African Health Informatics (Clinical focus)

Methodological Assessment of Public Health Surveillance Systems in Senegal Utilising Time-Series Forecasting Models

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Abstract

Public health surveillance systems in Senegal play a crucial role in monitoring disease prevalence and guiding policy decisions. A systematic literature review was conducted to identify and analyse existing methods for assessing public health surveillance systems. Time-series forecasting models were applied to forecast disease prevalence trends based on historical data. The application of ARIMA ($ARIMA(p,d,q)$) time-series forecasting model revealed a significant positive correlation ($p < 0.05$) between the actual and predicted disease incidence rates in Senegal over the past decade, indicating yield improvement potential with better surveillance practices. Time-series forecasting models can effectively predict future disease outbreaks based on historical data, aiding in the enhancement of public health surveillance systems in Senegal. Public health officials should consider implementing or refining existing surveillance methods to align more closely with time-series forecasting model predictions for improved yield and efficiency.

Keywords: *Sub-Saharan, surveillance, econometrics, forecasting, time-series, health-systems-research, geographic-dynamics*

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