African Mycology Research (Core Life Science)

Methodological Assessment of Public Health Surveillance Systems in Ethiopia Using Time-Series Forecasting for Cost-Effectiveness Analysis

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Ethiopia, where they play a vital role in early detection and response to outbreaks. A time-series forecasting model was employed, incorporating ARIMA (AutoRegressive Integrated Moving Average) methodology. Uncertainty in the forecasted costs is quantified with robust standard errors. The analysis revealed a significant proportion of under-reporting in surveillance data, suggesting an urgent need for system improvements to enhance accuracy and reliability. This study underscores the importance of timely and accurate public health surveillance systems for effective disease control in Ethiopia. Immediate investments are recommended in training personnel and upgrading infrastructure to reduce reporting errors and improve forecasting precision. Treatment effect was estimated with $text{ logit }(pi)=beta 0+vec{beta} p X_{i}$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Geographic Information Systems (GIS), Surveillance, Time-series Analysis, Cost-effectiveness, Epidemiology, Evaluation*

ABSTRACT-ONLY PUBLICATION

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