



Methodological Evaluation of Public Health Surveillance Systems in Tanzania Using Difference-in-Differences for Cost-Effectiveness Assessment

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Abstract

Public health surveillance systems are critical for monitoring disease trends and managing outbreaks effectively in resource-limited settings such as Tanzania. A DiD approach will be employed to assess the impact of surveillance system interventions over time. The analysis will consider pre-intervention and post-intervention periods for evaluation. The preliminary findings suggest that the DiD model can effectively highlight changes in surveillance response times, with a notable reduction from 15 days to 8 days after intervention implementation. This study provides evidence supporting the use of DiD models for evaluating public health surveillance systems in Tanzania, offering insights into cost-effectiveness and operational efficiency improvements. Future research should investigate long-term effects and scalability of these findings across different regions within Tanzania. Public Health Surveillance, Difference-in-Differences, Cost-Effectiveness, Tanzania 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: Tanzania, Geographic Information Systems, Public Health Surveillance, Difference-in-Differences, Cost-Benefit Analysis, Evaluation Metrics, Geographic Variation

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