

A Quasi-Experimental Evaluation of Systems Optimisation for Improved Diagnostic Yield in Tanzanian District Hospitals

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ABSTRACT

Background: Diagnostic yield in sub-Saharan African district hospitals is often suboptimal, constrained by fragmented and under-resourced clinical systems. Systems optimisation interventions are frequently implemented, but robust methodological evaluations of their impact on diagnostic outcomes are lacking.

Purpose and objectives: This study aimed to evaluate the impact of a multi-component systems optimisation package on diagnostic yield in a real-world hospital setting, using a quasi-experimental design to estimate causal effects.

Keywords: *Health systems strengthening, Diagnostic yield, Quasi-experimental design, Sub-Saharan Africa, District hospitals, Tanzania, Clinical systems optimisation*

Article Highlights

- Intervention linked to 2.45x higher odds of conclusive diagnosis (95% CI: 1.78–3.37).
- Absolute diagnostic yield improved by 18.7 percentage points post-implementation.
- Integrated approach combined workflow, decision support, and staff training.
- Quasi-experimental design provides robust causal estimates in real-world setting.

Study Design Note

Controlled interrupted time-series analysis across four matched Tanzanian district hospitals, using a generalised linear mixed model with hospital-level clustering.

This evaluation demonstrates the tangible impact of integrated systems optimisation on a core clinical outcome.

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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