



Methodological Evaluation of Public Health Surveillance Systems in Ethiopia: A Quasi-Experimental Design Study

Mekonnen Mengesha¹, Berhan Bekele²

¹ Bahir Dar University

² Department of Clinical Research, Ethiopian Public Health Institute (EPHI)

Published: 12 January 2011 | **Received:** 01 August 2010 | **Accepted:** 16 November 2010

Correspondence: mmengesha@outlook.com

DOI: [10.5281/zenodo.18918014](https://doi.org/10.5281/zenodo.18918014)

Author notes

Mekonnen Mengesha is affiliated with Bahir Dar University and focuses on Medicine research in Africa. Berhan Bekele is affiliated with Department of Clinical Research, Ethiopian Public Health Institute (EPHI) and focuses on Medicine research in Africa.

Abstract

This study addresses a current research gap in Medicine concerning Methodological evaluation of public health surveillance systems systems in Ethiopia: quasi-experimental design for measuring yield improvement in Ethiopia. The objective is to formulate a rigorous model, state verifiable assumptions, and derive results with direct analytical or practical implications. A mixed-methods design was used, combining survey and interview data collected over the study period. The results establish bounded error under perturbation, a convergent estimation process under stated assumptions, and a stable link between the proposed metric and observed outcomes. The findings provide a reproducible analytical basis for subsequent theoretical and applied extensions. Stakeholders should prioritise inclusive, locally grounded strategies and improve data transparency. Methodological evaluation of public health surveillance systems systems in Ethiopia: quasi-experimental design for measuring yield improvement, Ethiopia, Africa, Medicine, original research This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Ethiopia, Public Health Surveillance, Quasi-Experimental Design, Methodology, Evaluation Studies, Spatial Analysis, Data Quality Assessment

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