Methodological Evaluation of Public Health Surveillance Systems in Uganda Using Time-Series Forecasting Models

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Abstract

Public health surveillance systems are crucial for monitoring disease trends and guiding intervention strategies in Uganda. A comprehensive literature review was conducted using systematic search methods across databases such as PubMed, Scopus, and Google Scholar. Inclusion criteria were defined based on study design, data relevance, and language (English). The analysis revealed a significant variation in the adoption rates of surveillance systems across different regions of Uganda, with some districts showing adoption rates above 70%. This review highlights areas where public health surveillance systems could be improved to better serve health outcomes in Uganda. Investment should be directed towards enhancing data collection and analysis capabilities in underserved regions to ensure equitable coverage of the population. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow} p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, surveillance, methodology, forecasting, public health, time-series, evaluation*

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