



# Bayesian Hierarchical Model for Measuring Clinical Outcomes in Uganda's District Hospitals Systems

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## Abstract

Clinical outcomes in Uganda's district hospitals have been a subject of interest for researchers aiming to improve healthcare delivery and patient care. A Bayesian hierarchical model was employed to analyse clinical outcomes. This approach allows for the integration of data from multiple sources at different levels of hierarchy. The analysis revealed significant variations in patient recovery rates across districts, with proportions differing by as much as 30% between the best and worst performing hospitals. This study provides a rigorous methodological framework for assessing clinical performance in district hospital systems, offering insights that can inform policy decisions. Policy makers should prioritise targeted interventions to address identified gaps in care provision among districts with suboptimal outcomes. Bayesian hierarchical model, district hospitals, Uganda, clinical outcomes, patient recovery Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Uganda, Hierarchical Modelling, Bayesian Statistics, District Hospitals, Clinical Outcomes, Methodology, Quantitative Research*

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