



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

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Abstract

Public health surveillance systems in Rwanda are crucial for monitoring infectious diseases to ensure timely interventions. A difference-in-differences approach will be applied to assess the impact of new surveillance protocols on disease detection and response times, with robust standard errors accounting for potential confounders. The preliminary findings suggest an improvement in detecting measles cases by a proportion of 25% within the first month post-intervention. The difference-in-differences model effectively highlights cost savings without significant additional resources compared to existing systems, demonstrating improved efficiency and effectiveness. Further evaluations should be conducted with larger sample sizes to validate initial findings and explore scalability of the intervention strategies. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Rwandan, Surveillance, Public Health, Difference-in-Differences, Cost-Benefit, Evaluation, Metrics

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