



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

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Abstract

Public health surveillance systems are essential for monitoring disease outbreaks and managing public health crises efficiently. A systematic review will be conducted to identify, assess, and synthesize studies related to public health surveillance in Rwanda. Studies will be screened using predefined inclusion criteria, and a narrative synthesis approach will be employed for data aggregation. The analysis indicates that the majority of reviewed studies focus on disease-specific monitoring with limited comparative analyses across different systems. While current methods provide valuable insights, there is room for improvement in comparing cost-effectiveness among surveillance systems. Further research should explore comprehensive comparisons and incorporate additional metrics to enhance the evaluation process. 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, surveillance, forecasting, time-series, evaluation, methodology, effectiveness*

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