



# Methodological Assessment of District Hospital Systems in Uganda Using Multilevel Regression Analysis for Cost-Effectiveness Evaluation

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**Published:** 25 October 2004 | **Received:** 28 July 2004 | **Accepted:** 22 September 2004

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**DOI:** [10.5281/zenodo.18784458](https://doi.org/10.5281/zenodo.18784458)

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## Abstract

The healthcare systems in Uganda, particularly district hospitals, face challenges related to resource allocation and service delivery efficiency. A comprehensive search strategy was employed using databases such as PubMed, Scopus, and Google Scholar. Studies were selected based on predefined inclusion criteria including original research articles focusing on cost-effectiveness analysis within district hospitals in Uganda. Multilevel regression analysis emerged as a prominent methodological approach for evaluating the financial and operational outcomes of district hospital systems. The review highlights the need for standardised multilevel regression methods to enhance the reliability and comparability of cost-effectiveness evaluations across different districts in Uganda. Health policymakers should consider adopting multilevel regression analysis for future assessments, ensuring robust data collection and analytical frameworks are implemented. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, healthcare geography, multilevel modelling, cost-effectiveness, resource allocation, district hospitals, evaluation methodology*

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