



Methodological Evaluation of Emergency Care Units in Uganda Using Bayesian Hierarchical Models for Clinical Outcome Measurement

James Kizza¹

¹ Kyambogo University, Kampala

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Correspondence: jkizza@outlook.com

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Author notes

James Kizza is affiliated with Kyambogo University, Kampala and focuses on Medicine research in Africa.

Abstract

Emergency care units (ECUs) play a crucial role in managing acute medical conditions. In Uganda, these units are essential for providing timely and appropriate treatment to patients with severe illnesses or injuries. This study employed a comprehensive search strategy across multiple databases, including PubMed and Embase. Studies were selected based on predefined inclusion criteria focusing on clinical outcomes such as mortality rates and patient recovery times. The review utilised Bayesian hierarchical models to analyse the data from various ECUs in Uganda. The analysis revealed that there was a significant variation ($p < 0.05$) in the effectiveness of different ECU systems, with some units showing higher survival rates among critically ill patients compared to others. Bayesian hierarchical models provided valuable insights into understanding and improving the performance of ECUs in Uganda by accounting for both unit-specific and general population-level factors affecting clinical outcomes. Healthcare policymakers should consider implementing standardised protocols and regular quality improvement initiatives based on the findings from this review to enhance patient care across all ECU systems in Uganda. Emergency Care Units, Clinical Outcomes, Bayesian Hierarchical Models, Uganda 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, Bayesian, Hierarchical, Methodology, Outcome, Quantitative, Uganda*

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