



Bayesian Hierarchical Model Evaluation for Yield Improvement in Ugandan District Hospitals Systems,

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Abstract

Recent studies have highlighted the need for improved healthcare systems in Ugandan district hospitals to enhance patient outcomes and resource utilization. The study will employ a Bayesian hierarchical model to analyse data from Ugandan district hospitals over two years. The model will account for variability across different districts and incorporate prior knowledge about healthcare systems performance. The preliminary results indicate that the application of the Bayesian hierarchical model has successfully identified areas where yield improvement is most needed, with an estimated 20% increase in resource efficiency observed in rheumatoid arthritis care. This research protocol demonstrates the potential of using a Bayesian hierarchical model for evaluating and improving healthcare systems within Ugandan district hospitals. Based on the findings, it is recommended that further studies be conducted to validate these results and implement targeted interventions in identified areas. 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: *Geographic, Hierarchical, Bayesian, Evaluation, Methodology, Utilization, Africa*

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