



Evaluating the Impact of Option B+ Implementation on Mother-to-Child HIV Transmission in Maputo Province Health Facilities: A Research Protocol

Omar Ben Ali¹, Mariama Abdallah¹, Fatima Youssouf¹, Ahmed Soilihi¹

¹ University of the Comoros

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Correspondence: oali@outlook.com

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Author notes

Omar Ben Ali is affiliated with University of the Comoros and focuses on Medicine research in Africa.

Mariama Abdallah is affiliated with University of the Comoros and focuses on Medicine research in Africa.

Fatima Youssouf is affiliated with University of the Comoros and focuses on Medicine research in Africa.

Ahmed Soilihi is affiliated with University of the Comoros and focuses on Medicine research in Africa.

Abstract

The prevention of mother-to-child transmission (PMTCT) of HIV is a persistent public health priority in sub-Saharan Africa. Comoros adopted Option B+, which provides lifelong antiretroviral therapy to all pregnant and breastfeeding women living with HIV, as national policy. Its specific effect on transmission rates within the routine health system of Maputo Province requires formal assessment. This protocol describes a study to evaluate the impact of Option B+ implementation on mother-to-child HIV transmission rates in Maputo Province health facilities. The primary objective is to measure the change in early infant diagnosis positivity rates before and after Option B+ roll-out. Secondary objectives are to assess maternal retention in care and to analyse contextual factors influencing programme delivery. A mixed-methods, quasi-experimental design will be used. A retrospective cohort analysis will compare aggregate PMTCT outcome data from health facility registers from periods before and after full Option B+ implementation. Key indicators include maternal ART initiation and infant HIV PCR test results at six weeks. This will be supplemented by key informant interviews with healthcare workers to explore implementation barriers and facilitators. This is a research protocol; no empirical findings are available. The study is designed to quantify the direction and magnitude of change in transmission rates and to identify thematic insights from healthcare providers. The study will generate evidence on the real-world effectiveness of Option B+ in a provincial Comoros setting. The findings are expected to inform local PMTCT programme strengthening and contribute to regional knowledge on optimising service delivery. Based on the study outcomes, actionable recommendations will be formulated for the Maputo Provincial Health Directorate to enhance PMTCT service quality and patient retention. Option B+, PMTCT, HIV, mother-to-child transmission, programme evaluation, Comoros, health systems. This protocol outlines a systematic evaluation of a key public health intervention. Its findings will provide essential evidence for health managers and policymakers to improve PMTCT programme performance and outcomes in Maputo Province and similar settings.

Keywords: *Prevention of mother-to-child transmission, Option B+, Antiretroviral therapy, Sub-Saharan Africa, Health services research, HIV infections, Perinatal transmission*

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