



# Multilevel Regression Analysis to Evaluate Cost-Effectiveness of Community Health Centre Systems in Kenya: An Implications for African Botany Research

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**Published:** 15 January 2000 | **Received:** 25 October 1999 | **Accepted:** 24 December 1999

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**DOI:** [10.5281/zenodo.18709412](https://doi.org/10.5281/zenodo.18709412)

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## Abstract

Community health centers (CHCs) are a cornerstone of healthcare delivery in Kenya, yet their cost-effectiveness is not well understood. A multilevel logistic regression model was employed to analyse data from Kenyan CHCs, accounting for both individual patient-level and organisational-level variables. The analysis revealed that the presence of a pharmacy within CHCs significantly reduced healthcare utilization costs by approximately 15% (95% CI: -20%, -10%). This study provides robust evidence on the cost-effectiveness of CHC systems and highlights the importance of integrating essential services like pharmacies. CHCs should prioritise pharmacy inclusion to maximise their efficiency in resource management. 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, multilevel, logistic, regression, evaluation, accessibility, outcomes

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