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Methodological Evaluation of Public Health Surveillance Systems in Uganda: A Time-Series Forecasting Model for Adoption Rates Measurement

Ssemogerere Abayudde[1], **Mukasa Byar**[2], **Kizza Besigye**[3]

[1] Department of Surgery, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

[2] Department of Public Health, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

[3] Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit

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Correspondence: sabayudde@outlook.com

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Author notes

Ssemogerere Abayudde is affiliated with Department of Surgery, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Medicine research in Africa.

Mukasa Byar is affiliated with Department of Public Health, Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Medicine research in Africa.

Kizza Besigye is affiliated with Medical Research Council (MRC)/UVRI and LSHTM Uganda Research Unit and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are crucial for monitoring disease trends and guiding public health interventions in Uganda. A time-series forecasting model will be employed to analyse data from public health surveillance systems. The specific model used is an ARIMA (AutoRegressive Integrated Moving Average) model for forecasting future adoption rates based on historical trends. The analysis reveals a steady increase in the adoption rate of electronic reporting platforms, with a forecast suggesting that by , approximately 75% of healthcare facilities will be using these systems. This study underscores the importance of continuous evaluation and improvement of public health surveillance systems to enhance their effectiveness in disease monitoring and control. Ugandan policymakers should prioritise investments in technology infrastructure to support adoption of advanced reporting tools, thereby improving data quality and timeliness for public health decision-making. Public Health Surveillance, Time-Series Forecasting, Adoption Rates, Uganda Treatment effect was estimated with $text{logit}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African, surveillance, forecasting, methodology, public health, dynamics, time-series*

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