



Methodological Evaluation of Public Health Surveillance Systems in Nigeria Using Panel Data for Cost-Effectiveness Analysis,

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Abstract

Public health surveillance systems in Nigeria are crucial for monitoring infectious diseases and other public health threats, but their effectiveness varies over time. The study employs a fixed effects regression model to analyse the impact of surveillance systems on infectious diseases in Nigeria. Uncertainty is addressed with robust standard errors. In this period, there was a notable reduction (30%) in reported cases of measles following the implementation of enhanced health surveillance measures. The longitudinal analysis confirms that public health surveillance can significantly improve disease control and reduce incidence rates. Policy recommendations include continued investment in surveillance infrastructure to maintain cost-effectiveness and enhance response capabilities. Public Health Surveillance, Nigeria, Panel Data, Cost-Effectiveness Analysis, Measles Incidence 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: *Geographic, Public health, Surveillance systems, Panel data, Cost-effectiveness, Epidemiology, Regression analysis*

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