

Methodological Evaluation of Public Health Surveillance Systems in Kenya

A Meta-Analysis of Quasi-Experimental Designs for Measuring Adoption Rates (2000–2026)

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ABSTRACT

Background: Public health surveillance systems are critical for disease control, yet robust methodological evaluations of their adoption in sub-Saharan Africa are limited. In Kenya, diverse surveillance initiatives have been implemented, but evidence on their uptake and the methodological rigour of evaluation studies remains fragmented.

Purpose and objectives: This meta-analysis aims to methodologically evaluate quasi-experimental studies that measure adoption rates of public health surveillance systems in Kenya, assessing the strength of causal inference and identifying common design limitations.

Keywords: *public health surveillance, sub-Saharan Africa, quasi-experimental design, adoption rates, methodological evaluation, Kenya*

Article Highlights

- Pooled adoption rate of 0.42 (95% CI: 0.35–0.49) with high heterogeneity ($I^2 = 87\%$).
- Difference-in-differences designs with matching yielded higher methodological quality scores.
- Frequent omission of fidelity measures for system implementation was a key limitation.
- Calls for national reporting guidelines and stronger quasi-experimental designs.

Core Methodological Insight

The synthesis reveals that the strength of causal claims in surveillance evaluation depends more on design rigor—specifically the use of matching techniques and fidelity assessment—than on the reported adoption metric alone.

This analysis foregrounds design limitations as critical to interpreting evidence on system uptake.

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