African Hepatobiliary Surgery

Methodological Evaluation of Public Health Surveillance Systems in Ethiopia: A Randomized Field Trial for Cost-Effectiveness Measurement

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Abstract

Public health surveillance systems in Ethiopia are essential for monitoring diseases such as hepatitis B (HBV). However, their effectiveness and cost-effectiveness need rigorous evaluation. A randomized field trial was conducted across different regions in Ethiopia, with 100 healthcare facilities participating. Data collection focused on HBV incidence rates and costs associated with surveillance activities. Statistical analyses used a mixed-effects regression model to estimate the impact of surveillance systems on HBV prevalence and cost-effectiveness. The randomized field trial revealed that the public health surveillance system was effective in reducing HBV incidence by 25% compared to baseline data, indicating its potential for improving disease management. Cost analysis showed a marginal decrease in total healthcare costs with the new system, suggesting improved efficiency without compromising efficacy. This study provides valuable insights into the operational and cost-effectiveness of public health surveillance systems in Ethiopia, offering evidence-based recommendations for policy makers. Policy makers should consider implementing or upgrading their existing surveillance systems based on this study's findings to enhance disease management and reduce overall healthcare costs. Public Health Surveillance Systems, Cost-Effectiveness, HBV Incidence Reduction, Mixed-Effects Regression Model Treatment effect was estimated with $text{logit}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Ethiopia, Geographic Information Systems (GIS), Health Informatics, Data Quality Assessment, Cost-Benefit Analysis, Cluster Randomization, Surveillance System Evaluation*

ABSTRACT-ONLY PUBLICATION

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