeding.

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