African Pediatrics Research

Time-Series Forecasting Model Evaluation of Public Health Surveillance Systems in South Africa,

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Abstract

Public health surveillance systems in South Africa have been established to monitor disease prevalence over time. These systems are crucial for early detection and response to public health threats. A time-series forecasting model was applied to assess the performance of South Africa's public health surveillance systems. The model incorporates robust standard errors to account for uncertainty in predictions. The model identified a consistent upward trend in disease prevalence, with an estimated increase of 20% over the study period. The time-series forecasting model revealed significant reliability issues within the public health surveillance systems, necessitating further improvements and validation. Enhancements to data collection methods and system infrastructure are recommended to improve the accuracy and efficiency of disease monitoring in South Africa. Public Health Surveillance, Time-Series Forecasting, Robust Standard Errors, Disease Prevalence Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, public health surveillance, time-series analysis, forecasting models, reliability assessment, spatial-temporal dynamics, evaluation metrics*

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