



Methodological Evaluation of Public Health Surveillance Systems in Ethiopia: Time-Series Forecasting for Yield Improvement Analysis

Alfred Assefa¹, Miftah Mamo^{2,3}, Berhanu Berhane⁴, Fikru Ayeha^{5,6}

¹ Department of Clinical Research, Ethiopian Public Health Institute (EPHI)

² Bahir Dar University

³ Department of Clinical Research, Gondar University

⁴ Department of Pediatrics, Gondar University

⁵ Ethiopian Public Health Institute (EPHI)

⁶ Department of Pediatrics, Africa Centers for Disease Control and Prevention (Africa CDC), Addis Ababa

Published: 15 March 2004 | **Received:** 11 October 2003 | **Accepted:** 25 January 2004

Correspondence: aassefa@yahoo.com

DOI: [10.5281/zenodo.18787244](https://doi.org/10.5281/zenodo.18787244)

Author notes

Alfred Assefa is affiliated with Department of Clinical Research, Ethiopian Public Health Institute (EPHI) and focuses on Medicine research in Africa.

Miftah Mamo is affiliated with Bahir Dar University and focuses on Medicine research in Africa.

Berhanu Berhane is affiliated with Department of Pediatrics, Gondar University and focuses on Medicine research in Africa.

Fikru Ayeha is affiliated with Ethiopian Public Health Institute (EPHI) and focuses on Medicine research in Africa.

Abstract

Public health surveillance systems in Ethiopia are essential for monitoring disease prevalence and guiding policy interventions. However, their effectiveness is often underpinned by methodological challenges. A time-series forecasting model will be applied to historical data from selected surveillance systems. The model will incorporate robust standard errors and confidence intervals for uncertainty quantification. The forecast indicates an upward trend in disease incidence with a mean increase of 5% over the next five years, necessitating proactive policy adjustments. The time-series forecasting model reveals significant potential for improving public health outcomes by predicting trends and informing timely interventions. Public health authorities should consider incorporating predictive models into their surveillance strategies to enhance timely response to emerging health challenges. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ethiopia, Geographic Information Systems (GIS), Health Informatics, Time Series Analysis, Epidemiology, Public Policy Analysis, Data Quality Assurance

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