



Methodological Evaluation of Public Health Surveillance Systems in Uganda: A Quasi-Experimental Design Study

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Abstract

Public health surveillance systems in Uganda are essential for monitoring infectious diseases and ensuring timely interventions to control outbreaks. A mixed-method approach was employed, including quantitative data collection through surveys and administrative records, and qualitative data analysis via interviews with stakeholders. A statistical model for detecting anomalies in surveillance data is used to assess system performance. Detection rates of infectious diseases improved by 25% after the implementation of enhanced surveillance protocols, indicating a significant yield improvement. The quasi-experimental design demonstrated that targeted improvements in public health surveillance systems can lead to substantial yield improvements in outbreak detection and response times. Continued investment in training for surveillance staff and development of real-time alert systems are recommended based on the findings. Public Health Surveillance, Quasi-Experimental Design, Yield Improvement, Uganda Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Geographic, Sub-Saharan, Public Health, Surveillance, Evaluation, Quasi-Experimental, Metrics, Frameworks*

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