



Methodological Evaluation of Public Health Surveillance Systems in Uganda: Quasi-Experimental Design for Cost-Effectiveness Assessment

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Abstract

Public health surveillance systems in Uganda are critical for monitoring diseases and managing outbreaks effectively. A quasi-experimental design was employed to assess the cost-effectiveness of surveillance systems. The study utilised statistical models to estimate costs and benefits, including uncertainty intervals for robust inference. The analysis revealed that the current system underperformed in terms of detection accuracy, with a proportion of missed cases estimated at around 15%. This quasi-experimental design provided insights into the strengths and weaknesses of existing surveillance systems, facilitating improvements in public health management. Enhancements to training programmes for surveillance personnel are recommended to improve detection accuracy. Additionally, investment is advised in infrastructure that supports timely data collection. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, epidemiology, methodology, quasi-experimental, evaluation, publichealth*

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