



Public Health Surveillance Adoption Rates Forecasting in South Africa: A Time-Series Modelling Study

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Abstract

Public health surveillance systems are essential for monitoring infectious diseases in South Africa, but their adoption rates vary over time. A time-series forecasting model was employed to analyse the historical data on public health surveillance system adoption in South Africa. The model included an autoregressive integrated moving average (ARIMA) approach with uncertainty bounds estimated through robust standard errors. The ARIMA model predicted a steady increase in adoption rates over the next five years, with an expected adoption rate of 75% by . The findings suggest that continued investment and supportive policies are needed to achieve full system adoption. Policy makers should consider implementing targeted interventions to enhance public health surveillance system implementation in South Africa. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Africa, South_Africa, Public_Health, Surveillance, Systems, Morbidity_Modeling, Time_Series_Analysis*

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