



Methodological Evaluation of Public Health Surveillance Systems in Tanzania: A Randomized Field Trial on Efficiency Gains

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Abstract

Public health surveillance systems in Tanzania are crucial for monitoring diseases and managing public health crises efficiently. A randomized field trial was conducted in two regions of Tanzania. Systematic data collection methods were used to gather pre- and post-intervention data on disease incidence and response times. The study employed a mixed-method approach, including both quantitative analysis of efficiency metrics and qualitative interviews with stakeholders to assess system performance. In the trial region, there was an observed reduction in average response time for health emergencies by 25% compared to pre-intervention levels (95% confidence interval: -10% to -40%). The findings suggest that targeted system improvements can significantly enhance the efficiency of public health surveillance systems. Based on these results, recommendations for policy makers include implementing a centralized database and training programmes for field personnel to improve data accuracy and response times. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Tanzania, Geographic Mapping, Surveillance Systems, Randomized Control Trial, Data Quality, Information Dissemination, Efficiency Measures*

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