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Methodological Evaluation of Public Health Surveillance Systems in Kenya: A Randomized Field Trial

Kerubo Ochieng Karume[1], **Olivier Mutua Ndungu**[2]

[1] Kenya Medical Research Institute (KEMRI)

[2] Strathmore University

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Correspondence: kkarume@yahoo.com

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Author notes

Kerubo Ochieng Karume is affiliated with Kenya Medical Research Institute (KEMRI) and focuses on Medicine research in Africa.

Olivier Mutua Ndungu is affiliated with Strathmore University and focuses on Medicine research in Africa.

Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of public health surveillance systems systems in Kenya: randomized field trial for measuring yield improvement in Kenya. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A structured analytical approach was used, integrating formal modelling with domain evidence. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of public health surveillance systems systems in Kenya: randomized field trial for measuring yield improvement, Kenya, Africa, Medicine, case study This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, Public Health Surveillance, Randomized Control Trials, Methodology, Evaluation Framework, Data Quality, Epidemiology*

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