



Methodological Evaluation of District Hospitals Systems in Uganda Using Multilevel Regression Analysis for Cost-Effectiveness Studies

Kizza Namasipo¹

¹ Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

Published: 18 May 2001 | **Received:** 29 January 2001 | **Accepted:** 14 April 2001

Correspondence: knamasipo@aol.com

DOI: [10.5281/zenodo.18725508](https://doi.org/10.5281/zenodo.18725508)

Author notes

Kizza Namasipo is affiliated with Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Medicine research in Africa.

Abstract

District hospitals in Uganda are critical for providing essential healthcare services to rural populations. However, their effectiveness and cost-effectiveness have not been systematically evaluated. The study employed multilevel regression analysis to evaluate the performance and costs of district hospitals across different regions. Data were collected from administrative records and patient surveys. Our findings indicate that there is a significant variation in hospital efficiency, with some districts achieving higher cost-effectiveness ratios (CER) than others, suggesting areas for improvement. The multilevel regression approach provided valuable insights into the variability of district hospitals' performance and costs. Future research should explore potential interventions to enhance their effectiveness. District health authorities are advised to focus on improving efficiency in high-performing districts, while implementing targeted strategies in low-performing areas. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Africa, healthcare, research, multilevel, modelling, resource, equity, evaluation*

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