African Thoracic Surgery

Methodological Evaluation of Public Health Surveillance Systems in Senegal Using Time-Series Forecasting Models for Reliability Measurement

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Abstract

Public health surveillance systems are crucial for monitoring disease trends in Senegal. However, their reliability can be assessed through robust methodological evaluations and forecasting models. The study employed a time-series forecasting model to analyse surveillance data from Senegalese healthcare records. The methodology involved cross-validation techniques and adjusted for potential biases through robust standard errors. A significant proportion (65%) of predictions were accurate within the forecasted intervals, indicating high reliability in disease trend monitoring. The time-series forecasting model demonstrated a reliable approach to measure the performance of public health surveillance systems in Senegal. Enhanced training for surveillance staff and incorporation of additional data sources could further improve system accuracy. Public Health Surveillance, Time-Series Forecasting, Reliability Measurement, Senegal Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, surveillance, forecasting, reliability, time-series, analytics, epidemiology*

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