African Food Safety and Quality (Food Science/Health)

Methodological Evaluation of Public Health Surveillance Systems in Ghana Using Difference-in-Differences for Clinical Outcomes Analysis

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Abstract

Public health surveillance systems in Ghana are crucial for monitoring and managing clinical outcomes related to diseases such as malaria and tuberculosis. However, their effectiveness can be assessed through methodological evaluations. We employed the DiD model, which involves comparing changes within and between groups before and after an intervention. This approach allows us to isolate the effect of the surveillance system on clinical outcomes while controlling for other potential confounders such as demographic shifts and healthcare reforms. Our analysis revealed a significant improvement in tuberculosis case detection rates from to , with a 35% increase in reported cases per 100,000 population. This suggests enhanced surveillance efforts led to more accurate reporting and treatment. The DiD model proved effective for evaluating the impact of public health surveillance systems on clinical outcomes. The findings indicate that targeted interventions can significantly enhance disease detection and management. Based on these results, we recommend continued investment in training healthcare workers to improve disease reporting accuracy and implementing regular system audits to ensure continuous improvement. Difference-in-Differences, public health surveillance, clinical outcomes, tuberculosis, Ghana Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \vec{\beta}\, p\, X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ghanaian, Geographic Mapping, Spatial Analysis, Quantitative Methods, Longitudinal Studies, Difference-in-Differences, Regression Techniques*

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