African One Health (Human-Animal-Environment Interface - Medical/Vet focus)

Methodological Evaluation of Public Health Surveillance Systems in Ghana Using Difference-in-Differences Approach for Risk Reduction Measurement

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Abstract

Public health surveillance systems in Ghana are critical for detecting and controlling infectious diseases. However, their effectiveness remains under scrutiny. A Difference-in-Differences approach was employed to assess changes in disease reporting over time, comparing pre- and post-intervention periods. Data from two consecutive years were analysed. Significant reductions in the incidence of vector-borne diseases were observed compared to baseline levels ($p < 0.05$). The DiD model effectively highlighted improvements in surveillance systems, with substantial risk reduction attributed to enhanced reporting mechanisms. Continued investment is recommended for robust data collection and systematic review of public health interventions. Public Health Surveillance, Difference-in-Differences, Risk Reduction, Vector-Borne Diseases, Ghana 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, surveillance, impact evaluation, econometric, randomized, intervention, spatial analysis*

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