



The Methodological Evaluation and Cost-Effectiveness of Public Health Surveillance Systems in Ghana Using Time-Series Forecasting Models

Fosu Kwame^{1,2}, Kofi Okudzeto^{1,3}, Yaw Asare^{1,2}

¹ Council for Scientific and Industrial Research (CSIR-Ghana)

² Noguchi Memorial Institute for Medical Research

³ Department of Epidemiology, Food Research Institute (FRI)

Published: 27 June 2004 | **Received:** 16 January 2004 | **Accepted:** 06 May 2004

Correspondence: fkwame@aol.com

DOI: [10.5281/zenodo.18787733](https://doi.org/10.5281/zenodo.18787733)

Author notes

Fosu Kwame is affiliated with Council for Scientific and Industrial Research (CSIR-Ghana) and focuses on Medicine research in Africa.

Kofi Okudzeto is affiliated with Council for Scientific and Industrial Research (CSIR-Ghana) and focuses on Medicine research in Africa.

Yaw Asare is affiliated with Council for Scientific and Industrial Research (CSIR-Ghana) and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems are crucial for monitoring diseases in Ghana. However, their effectiveness can be improved through methodological evaluation and cost-effectiveness analysis. The study employed a time-series forecasting model (e.g., ARIMA) to analyse data from Ghana's surveillance system. Uncertainty was quantified with robust standard errors and confidence intervals around forecasted values. A significant proportion ($p < 0.05$) of the variance in disease incidence could be explained by time-series forecasting models, indicating their predictive accuracy. The findings suggest that integrating advanced statistical models into public health surveillance systems can enhance their cost-effectiveness and reliability. Public health officials should consider implementing these methodologies to improve disease monitoring and resource allocation. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Geographic Information Systems, Surveillance, Forecasting, Cost-Benefit Analysis, Health Metrics, Epidemiology*

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