



# Methodological Evaluation of Public Health Surveillance Systems in Ghana: A Multilevel Regression Analysis

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## Abstract

Public health surveillance systems in Ghana are crucial for monitoring disease prevalence and implementing targeted interventions. A systematic literature review was conducted to assess the quality and effectiveness of surveillance data collection methods. Multilevel regression analysis will be used to evaluate the impact of these systems on clinical outcomes across different levels of government intervention. The evaluation revealed that while some public health surveillance systems in Ghana are adequately designed, there is variability in their implementation at local levels, leading to inconsistent reporting of disease prevalence and treatment efficacy. This study highlights the need for standardised training programmes for data collectors and improved infrastructure support to enhance the reliability and consistency of surveillance data. Public health authorities should prioritise the development of robust training protocols and investment in local data collection resources. This will facilitate more accurate and timely public health responses in Ghana. Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** Sub-Saharan, African, Surveillance, Systematic, Literature, Qualitative, Analysis

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