



# Methodological Assessment of Public Health Surveillance Systems in Uganda: An Estimative Review for Clinical Outcomes Measurement

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## Abstract

Public health surveillance systems in Uganda play a critical role in monitoring disease prevalence and guiding public health interventions. However, their effectiveness is often assessed through various methods that may introduce biases or inaccuracies. The methodology involves a systematic review of existing studies and reports from Ugandan public health agencies. Panel data analysis will be employed to estimate the impact of surveillance systems on disease prevalence over time, accounting for potential confounding variables. Results indicate that while panel-data estimation has shown promise in reducing bias compared to cross-sectional studies, there remains variability in the implementation and interpretation of these methods across different districts. The review highlights the need for standardised protocols and robust data collection practices to enhance the reliability and validity of public health surveillance systems. Public health agencies should prioritise training in advanced statistical techniques and ensure consistent data reporting standards. Collaboration between stakeholders is essential for effective surveillance system implementation. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Uganda, Geographic Information Systems, Spatial Analysis, Panel Data, Epidemiology, Quantitative Methods, Health Metrics*

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