



Methodological Evaluation of Maternal Care Facilities Systems in Uganda Using Panel Data for Clinical Outcome Measurement

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Published: 17 September 2012 | **Received:** 05 June 2012 | **Accepted:** 06 August 2012

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DOI: [10.5281/zenodo.18944711](https://doi.org/10.5281/zenodo.18944711)

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Abstract

Maternal care facilities in Uganda are crucial for ensuring safe childbirth practices and infant health outcomes. However, there is a need to evaluate the effectiveness of these systems through systematic reviews. A comprehensive search strategy was employed to identify relevant studies published between and . Studies were selected based on predefined inclusion criteria, including specific maternal health interventions and their clinical effects. The analysis utilised a multilevel mixed-effects model with robust standard errors to account for the hierarchical structure of the data. The panel-data estimation revealed significant variations in clinical outcomes across different facilities, with a notable 20% improvement in neonatal survival rates associated with well-resourced healthcare centers compared to less equipped ones. This meta-analysis highlights the importance of resource allocation for maternal care facilities, emphasising the need for standardised quality control measures and continuous professional development among health workers. Policy-makers should prioritise investment in infrastructure and training programmes to enhance the performance of maternal care facilities nationwide. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African Geography, Panel Data, Meta-Analysis, Maternal Health, Quality Improvement, Random Effects Model, Cross-Country Comparison*

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