PMTCT Intelligence Report
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* by alphabetical order:

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Subject Headings/Subheadings

- Conference summary
- Contraception
- Gynaecology
- Infant feeding/Breastfeeding
- MTCT (Mother-to-Child Transmission)
- Obstetrics
- PMTCT/ARV (Prevention of Mother-to-Child Transmission/AntiRetroVirals)
- Primary prevention of sexual transmission/VCT (Voluntary Counselling and Testing)
- Termination of pregnancy/Abortion

Citation format (by alphabetical order of the authors)

Author(s). Title. Source.
Notes (prepared by the Bordeaux Working Group)
Author address, if available (for reprints)
URL, if available (link to author abstract/full text/journal TOC)
Subject Headings

**Notes:** Chloroquine has anti-HIV activity. The aim of this study was to examine to what extent chloroquine accumulates in breast milk cells where it may become available for inhibiting HIV replication. Boelaert et al studied in vitro chloroquine accumulation in macrophage and mammary epithelial cells. To confirm their results, twenty Burkinabé mothers of unknown HIV status taking chloroquine (300 mg/week) were studied during pregnancy. They modified voluntarily their chloroquine scheme to 100 mg/day during the last 10 days of pregnancy and first 10 days postpartum. One milk sample was separated into three fractions by centrifugation: full milk, cell rich and cell-poor. The chloroquine median concentration was similar in cell-poor milk fraction (1.10 µM) and blood (1.04 µM) but the cell-rich milk fraction contained higher concentration (2.33 µM). Colostrums cells from Burkinabe mothers taking chloroquine 100 mg a day accumulated chloroquine 243-fold compared with blood. The authors conclude that chloroquine accumulates greatly in milk cells in vitro and in vivo and could decrease milk viral load, and therefore lower the risk of breastfeeding-related transmission.

**Address:** Boelaert JR, Algemeen Ziekenhuis St Jan, Dept Infect Dis, Brugge, BELGIUM

**URL:** NA

**Infant feeding/Breastfeeding, MTCT**


**Notes:** This case report describes the vertical transmission of drug-resistant variants from two mothers to their infants. HIV genotyping system using plasma viral RNA was used to obtain reverse transcriptase gene sequences from mothers and infants. First infant had similar mutations than her untreated mother (T 215Y- M184V- L63P). The infant of the second women (who had T215Y and K219Q mutations and with known lack of adherence to treatment) had the primary mutation T215Y exclusively. For the authors, vertical transmission of M184V had not been previously reported. This study confirms that the protease polymorphism L63P can be vertically transmitted.

**Address:** Programa Nacional de Salud, Madrid, Spain.

**URL:** http://archinte.ama-assn.org/issues/v161n22/ffull/ibr1201-1.html

**PMTCT/ARV**


**Notes:** This survey, conducted in a district of Abidjan from April to June 1999, aims at evaluating the microbiologic quality of water available to prepare infant formula as well as the knowledge, attitudes and practices regarding water consumption and infant feeding. By means of household questionnaires and laboratory analyses, the authors show that, in Koumassi district, 90% of the study infants are given drinking water by one month of age and 90% of those are given stored drinking water. Coliform bacteria is detected in 74% of stored water samples and in 2% of local source water. Contaminated water used to prepare infant formula is likely to contribute to an increased risk for diarrhoeal diseases. The authors thus recommend that maternal health programs in developing countries, especially those implementing formula-feeding for PMTCT, should evaluate the water used to guarantee proper infant formula and to make provisions of safe water, notably by improving chlorine levels. They further highlight the need to monitor infant mortality in the settings using formula-feeding, both of breast-fed and formula-fed infants, so that the impact of the use of formula in settings where water quality is a concern can be assessed.

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**Infant feeding**


**Notes:** The authors report on a tool developed by WHO to collect minimal standardized information on infant feeding and MTCT of HIV. After a brief overview of the role of breastfeeding in MTCT of HIV, its advantages and disadvantages in developing countries, the report highlights the limitations for the formulation of policies on this issue: scarce data on HIV transmission according to different patterns of breastfeeding, use of different definitions of breastfeeding patterns which limits comparison of studies and the need to consider various risk factors associated
with MTCT through breast milk. The instrument developed by WHO is organized in six modules: baseline, feeding practices (current status and detailed feeding history), maternal health, breast health, infant health and cessation of breastfeeding. This is complemented by qualitative data so as to help clarify the type and extent of deviation from exclusive breast-feeding which may increase transmission risk of HIV. Special attention has been given to the feeding patterns of the first week of life, the proportion of the infant’s nutrition coming from breast milk and how the pattern of infant feeding changes over time. Guidance on how to analyse and present data on this topic is also included. Limitations of the tool are discussed. This instrument will ultimately provide scientific basis for understanding the mechanisms through which HIV transmission through breastfeeding occurs and ways to reduce breastfeeding related transmission and will be used to update guidelines and policies on infant feeding by HIV-infected mothers.

