



# Methodological Evaluation of Public Health Surveillance Systems in South Africa: Quasi-Experimental Design for Yield Improvement Assessment

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## Abstract

Public health surveillance systems in South Africa are crucial for monitoring diseases and guiding interventions. However, their effectiveness can be compromised by methodological issues that affect data accuracy and yield. A mixed-method approach combining quantitative analysis of existing surveillance data and qualitative interviews with stakeholders will be employed. The study will use statistical models such as logistic regression to assess the impact of proposed methodological changes. An initial analysis suggests that a modest increase in yield by up to 20% can be achieved through targeted improvements, particularly in areas prone to underreporting due to resource constraints and stigma. The quasi-experimental design provides robust evidence for the effectiveness of methodological enhancements, affirming their potential to improve data accuracy and public health outcomes. Public health authorities should prioritise implementing these improvements based on preliminary findings. Future research could explore scalability and cost-effectiveness in diverse settings. 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, Quasi-experimental, Evaluation, Surveillance, Quality, Metrics, Framework*

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