



Methodological Evaluation of Public Health Surveillance Systems in Tanzania: Quasi-Experimental Design for Cost-Effectiveness Assessment

John Masiihuwa¹, Mary Kajabuwa^{2,3}

¹ Department of Pediatrics, Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha

² Ardhi University, Dar es Salaam

³ Department of Public Health, Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha

Published: 15 April 2004 | **Received:** 12 January 2004 | **Accepted:** 21 March 2004

Correspondence: jmasiihuwa@hotmail.com

DOI: [10.5281/zenodo.18785811](https://doi.org/10.5281/zenodo.18785811)

Author notes

John Masiihuwa is affiliated with Department of Pediatrics, Nelson Mandela African Institution of Science and Technology (NM-AIST), Arusha and focuses on Medicine research in Africa.

Mary Kajabuwa is affiliated with Ardhi University, Dar es Salaam 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 in Tanzania: quasi-experimental design for measuring cost-effectiveness in Tanzania. 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 in Tanzania: quasi-experimental design for measuring cost-effectiveness, Tanzania, Africa, Medicine, intervention study This work contributes a formal specification, transparent assumptions, and mathematically interpretable claims. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Tanzania, Geographic Information Systems (GIS), Quasi-experimental design, Public health surveillance, Cost-effectiveness analysis, Evaluation methodology, Spatial 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