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

Kerensa Simiyu

Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam

Barbara Taylor

Muhimbili University of Health and Allied Sciences (MUHAS), Dar es Salaam

Correspondence: ksimiyu@outlook.com

Abstract

Public health surveillance systems play a crucial role in monitoring and managing diseases such as HIV/AIDS in Tanzania. However, their effectiveness can be influenced by various factors including data collection methods and reporting processes. A comprehensive analysis was conducted, employing time-series forecasting models (e.g., ARIMA) to analyse surveillance data from multiple sources. Robust standard errors were used to account for model uncertainty. The findings indicate that there has been a gradual increase in the adoption rates of public health surveillance systems across different regions of Tanzania over the past five years, with an average adoption rate of 75%. This study highlights the positive trends in adopting and utilising surveillance systems but also underscores the need for continuous monitoring and refinement to ensure their efficacy in disease control. Recommendations include expanding training programmes for healthcare workers on data collection methods, enhancing infrastructure support for surveillance units, and promoting standardised reporting protocols across all regions. Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\vec{\beta}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Tanzania, Geographic Mapping, Surveillance Systems, Time-Series Analysis, Epidemiology, Public Health, Forecasting Models*

ABSTRACT-ONLY PUBLICATION

This is an abstract-only publication. The complete research paper with full methodology, results, discussion, and references is available upon request.

✉ REQUEST FULL PAPER

Email: info@parj.africa

Request your copy of the full paper today!

SUBMIT YOUR RESEARCH

Are you a researcher in Africa? We welcome your submissions!

Join our community of African scholars and share your groundbreaking work.

Submit at: app.parj.africa

Scan to visit app.parj.africa

Open Access Scholarship from PARJ

Empowering African Research | Advancing Global Knowledge