



Protocol for a Study on the Integration of Digital Health Technologies in Urban Maternity Care in Cameroon: A Mixed-Methods Analysis,

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Published: 03 November 2006 | **Received:** 11 August 2006 | **Accepted:** 10 September 2006

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DOI: [10.5281/zenodo.18540672](https://doi.org/10.5281/zenodo.18540672)

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Abstract

The digitalisation of healthcare offers potential to address maternal health challenges in sub-Saharan Africa. Urban maternity services in Cameroon manage high patient volumes with limited resources. Although digital health technologies are increasingly present, evidence is lacking on how they are integrated into routine urban maternity care and their perceived effect on service delivery. This protocol describes a study to analyse the integration of digital health technologies within urban maternity care in Cameroon. The primary objective is to map the types and uses of existing digital tools. Secondary objectives are to explore the experiences of healthcare providers and pregnant women, and to identify barriers and facilitators to effective integration. A sequential explanatory mixed-methods design will be used. Phase one will involve a cross-sectional survey of healthcare providers in selected urban maternity units to quantify technology access and usage patterns. Phase two will consist of in-depth interviews and focus group discussions with providers, administrators, and service users to explore experiences and contextual factors. Quantitative data will be analysed descriptively, and qualitative data will undergo thematic analysis. As a protocol, no empirical findings are presented. The study anticipates generating quantitative data on the prevalence of specific digital tools for tasks such as appointment scheduling. Qualitative analysis is expected to produce themes concerning infrastructural challenges, training needs, and the perceived impact on patient-provider communication and workflow. The study will produce a detailed assessment of the current integration of digital health in Cameroonian urban maternity care. It will elucidate the real-world application and adaptation of these technologies within a specific health system context. Findings will inform stakeholders, including the Ministry of Public Health, in developing context-appropriate strategies and policies for scaling sustainable digital health solutions in maternity services. Recommendations will focus on practical implementation steps addressing identified barriers. Digital health, mHealth, maternity care, urban health, Cameroon, mixed-methods, implementation research. This protocol outlines a study designed to generate evidence on the integration of digital health in a representative urban African setting. It will contribute practical insights to guide the implementation of digital tools in maternity care pathways.

Keywords: *Telemedicine, Maternal Health, Sub-Saharan Africa, Mixed-Methods Research, Health Systems Strengthening, Urban Health, Digital Divide*



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