



# Assessing the Impact of Point-of-Care Early Infant Diagnosis on Mother-to-Child HIV Transmission in Zambia's Copperbelt Province: A 2010 Programme Evaluation

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## Abstract

Mother-to-child transmission (MTCT) of HIV remains a significant public health challenge in sub-Saharan Africa. Early infant diagnosis (EID) is critical for timely intervention, but conventional laboratory-based testing often involves lengthy delays, which can increase transmission risk and loss to follow-up. This working paper evaluates the impact of introducing point-of-care (POC) EID technology on MTCT rates within prevention of mother-to-child transmission (PMTCT) programmes in Zambia's Copperbelt Province. The primary objective was to quantify changes in transmission following POC EID implementation. A retrospective programme evaluation was conducted using routine health facility data. The analysis compared MTCT outcomes for infants born to HIV-positive mothers before and after the introduction of POC EID testing at selected sites. Data on infant testing, result turnaround times, and final HIV status were analysed. Analysis indicated a reduction in the MTCT rate following POC EID rollout. The mean turnaround time for EID results decreased from several weeks to under two days. Qualitative notes highlighted improved clinical decision-making and caregiver reassurance due to faster results. The integration of point-of-care EID into PMTCT programmes was associated with a reduction in mother-to-child HIV transmission in this setting. This reduction was likely facilitated by substantially reduced diagnostic delays. Scale-up of POC EID technology to other regions should be considered, accompanied by strengthened health worker training and robust monitoring systems to ensure quality. Further operational research is needed to assess long-term outcomes and cost-effectiveness. HIV, early infant diagnosis, point-of-care testing, mother-to-child transmission, programme evaluation, Zambia, PMTCT This working paper provides evidence from a real-world programme setting to inform policy decisions on implementing point-of-care early infant diagnosis.

**Keywords:** *HIV, mother-to-child transmission, early infant diagnosis, point-of-care testing, sub-Saharan Africa, programme evaluation*

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