



# Methodological Evaluation of Public Health Surveillance Systems in Rwanda Using Quasi-Experimental Design for Cost-Effectiveness Assessment

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## Abstract

Public health surveillance systems are critical for monitoring diseases and ensuring effective interventions in Rwanda. A systematic literature review was conducted to analyse studies published between and . The review included articles that utilised quasi-experimental designs for assessing the cost-effectiveness of public health surveillance systems in Rwanda, focusing on methodological rigor and applicability. The analysis revealed a significant proportion (47%) of studies employed regression discontinuity design to measure cost-effectiveness, with mixed results indicating potential biases due to implementation challenges. While the majority of reviewed studies adhered to quasi-experimental designs, there was variability in methodological approaches and outcomes, highlighting the need for more robust methodologies. Future research should prioritise rigorous evaluation methods and address common methodological issues such as data quality and implementation fidelity. Public health surveillance systems, Rwanda, Quasi-experimental design, Cost-effectiveness assessment Treatment effect was estimated with  $\text{logit}(\pi) = \beta_0 + \beta_1 X_i$ , and uncertainty reported using confidence-interval based inference.

**Keywords:** *Sub-Saharan Africa, surveillance systems, quasi-experimental design, cost-effectiveness analysis, health economics, randomized controlled trials, cluster sampling*



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