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Methodological Evaluation of Public Health Surveillance Systems in Tanzania: Panel Data Estimation for Measuring Adoption Rates

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Tanzania. However, there is a need to evaluate their effectiveness and identify areas for improvement. Panel data from 10 regional health offices were analysed over two years. Adoption rates were estimated using a linear mixed-effects model to account for potential time-invariant and spatial heterogeneity effects. The adoption rate of the surveillance system was found to be 65% across all regions, with no significant differences observed between urban and rural areas. The study provides evidence on the current status of public health surveillance systems in Tanzania and highlights the need for further policy interventions to enhance their effectiveness. Health policymakers should prioritise training programmes for healthcare workers and ensure regular data collection and analysis to improve system adoption rates. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Africa, PredatoryModels, Quasi-RandomizedDesign, PanelDataAnalysis, MixedEffectsModels, HealthInformationSystems*

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