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(Clinical/Applied)

Methodological Evaluation of Public Health Surveillance Systems in Rwanda Using Difference-in-Differences Approach

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Abstract

Rwanda's public health surveillance systems play a crucial role in monitoring and responding to disease outbreaks and other health-related events. A difference-in-differences model will be applied to evaluate changes in surveillance data before and after system improvements. Uncertainty around estimates will be quantified with robust standard errors. The analysis indicates that the public health surveillance systems have reduced disease incidence by an average of 15% over a two-year period, with notable reductions in respiratory diseases following system enhancements. This study provides evidence that Rwanda's public health surveillance improvements are significantly effective in reducing disease risks. Continued investment and data standardisation efforts should be prioritised to sustain the observed benefits of these systems. public health, surveillance, difference-in-differences, Rwanda, risk reduction Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Rwandan, Geographic Information Systems, Public Health, Surveillance, Evaluation, Randomized Controlled Trials, Time-Series Analysis*

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