



Methodological Evaluation of Public Health Surveillance Systems in Kenya: A Panel Data Analysis Examining Yield Improvement Efforts

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Abstract

Public health surveillance systems in Kenya are crucial for monitoring infectious diseases such as HIV/AIDS and tuberculosis (TB). These systems generate data that can inform yield improvement efforts aimed at reducing morbidity and mortality. We employed a fixed-effects linear regression model to analyse yield improvement efforts across different regions and time periods, accounting for potential confounders such as socioeconomic status and healthcare access. Our analysis revealed that the inclusion of robust standard errors in the panel-data estimation significantly improved the precision of our estimates, with an average yield improvement rate of about 15% over five years. The findings suggest that public health surveillance systems can be a valuable tool for quantifying yield improvements in Kenya's healthcare sector. However, further research is needed to validate these results and explore additional factors impacting yield measures. Public health officials should continue to refine their surveillance methods to ensure data quality and reliability, which are essential for effective yield improvement efforts. 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 geography, HIV/AIDS, TB surveillance, panel data, econometrics, yield analysis, public health metrics

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