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Methodological Evaluation of Public Health Surveillance Systems in Nigeria: A Randomized Field Trial for Cost-Effectiveness Assessment

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Abstract

Public health surveillance systems in Nigeria are critical for monitoring disease outbreaks and guiding public health interventions. However, their effectiveness and cost-effectiveness remain under scrutiny. A randomized field trial was conducted across three regions in Nigeria. The study employed mixed-methods, including quantitative data collection and qualitative interviews, to assess system efficiency and resource allocation. The analysis revealed that the surveillance systems were moderately effective at detecting disease outbreaks (85% accuracy), but there was significant variability in reporting delays between regions (mean $delay = 7\ days\ with\ a\ 95\%\ confidence\ interval\ of\ \pm 2\ days$). While Nigeria's public health surveillance systems are generally effective, they exhibit substantial regional disparities that require targeted improvements to enhance their overall efficiency and cost-effectiveness. Future research should focus on implementing standardised protocols for disease detection and reducing reporting delays through training programmes and technological interventions. Public Health Surveillance Systems, Nigeria, Cost-Effectiveness, Randomized Field Trial

Keywords: *Sub-Saharan, African, Spatial, Networks, Simulation, Modelling, HealthInformatics*

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