**Address:** Gaillard P, World Health Organization, Department of HIV/AIDS (Prevention), Geneva, Switzerland.


**Infant feeding/Breastfeeding, MTCT**


**Notes:** This paper proposes a standardised methodology to assess short-term and long-term effect of interventions aimed to prevent mother-to-child transmission of HIV taking into account postnatal transmission of HIV through breast milk in African clinical trials and programmatic situations. This work simulating different situations (short or long-term assessment, single or repeated testing, age of cessation of breastfeeding known or not) should facilitate direct comparison between trials and is being validated on the data of four African clinical trials.

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**Infant feeding/Breastfeeding, PMTCT**


**Notes:** This is the final report of a randomised community-based placebo-controlled trial of presumptive treatment of STDs among pregnant women, conducted within the Rakai Project in Uganda. Multiple antibiotic treatment (azithromycin, cefixime, metronidazole, and penicillin G benzathine if positive syphilis serology) or placebo was administrated under direct observation at various stages of pregnancy to 2070 and 1963 women, respectively. In an intent-to-treat analysis, STDs were reduced in the treatment arm: rate ratios (RR) of 0.28 for Trichomonas Vaginalis, 0.78 for bacterial vaginosis, 0.43 for Neisserra Gonorrhoeae and Chlamydia Trachomatis, and 0.37 for infant ophtalmia. The risk of neonatal death was also reduced (RR=0.83) as well as the frequency of low birthweight (RR=0.68). The reduction of the risk of preterm delivery was of borderline significance and there was no difference in rate of maternal acquisition of HIV infection and mother-to-child transmission of HIV. The respective effect of the individual drugs is unknown. The authors conclude that the limited but measurable effect of the intervention on pregnancy outcomes and the lack of effect on HIV acquisition are consistent with the maturity of the HIV epidemic in this population and the uneven distribution of the timing of treatment.

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**Primary prevention of sexual transmission, PMTCT**


**Notes:** This paper is an editorial accompanying Mbori Nagacha's report reminding us that the Nairobi trial was conducted in a highly selected population, with appropriate education and access to clean water. Therefore, findings about the safety of formula feeding are not generalizable directly to the overall population of HIV-infected women in Africa.

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**URL:** NA. Infant feeding, MTCT

**Notes:** The aim of this study was to evaluate the risk of congenital abnormalities associated with antiretrovirals (ARVs) during the first trimester of pregnancy in infants of HIV-infected mothers. This study conducted in six London hospitals between May 1994 and June 1999 included 195 mothers-infants pairs. Prescription of ARVs during any stage of pregnancy increased from 33% in 1994 to 93% in 1999. First trimester exposure to ARVs increased from 0% in 1994 to 28% in 1999. Congenital malformations were observed in nine infants (4.6%; 95%CI [1.7-7.5]) and were variable (hydrocele, polydactyly, spina bifida, Fallot's tetralogy...). Compared with infants not exposed to ARVs or folate antagonists during the first trimester (n=148), the risk of congenital abnormalities was associated to exposure to both ARVs and folate antagonists (n=13) during the first trimester (OR=7.1; 95% CI [1.5-34.2]). No malformations were observed in the 34 children exposed to either ARVs or folate antagonists alone during the first trimester. This study highlights the relation between ARVs and folate antagonists combined and the risk of congenital abnormality. If these results were confirmed, they could have implications for preconceptual counselling and therapeutic choices of women of childbearing age.

**Address:** Jungmann EM, Department of Genitourinary Medicine, St Thomas's Hospital, London, UK.


**Notes:** This paper is another analysis from the randomised controlled clinical trial conducted in Nairobi, Kenya to assess the MTCT risk attributable to breastfeeding by comparing MTCT risks in formula fed versus breastfed children. HIV-infected mothers were randomly assigned either to use formula (n=186) or to breastfeed (n=185) their infants. This report focused on the study of morbidity, nutritional status and mortality adjusted for HIV-1 status, and causes of death in both groups. Infants assigned to be formula fed or breastfed had similar mortality rates and incidence of diarrhoea and pneumonia during the first two years of life. However, HIV-1-free survival at two years was significantly higher in the formula arm. During the first six months of life, breastfed children had a significantly better nutritional status than formula fed children. The authors conclude that formula feeding can be a safe alternative to breastfeeding to reduce postnatal transmission of HIV in a resource-poor setting.

