



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

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Abstract

Public health surveillance systems are crucial for monitoring diseases and implementing effective interventions in Ghana. A difference-in-differences model was used to analyse data from pre- and post-intervention periods. The study compared changes in surveillance system adoption between intervention and control groups within the same geographic regions, accounting for potential confounders such as baseline differences in healthcare infrastructure. The analysis revealed a significant increase ($p < 0.05$) in the proportion of healthcare facilities adopting the surveillance system from 30% to 60%, indicating effective implementation and adoption rates have improved over time. The difference-in-differences model demonstrated promising results for measuring the impact of public health interventions, providing evidence that supports the continued use and expansion of the surveillance system in Ghana. Further studies should explore long-term sustainability and scalability of these intervention models across different regions to ensure broad coverage and effective disease control. Public Health Surveillance, Difference-in-Differences Model, Adoption Rates, Intervention Study Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: African, Geographic, Spatial, Epidemiology, Quantitative, Public Health, Methodology

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