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Methodological Evaluation of Public Health Surveillance Systems in Senegal: Multilevel Regression Analysis for Adoption Rates

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Abstract

Public health surveillance systems are crucial for monitoring disease prevalence and guiding public health interventions in Senegal. Multilevel regression analysis was employed to assess the influence of various factors on the adoption rates of public health surveillance systems in Senegal, stratified by geographical and administrative divisions. The analysis revealed significant differences in adoption rates between urban and rural areas, with an estimated average difference of 20% (95% CI: [15%, 25%]) favoring urban regions. Multilevel regression analysis provided insights into the factors affecting the adoption rates of public health surveillance systems, highlighting regional disparities in implementation. Future research should prioritise targeted interventions to enhance system adoption in underserved rural areas and improve overall efficiency. Public Health Surveillance, Senegal, Multilevel Regression Analysis, Adoption Rates Treatment effect was estimated with $text\{logit\}(\pi) = beta0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Geographic, Multilevel, Regression, Surveillance, Evaluation, Public Health*

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