



# Methodological Evaluation of Public Health Surveillance Systems in Nigeria Using Quasi-Experimental Design

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**Published:** 04 June 2006 | **Received:** 10 February 2006 | **Accepted:** 13 May 2006

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**DOI:** [10.5281/zenodo.18823759](https://doi.org/10.5281/zenodo.18823759)

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## Abstract

Public health surveillance systems are crucial for monitoring disease outbreaks in Nigeria. However, their effectiveness and reliability need to be rigorously evaluated. A quasi-experimental study was conducted with data from two urban hospitals. The study employed time series analysis for trend detection and logistic regression for predicting patient outcomes based on surveillance system performance indicators. The analysis revealed a significant positive correlation ( $p < 0.05$ ) between timely disease outbreak notifications and improved clinical outcomes, suggesting that the surveillance systems are effective in reducing morbidity. The quasi-experimental design provided robust evidence for the efficiency of public health surveillance systems in Nigeria, highlighting their role in enhancing patient care and public health management. Further research should focus on integrating continuous feedback mechanisms into the surveillance systems to enhance their predictive accuracy and real-time responsiveness. Public Health Surveillance, Quasi-Experimental Design, Clinical Outcomes, Time Series Analysis

Treatment effect was estimated with  $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, public health, surveillance systems, epidemiology, intervention studies, qualitative analysis, geographic information systems*

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