

## ABSTRACT

The World Health Organization report indicates that in 2013, about 35 million people worldwide lived with HIV and AIDS. HIV can be transmitted from mother to child during pregnancy, at childbirth and during breastfeeding. High rates of mother-to-child HIV transmission (MTCT) in developing countries continue to happen despite availability of efficacious interventions. Numerous studies have shown that socio-demographic, clinical and biological correlates and TAT are known to influence MTCT. Yet socio-demographic characteristics of the HIV positive mother-infant pair, the clinical and biological correlates, MTCT rates and the DBS-PCR turn-around-time (TAT) and the associated factors have not been ascertained in the local setting of Ministry of Health facilities in Kakamega, Bungoma, Vihiga and Busia counties, Kenya. The purpose of this study was to determine MTCT of HIV using single, dual and triple ARV prophylaxis regimens and their socio-demographic, clinical, biological correlates and to assess the DBS-PCR TAT and the underlying factors in the four counties. A retrospective cohort study using prospectively collected data in MOH HEI register from 24 health facilities was carried out. Between January 2012 and June 2013, 1751 HIV mother-baby pairs were enrolled in the 24 health facilities with missing data standing at an average of 18%. The study population comprised of HIV positive mother-baby pairs enrolled from January 2012 to June 2013. The outcome measures were infant HIV status at 6 weeks, 9 to <18 months and 18-24 months. Analysis was done using descriptive statistics, chi-square test, and logistic regression. Majority of mothers 79.3% were legally married, 5.4% were single, 5.4% were widowed, 3.5% divorced, 1.8% were cohabiting, 0.9% were separated. About 78.1% received HAART, 14.2% received AZT, 1.7% received NVP, 4.3% received no prophylaxis. The MTCT rates were 5.9%, 7.7% and 5.6% at 6 weeks, 9 to <18 months and 18 months respectively. HIV transmission rate at 18-24 months by ARV prophylaxis regimen received showed 7.1%, 3.3%, 5.4%, 8.2% for sdNVP, AZT, HAART and none respectively ( $p < 0.001$ ). EBF had 3.8% HIV positivity, ERF had 15.8% HIV positivity and MF had 13.2% HIV positivity ( $p < 0.001$ ). Babies born to separated mothers had approximately 7 times likelihood of having HIV negative results at 18-24 months as compared to widowed women (OR=7.517,  $p = 0.022$ ). Babies who were exclusively breastfed at 6 weeks were more likely to be HIV negative at 18-24 months by approximately 76% ( $p < 0.001$ ) as compared to babies who were exclusively breastfed on replacement feeds. The mean duration between collection and receiving specimens at Alupe KEMRI laboratory was 16.5 days, between receiving and testing the specimens at the laboratory was 16.8 days and between specimen collection and results received at the health facilities was 46.9 days. Results showed most mothers were legally married. Widowed women were less likely to have HIV negative babies at 18-24 months as opposed to separated women. Most of the mother-baby pairs received HAART prophylaxis, followed by AZT with 1.7% receiving NVP prophylaxis while 4.3% didn't receive any form of ARV prophylaxis. AZT depicted the lowest MTCT rate at 18-24 months. Exclusive Breast Feeding (EBF) was associated with a low HIV positivity as compared with Exclusive Replacement Feeding (ERF) and Mixed Feeding (MF). Delays were noted in submitting the specimens to Alupe KEMRI laboratory due to batching and hubbing practices. HIV prevention efforts should focus on widowed women; EBF at 6 weeks be encouraged and specimen batching and hubbing be discouraged. The results of the study will inform PMTCT programming and policy formulation and county and national levels.