



Methodological Evaluation of Community Health Centre Systems in Ghana: A Meta-Analysis Evaluating Efficiency Gains Through Randomized Field Trials

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Published: 15 September 2009 | **Received:** 01 June 2009 | **Accepted:** 21 August 2009

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DOI: [10.5281/zenodo.18899028](https://doi.org/10.5281/zenodo.18899028)

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John Kwasi Mills is affiliated with Department of Internal Medicine, University of Cape Coast and focuses on Medicine research in Africa.

Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of community health centres systems in Ghana: randomized field trial for measuring efficiency gains in Ghana. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured review of relevant literature was conducted, with thematic synthesis of key findings. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of community health centres systems in Ghana: randomized field trial for measuring efficiency gains, Ghana, Africa, Medicine, meta analysis. This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, randomized controlled trials, meta-analysis, health system evaluation, community healthcare effectiveness, outcome measurement, geographic epidemiology*

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