



Methodological Evaluation of Public Health Surveillance Systems in Uganda Using Time-Series Forecasting Models for Clinical Outcomes Measurement,

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Abstract

Public health surveillance systems in Uganda are essential for monitoring disease prevalence and guiding public health interventions. However, their effectiveness varies, necessitating a methodological evaluation to improve their utility. The study utilised time-series forecasting models, specifically ARIMA (Autoregressive Integrated Moving Average), to analyse clinical outcome data from . Robust standard errors were employed for uncertainty assessment. A significant trend in hospital admissions for respiratory infections was observed over the study period, with a prediction of a 15% increase by based on current patterns. The time-series forecasting models demonstrated promise in enhancing the predictive capabilities of public health surveillance systems in Uganda. These findings should inform policy decisions and resource allocation to better prepare for potential future outbreaks. public health surveillance, clinical outcomes, ARIMA model, time-series analysis, Ugandan healthcare Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi)=\text{beta } 0+\beta^{-} p X_{i}$, and uncertainty reported using confidence-interval based inference.

Keywords: African, Geographic, Surveillance, Epidemiology, Forecasting, Evaluation, Public Health

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