



# Methodological Evaluation of Public Health Surveillance Systems in Tanzania: A Randomized Field Trial Approach

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## Abstract

Public health surveillance systems are crucial for monitoring disease outbreaks in developing countries like Tanzania, where healthcare infrastructure can be limited. A systematic review and meta-analysis approach were employed to analyse data from multiple studies conducted across different regions of Tanzania, focusing on the implementation and impact of public health surveillance systems. Randomized field trials were designed to measure system performance under controlled conditions, with a sample size of 100 healthcare facilities randomly selected. The randomized field trial revealed that adoption rates varied significantly between urban and rural areas (85% in urban vs. 60% in rural regions), highlighting the need for tailored strategies to ensure equitable coverage across different geographical settings. This study provides evidence on the effectiveness of public health surveillance systems in Tanzania, with specific insights into adoption rates by region. Based on the findings, recommendations include increasing training and resources for healthcare providers in rural areas to enhance system adoption and improving data sharing protocols between different regions. Treatment effect was estimated with  $\text{text} \{ \text{logit} \} (\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan, Randomized Control, Surveillance, Evaluation, Public Health, Community-Based, Epidemiology*

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