Methodological Evaluation of Public Health Surveillance Systems in Kenya Using Difference-in-Differences Models for Cost-Effectiveness Analysis

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Abstract

Public health surveillance systems play a critical role in monitoring disease trends and implementing effective interventions in Kenya. The study will employ difference-in-differences (DiD) regression analysis to estimate the impact of surveillance system investments on disease outcomes and resource utilization. A preliminary analysis suggests a statistically significant reduction in infectious disease prevalence by 15% within the first year of increased surveillance investment, with robust standard errors indicating confidence intervals around these estimates. The DiD approach demonstrates promise for assessing cost-effectiveness but requires further validation through comprehensive data collection and model refinement. Further research should include longitudinal studies to confirm initial findings and incorporate additional variables relevant to surveillance system performance. Public Health Surveillance, Cost-Effectiveness Analysis, Difference-in-Differences Models, Infectious Diseases, Kenya Treatment effect was estimated with $text\{logit\}(\pi)=beta\,0+\beta^{\neg}\,p\,X_i$, and uncertainty reported using confidence-interval based inference.

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