Title: Barriers to service uptake along the PMTCT cascade exposed by investigating the use of paediatric cotrimoxazole prophylaxis in Harare

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Background: There is sub-optimum implementation of paediatric cotrimoxazole prophylaxis (CTX-p) in resource-limited settings. We conducted a multi-methods study to investigate CTX-p barriers among HIV-exposed infants in Mbare, Harare.

Methods: The study was conducted from September 2010-December 2011. To investigate challenges with initiation of PMTCT services during pregnancy, a cross-sectional survey was conducted among post-partum women at Mbare Clinic. Logistic regression was done to investigate factors associated with antenatal care (ANC) registration. Qualitative interviews were held with women who delayed or did not seek ANC to explore the reasons. To investigate attendance and associated factors at the six-week postnatal visit, PNC, (the visit where CTX-p is initiated), a clinic record survey of women who were expected to attend PNC was conducted. Qualitative interviews were held with women who did not attend PNC to explore the reasons. To investigate carer experiences with CTX-p adherence mother-infant pairs were followed up monthly until age six months. Mothers were interviewed in-depth at 4-5 months to explore adherence experiences. Qualitative data were analysed thematically using NVIVO 10 software. Quantitative data were analysed using Stata Version 10.

Results: 299 (54%) post-partum women completed the cross-sectional survey. Of these 229 (76.6%) sought ANC. In multivariable analysis factors associated with ANC were education which statistically interacted with whether the pregnancy was planned, odds ratio among those who attained ordinary level education and planned pregnancy 4.24 (95% confidence interval 1.70-10.55), household income, odds ratio for a $10-increase in income 1.02 (1.0-1.04), and marital status, odds ratio for divorced vs. married 0.20 (0.07-0.58). ANC was strongly associated with knowledge of HIV status during pregnancy: 98.7% and 21.2% of registered and unregistered women respectively knew their status during pregnancy, $p<0.001$. Qualitatively, ANC barriers were user fees, fear of HIV test, unsupportive husbands/partners, perception that nurses would be discourteous and long clinic waiting times.

333 women who delivered between 15 November-12 December 2010 were included in the clinic record survey of PNC attendance. Characteristics were similar to cross-sectional survey characteristics, pointing to representativeness of the 299 surveyed women above. 34.7% of expected women attended PNC. ANC-registered women were more likely to attend, OR 2.9 (1.01-8.4). PNC attendance was not associated with HIV status. Qualitatively, lack of knowledge of PNC importance was the main reason for non-attendance.

The adherence study revealed women's strong motivation to adhere to CTX-p and PMTCT interventions to ensure baby's health. Adherence barriers included fear of unwanted HIV disclosure, drug stock-outs and unsupportive husbands/partners…*he said, "ha-a my child is not going to keep taking medicines willy-nilly*."

Conclusions and recommendations: There are service related barriers to uptake at several points along the PMTCT cascade. Some barriers could be addressed by health staff training and health systems strengthening. Male partners play a crucial role in encouraging or preventing uptake of services and retention in care. This study re-emphasises the importance of interventions to increase male involvement at all stages of the PMTCT cascade. Finding ways to successfully engage men will be critical to achieving the goal of virtual elimination of paediatric HIV.