



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

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## Abstract

Community health centres (CHCs) in South Africa play a pivotal role in primary healthcare delivery. However, their efficiency and effectiveness require rigorous evaluation. A multi-site, randomized controlled trial design will be employed. Data on patient throughput and health outcomes from ten randomly selected CHCs will be collected over a six-month period. The MLHBM will be used to model the hierarchical structure of the data. The analysis will reveal the relative efficiency of different CHC systems in terms of patient flow and health improvement, with specific insights into service utilization patterns. This study aims to provide empirical evidence on the operational efficiency of South African CHCs, contributing to their quality improvement and resource allocation strategies. Based on findings, targeted interventions will be suggested to enhance efficiency and patient care in South African CHCs. Treatment effect was estimated with  $\text{text}\{logit\}(\pi) = \beta_0 + \beta^{-1} p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *African geography, randomized controlled trial, health service delivery, community healthcare systems, impact evaluation, outcome measurement, stakeholder engagement*

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