

Evaluating Emergency Care Systems in Uganda

A Multilevel Regression Analysis of Clinical Outcomes

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ABSTRACT

Background: Emergency care systems in sub-Saharan Africa are underdeveloped, with a critical lack of evidence on how systemic interventions impact patient outcomes. Existing evaluations often fail to account for the hierarchical structure of clinical data, potentially biasing results.

Purpose and objectives: This study aimed to quantify the effect of a structured emergency unit intervention—comprising protocol implementation, staff training, and essential equipment provision—on clinical outcomes in Uganda, using a multilevel analytical approach.

Keywords: *Emergency care systems, Sub-Saharan Africa, Multilevel modelling, Clinical outcomes, Health systems evaluation, Uganda*

Article Highlights

- Multilevel regression analysis reveals a significant reduction in adverse outcome odds (aOR 0.62).
- Study demonstrates the impact of protocol, training, and equipment interventions across 12 facilities.
- Findings provide robust evidence for emergency care system strengthening in resource-limited settings.
- Methodological approach accounts for hierarchical data structure common in clinical evaluations.

Methodological Note

The analysis employed a three-level mixed-effects logistic regression model to account for clustering at patient, clinician, and facility levels—addressing a common bias in health systems evaluation.

This study provides actionable evidence for health policy prioritising integrated emergency care systems.

ABSTRACT-ONLY PUBLICATION

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