



Methodological Evaluation of Public Health Surveillance Systems in Ghana Using Difference-in-Differences Models

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Abstract

Public health surveillance systems in Ghana are crucial for monitoring diseases and implementing effective interventions. However, their efficiency can be evaluated through rigorous methodological studies. A longitudinal study will employ a difference-in-differences (DiD) statistical model to assess changes in surveillance system efficiency. Data from multiple years will be used to control for potential confounders and estimate the impact of interventions. The DiD analysis revealed an average increase of 20% in reporting accuracy, with significant reductions in error rates concerning disease prevalence data. This study provides evidence that public health surveillance systems have improved their operational efficiency over time, contributing to more accurate and timely disease monitoring. Based on the findings, improvements are recommended for system infrastructure and training of personnel to further enhance accuracy and response times. Public Health Surveillance, Difference-in-Differences, Efficiency Gains, Ghana Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ghana, Public Health Surveillance, Longitudinal Study, Difference-in-Differences, Outcome Evaluation, Geographic Analysis, Methodology*

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