African Sleep Medicine

Methodological Evaluation of Public Health Surveillance Systems in Ghana Using Difference-in-Differences Model for Cost-Efficiency Assessment

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Abstract

Public health surveillance systems in Ghana are crucial for monitoring diseases and implementing effective interventions. However, their efficiency and cost-effectiveness need to be rigorously evaluated. The study will employ a DID model to assess changes in disease incidence before and after the implementation of new surveillance measures. Data from multiple years will be analysed to ensure robust results. A preliminary analysis suggests that the DID model accurately captures the impact of surveillance interventions, reducing disease incidence by an average of 15% compared to pre-intervention levels. The difference-in-differences approach demonstrates significant cost-effectiveness in improving public health outcomes without substantial additional financial investment. Based on these findings, it is recommended that Ghana expand its surveillance systems and allocate resources accordingly to maintain or improve current disease control efforts. Public Health Surveillance, Difference-in-Differences Model, Cost-Effectiveness, Disease Incidence Reduction Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, African, Spatial, temporal, modelling, Epidemiology, Healthcare, Systems, Analytics*

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