BREASTFEEDING AND HIV-1 INFECTION
A review of current literature

Ruth Nduati
Department of Paediatrics, University of Nairobi, P.O. Box 19676, Nairobi, Kenya

1. PREVALENCE OF HIV-1 AMONG PREGNANT WOMEN IN SUB SAHARA AFRICA

HIV-1 infection is possibly the most common serious health problem facing pregnant women in Africa. The prevalence of HIV-1 among pregnant women ranges from 5-10% in West Africa, 10-30% in East and Central Africa and > 20% in Southern Africa. The prevalence of HIV is 4% in the Indian sub-continent and less than 2% elsewhere in the world (UNAIDS, 1998). Because there is mother-to-child transmission of HIV, the epidemic of HIV-1 among women of childbearing years is associated with a parallel epidemic in children. With the development of effective technologies to prevent MTCT, replacement feeding and anti-retroviral therapy, new paediatric infections are almost exclusively a problem of the developing world where there is limited capacity to rapidly adopt new strategies for prevention. It was estimated that in 1997 alone, ~ 600,000 children were infected with HIV-1 of whom 90% were in sub-Saharan Africa (UNAIDS, 1998).

Babies are at risk of HIV-1 infection while in utero, during delivery and postnatally through breastfeeding. In non-breastfed infants, most MTCT of HIV takes place during the intrapartum period. In breastfeeding populations, 30-50% of the overall transmission is attributable to breastfeeding (Van de...
This paper reviews what is currently known about breastmilk transmission of HIV.

2. BREASTMILK TRANSMISSION OF HIV-1 AMONG WOMEN WITH NEW HIV INFECTIONS IN THE POSTNATAL PERIOD

A variety of studies utilizing different study designs have yielded evidence of breastmilk transmission of HIV-1. The initial evidence for breastmilk transmission was from case reports and case series of women who sero-converted in the postnatal period following transfusion with HIV-1 contaminated blood (Ziegler et al. 1985, Colebunders et al. 1988, Stiehm and Vink 1991, Palassanthiran et al. 1993). These were followed by cohort studies of HIV-1 uninfected women, where some sero-converted following heterosexual exposure to HIV while they were lactating (Hira et al. 1990, Van de Perre 1991b). Most of these studies had small sample sizes and marked variation in the estimate of risk. In order to provide a more accurate estimate of the risk of HIV-1 transmission a meta-analysis was carried out. The risk of breastmilk transmission of HIV-1 to infants of women who sero-convert in the postnatal period was estimated to be 29% (95% CI 16-42%) (Dunn et al. 1992).

3. BREASTMILK TRANSMISSION OF HIV-1 AMONG WOMEN WITH ESTABLISHED INFECTION

Most babies who are exposed to HIV-1 are infants of women with established HIV-1 infection. Evidence for breastmilk transmission has been from birth cohort studies of infants of HIV-1 infected women. Within these cohorts, HIV infection rates have been higher in infants exposed to breastmilk compared to those who were formula fed (Ryder et al. 1991, European collaborative study 1992, Gabiano et al. 1992, Mayaux et al. 1995,).

Several problems have been experienced in determining the magnitude of breastmilk transmission of HIV. Following infection with HIV, there is a window period in which infection is undetectable using the currently available technology. Therefore it is technically impossible to isolate closely related exposure points, including very early breastfeeding, exposure from intra-partum and late pregnancy transmission of HIV. Published studies of MTCT of HIV-1 also have some fundamental differences. These include