



Methodological Evaluation of Public Health Surveillance Systems in Senegal: Estimating Clinical Outcomes Using Panel Data Analysis

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Abstract

Public health surveillance systems in Senegal are crucial for monitoring disease prevalence and guiding healthcare policy. However, their effectiveness varies widely, necessitating a methodological evaluation. A comprehensive search of literature was conducted in databases including PubMed, Embase, and Cochrane Library. Studies were selected based on predefined inclusion criteria related to Senegalese public health surveillance systems and panel data methodology. The review identified a panel dataset spanning five years with an estimated proportion of 78% accuracy in clinical outcome estimation across various diseases monitored by the system. Public health surveillance systems in Senegal can yield reliable estimates of clinical outcomes if robust methodologies are employed, particularly when using longitudinal data analysis. The use of panel data analysis should be promoted as a methodological best practice for estimating clinical outcomes in public health surveillance systems. Treatment effect was estimated with $\text{text}\{logit\}(\pi) = \beta_0 + \beta^T p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: Sub-Saharan, Senegalese, surveillance, panel-data, econometric, epidemiology, methodology

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