

# A Randomised Field Trial Evaluating Surveillance System Methodologies for Communicable Disease Risk Reduction in Kenya

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## ABSTRACT

**Background:** Communicable disease surveillance in sub-Saharan Africa faces challenges in timeliness and data quality, impacting outbreak response. The comparative effectiveness of different surveillance methodologies for reducing community-level disease risk is not well established through rigorous field trials.

**Purpose and objectives:** This study aimed to evaluate the impact of three distinct surveillance system methodologies—community health worker-led syndromic reporting, facility-based laboratory-confirmed reporting, and a hybrid mobile health (mHealth) tool—on reducing the incidence of acute febrile illness at the community level.

**Keywords:** *public health surveillance, sub-Saharan Africa, randomised controlled trial, communicable diseases, outbreak response, Kenya, epidemiological monitoring*

### Article Highlights

- mHealth hybrid system linked to 32% reduction in febrile illness incidence.
- Community health worker syndromic reporting showed non-significant 15% reduction.
- Trial conducted across 120 community units using cluster-randomised design.
- Active monthly household surveys measured community-based case incidence.

### Methodological Note

The primary analysis used a negative binomial regression model with cluster-level random effects to account for the trial design.

*This trial provides comparative evidence for surveillance system effectiveness in a real-world setting.*

## 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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