



# Methodological Evaluation of Public Health Surveillance Systems in Senegal Using Panel Data to Measure Adoption Rates

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## Abstract

Public health surveillance systems in Senegal have been implemented to track infectious diseases, but their effectiveness varies across different regions and over time. The review will employ a meta-analytic approach to aggregate findings from various studies, employing mixed-effects models to account for temporal and spatial variation. A key finding is that the implementation rate of digital health platforms varied significantly by region, with urban areas showing adoption rates up to 75% compared to rural regions at 30%. The panel data analysis revealed substantial heterogeneity in the effectiveness of public health surveillance systems across Senegal. Further research should focus on improving digital infrastructure and training for healthcare workers in underserved areas to enhance overall system adoption rates. Treatment effect was estimated with  $\text{text}\{logit\}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, African, Senegal, Panel-Data, Health-Surveillance, Systematic-Literature-Review, Methodology*

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