



A Quasi-Experimental Intervention for Assessing the Reliability of Public Health Surveillance Systems in Nigeria

A Methodological Evaluation, 2000–2026

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Author notes

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ABSTRACT

Background: Public health surveillance systems in Nigeria face persistent challenges regarding data reliability, which undermines effective outbreak response and health policy formulation. Existing evaluations often lack rigorous, experimental designs to isolate and measure the specific effect of interventions on system performance.

Purpose and objectives: This study aimed to methodologically evaluate a quasi-experimental intervention designed to measure and improve the reliability of integrated disease surveillance and response (IDSR) systems. The primary objective was to quantify the intervention's effect on key reliability metrics, including data completeness, timeliness, and concordance.

Keywords: *Public health surveillance, Quasi-experimental design, System reliability, Methodological evaluation, Sub-Saharan Africa*

Article Highlights

- Employed a controlled, quasi-experimental design with staggered implementation across multiple states.
- Intervention significantly increased data completeness by 22.4 percentage points relative to controls.
- Framework provides a robust method for quantifying intervention impact on surveillance systems.

Core Methodology

Difference-in-differences model with cluster-robust standard errors, assessing reliability metrics (completeness, timeliness, concordance) following a standardised training and digital reporting intervention.

This evaluation offers a methodological blueprint for assessing surveillance system interventions.

<ul style="list-style-type: none">• Positive results demonstrate potential of structured, multi-component interventions to enhance data quality.	
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