



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

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Abstract

Public health surveillance systems are essential for monitoring disease trends and implementing effective interventions in Senegal. A systematic literature review was conducted using a randomized field trial approach to assess system performance and identify areas for enhancement. The analysis revealed that current surveillance systems have a moderate yield improvement (72% effective) with room for increased specificity and sensitivity through targeted interventions. This study provides actionable recommendations for enhancing the efficiency of public health surveillance in Senegal. Implementing a structured training programme for data analysts is recommended to improve system accuracy, while expanding coverage areas can further increase yield effectiveness. Treatment effect was estimated with $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: African, Geographic, Surveillance, Methodology, Randomization, Evaluation, Field Trials

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