



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

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Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and outcomes in Rwanda. However, their effectiveness is often underpinned by methodological evaluation to ensure accurate data interpretation. The study will employ a DiD approach, comparing pre- and post-intervention periods to assess changes in health outcomes. Data from hospitals across Rwanda will be analysed, with robust standard errors accounting for potential confounders. A preliminary analysis suggests that the intervention led to a decrease of approximately 15% in respiratory infection hospital admissions among children under five years old. The DiD model demonstrated significant efficacy in detecting changes attributable to surveillance system improvements, contributing to more precise health policy recommendations for Rwanda. Further research should explore scalability and cost-effectiveness of the DiD approach across different public health domains in Rwanda. Public Health Surveillance, Difference-in-Differences, Clinical Outcomes, 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: Rwanda, Public Health Surveillance, Methodological Evaluation, Difference-in-Differences, Clinical Outcomes, Epidemiology, Quantitative Methods

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