

# Randomised Field Trial of District Hospital Systems in Senegal

*A Methodological Evaluation of Clinical Outcomes*

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## ABSTRACT

**Background:** District hospitals are critical nodes in sub-Saharan African health systems, yet robust evidence on the impact of systemic interventions on clinical outcomes remains scarce. Evaluations are often hampered by methodological limitations in real-world settings.

**Purpose and objectives:** This short report presents a methodological evaluation of a randomised field trial designed to assess the effect of a reorganised hospital system on patient outcomes. The primary objective was to test the feasibility and analytical robustness of the trial design in a resource-constrained environment.

**Keywords:** *District hospitals, Sub-Saharan Africa, Randomised controlled trial, Clinical outcomes, Health systems evaluation, Senegal*

### Article Highlights

- A cluster-randomised trial across 24 hospitals tested a bundled systems intervention.
- The primary outcome was a composite of 30-day mortality and major complications.
- Analysis used a hierarchical model to account for within-hospital correlation.
- The trial demonstrated high feasibility with 98% protocol adherence in data collection.

### Core Analytical Model

A generalised linear mixed model with random intercepts for hospitals was used to estimate the intervention effect on the binary composite outcome, accounting for cluster design.

*This brief report focuses on the methodological execution and feasibility of the trial design.*

## ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

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