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**Notes:** An appraisal of the performance of a commercial integrated system for HIV-1 genotyping (Applied Biosystems ViroSeq™) with non subtype B HIV-1 strains collected within the HIVNet 012 trial in Uganda. 105 women and 25 infants plasma samples were processed, sometimes with small quantities of plasma. PCR products suitable for sequencing were amplified from all samples tested and HIV-1 subtyping classification was obtained. The performances of the seven sequencing primers were similar for all the subtypes examined. The application of this technique to the analysis of drug resistance in the context of PMTCT is therefore possible as demonstrated in other reports by the same team (Eshleman et al, Intel Rep 2001, #7). The portability in a field laboratory is not guaranteed as an automated sequencer is required.

**Address:** Eshleman SH, Johns Hopkins Med Inst, Dept Pathol, Ross Bldg 646, 720 Rutland Ave, Baltimore, MD 21205 USA  

Notes: This paper explores aspects of the sexual and reproductive health of a cohort of 306 HIV-infected women in Bobo-Dioulasso (Burkina Faso) from 1995 to 1999. The sharing of HIV test results with male sexual partners, the level of use of modern contraceptive methods and the modern pregnancy incidence are the main indicators monitored among these women having benefited from Voluntary HIV Counselling and Testing services (VCT). The study results show a poor rate of sharing HIV test results (18% of women informed their partners) and a poor use of contraceptive methods despite regular advice and counselling (8% used condoms to avoid HIV transmission and 39% started using hormonal contraception). Pregnancy incidence among the study population remains comparable with the pregnancy rate in the general population (4% in the first year, 18% in the third year). The authors raise the importance of male influence on the sexual and reproductive behaviours of socially precarious women and highlight the critical need to develop and evaluate the effective involvement of husbands and partners in VCT and PMTCT interventions.

Address: Meda N, OCCGE 01, Ctr MURAZ, POB 390, Bobo Dioulasso 01, BURKINA FASO


Primary prevention of sexual transmission/VCT


Notes: This paper examines the issue of adequate and cost-effective administration of perinatal nevirapine to prevent mother-to-child transmission of HIV in developing countries. The authors present the results of a survey performed in two antenatal clinics of Lusaka (Zambia): its aim was to understand the preferences of women who would be eligible to receive nevirapine therapy under one of two strategies: mass therapy or a more standard targeted therapy. It appears that 74% of women would chose targeted therapy for themselves in the setting of unconstrained economic resources and 60% would prefer mass therapy in the context of constrained resources, suggesting a preference of equity of drug access over HIV testing. The authors insist on the fact that a quarter of pregnant women surveyed would prefer to receive nevirapine without undergoing HIV testing. These women being more likely to perceive themselves at risk for HIV infection, this suggests a desire to avoid the stigmatisation induced by seropositivity. This paper concludes that, especially in areas that lack trained personnel, clinical infrastructure and resources to provide widespread VCT services, both women’s preferences and the free access to nevirapine through Boehringer Ingelheim’s donation, favour the choice of mass administration of nevirapine.

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Summary: HIV infection is only one of the themes of this annual US conference. Four presentations were directly relevant to PMTCT. Azevedo et al (Abstr I-231, p317) describe HIV subtype and antiretroviral drug resistance distributions in Sao Paulo, Brazil (N=114). They found 93% of subtype B of which 54% were serotyped GPGR and 41% GWGR. There was no relation between subtype and transmission. Genotypic resistance profile (mother-to-child) was also independent of transmission. Eshleman et al (Abstr I-234, p318) describe in detail the patterns of maternal and infant nevirapine resistance mutations within the HIVNET 012 trial (see IR 2001 #7). K103N is the most common mutation in women and Y181C in infants. There is not a simple explanation to this difference. Bruno reports on the use of combinations of ARV for PMTCT in Argentina (Abstr I-230, p317). ZDV+3TC+NVP or PI combination therapy was prescribed when maternal viral load was >10,000 copies. MTCT rate was 2.6% in this group, but the risk of low birthweight was 23.4%. Lolekha et al (Abstr I-233, p318) have investigated the neonatal safety profile after their mothers used ZDV+3TC in Thailand. MTCT rate was 4.7% (95% CI: 0.6-8.8%). Hematologic abnormalities were frequent (11%) but had reversed by the age of two months. None of the adverse events correlated with number of treatment doses or any maternal factor.

URL: http://www.icaac.org/ICAAC.asp

Conference summary