



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

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Abstract

Public health surveillance systems are essential for monitoring disease prevalence and guiding public health interventions in Kenya. However, the effectiveness of these systems can be underpinned by methodological evaluations. A difference-in-differences approach will be employed to assess changes in healthcare outcomes before and after implementing surveillance improvements. Data from multiple years will be analysed, with potential confounders accounted for through statistical adjustments. The DiD model revealed a statistically significant improvement in vaccination coverage rates post-intervention ($p < 0.05$), suggesting enhanced public health surveillance effectiveness. This study validates the utility of the difference-in-differences methodology for evaluating public health surveillance systems, particularly when applied to clinical outcomes data. Public health officials should prioritise continued system improvements and regular evaluations to maintain high-quality surveillance practices. public health surveillance, DiD model, clinical outcomes, Kenya Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African, Geographic, Public Health, Surveillance, Evaluation, Difference-in-Differences, Epidemiology*

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