



Methodological Evaluation of Community Health Centre Systems in Ghana: A Randomized Field Trial for Efficiency Gains

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Abstract

Community health centers (CHCs) are critical in delivering primary healthcare services in resource-limited settings such as Ghana. However, their efficiency and effectiveness remain underexplored. A mixed-methods approach was employed, including both quantitative (utilising data envelopment analysis) and qualitative (through interviews and observations). Randomization ensured that all CHCs were equally likely to be assigned to the control or treatment group. The study identified a significant improvement in patient wait times by 20% in the intervention group, with a 95% confidence interval of [14%, 26%]. Our findings suggest that targeted interventions can substantially enhance operational efficiency within CHCs. CHC managers should prioritise training programmes and resource allocation based on our results to further improve service delivery. Community Health Centers, Efficiency Gains, Randomized Field Trial 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: *African demographics, randomized controlled trials, health service delivery, resource allocation, geographic information systems, quality assurance, outcome evaluation*

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