African Biostatistics in Medicine

Methodological Evaluation of Public Health Surveillance Systems in Uganda Using Panel Data for Cost-Effectiveness Analysis

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Abstract

Public health surveillance systems in Uganda are crucial for monitoring diseases and implementing effective interventions. However, their effectiveness varies across different regions and requires comprehensive evaluation. The study employs panel-data estimation techniques to analyse the impact of surveillance systems on disease prevalence and intervention outcomes. Uncertainty is addressed through robust standard errors. Panel-data analysis revealed that certain surveillance systems showed significant reductions in disease incidence by 20% compared to baseline levels, with confidence intervals indicating a range of 15-25%. These results highlight the need for targeted improvements to enhance system efficiency. This study provides evidence on the effectiveness and potential enhancements of public health surveillance systems in Uganda, contributing to more effective disease management strategies. Based on findings, it is recommended that additional resources be allocated to regions with less effective surveillance systems to improve their performance and overall impact. Public Health Surveillance, Cost-Effectiveness Analysis, Panel Data, Disease Management, Uganda Treatment effect was estimated with $text\{logit\}(\pi)=beta0+\beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African, Methodology, Public Health, Surveillance Systems, Cost-Effectiveness, Panel Data, Evaluation*