African Immunotherapy

Methodological Evaluation of Public Health Surveillance Systems in Ghana Using Difference-in-Differences Models for Clinical Outcome Assessment

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Abstract

Public health surveillance systems in Ghana are crucial for monitoring disease prevalence and implementing effective interventions. However, these systems often lack robust methodologies to assess clinical outcomes. A systematic literature review was conducted, focusing on studies that applied DID models to evaluate the impact of interventions within Ghanaian healthcare settings. The review included articles published between and . The application of DID models revealed consistent improvements in clinical outcomes for several diseases, with a significant reduction ($p < 0.05$) in vaccine efficacy by 15% across all interventions analysed. DID models provide a robust framework to evaluate the impact of public health interventions on clinical outcomes in Ghanaian healthcare settings. Public health officials should prioritise methodological rigor and employ DID models for ongoing surveillance systems to ensure accurate assessment of intervention impacts. 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, Ghanaian, surveillance, methodology, evaluation, difference-in-differences, clinical outcomes*

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