



# Multilevel Regression Analysis to Evaluate Public Health Surveillance Systems in Ghana, 2009

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### Abstract

Public health surveillance systems are crucial for monitoring and managing infectious diseases in Ghana. However, their effectiveness varies across different regions. A multilevel logistic regression model was employed to analyse data from various regions of Ghana, accounting for both regional and subregional variations. The analysis revealed a significant reduction ( $p < 0.05$ ) in disease risk across the country's subregions compared to their respective national baseline. Multilevel regression provided valuable insights into surveillance system effectiveness, highlighting areas needing further improvement. Enhanced training for local health workers and improved data collection methods are recommended to ensure more consistent risk reduction. Public Health Surveillance, Multilevel Regression, Risk Reduction, Ghana Treatment effect was estimated with  $\text{text}\{ \logit \}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** Sub-Saharan, Ghana, Multilevel, Regression, Epidemiology, Public, Surveillance

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