

Methodological Evaluation and Efficiency Gains in Uganda's Public Health Surveillance Systems

A Panel-Data Review (2000–2026)

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ABSTRACT

Background: Public health surveillance is a cornerstone of effective health systems, yet its methodological rigour and efficiency in resource-constrained settings require systematic assessment. In Uganda, while surveillance infrastructure has expanded, comprehensive evaluations of system performance and efficiency over time are limited.

Purpose and objectives: This review aims to critically evaluate methodological approaches used in assessing Uganda's public health surveillance systems and to synthesise evidence on efficiency gains derived from panel-data analyses within the medical field.

Keywords: *Public health surveillance, Sub-Saharan Africa, panel-data analysis, health systems strengthening, methodological evaluation, efficiency gains, Uganda*

Article Highlights

- Systematic review reveals positive efficiency trends in surveillance from 2000–2026.
- Panel-data models with fixed effects provide robust evidence for system improvements.
- Methodological heterogeneity and data quality constraints limit generalisability.
- Standardised metrics and causal designs are needed for future evaluations.

Core Analytical Model

The primary panel-data model specified entity-specific fixed effects (α_i) to control for time-invariant heterogeneity, with inference based on robust standard errors clustered at the district level.

This review synthesises methodological approaches and evidence for surveillance system efficiency.

ABSTRACT-ONLY PUBLICATION

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