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Methodological Evaluation of Public Health Surveillance Systems in Kenya: A Randomized Field Trial on System Reliability

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Abstract

Public health surveillance systems in Kenya are crucial for monitoring infectious diseases such as malaria and tuberculosis. A systematic literature review was conducted to analyse existing surveillance data from Kenya. The study employed statistical models to assess system reliability across different scenarios. The analysis revealed that the average response time for public health alerts was within ±15% of the expected value, suggesting a robust system performance under test conditions. The findings indicate that while the surveillance systems are generally reliable, there is room for improvement in certain areas to enhance their efficiency and accuracy. Specific recommendations include optimising data collection protocols and enhancing training programmes for health workers to reduce response time variability. Treatment effect was estimated with $text\{logit\}(\pi) = beta 0 + \vec{\beta}\ p\ X_i$, and uncertainty reported using confidence-interval based inference.

Keywords: *African public health, surveillance systems, methodological evaluation, randomized trials, system reliability, malaria monitoring, tuberculosis surveillance*

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