

A Meta-Analysis of Methodological Approaches and Cost-Effectiveness in Uganda's Public Health Surveillance Systems

A Panel-Data Evaluation, 2000–2026

Patience Nakimuli¹, Julius Ocen², David Kigozi³
Ruth Mbabazi⁴

Gulu University | Department of Surgery, Gulu University | Kampala International University (KIU) |
Department of Epidemiology, Kampala International University (KIU)

Correspondence: pnakimuli@yahoo.com

Received: 30 January 2019 | Accepted: 01 May 2019 | Published: 10 June 2019 | DOI:

[10.5281/zenodo.18953763](https://doi.org/10.5281/zenodo.18953763)

ABSTRACT

Background: Public health surveillance is a cornerstone of effective disease control, yet the methodological rigour and economic efficiency of such systems in resource-limited settings are not well synthesised. Uganda's diverse surveillance infrastructure, developed over decades, presents a critical case for evaluating analytical approaches and their associated costs.

Purpose and objectives: This meta-analysis aims to systematically evaluate methodological approaches used in assessing the country's public health surveillance systems and to estimate their cost-effectiveness using panel-data econometric techniques.

Keywords: *public health surveillance, cost-effectiveness analysis, panel data, sub-Saharan Africa, health systems evaluation, methodological rigour, Uganda*

Article Highlights

- Synthesis reveals 65% of prior evaluations relied on cross-sectional designs.
- Panel-data econometrics provides more reliable cost-effectiveness metrics.
- Integrated, multi-disease approaches emerge as the most economically efficient model.

Core Econometric Model

Two-way fixed effects regression: $Y_{it} = \alpha + \beta_1 CE_{it} + \beta_2 M_{it} + \mu_i + \lambda_t + \varepsilon_{it}$, with inference based on cluster-robust standard errors.

This analysis underscores the critical influence of methodological design on economic evaluation.

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

REQUEST FULL PAPER

 **Email:** info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

**Are you a researcher in Africa? We
welcome your submissions!**

Join our community of African scholars and share
your groundbreaking work.

 **Submit at:** app.parj.africa



Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global
Knowledge