



# Methodological Assessment of Public Health Surveillance Systems in Kenya Using Quasi-Experimental Design for Risk Reduction Evaluation

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## Abstract

Public health surveillance systems play a crucial role in monitoring infectious diseases such as measles and tuberculosis (TB). In Kenya, these systems are essential for early detection and rapid response to outbreaks. A quasi-experimental design was employed to compare pre- and post-outbreak data from surveillance systems in different regions of Kenya. Data analysis included regression models with robust standard errors to account for potential confounders. The analysis revealed that the surveillance system detected an average of 20% more cases during a simulated outbreak compared to historical baseline levels, suggesting improved detection rates. This study supports the continued investment in public health surveillance systems as they significantly enhance early disease detection and control efforts. Health authorities should prioritise training for surveillance personnel and ensure timely data reporting to maximise system effectiveness. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *African, Quasi-experimental, Surveillance, Epidemiology, Public health, Evaluation, Metrics*

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