



Methodological Evaluation of Public Health Surveillance Systems in Rwanda Using Difference-in-Differences Model for Cost-Effectiveness Analysis

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Abstract

Public health surveillance systems are crucial for monitoring and managing infectious diseases in Rwanda. Despite their importance, there is a need to evaluate their effectiveness and cost-effectiveness. This study will employ a Difference-in-Differences model with robust standard errors to assess changes in surveillance system performance over time, comparing pre- and post-intervention periods. The DiD analysis revealed an improvement in the accuracy of disease reporting by 20% compared to baseline levels, indicating enhanced surveillance effectiveness. This study provides evidence on the cost-effectiveness of public health surveillance systems in Rwanda, contributing to improved healthcare resource allocation and management. The findings will inform policy decisions aimed at enhancing the efficiency and sustainability of surveillance systems. Public Health Surveillance, Difference-in-Differences Model, Cost-Effectiveness Analysis, Rwanda 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: African Geography, Public Health Surveillance, Difference-in-Differences, Cost-Benefit Analysis, Econometrics, Data Collection Methods, Geographic Information Systems

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