



A Quasi-Experimental Evaluation of Efficiency Gains in Kenyan District Hospital Systems

A Methodological Appraisal

Kamau Ochieng¹, Wanjiku Mwangi^{2,3}

¹ Department of Epidemiology, Strathmore University

² Department of Pediatrics, Strathmore University

³ Pwani University

Correspondence: kochieng@hotmail.com

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Author notes

Kamau Ochieng is affiliated with Department of Epidemiology, Strathmore University and focuses on Medicine research in Africa.

Wanjiku Mwangi is affiliated with Department of Pediatrics, Strathmore University and focuses on Medicine research in Africa.

ABSTRACT

Background: District hospital systems in sub-Saharan Africa face persistent challenges in resource allocation and operational efficiency. Robust methodological frameworks for quantifying efficiency gains from systemic interventions are lacking, particularly within complex, real-world healthcare settings.

Purpose and objectives: This study aimed to appraise a quasi-experimental design for measuring operational efficiency gains following a systemic intervention in district-level hospitals. The primary objective was to evaluate the methodological rigour and feasibility of this approach in a resource-constrained context.

Keywords: *District hospitals, Sub-Saharan Africa, Quasi-experimental design, Operational efficiency, Health systems research, Resource allocation, Kenya*

Article Highlights

- Difference-in-differences design isolated a significant 18% reduction in patient processing time.
- Methodological appraisal reveals feasibility in resource-constrained, real-world hospital settings.
- Successfully disentangled intervention effects from underlying secular trends.
- Highlights critical need for robust routine data systems to support high-fidelity evaluation.

Core Analytical Model

The study employed a difference-in-differences design: $Y_{it} = \beta_0 + \beta_1(\text{Treat}_i \times \text{Post}_t) + \gamma_i + \delta_t + \varepsilon_{it}$, with inference based on cluster-robust standard errors.

This appraisal advances methodological discourse on evaluating complex health system interventions.

ABSTRACT-ONLY PUBLICATION

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