African Pediatrics Research

Methodological Evaluation of Public Health Surveillance Systems in Uganda Using Multilevel Regression Analysis for Clinical Outcomes Assessment

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Abstract

Public health surveillance systems in Uganda play a crucial role in monitoring and addressing clinical outcomes across various diseases. Multilevel regression analysis was employed to assess the impact of public health surveillance systems on clinical outcomes in Uganda. This approach allows for the examination of both individual and contextual factors influencing health outcomes. The multilevel model revealed significant variability in clinical outcomes across different healthcare facilities, with a 15% difference in recovery rates between high- and low-resource settings. The findings suggest that public health surveillance systems in Uganda need improvement to ensure equitable access to quality care. Enhanced training for surveillance staff and investment in infrastructure are recommended to improve system performance. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \beta^{\rightarrow} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Sub-Saharan, Public Health, Surveillance Systems, Multilevel Models, Regression Analysis, Clinical Outcomes, Epidemiology*

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