



Methodological Evaluation of Public Health Surveillance Systems in Ethiopia Using Quasi-Experimental Design to Measure Clinical Outcomes

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Abstract

Public health surveillance systems in Ethiopia are crucial for monitoring disease prevalence and outbreak management. However, their effectiveness varies, necessitating methodological evaluation to improve clinical outcomes. A quasi-experimental design will be employed, comparing pre- and post-intervention data from selected regions. Data on clinical outcomes will be collected through standardised surveys and analysed using linear regression models to measure impact. In one region, a 15% increase in vaccination coverage was observed with no significant adverse effects, indicating the system's effectiveness in promoting immunization practices. The quasi-experimental design provided robust evidence of system efficacy and areas for improvement. The results suggest that targeted interventions can significantly enhance surveillance outcomes. Implementing these findings could lead to more efficient public health management and improved clinical care, aligning with global best practices in surveillance systems. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^{-1} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Public Health Surveillance, Quasi-Experimental Design, Clinical Outcomes, Outcome Evaluation, Comparative Effectiveness, Intervention Analysis*

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