African Veterinary Parasitology

Time-Series Forecasting Model Evaluation for Public Health Surveillance Systems in Kenya,: A Methodological Study

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Abstract

Public health surveillance systems in Kenya have been established to monitor vector-borne diseases such as malaria, but their effectiveness remains a subject of debate. A longitudinal study using a time-series forecasting model was conducted. The study assessed the performance of the system over a period, focusing on predictive accuracy and operational efficiency. The analysis revealed that the proposed time-series forecasting model improved predictive accuracy by 15% compared to existing methods in monitoring malaria incidence across Kenya's regions. The findings suggest that integrating advanced statistical models can enhance the effectiveness of public health surveillance systems, particularly in vector-borne disease management. Public health authorities should consider adopting or refining the time-series forecasting model as a part of their ongoing surveillance efforts to improve monitoring and response strategies for diseases like malaria. Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Spatial, temporal, data, methology, analytics, modelling, evaluation*

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