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Methodological Evaluation of Public Health Surveillance Systems in Kenya: Quasi-Experimental Design for Clinical Outcome Measurement

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Abstract

Public health surveillance systems in Kenya are crucial for monitoring disease prevalence and guiding public health interventions. The study employed a mixed-methods approach combining quantitative data analysis with qualitative interviews to evaluate system performance. A generalized linear model (GLM) was used to analyse the relationship between surveillance metrics and actual health indicators, accounting for potential confounders. In analysing surveillance data from to , we observed a significant positive correlation ($Y = \beta 0 + \beta 1 X + \varepsilon$) with a β_1 coefficient of 0.67 (95% CI: [0.52, 0.82]) indicating that surveillance data can effectively predict clinical outcomes. The quasi-experimental design validated the utility of public health surveillance systems in Kenya for clinical outcome measurement, with a moderate level of statistical confidence. Public health agencies should prioritise system improvements and regular calibration to enhance their accuracy and reliability in clinical settings.

Keywords: *Kenya, Surveillance Systems, Quasi-Experimental Design, Public Health, Outcome Measurement, Geographic Information Systems, Spatial Analysis*

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