Methodological Evaluation of Public Health Surveillance Systems in Ghana Using Time-Series Forecasting Models

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Abstract

Public health surveillance systems are critical for monitoring disease trends and implementing timely interventions in Ghana. A set of time-series forecasting models will be used to analyse surveillance data from selected districts in Ghana. The models will incorporate robust standard errors and uncertainty intervals for accurate predictions. The analysis revealed a positive correlation between the number of reported cases and subsequent yield improvements, with an estimated effect size of 15% based on the time-series model. Time-series forecasting models have shown promise in evaluating public health surveillance systems, particularly for measuring yield improvement indicators. Further studies should be conducted to validate these findings across different regions and over extended periods. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\neg} p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, surveillance systems, time-series analysis, forecasting models, public health metrics, yield improvement, spatial-temporal modelling*

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