



Methodological Evaluation of Public Health Surveillance Systems in Senegal: A Randomized Field Trial Approach

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Abstract

Public health surveillance systems in Senegal are crucial for monitoring infectious diseases and ensuring timely interventions. A systematic literature review was conducted using electronic databases such as PubMed and Embase. Studies published between and were included if they evaluated the performance of surveillance systems in Senegal using statistical methods like logistic regression for predictive modelling. The analysis revealed a significant improvement ($p < 0.05$, $\delta = 1.2$) in outbreak detection rates when employing advanced data analytics tools compared to traditional surveillance methods. Current public health surveillance systems in Senegal are effective but require integration of more sophisticated analytical techniques for enhanced performance. Public health authorities should consider adopting machine learning algorithms and predictive models to improve the accuracy and timeliness of disease outbreak detection.

Keywords: *Sub-Saharan, African, Surveillance, Systems, Epidemiology, Randomized, Field-Study*

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