



# Methodological Evaluation of Public Health Surveillance Systems in Kenya: Multilevel Regression Analysis for Adoption Rates

Kipruto Cheron<sup>1</sup>

<sup>1</sup> Department of Surgery, Egerton University

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**Correspondence:** [kcherono@hotmail.com](mailto:kcherono@hotmail.com)

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## Author notes

*Kipruto Cheron is affiliated with Department of Surgery, Egerton University and focuses on Medicine research in Africa.*

## Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Kenya. These systems collect data on disease incidence and transmission patterns to inform public health interventions. Multilevel regression analysis will be employed to examine data from various regions in Kenya. The model includes fixed effects for region and random intercepts for districts within each region. The multilevel regression analysis revealed that the adoption rate of public health surveillance systems varies significantly across different regions, with a substantial proportion (35%) showing moderate adoption levels. This study provides insights into factors affecting the adoption rates and highlights the need for tailored strategies to enhance system implementation in underserved areas. Strategies should focus on improving communication between public health officials and local communities, as well as enhancing technical support systems to ensure consistent data collection and reporting. Public Health Surveillance Systems, Multilevel Regression Analysis, Adoption Rates, Kenya Treatment effect was estimated with  $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Kenyan, surveillance, multilevel, regression, implementation, evaluation, public health*

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