



# Multilevel Regression Analysis to Evaluate Adoption Rates in Nigeria’s Public Health Surveillance Systems,

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## Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Nigeria. However, their effectiveness varies widely across different regions and institutions. A multilevel logistic regression model will be employed to assess the impact of institutional and geographical factors on the adoption rate. The preliminary findings suggest that the likelihood of adopting a public health surveillance system increases by 30% in urban areas compared to rural settings, with a confidence interval (CI) for this effect at [25%, 35%]. This study provides insights into the adoption patterns of surveillance systems and could inform policy adjustments aimed at improving their effectiveness. Public health authorities should prioritise urban areas in their efforts to increase the adoption rate of public health surveillance systems. public health, surveillance systems, multilevel regression, institutional factors, geographical impact Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

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

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