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Methodological Evaluation of Public Health Surveillance Systems in Tanzania: Quasi-Experimental Design for System Reliability Assessment

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Abstract

Public health surveillance systems are crucial for monitoring infectious diseases in Tanzania. However, their reliability and effectiveness need rigorous evaluation. A mixed-method approach combining quantitative analysis with qualitative interviews was employed to assess system performance. The quasi-experimental design revealed that the average response time for reporting suspected cases was reduced by 15% compared to baseline data, indicating improved system efficiency. This study provides evidence of a significant improvement in public health surveillance systems' reliability in Tanzania. Further systematic evaluations and continuous training are recommended to sustain these improvements. public health surveillance, quasi-experimental design, reliability assessment, infectious diseases Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta} p X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *Tanzania, Geographic Information Systems (GIS), Quasi-experimental design, Data quality assurance, Public health metrics, Surveillance networks, Validation studies*

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