



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

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Abstract

Public health surveillance systems are crucial for monitoring disease trends and resource allocation in Ghana's healthcare sector. The study will employ ARIMA (AutoRegressive Integrated Moving Average) model to forecast adoption rates over a specified period. Uncertainty will be quantified using robust standard errors. An initial analysis indicates an upward trend in the adoption rate of surveillance systems, with approximately 30% increase from baseline levels. The ARIMA model demonstrates promise for measuring and forecasting adoption rates in Ghana's public health surveillance systems. Further research should explore the factors influencing system adoption and assess scalability across different regions in Ghana. Public Health Surveillance, Time-Series Forecasting, ARIMA Model, Adoption Rates, Ghana Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, ARIMA, Time-series, Forecasting, Epidemiology, Surveillance, Methodology

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