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Methodological Evaluation of Public Health Surveillance Systems in Ethiopia: A Randomized Field Trial for Measuring Clinical Outcomes

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Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and guiding interventions in resource-limited settings like Ethiopia. A cluster-randomized design was employed to assess the performance of surveillance networks across different regions. Key measures included sensitivity and specificity for case detection. The cluster-based model showed an overall sensitivity rate of 85% with a confidence interval of 79-91%, indicating moderate precision in identifying ILI cases within the study area. The randomized field trial demonstrated the feasibility and effectiveness of using public health surveillance systems for clinical outcome measurement in Ethiopia, particularly for detecting influenza-like illnesses. Further validation studies are recommended to expand the applicability of these findings across diverse disease types and settings. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Geographic Information Systems (GIS), Cluster Randomization, Outcome Assessment, Surveillance Systems, Public Health Metrics, Data Collection Methods*

ABSTRACT-ONLY PUBLICATION

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