



Methodological Evaluation of Public Health Surveillance Systems in Kenya Using Quasi-Experimental Design

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Kenya. However, their effectiveness varies across regions and requires rigorous evaluation. A quasi-experimental design was employed to compare pre- and post-intervention data from different regions. Propensity score matching (PSM) was used to balance covariates between intervention and control groups. The analysis revealed a significant increase in the detection rate of influenza-like illnesses by 25% after implementing surveillance enhancements, with an uncertainty interval not including zero. Quasi-experimental design provides robust evidence for efficiency gains in public health surveillance systems, particularly in detecting common respiratory infections. Further implementation should focus on expanding coverage and ensuring consistent data reporting to maintain these improvements. Treatment effect was estimated with $\text{text}\{\text{logit}\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African geography, public health surveillance, quasi-experimental design, evaluation methodology, performance measurement, infectious disease control, spatial analysis*

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