



Methodological Assessment of Public Health Surveillance Systems in Nigeria Using Difference-in-Differences Approach,

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Abstract

Public health surveillance systems in Nigeria have been established to monitor diseases of public health importance. However, their effectiveness and impact need further evaluation. A comprehensive search was conducted in PubMed, Scopus, and Google Scholar databases. Studies published between and were included based on predefined criteria. Methodological quality of studies was assessed through a pre-specified checklist. One hundred and twenty-one articles met the inclusion criteria; methodological quality varied but most used difference-in-differences models to measure yield improvement. Common themes included surveillance data collection methods, reporting mechanisms, and training needs. The review underscores the need for standardised methodologies in public health surveillance systems to ensure reliability and robustness of outcomes measurements. Standardised methodology guidelines should be developed and implemented across Nigeria's surveillance networks. Training programmes addressing methodological gaps are recommended. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Nigeria, Public Health Surveillance, Methodology, Evaluation, Difference-in-Differences, Geographic Analysis*

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