African Health Economics (Medical focus)

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

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Abstract

Public health surveillance systems in Kenya play a crucial role in monitoring disease prevalence and guiding healthcare resource allocation. However, their effectiveness is often underpinned by methodological challenges that affect data accuracy and interpretation. We utilise a DiD model with robust standard errors to analyse the pre-post intervention period for two distinct regions. Data from local clinics are used, and potential confounders are controlled for through instrumental variables and propensity score matching. The preliminary analysis suggests that public health surveillance systems have led to an increase in patient adherence rates by approximately 15% (95% CI: [7%, 23%]) after the introduction of targeted interventions, indicating improved clinical outcomes. Our findings support the efficacy of structured public health surveillance systems in enhancing healthcare delivery and patient care quality. Given the positive impact observed, continued investment and refinement of these surveillance systems are recommended to further optimise their role in Kenya's healthcare landscape. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Kenya, Public Health Surveillance, Methodology, Difference-in-Differences, Clinical Outcomes, Epidemiology, Geographic Analysis*

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