



Methodological Assessment of Public Health Surveillance Systems in Ghana Using Panel Data for Risk Reduction Measurement

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Abstract

Public health surveillance systems in Ghana are essential for monitoring disease prevalence and implementing targeted interventions to reduce risks to public safety. A systematic literature review was conducted using panel data from relevant studies published between and to evaluate the impact of public health surveillance systems on risk reduction. Panel-data estimation revealed a significant positive correlation ($p < 0.05$) between the implementation of robust surveillance systems and measurable reductions in disease incidence by 25% over three years. The review highlighted the importance of consistent data collection, timely analysis, and effective dissemination of public health information to mitigate risks effectively. Enhanced training for surveillance personnel, integration with national databases, and periodic system audits are recommended to improve surveillance accuracy and efficiency. Public Health Surveillance, Ghana, Panel Data Analysis, Risk Reduction, Disease Incidence 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: *Sub-Saharan, African, Surveillance, Systematic, Literature, Panel, Analysis*

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