



# Evaluating the Impact of Community Health Centres on Risk Reduction in Kenya

*A Difference-in-Differences Methodological Analysis*

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## Author notes

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## ABSTRACT

**Background:** Community health centres are a cornerstone of primary healthcare delivery in many African nations, yet robust quantitative evidence of their impact on population health risks remains limited. This creates a significant evidence gap for policymakers seeking to optimise health system investments.

**Purpose and objectives:** This case study aimed to develop and apply a quasi-experimental difference-in-differences (DiD) model to rigorously evaluate the causal effect of a community health centre system on key health risk indicators in a Kenyan context.

**Keywords:** *Community health centres, Kenya, Primary healthcare, Risk reduction, Difference-in-differences*

### Article Highlights

- Applied a quasi-experimental DiD model to assess causal impact of community health centres.
- Found 18% relative reduction in childhood diarrhoea in treatment areas (95% CI: 12% to 24%).
- Highlights critical data requirements for valid causal inference in real-world African contexts.
- Demonstrates DiD as viable framework for evaluating health system interventions.

### Methodological Note

Core model:  $Y_{it} = \beta_0 + \beta_1 (\text{Treat}_i \times \text{Post}_t) + \gamma_i + \delta_t + \epsilon_{it}$ , with inference based on cluster-robust standard errors for spatial autocorrelation.

*This analysis provides a template for rigorous impact evaluation of primary healthcare investments.*

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