Methodological Evaluation of Public Health Surveillance Systems in Rwanda Using Panel Data for Clinical Outcome Assessment

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Abstract

Public health surveillance systems play a crucial role in monitoring disease prevalence and guiding interventions in Rwanda. Panel data methods were used to analyse longitudinal datasets from various health facilities. A fixed effects model was employed to account for unobserved heterogeneity across regions. The panel data revealed significant variations in clinical outcome measures between districts ($p < 0.05$), indicating the need for tailored interventions. Public health surveillance systems require further refinement and targeted support to improve clinical outcomes, particularly in underserved areas. Investment in human resources training and infrastructure development is recommended to enhance system performance. Treatment effect was estimated with $text\{logit\}(\pi) = beta\,0 + \beta^{\rightarrow} p\,X_i$, and uncertainty reported using confidence-interval based inference.

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