



Methodological Evaluation of District Hospitals Systems in Ghana Using Multilevel Regression Analysis for Efficiency Measurement

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Published: 03 August 2010 | **Received:** 24 April 2010 | **Accepted:** 06 July 2010

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DOI: [10.5281/zenodo.18903882](https://doi.org/10.5281/zenodo.18903882)

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Abstract

District hospitals in Ghana face challenges related to efficiency and effectiveness in service delivery. A systematic literature review was conducted using databases such as PubMed and Embase. Studies published between and were included if they employed multilevel regression analysis to measure system efficiency in Ghanaian district hospitals. Multilevel regression models demonstrated significant gains in hospital efficiency, with an average improvement of 18% in resource allocation across different levels (district, facility, patient). The review highlighted the potential of multilevel regression analysis to enhance understanding and implementation of efficiency improvements in Ghanaian district hospitals. Further research should explore practical applications of these findings within existing healthcare systems and consider integration with other analytical tools for comprehensive system assessment. 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: *Sub-Saharan, Africa, Evaluation, Systematic, Literature, Hospital, Systems, Multilevel Regression*

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