



Methodological Assessment of Public Health Surveillance Systems in Uganda: Estimating Risk Reduction Using Panel Data Analysis

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in developing countries like Uganda. A panel-data estimation approach was employed to analyse surveillance system performance over time. Estimates suggest a significant 20% reduction in infectious disease outbreaks when the surveillance system operates optimally, with an uncertainty interval of $\pm 5\%$. The study validates the effectiveness of public health surveillance systems and identifies areas for improvement. Enhanced training programmes are recommended to improve data collection accuracy and timeliness. Treatment effect was estimated with $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: African geography, Public health surveillance, Panel data analysis, Epidemiology, Risk assessment, Infectious diseases, Methodological evaluation

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