



Methodological Evaluation of Public Health Surveillance Systems in Rwanda: A Randomized Field Trial for Risk Reduction Assessment

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Abstract

Public health surveillance systems are critical for monitoring disease prevalence and implementing effective interventions in Rwanda. A randomized field trial was conducted in three districts of Rwanda, with 10% random sampling of the population. Data were collected over a period of one year using standardised questionnaires and biomarkers for disease prevalence assessment. The study found that the current surveillance system accurately identified risk factors associated with specific diseases, with a sensitivity of 85% (95% CI: 70-95%). The randomized field trial demonstrated the effectiveness and reliability of Rwanda's public health surveillance systems in identifying disease risks. Further research should be conducted to validate these findings across different geographical regions and populations, with a focus on improving resource allocation for targeted interventions. Public Health Surveillance, Randomized Field Trial, Risk Reduction, Disease Prevalence Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Rwanda, Geographic Information Systems (GIS), Spatial Analysis, Public Health Surveillance, Randomized Controlled Trials, Data Quality Assessment, Sentinel Sites

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